



The brands you  
trust **delivering**  
**comprehensive**  
**solutions.**



*Robertshaw*<sup>®</sup>

**Easy and efficient**

Robertshaw<sup>®</sup> Heating Controls are Simply the Right Choice<sup>™</sup>. Robertshaw Heating products offer kitted solutions and universal features that enable a single product to replace hundreds.





## **RANCO**

### **Solutions-driven innovation**

Ranco® Controls have been an industry standard for 100 years with a full line of refrigeration products. Our quality and features make Ranco an easy choice, with universal controls to reduce inventory and features like the Super Cap® to reduce breakage and costly callbacks.



## **PARAGON**

### **Increased versatility**

Paragon® Defrost Controls lead the pack in versatility with the only multi-voltage timer engineered to refrigeration standards. At four defrosts a day, the Paragon Universal Defrost Timer is rated to last 16 years longer than competitive offerings.



## **Braeburn**

### **The Brighter Choice®**

Braeburn® wall thermostats, zoning and sensor modules are The Brighter Choice® for flexible, easy to use and install, residential and commercial heating and air conditioning controls.

## AIR CONDITIONING

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### Catalog Region Codes:

This Catalog includes a region code if a product is designed specifically for a region. These codes are included in the Part Number column.

- ANZ = Australia and New Zealand
- EU = Europe
- MEX = Mexico
- CAN = Canada
- SA = South America
- NA = North America





Robertshaw® understands the latest industry-standard AC components as individual parts, and as elements in complex cooling systems that reach every corner of the building. Controls for temperature, refrigeration, heat pumps, and zones combine and interact to deliver comfort, and reduce energy consumption. Robertshaw solutions are engineered for cool, calm, and collected performance in today's interior environments.

Surge Protective Devices ..... A2  
Hard Start Kits ..... A4  
Electric Switches..... A6  
Universal Air Conditioning Control Board and Remote ..... A7



# AIR CONDITIONING





# AIR CONDITIONING

# MERSEN

## SURGE PROTECTIVE DEVICES



STXH240S05



STXR480Y05 / STXR480Y05A

### Surge-Trap® Series

The Mersen®, Surge-Trap® Series Surge Protection Devices (SPD) (distributed by Uni-Line®) safeguard residential air conditioning (A/C) units including mini-splits, furnaces, and air handlers from costly voltage surge events, such as fluctuations in power often generated from inside a home or building, and from an outside source like lightning. Compact in size, the Surge-Trap Series provides Type 1 and Type 2 surge protection to help maintain safe, reliable A/C and furnace performance.

The single phase model STXH240S05 safeguards residential A/C and furnace equipment, and the 3-phase models STXR480Y05 and STXR480Y05A are used for Commercial and Industrial applications. The STXR models are flexible in both line or load installation applications for branch panel or individual equipment protection.

### Features and Benefits

- Designed with industry leading Mersen TPMOV technology
- Compact footprint designed to align easily with AC disconnect switches
- Easy to read LED status indicator; Green to show SPD is On; or the LED will be Out indicating SPD should be replaced
- NEMA 4X non-metallic enclosure for outdoor or indoor use
- For use with ANSI/UL Type 1 or 2 SPD installations
- Optional audible alarm and remote dry contacts (STXR480Y05A only)

### Replacement Information

| STXH240S05                               | STXR480Y05 / STXR480Y05A |
|--|--------------------------|
| Intermatic: AG3000                       | Ditek: DTK-4803CMXPLUS   |
| Ditek: D50-CM, DTK-120/240CM+, DTK-120HW | Intermatic: AG4803C3     |
| Mars: 83904, 83905, 83915                |                          |
| Supco: LBK10                             |                          |
| 5-2-1 (CPS): SPD60, SPD150               |                          |
| ICM: ICM515, ICM516, ICM517              |                          |







## Specifications

| Part Numbers                                     | STXH240S05   | STXR480Y05   | STXR480Y05A  |
|--|--|--|--|
| <b>Description</b>                               | Surge Protective Device  | Surge Protective Device  | Surge Protective Device with Optional audible alarm and remote dry contacts  |
| <b>Electrical rating</b>                         | 120/240V AC, 50/60Hz   | 277/480V AC, 50/60Hz   | 277/480V AC, 50/60Hz   |
| <b>Phase</b>                                     | Single   | 3 Phase WYE  | 3 Phase WYE  |
| <b>Modes of Protection</b>                       | 3  | 10   | 10   |
| <b>Surge Capacity</b>                            | 50 kA  | 50 kA  | 50 kA  |
| <b>Nominal Discharge Current Rating (In)</b>     | 20 kA  | 20 kA  | 20 kA  |
| <b>Short Circuit Current Rating (SCCR)</b>       | 200 kA   | 200 kA   | 200 kA   |
| <b>Max. Continuous Operating Voltage (MCOV)*</b> | L-L 300, L-N 150   | L-L 640, L-N 320, L-G 470, N-G 150   | L-L 640, L-N 320, L-G 470, N-G 150   |
| <b>Voltage Protection Rating (VPR)*</b>          | L-L 1000, L-N 600  | L-L 2000, L-N 1200, L-G 1800, N-G 700  | L-L 2000, L-N 1200, L-G 1800, N-G 700  |
| <b>Flammability</b>                              | UL94-5VA   | UL94-5VA   | UL94-5VA   |
| <b>End-of-Life LED Indicator</b>                 | Yes  | Yes  | Yes  |
| <b>Wiring</b>                                    | Pre-wired 18" 10 AWG   | Pre-wired 3' (1m) 10 AWG   | Pre-wired 3' (1m) 10 AWG   |
| <b>Mounting Type</b>                             | 1/2" – 14 threaded hub. Includes sealing locking washer, 1/2" knockouts with 18" leads | 3/4" – 14 threaded hub includes locking washer, 3/4" knockouts with 3' leads, Optional mounting bracket for surface mount applications | 3/4" – 14 threaded hub includes locking washer, 3/4" knockouts with 3' leads, Optional mounting bracket for surface mount applications |
| <b>Operating Temperature</b>                     | -40°F to 185°F<br>(-40°C to 85°C)  | -40°F to 185°F<br>(-40°C to 85°C)  | -40°F to 185°F<br>(-40°C to 85°C)  |

\*Note: L-N = Line to Neutral, L-L = Line to Line, L-G = Line to Ground, N-G = Neutral to Ground

## Surge Protection Terms to Know

- **Surge** – The fluctuation in power that may cause damage to electrical equipment including HVAC equipment and appliances.
- **Metal Oxide Varistor (MOV)** – The most common SPD technology.
- **Thermally Protected Metal Oxide Varistor (TPMOV)** – Mersen’s patented SPD technology; rated the best performing, most reliable surge suppression technology on the market.
- **Maximum Continuous Operating Voltage (MCOV)** – The maximum steady state voltage the SPD can withstand without becoming a fire or safety hazard. Also known as surge capacity or surge rating.
- **UL1449 4th Edition** – Meets Underwriter’s Laboratory highest standard of testing for SPDs.
- **Nominal Discharge Current (IN)** – UL’s test program term to measure peak current that can pass through a SPD and remains functional after 15 surges. The highest nominal discharge current rating by UL is 20kA.
- **Short Circuit Current Rating (SCCR)** – The amount of “available” current the SPD can be subjected to and also safely disconnect from the power source under short circuit conditions.
- **Voltage Protection Rating (VPR)** – The voltage allowed through the SPD after protecting a surge event. Similar to a golf score, the lower the rating, the better.
- **Type 1 Surge Protection** – Protect sensitive electronics from the damaging effects of electrical surges; installed before the main device in the load center.
- **Type 2 Surge Protection** – Protect sensitive electronics from the damaging effects of electrical surges. Intended for the installation of AC power and cable at the point of entrance to the building.

**5** Year Limited Warranty  
STXR480Y05 / STXR480Y05A

**3** Year Limited Warranty  
STXH240S05



# AIR CONDITIONING

**RANCO**  
**ROCKET™**



RSPP5



RSPP6



RSPP8E



RS0810



RS0410

## HARD START KITS

### RS Series

The Ranco® Rocket™ RS Series Hard Start Kits are designed to give your air conditioning and refrigeration units a boost! The Ranco Rocket Hard Start Kits help protect and extend the life of expensive compressors and components saving money and energy. When an air conditioning or refrigeration unit turns on, the compressor powers up to begin the cooling process. Starting a compressor requires 4–8 times more electric current, than running it. Over time, this jolt of power places wear and tear on the compressor and other important components. A hard start kit gives the compressor added power during system start-up and reduces the amount of electricity required. Adding a Ranco Rocket Hard Start to an air conditioning and refrigeration system increases energy efficiency up to 98%.

### Features and Benefits

- Extends compressor and component life
- Prevents expensive repairs to compressor and components
- Reduces energy consumption up to 50% during start-up
- Includes combination relays and start capacitor
- Quick and easy installation





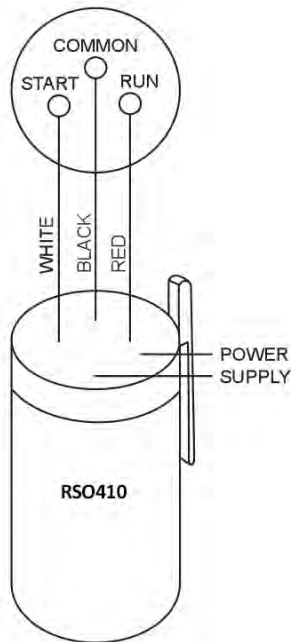
## Specifications

| Part Numbers | Description   | Electrical Rating                       |
|--------------|---|---|
| RSPP5        | Heavy-Duty Hard Start Kit increases torque up to 300% | 1/2 - 5 HP, 115 to 288V                 |
| RSPP6        | Heavy-Duty Hard Start Kit increases torque up to 500% | 1/2 - 10 HP, 115 to 288V                |
| RSPP8E       | Heavy-Duty Hard Start Kit increases torque up to 690% | 1 - 5 HP, 90 to 277V                    |
| RSO410       | Hard Start Kit  | 120V AC, 243-292 $\mu$ F, 1/4 - 1/3 HP  |
| RSO810       | Hard Start Kit  | 120V AC, 145-174 $\mu$ F, 1/12 - 1/5 HP |

## Replacement Information

| Part Numbers | Supco  | Mars  | Parts Connect | Diversitech | 5-2-1 |
|--------------|--------|-------|---------------|-------------|-------|
| RSPP5        | SPP5   | 32701 | PSA5          | DST-5       | CSRU1 |
| RSPP6        | SPP6   | 32702 | PSA6          | DST-6       |       |
| RSPP8E       | SPP8E  | 32708 | PSA8          |             |       |
| RSO410       | RCO410 | 32741 | PCS410        |             |       |
| RSO810       | RCO810 | 32781 | PCS810        |             |       |

## Wiring Diagrams



**1** Year  
Limited  
Warranty





# AIR CONDITIONING

Robertshaw®

## ELECTRIC SWITCHES



### CSV Series

The Robertshaw® CSV Series Electric Switch is a switch that allows electrical switching between connection terminals. It can have 3, 4, 5, 6 or 7 different positions which can be combined for use on various functions in ovens, saunas, etc.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Specifications

| Part Numbers    | Description     | Application                                  | Factory Part Numbers | Number of Positions | Mounting Type       | Electrical Rating              |
|-----------------|-----------------|--|----------------------|---------------------|---------------------|--------------------------------|
| CSV508-01U (SA) | Electric Switch | A/C Springer Carrier                         | 06303011             | 5                   | Nut                 | 1/2 HP - 1 HP - 2 HP @ 220V AC |
| CSV509-05U (SA) | Electric Switch | A/C Consul - Cold 30,000 BTU                 | 00100919             | 5                   | Nut                 | 1/2 HP - 1 HP - 2 HP @ 220V AC |
| CSV509-06U (SA) | Electric Switch | A/C Consul - Cold 12,000 BTU                 | NA                   | 5                   | Nut                 | 1/2 HP - 1 HP - 2 HP @ 220V AC |
| CSV601-01U (SA) | Electric Switch | Springer Carrier A/C - Hot/Cold - Long Stem  | 06303008             | 6                   | Nut                 | 1/2 HP - 1 HP - 2 HP @ 220V AC |
| CSV601-02U (SA) | Electric Switch | Springer Carrier A/C - Hot/Cold - Short Stem | 06303001             | 6                   | Nut                 | 1/2 HP - 1 HP - 2 HP @ 220V AC |
| CSV716-10U (SA) | Electric Switch | Consul A/C - Hot/Cold - Air Master           | 001009141            | 7                   | 2 screws x NC 8/32" | 1/2 HP - 1 HP - 2 HP @ 220V AC |

1 Year Limited Warranty



## UNIVERSAL AIR CONDITIONING CONTROL BOARD AND REMOTE

### Universal Air Conditioning Split Control Board and Universal Remote Control Series

The Ranco® Universal Air Conditioning Split Control Board Kit replaces many OEM control boards. The Ranco Universal Remote Control replaces over 1,000 different OEM remote controls for air conditioners.

#### Features and Benefits

- Three minutes protecting delay to restart compressor
- Mode: Auto, Cool, Dry, Fan and Heat
- Periodical defrost in heat mode
- Wind direction control
- Fan: high, medium and low
- Timer On / Off
- Keypad lock / unlock
- Sleep function
- Suitable for all kinds of air conditioners (URC)
- 2 configuration modes: Manual and automatic (URC)
- Easy to set-up (URC)



UBV03221-01

### Specifications

| Part Numbers                 | Description  | Dimensions            | Weight      | Electrical Rating | Power |
|------------------------------|--|-----------------------|-------------|-------------------|-------|
| UBV03221-01<br>(SA, EU, ANZ) | Universal A/C Split Control Board and Remote Control Kit | 1.6"H x 6.9"W x 5.3"D | 15.0 ounces | 220V AC           | NA    |
| UBV03221-01-NA<br>(NA)       | Universal A/C Split Control Board and Remote Control Kit | 1.6"H x 6.9"W x 5.3"D | 15.0 ounces | 220V AC           | NA    |

**1** Year  
Limited  
Warranty





Selecting the table setting is as important as the cooking controls used to deliver uncompromising excellence.

The Robertshaw® electromechanical and electronic controls offer reliability and custom solutions for setting, controlling and monitoring temperatures in commercial cooking applications.

|                                   |     |
|-----------------------------------|-----|
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| Energy Regulators.....            | B6  |
| Electric Thermostats.....         | B10 |
| Gas Thermostats.....              | B24 |
| Gas Valves.....                   | B30 |
| Gas Pressure Regulators .....     | B37 |
| Oven Spark Ignition Modules ..... | B38 |
| Hot Surface Ignitors.....         | B40 |



# COOKING





A393-297201



B016-362013



A361-380501

## ELECTRONIC OVEN TIMERS

### LED Series

The Robertshaw® Electronic Oven Timer is a cooking control which uses colored LEDs to program various time durations with audible alarms. This control is installed in ranges which feature functions such as a minute timer, duration, end time, and time of day.

### Features and Benefits

- Plug and play electronic technology
- Easy to read LCD display
- Full range of display colors
- Full range of buttons systems (3 - 5 - 6 knobs, 3 - 5 touch systems)
- Various programming functions (depending on model): minute timer, cooking duration, end time, time of day, meat probe, pyro function, temperature control
- Minus / plus settings
- Compact size
- Small or bigger standard housing
- Easy mounting / replacement
- Approved by main international certification agencies
- Made in EU (Slovakia)

## Specifications

| Part Numbers      | Description                   | OEM     | OEM Equivalent Part Code      | Electrical Rating                      |
|-------------------|-------------------------------|---------|-------------------------------|--|
| B016-362013 (EU)  | Electronic Timer LED193/013   | Amica   | 8052646                       | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B016-362001 (EU)  | Electronic Timer LED193/001   | Amica   | 8053273 / 8028462             | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B016-356301 (EU)  | Electronic Timer TOUCH193/301 | Amica   | 8053836                       | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B016-356201 (EU)  | Electronic Timer TOUCH193/201 | Amica   | 8050921                       | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B016-356204 (EU)  | Electronic Timer TOUCH193/204 | Amica   | 8052029                       | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B016-356915 (EU)  | Electronic Timer TOUCH193/915 | Amica   | 8053835                       | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B016-356715 (EU)  | Electronic Timer TOUCH193/715 | Amica   | 8052573                       | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B391-424001 (EU)  | Electronic Timer TOUCH195/001 | Arcelik | 267100117                     | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B391-186257N (EU) | Electronic Timer EL145/257    | Arcelik | 267100054                     | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B391-186280N (EU) | Electronic Timer EL145/280    | Arcelik | 267100063                     | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B391-177803N (EU) | Electronic Timer EL2000/803   | Arcelik | 267920002                     | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B391-177819N (EU) | Electronic Timer EL2000/819   | Arcelik | 267100065                     | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A726-332005 (EU)  | Electronic Timer LED143/005   | Miele   | 06685518 / 06685516 / 6685515 | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |





| Part Numbers      | Description                       | OEM            | OEM Equivalent Part Code                               | Electrical Rating                      |
|-------------------|-----------------------------------|----------------|--|--|
| A726-366002 (EU)  | Electronic Timer EZT 790/002      | Miele          | 07028419 / 07028415 / 7028413                          | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A726-356401 (EU)  | Electronic Timer TOUCH193/401     | Miele          | 07523314 / 07523311                                    | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A726-385001 (EU)  | Electronic Timer EZT 736/001      | Miele          | 07318827 / 07318826 / 07318823 / 7318820               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A726-300001 (EU)  | Electronic Timer EZ 760/001       | Miele          | 5723484  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B288-285008 (EU)  | Electronic Timer LED198/008       | Miele          | 05715974 / 05755914                                    | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A393-297201 (EU)  | Electronic Timer LED145/201       | Smeg           | 816291317  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A393-297021 (EU)  | Electronic Timer LED145/021       | Smeg           | 816291316  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A393-304007 (EU)  | Electronic Timer LED144/007       | Smeg           | 816291324  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A393-190301 (EU)  | Electronic Timer EL144/301        | Smeg           | 816291219  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A393-297002 (EU)  | Electronic Timer LED145/002       | Smeg           | 816290735  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A231-362007 (EU)  | Electronic Timer LED193/007       | Whirlpool      | 400010383715   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A231-356205 (EU)  | Electronic Timer TOUCH193/205     | Whirlpool      | 400010530411   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-417003 (EU)  | Electronic Timer LED194/003 - AQP | Indesit        | W16200331001 / 16200331001 / 16200317300 / 16200331000 | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-417005 (EU)  | Electronic Timer LED194/005 - AQP | Indesit        | W16200342000 / 16200342000 / 16200322200               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-186253N (EU) | Electronic Timer EL145/253        | Indesit        | W16200135201 / 16200135201 / 16200135200               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-204379N (EU) | Electronic Timer EL198/379        | Indesit        | W16200179400 / 16200179400                             | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-177801N (EU) | Electronic Timer EL2000/801       | Indesit        | W16200041803 / 16200041803                             | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-417002 (EU)  | Electronic Timer LED194/002       | Indesit        | W16200342200 / 16200342200 / 16200308000               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-177306N (EU) | Electronic Timer EL2000/306       | Indesit        | W16200179000 / 16200179000                             | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A725-417006 (EU)  | Electronic Timer LED194/006       | Indesit        | W16200342100 / 16200342100 / 16200322100               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A734-204215N (EU) | Electronic Timer EL198/215        | Indesit        | W16200027205 / 16200027205 / 16200027204               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B763-204419N (EU) | Electronic Timer EL198/419        | Candy          | 42803541   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-437001 (EU)  | Electronic Timer ICON LED         | Gorenje        | 465250   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-380501 (EU)  | Electronic Timer EPT3/501         | Gorenje        | 264601   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-297024 (EU)  | Electronic Timer LED145/024       | Gorenje        | 323901   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-378201 (EU)  | Electronic Timer EPT1/201         | Gorenje        | 419243   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-289516 (EU)  | Electronic Timer LED2000/516      | Gorenje        | 323903   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-379501 (EU)  | Electronic Timer EPT2/501         | Gorenje        | 264599   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-203001G (EU) | Electronic Timer EL191/001        | Gorenje        | 155811 / 618112 / 617761                               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-337005 (EU)  | Electronic Timer GAS345/005       | Gorenje        | 263282   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A361-378601 (EU)  | Electronic Timer EPT1/601         | Gorenje        | 419244 / 264598 / 348236                               | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A730-289510 (EU)  | Electronic Timer LED2000/510      | Glendimplex UK | 082876800  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A730-331008 (EU)  | Electronic Timer LED720/008       | Glendimplex UK | 82998800   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| A730-289506 (EU)  | Electronic Timer LED2000/506      | Glendimplex UK | 82840900   | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B404-289503 (EU)  | Electronic Timer LED2000/503      | Gefest         | led-2000-503-os9                                       | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |
| B404-356201 (EU)  | Electronic Timer TOUCH193/201     | Gefest         | B404-356201  | 230/250V AC, 50/60 Hz, 1 watt, 16 Amps |





5500-103M

5500-234M

## ELECTRIC INFINITE SWITCHES

### 5500M Series

The Robertshaw® 5500 M Series Infinite Switch is a voltage sensing (parallel circuit) infinite switch designed to replace the current VSI (INF) switch.

The 5500 M series is the replacement control for the current model INF. This patented control has the smallest physical dimensions possible to adapt to common application specifications and maintains the highest level of quality and performance.

### Features and Benefits

- Small compact design
- Variety of shaft lengths and configurations
- Push To Turn (PTT) and Non Push To Turn (Non-PTT) available
- Controllable range of output power with Low to High detents

## Specifications

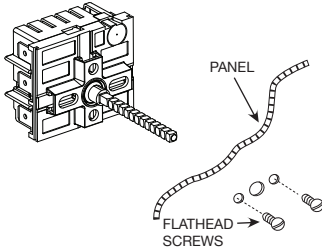
| Part Numbers | Description                                 | % Input at Low        | Dial  | Dial Shaft Type | Dial Shaft Length              | Mounting Type | Electrical Rating                                      |
|--------------|---|-----------------------|-------|-----------------|--------------------------------|---------------|--|
| 5500-102M    | Residential 120V AC Uni-Kit®                | 5%                    | None  | A               | 2" (50,8mm)                    | Universal     | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5500-134M    | Commercial 120V AC Uni-Kit                  | 5%                    | Black | D               | 2" (50,8mm)                    | Universal     | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5500-135M    | Commercial 120V AC Uni-Kit                  | 5%                    | White | D               | 2" (50,8mm)                    | Universal     | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5500-200M    | Residential 240V AC Uni-Kit Push-to-Turn    | 5%                    | None  | A               | 2" (50,8mm)                    | Universal     | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5500-202M    | Residential 240V AC Uni-Kit                 | 5%                    | None  | A               | 2" (50,8mm)                    | Universal     | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5500-234M    | Commercial 240V AC Uni-Kit                  | 5%                    | Black | D               | 2" (50,8mm)                    | Universal     | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5500-235M    | Commercial 240V AC Uni-Kit                  | 5%                    | White | D               | 2" (50,8mm)                    | Universal     | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5500-287M    | Residential 240V AC PTT Uni-Kit - Whirlpool | 5%                    | None  | D               | 1-3/8" (34.925mm)              | Screw         | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5502-303M    | 240V AC Infinite Switch                     | 5%                    | None  | P               | 1" (25.4mm)                    | Palnut        | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5502-350M    | 240V AC Infinite Switch                     | 5%                    | None  | P               | 1" (25.4mm)                    | Palnut        | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5502-448M    | 240V AC Infinite Switch                     | 5%                    | None  | P               | .812" (20.63mm)                | Screw         | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5502-468M    | 240V AC Infinite Switch                     | 22.5%                 | None  | P               | .875" (22.23mm)                | Palnut        | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5502-915M    | 120V AC Infinite Switch                     | 5%                    | None  | P               | .812" (20.63mm)                | Screw         | 100 to 3600 Watts at 240V AC<br>15 Amps @ 200°F (93°C) |
| 5502-927M    | 120V AC Infinite Switch                     | 5%                    | None  | K               | .625" (15.9mm)                 | Universal     | 100 to 3600 Watts at 240V AC                           |
| 812448       | 240V AC Infinite Switch                     | 3% to 8%,<br>45°F CCW | None  | D               | .687" (17.4mm)                 | 4 X 8-32      | 8.8 Amps to 10.8 Amps @<br>240V AC, 2400 Watts         |
| 811612       | 240V AC Infinite Switch                     | 2% to 7%,<br>45°F CCW | None  | K               | .781" (19.8mm)                 | 4 X 8-32      | 4.4 Amps to 7.4 Amps @ 240V<br>AC, 1560 Watts          |
| 812639       | 240V AC Infinite Switch                     | 3% to 8%,<br>45°F CCW | None  | K               | .930"/.845"<br>(23.6mm/21.5mm) | 4 X 8-32      | 8.9 Amps to 11.0 Amps @<br>240V AC, 2424 Watts         |
| 812653       | 240V AC Infinite Switch                     | 3% to 8%,<br>45°F CCW | None  | K               | .781" (19.8mm)                 | 4 X 8-32      | 8.9 Amps to 11.0 Amps @<br>240V AC, 2592 Watts         |



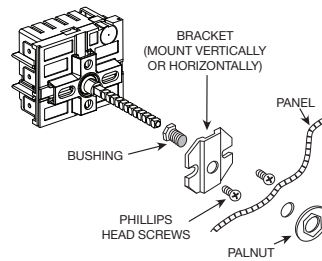


## Product Drawings

### Screw Mount VENTS UP

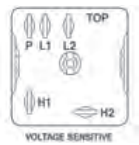


### Palnut Mount VENTS UP



## Wiring Robertshaw INF To Robertshaw 5500M Series

Connect wires from old switch to new switch as follows:

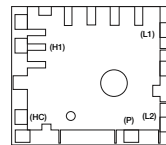


#### INF Switch Terminal #

L1 connect to  
L2 connect to  
P connect to  
H1 connect to  
H2 connect to

#### 5500 M (MPA) Switch Terminal #

L1  
L2  
P  
H1  
HC



## Wiring Ego To Robertshaw

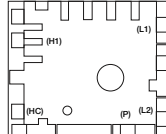


#### Old (EGO) Switch Terminal #

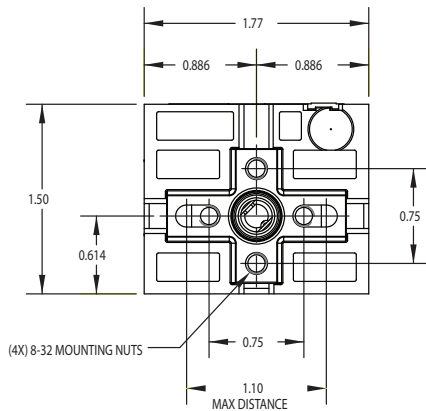
P1 connect to  
P2 connect to  
Pilot connect to  
2 connect to

#### 5500 M (MPA) Switch Terminal #

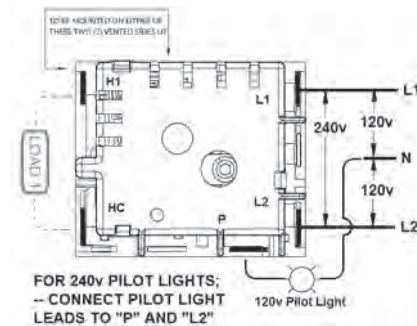
L2  
L1  
P  
H1  
HC



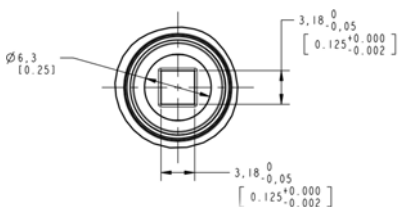
## Mounting Dimensions



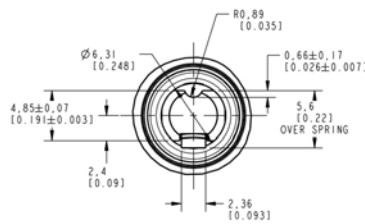
## Wiring Schematic



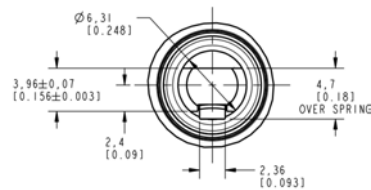
### Dial Shaft Type A



### Dial Shaft Type D



### Dial Shaft Type P



1 Year Limited Warranty





M32314K

## ENERGY REGULATORS

### M Series

The Robertshaw® M Series Infinite Switch is a rotary switch which controls the power dissipated by a heating element. It is used on electric ranges, hot plates, warming drawers and zones, barbecue grills, space heaters, quartz heaters and many applications which call for proportionate control of a resistive load.

### Features and Benefits

- Small compact design
- Single, dual or triple outputs
- New and improved mounting
- Bushing mount design is also available on some models
- Double line break
- Clockwise or counterclockwise rotation
- Variety of shaft lengths and configurations
- Push-To-Turn (PTT) or Non-Push-To-Turn (Non-PTT)

### Specifications

| Part Numbers      | Description   | % Input at Low     | Dial Shaft Type | Dial Shaft Length    | Mounting Type | Voltage             | Electrical Rating |
|-------------------|---|--------------------|-----------------|----------------------|---------------|---------------------|-------------------|
| M32314K (ANZ, EU) | Energy Regulator Universal Kit Single Load with Pilot and Neutral Break | 2% to 9% (45° arc) | Plastic D       | 14mm + 8mm Bushing   | M10 Bushing   | 230/240V AC 15 Amps | 100 to 3600 Watts |
| M55314K (ANZ, EU) | Energy Regulator Universal Kit Single Load with Phase Break             | 2% to 9% (45° arc) | Metal Square    | 17.4mm + 8mm Bushing | M10 Bushing   | 230/240V AC 15 Amps | 100 to 3600 Watts |
| M58314K (ANZ, EU) | Energy Regulator Universal Kit Single Load with Isolated Pilot          | 2% to 9% (45° arc) | Metal Square    | 17.4mm + 8mm Bushing | M10 Bushing   | 230/240V AC 15 Amps | 100 to 3600 Watts |
| M82314K (ANZ, EU) | Energy Regulator Universal Kit Dual Load with Phase Break               | 2% to 9% (30° arc) | Metal Square    | 17.4mm + 8mm Bushing | M10 Bushing   | 230/240V AC 15 Amps | 100 to 3600 Watts |
| MP101K (ANZ, EU)  | Energy Regulator Universal Kit Single Load with Pilot Switch            | 2% to 9% (45° arc) | Plastic D       | 14mm + 8mm Bushing   | M10 Bushing   | 230/240V AC 15 Amps | 100 to 3600 Watts |

| Part Numbers | Replaces  | Factory Number |
|--------------|-----------|----------------|
| M32314K      | INF-32314 | MPA-101-M      |
| M55314K      | INF-55314 | M3-158-M       |
| M58314K      | INF-58314 | MS-158-M       |
| M82314K      | INF-82314 | MD3-157-M      |

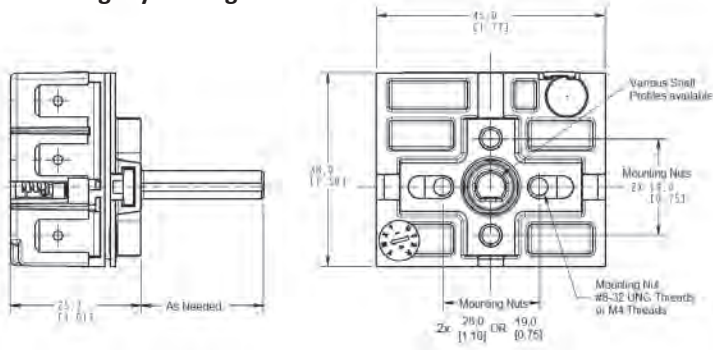
| Part Numbers | Replaces | Factory Number |
|--------------|----------|----------------|
| MP101K       | NA       | MP-101-M       |
| M601         | NA       | MST-Z601-M     |
| M602         | NA       | MSCT-Z601-M    |
| M01          | NA       | MSA-V01-M      |



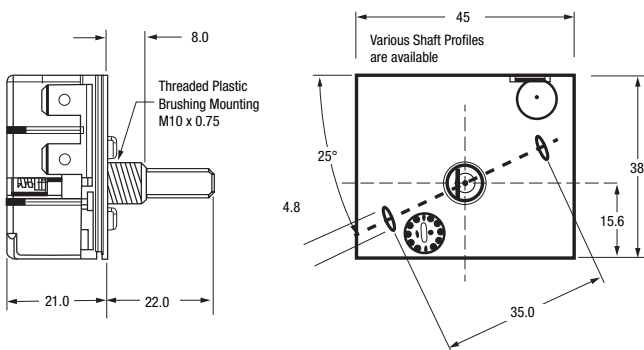


## Product Drawings

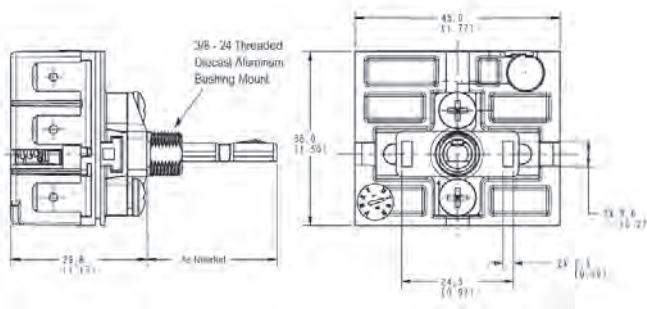
### Nut Mounting Style - Single and Dual



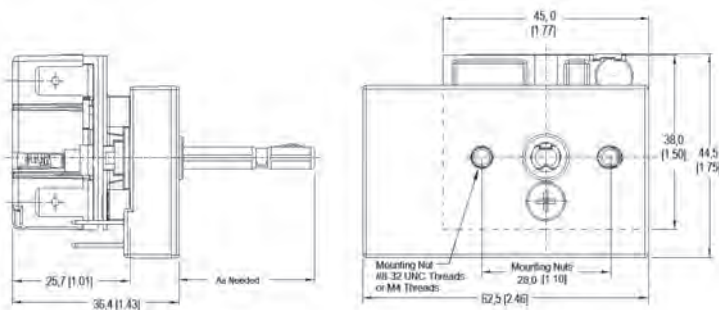
### Bushing Mount Style - Single and Dual



### Alternate Bushing Mount Style - Single and Dual



### Nut Mounting Style - Triple

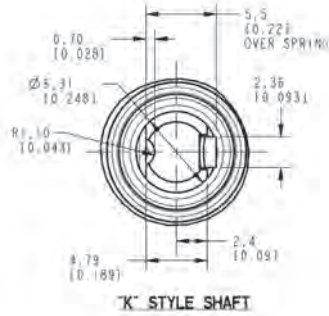
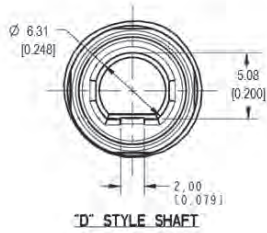


**1** Year  
Limited  
Warranty

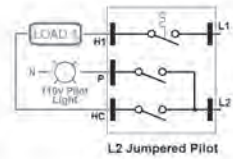
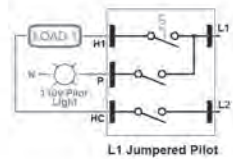
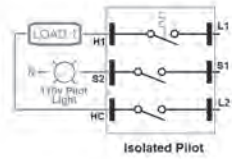
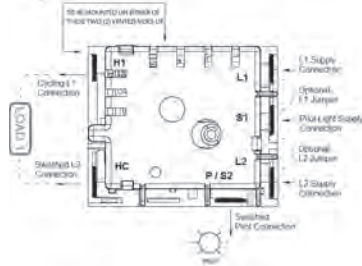


## Product Drawings

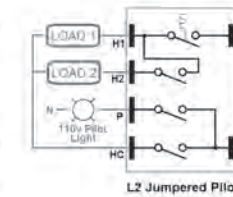
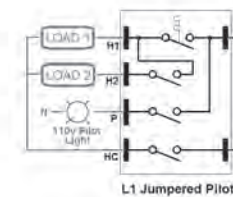
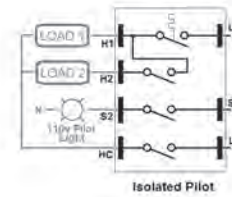
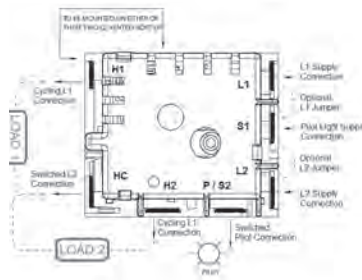
### Knob Shaft Styles



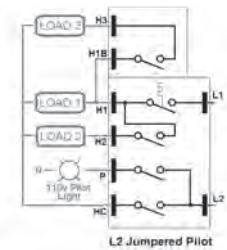
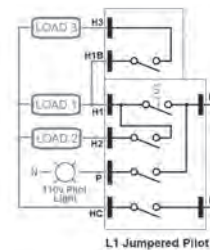
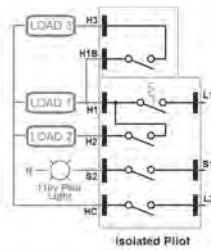
### Single Load



### Dual Load



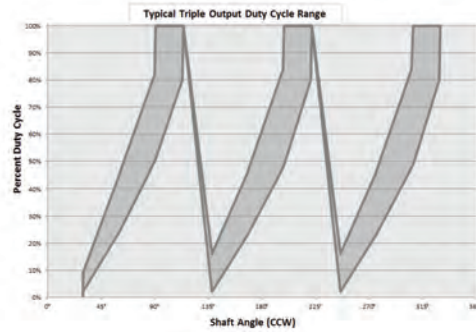
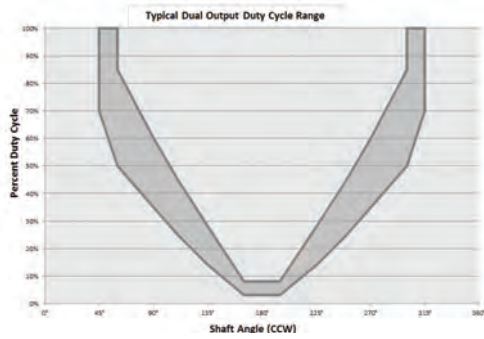
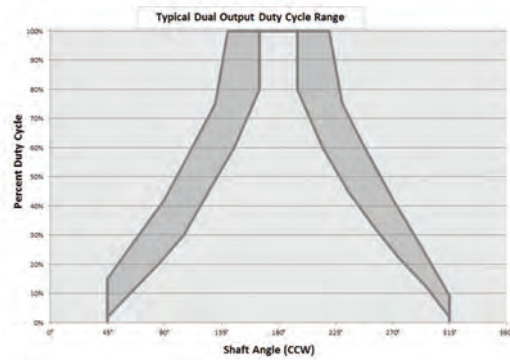
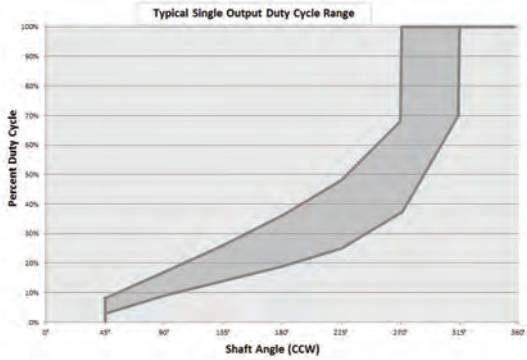
### Triple Load



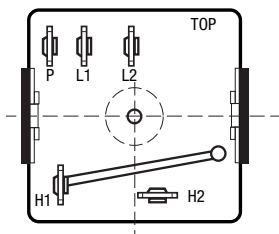


## Product Drawings

### Duty Cycle Output Curves



## Wiring Diagrams

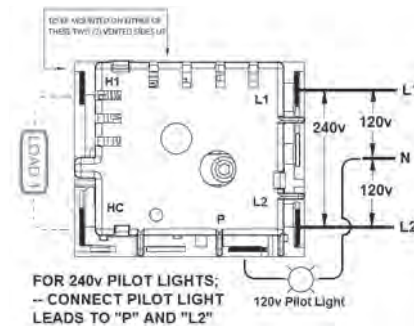


VSI Switch  
Series 5500  
Terminal #

|    |            |
|----|------------|
| L1 | connect to |
| L2 | connect to |
| P  | connect to |
| H1 | connect to |
| H2 | connect to |

M series Switch  
Series 5500 M  
Terminal #

|    |  |
|----|--|
| L1 |  |
| L2 |  |
| P  |  |
| H1 |  |
| HC |  |







EA5-7-36U

## ELECTRIC THERMOSTATS

### EA/EX Series

The Robertshaw® EA/EX Series Electric Thermostats are designed to control the temperature for ovens, fryers, sterilizers, water or oil heating tanks, etc. used for heavy-duty service. The thermostat controls the electric resistor which activates and deactivates based on the temperature sensed by the oil capillary bulb. "EA" for basic version with Bakelite thermostat; "EX" for the special polyester version.

### Specifications

| Part Numbers      | Description         | Temperature Range | Differential | Capillary Length | Bulb Size      | Contact | O-Ring               | Electrical Rating |
|-------------------|---------------------|-------------------|--------------|------------------|----------------|---------|----------------------|-------------------|
| EA5-10-36U (SA)   | Electric Thermostat | 80°C to 200°C     | 4.5°C        | 914mm            | 9.55mm x 124mm | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-10-36-1U (SA) | Electric Thermostat | 80°C to 200°C     | 4.5°C        | 914mm            | 9.55mm x 124mm | NC      | With O-ring 3/8" NPT | 250V AC, 30 Amps  |
| EX5-10-36-6U (SA) | Electric Thermostat | 80°C to 200°C     | 4.5°C        | 914mm            | 9.55mm x 124mm | NC      | No O-ring            | 250V AC, 30 Amps  |
| EX5-10-36-7U (SA) | Electric Thermostat | 80°C to 200°C     | 4.5°C        | 914mm            | 9.55mm x 124mm | NC      | With O-ring 3/8" NPT | 250V AC, 30 Amps  |
| EA5-7-36U (SA)    | Electric Thermostat | 50°C to 300°C     | 7°C          | 914mm            | 4.80mm x 281mm | NC      | No O-ring            | 250V AC, 30 Amps  |
| EX5-7-36U (SA)    | Electric Thermostat | 50°C to 300°C     | 7°C          | 914mm            | 4.80mm x 281mm | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-7-36-1U (SA)  | Electric Thermostat | 50°C to 300°C     | 7°C          | 914mm            | 9.55mm x 81mm  | NC      | With O-ring 3/8" NPT | 250V AC, 30 Amps  |
| EA5-7-36-3 (SA)   | Electric Thermostat | 50°C to 300°C     | 7°C          | 914mm            | 9.55mm x 81mm  | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-7-36-5 (SA)   | Electric Thermostat | 50°C to 300°C     | 7°C          | 914mm            | 4.80mm x 281mm | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-7-36-8U (SA)  | Electric Thermostat | 50°C to 250°C     | 7°C          | 914mm            | 9.55mm x 81mm  | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-7-60U (SA)    | Electric Thermostat | 50°C to 300°C     | 7°C          | 1524mm           | 4.80mm x 281mm | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-8-36U (SA)    | Electric Thermostat | 20°C to 120°C     | 4.5°C        | 914mm            | 9.55mm x 100mm | NC      | With O-ring 3/8" NPT | 250V AC, 30 Amps  |
| EA5-8-36-1U (SA)  | Electric Thermostat | 20°C to 120°C     | 4.5°C        | 914mm            | 9.55mm x 100mm | NO      | With O-ring 3/8" NPT | 250V AC, 30 Amps  |



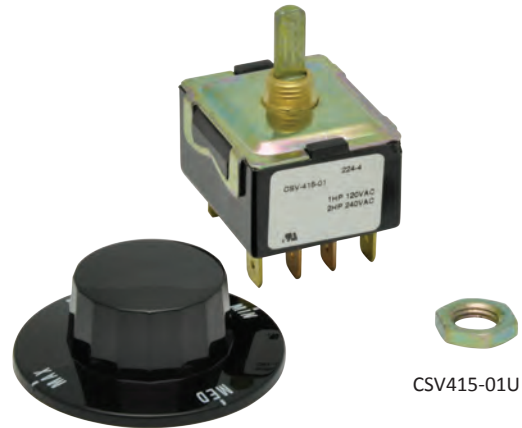
## Specifications - continued

| Part Numbers     | Description         | Temperature Range | Differential | Capillary Length | Bulb Size       | Contact | O-Ring               | Electrical Rating |
|------------------|---------------------|-------------------|--------------|------------------|-----------------|---------|----------------------|-------------------|
| EA5-8-36-2U (SA) | Electric Thermostat | 20°C to 120°C     | 4.5°C        | 914mm            | 9.55mm x 100mm  | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-8-36-3U (SA) | Electric Thermostat | 10°C to 70°C      | 4.5°C        | 914mm            | 9.55mm x 100mm  | NC      | No O-ring            | 250V AC, 30 Amps  |
| EA5-8-36-6 (SA)  | Electric Thermostat | 20°C to 120°C     | 4.5°C        | 914mm            | 9.55mm x 100 mm | NC      | With O-ring 3/8" NPT | 250V AC, 30 Amps  |
| EA5-8-60U (SA)   | Electric Thermostat | 20°C to 120°C     | 4.5°C        | 1524mm           | 9.55mm x 100mm  | NC      | With O-ring 3/8" NPT | 250V AC, 30 Amps  |
| EA5-9-36U (SA)   | Electric Thermostat | 20°C to 100°C     | 3.5°C        | 914mm            | 9.55mm x 134mm  | NC      | No O-ring            | 250V AC, 30 Amps  |

## ELECTRIC THERMOSTATS

### CSV Series

The Robertshaw® CSV Series Electric Switch is a switch that allows electrical switching between connection terminals. It can have 3, 4, 5, 6 or 7 different positions which can be combined for use on various functions in ovens, saunas, etc.



CSV415-01U

## Specifications

| Part Numbers    | Description         | Application                             | Number of Positions | Mounting Type | Electrical Rating |
|-----------------|---------------------|---|---------------------|---------------|-------------------|
| CSV402-01U (SA) | Electric Thermostat | Imequi 3 Temperatures (electric oven)   | 4                   | Nut           | 1 HP @ 220V AC    |
| CSV414-03U (SA) | Electric Thermostat | Irmios Fisherbrand ovens 3 Temperatures | 4                   | Nut           | 15 Amps @ 220V AC |
| CSV415-01U (SA) | Electric Thermostat | 3 Temperatures Standard                 | 4                   | Nut           | 1 HP @ 220V AC    |

**1** Year Limited Warranty



HTV1201092-01U

## ELECTRIC THERMOSTATS

### HTV Series

The Robertshaw® HTV Series Electric Thermostats are temperature controls for ovens, fryers, sterilizers, water or oil heating tanks, etc. used in household or medium-sized facilities. The thermostat controls the electric resistor which activates or deactivates based on the temperature sensed by the oil capillary bulb.



*Robertshaw*<sup>®</sup>

## Specifications

| Part Numbers               | Description          | Temperature Range | Differential   | Capillary Length | Bulb Size       | Contact | O-Ring               |
|----------------------------|----------------------|-------------------|----------------|------------------|-----------------|---------|----------------------|
| HTV0381091-01U<br>(SA, EU) | Electric Thermostats | Fixed 38°C        | 1.0°C to 2.0°C | 900mm            | 6.00mm x 160mm  | NC      | No O-ring            |
| HTV0402091-01U<br>(SA, EU) | Electric Thermostats | 10°C to 40°C      | 1.0°C to 2.0°C | 900mm            | 6.00mm x 160mm  | NO/NC   | No O-ring            |
| HTV0901091-01<br>(SA, EU)  | Electric Thermostats | 30°C to 90°C      | 4.0°C ± 1.0°C  | 900mm            | 6.00mm x 125mm  | NC      | No O-ring            |
| HTV0901092-01U<br>(SA, EU) | Electric Thermostats | 30°C to 90°C      | 4.0°C ± 1.0°C  | 900mm            | 6.00mm x 125mm  | NC      | With O-ring NPT 3/8" |
| HTV1101091-01U<br>(SA, EU) | Electric Thermostats | 30°C to 110°C     | 4.5° ± 1.5°C   | 900mm            | 6.00mm x 109mm  | NC      | No O-ring            |
| HTV1101092-01U<br>(SA, EU) | Electric Thermostats | 30°C to 110°C     | 4.5°C ± 1.5°C  | 900mm            | 6.00mm x 109mm  | NC      | With O-ring NPT 3/8" |
| HTV1101092-01<br>(SA, EU)  | Electric Thermostats | 30°C to 110°C     | 4.5°C ± 1.5°C  | 900mm            | 6.00mm x 109mm  | NC      | With O-ring NPT 3/8" |
| HTV1102092-01U<br>(SA, EU) | Electric Thermostats | 30°C to 110°C     | 4.5°C ± 1.5°C  | 900mm            | 6.00mm x 10 mm  | NO/NC   | With O-ring NPT 3/8" |
| HTV1201091-01U<br>(SA, EU) | Electric Thermostats | 10°C to 120°C     | 4.5°C ± 1.5°C  | 900mm            | 6.00mm x 86.5mm | NC      | No O-ring            |
| HTV1201092-01U<br>(SA, EU) | Electric Thermostats | 10°C to 120°C     | 4.5°C ± 1.5°C  | 900mm            | 6.00mm x 86.5mm | NC      | With O-ring NPT 3/8" |
| HTV1201092-03U<br>(SA, EU) | Electric Thermostats | 10°C to 120°C     | 4.5°C ± 1.5°C  | 900mm            | 6.00mm x 86.5mm | NC      | With O-ring NPT 3/8" |
| HTV2001091-01U<br>(SA, EU) | Electric Thermostats | 50°C to 200°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NC      | No O-ring            |
| HTV2001092-01U<br>(SA, EU) | Electric Thermostats | 50°C to 200°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NC      | With O-ring NPT 3/8" |
| HTV2501091-01U<br>(SA, EU) | Electric Thermostats | 50°C to 250°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NC      | No O-ring            |
| HTV2801091-01U<br>(SA, EU) | Electric Thermostats | 50°C to 280°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 162mm  | NC      | No O-ring            |
| HTV3001071-01U<br>(SA, EU) | Electric Thermostats | 50°C to 300°C     | 7.0°C ± 2.0°C  | 700mm            | 4.00mm x 150mm  | NC      | No O-ring            |
| HTV3001091-01U<br>(SA, EU) | Electric Thermostats | 50°C to 300°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NC      | No O-ring            |
| HTV3001091-01<br>(SA, EU)  | Electric Thermostats | 50°C to 300°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NC      | No O-ring            |
| HTV3002091-01U<br>(SA, EU) | Electric Thermostats | 50°C to 300°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NO/NC   | No O-ring            |
| HTV3002092-01U<br>(SA, EU) | Electric Thermostats | 50°C to 300°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NO/NC   | With O-ring NPT 3/8" |
| HTV3201091-01U<br>(SA, EU) | Electric Thermostats | 50°C to 320°C     | 7.0°C ± 2.0°C  | 900mm            | 4.00mm x 150mm  | NC      | No O-ring            |





# COOKING

# Robertshaw®



5300-614



5300-401

## ELECTRIC THERMOSTATS

### 5300 Series

The Robertshaw® 5300 Series Electric Thermostat is a snap-acting, single pole single throw (SPST) type thermostat. Most thermostats use silver contacts and have heavy-duty terminals for durability and sustained accuracy. The snap-action mechanism is precise and reliable. This direct acting series of thermostats is suitable for the commercial cooking industry.

### Features and Benefits

- KN models are NAK filled diastats with temperature ranges up to 975°F (524°C)
- Rugged and compact design for versatility and long life
- Bulb and capillary available in copper, nickel plated copper and stainless steel (most models)
- Plastic coating available for protection against moisture, dust, etc. (most models)
- Dials of heat resistant plastic available
- RX millivolt models with hermetically sealed reed switch
- Stem flat in down position
- Ambient temperature 200°F (93°C)

### Specifications

| Part Numbers | Description   | Temperature Range                 | Capillary Length | Bulb Size                          | Stem Length | Mounting Bracket | Dial Type | Mechanical Differential | Stuffing Box | Electrical Rating  |
|--------------|---|-----------------------------------|------------------|------------------------------------|-------------|------------------|-----------|-------------------------|--------------|--|
| 5300-041     | RX-1 Model  | 60°F to 250°F<br>(15°C to 121°C)  | 48"              | 3/8" x<br>4-1/2"                   | 3/16"       | #1, 1-3/4"       | 4-Way     | 8°F                     | NA           | 0.67 Amp @ 5V DC   |
| 5300-146     | SJ Pilot Duty Model with Auxiliary Switch               | 100°F to 493°F<br>(38°C to 256°C) | 36"              | 3/16" x<br>11-1/8" Nickel          | 13/16"      | #1, 1-3/4"       | 4-Way     | 12°F                    | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts |
| 5300-175     | S Model   | 100°F to 325°F<br>(38°C to 163°C) | 36"              | 3/16" x<br>11-3/4" Nickel          | 13/16"      | #1, 1-3/4"       | NA        | 12°F                    | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts |
| 5300-219     | SP Model  | 60°F to 240°F<br>(15°C to 116°C)  | 36"              | 1/4" x<br>6-7/16" Copper           | 3/8"        | #1, 1-3/4"       | NA        | 8°F                     | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts |
| 5300-401     | RX Millivolt Model with Hermetically Sealed Reed Switch | 200°F to 400°F<br>(93°C to 204°C) | 36"              | 3/8" x<br>5-5/8" Nickel            | 13/16"      | #1, 1-3/4"       | 4-Way     | 8°F                     | 1/4" Nickel  | 0.67 Amp @ 5V DC   |
| 5300-414     | RX Millivolt Model with Hermetically Sealed Reed Switch | 175°F to 550°F<br>(79°C to 287°C) | 30"              | 3/16" x<br>4-7/16" Stainless Steel | 13/16"      | #1, 1-3/4"       | 4-Way     | 8°F                     | NA           | 0.67 Amp @ 5V DC   |





Robertshaw®

## Specifications - continued

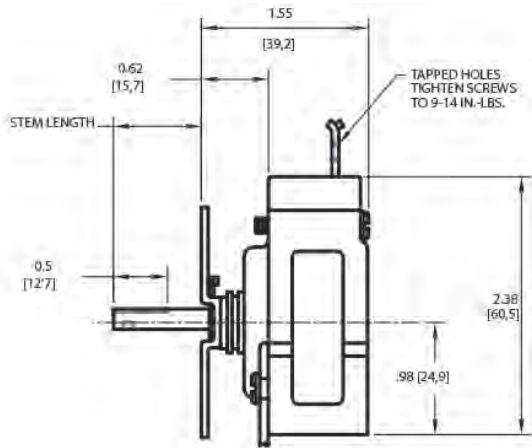
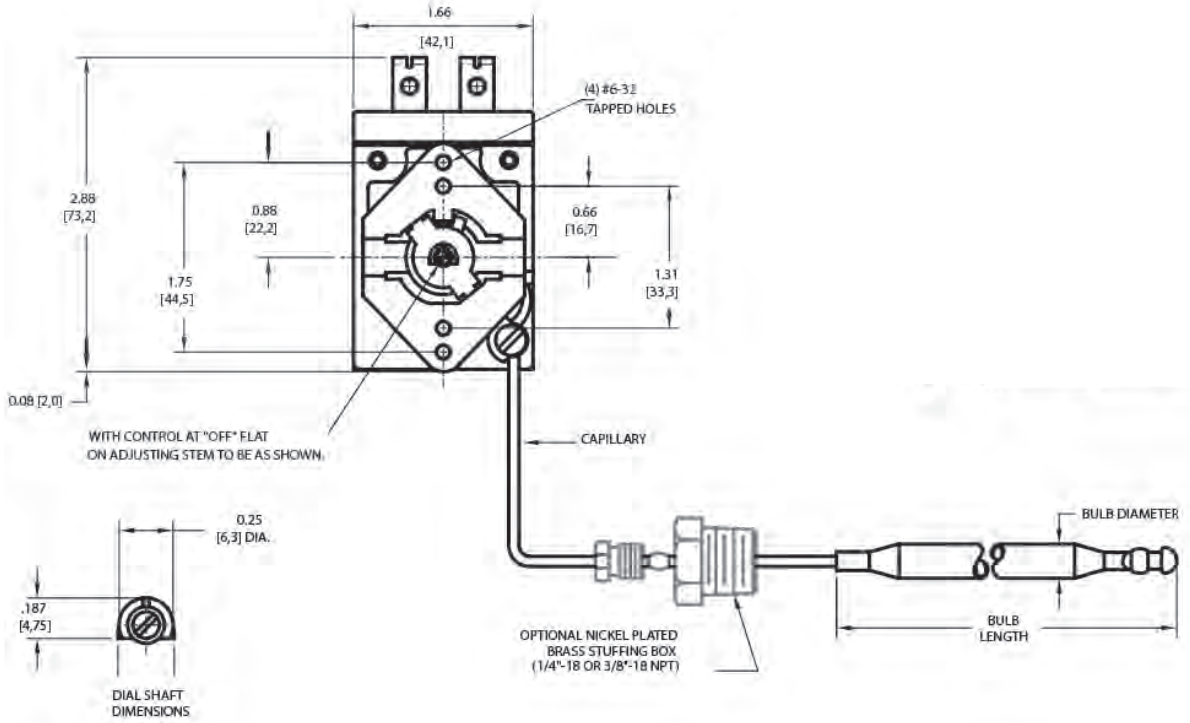
| Part Numbers    | Description   | Temperature Range               | Capillary Length | Bulb Size                      | Stem Length | Mounting Bracket                       | Dial Type                    | Mechanical Differential | Stuffing Box | Electrical Rating  |
|-----------------|---|---------------------------------|------------------|--------------------------------|-------------|--|------------------------------|-------------------------|--------------|--|
| 5300-406        | RX Millivolt Model with Hermetically Sealed Reed Switch | 200°F to 375°F (93°C to 191°C)  | 36"              | 3/8" x 5-5/8" Nickel           | 13/16"      | #1, 1-3/4"                             | 4-Way                        | 8°F                     | 3/8" Nickel  | 0.67 Amp @ 5V DC   |
| 5300-502        | KNP Model with 1-10 Dial (Wide)                         | 250°F to 960°F (121°C to 516°C) | 36"              | 5/32" x 8-3/4" Stainless Steel | 1"          | #5, 1-1/4"                             | 4-Way                        | 25°F                    | 3/8" Nickel  | 27 Amp @ 208V AC<br>25 Amp @ 240V AC<br>22.5 Amp @ 277V AC<br>20 Amp @ 480V AC<br>125 VA Pilot Duty at 120/277 Volts |
| 5300-612        | SP Model Uni-Kit®                                       | 60°F to 250°F (15°C to 121°C)   | 60"              | 1/4" x 9-1/4" Copper           | 2" Kit      | #6, Kit                                | 4-Way                        | 8°F                     | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts               |
| 5300-614        | SP Model Uni-Kit  | 60°F to 250°F (15°C to 121°C)   | 60"              | 3/8" x 4-1/2" Nickel           | 2" Kit      | #6, Kit                                | 4-Way                        | 8°F                     | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts               |
| 5300-618        | SP Model Uni-Kit  | 100°F to 450°F (38°C to 232°C)  | 60"              | 3/16" x 11-5/8" Nickel         | 2" Kit      | #6, Kit                                | 4-Way                        | 12°F                    | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts               |
| 5300-641        | SP Model Uni-Kit  | 200°F to 400°F (93°C to 204°C)  | 36"              | 5/16" x 7-1/2" Nickel          | 2" Kit      | #6, Kit                                | 4-Way                        | 8°F                     | 3/8" Nickel  | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts               |
| 5300-651        | SP Model Uni-Kit  | 175°F to 550°F (79°C to 288°C)  | 60"              | 3/16" x 11-5/8" Nickel         | 2" Kit      | #6, Kit                                | 4-Way                        | 12°F                    | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts               |
| 5300-671        | SP Model Uni-Kit  | 300°F to 700°F (149°C to 371°C) | 60"              | 3/16" x 12-1/4" Nickel         | 2" Kit      | #6, Kit                                | 4-Way                        | 12°F                    | NA           | 30 Amp @ 277V AC<br>20 Amp @ 480V AC<br>18 FLA, 72 LRA @ 250V AC<br>125 VA Pilot Duty at 120/277 Volts               |
| 5300-711        | KX Pilot Duty Model Dip Sealed                          | 200°F to 400°F (93°C to 204°C)  | 36"              | 3/8" x 5-5/8" Nickel           | 13/16"      | #1, 1-3/4"                             | 4-Way                        | 8°F                     | 1/4" Nickel  | 50 VA Pilot Duty at 120 / 277 Volts  |
| 5300-735        | KXP Pilot Duty Model Uni-Kit                            | 175°F to 550°F (79°C to 288°C)  | 60"              | 3/16" x 11-5/8" Nickel         | 2" Kit      | #6, Kit                                | 4-Way                        | 12°F                    | NA           | 50 VA Pilot Duty at 120 / 277 Volts  |
| 5300-766        | KX Pilot Duty Model                                     | 200°F to 400°F (93°C to 204°C)  | 24"              | 5/16" x 5-5/8" Stainless Steel | 13/16"      | #1, 1-3/4"                             | 4-Way                        | 8°F                     | 3/8" Nickel  | 50 VA Pilot Duty at 120 / 277 Volts  |
| KX-289-30       | Electric Cooking Control                                | 100°F to 450°F (38°C to 232°C)  | 30"              | 3/16" x 11.080"                | 0.812"      | (2) #6-32 @1.750"<br>(2) #6-32 @1.312" | "D" shape .250" x .186" flat | 12°F                    | NA           | 50 VA Pilot Duty at 120/277 Volts  |
| RX-34-60        | Electric Cooking Control                                | 175°F to 575°F (79°C to 302°C)  | 60"              | 3/16" X 11.250"                | 1"          | (2) #6-32 @1.750"<br>(2) #6-32 @1.312" | "D" shape .250" x .186" flat | 12°F                    | NA           | .67 Amp @ 5 V DC   |
| Z346201560 (SA) | RX 2-24 Electric Thermostat Black Dial                  | 212-392°F (100-200°C)           | NA               | NA                             | NA          | NA                                     | NA                           | NA                      | NA           | NA   |

**1** Year Limited Warranty



## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].





## ELECTRIC THERMOSTATS - LIMIT CONTROLS

### 5225 Series

The Robertshaw® 5225 Series Limit Control is designed for any appliance where temperature protection is needed. All 5225 Series controls are non-adjustable, factory calibrated, and feature negative biased power element diaphragms. The 5225 Series is a proven safety control for commercial and specialty applications. They are available in automatic or manual reset versions with temperature settings from 425°F to 600°F (218°C to 316°C).

### Features and Benefits

- Bulb and capillary assemblies available in nickel plated copper
- Available in manual reset or automatic operation
- Control function is designed to interrupt power in the appliance circuit at the calibrated temperature



5225-112

### Specifications

| Part Numbers | Description                       | Fixed Temperature    | Capillary Length | Bulb Size                | Mounting Bracket | Stuffing Box |
|--------------|-----------------------------------|----------------------|------------------|--------------------------|------------------|--------------|
| 5225-009     | LCH Manual Reset Limit Control    | 450°F<br>(232.222°C) | 30"              | 5/16" x 3-5/8"<br>Nickel | #1               | NA           |
| 5225-010     | LCC Automatic Reset Limit Control | 450°F<br>(232.222°C) | 60"              | 3/16" x 4-7/8"<br>Nickel | #1               | 3/8"         |
| 5225-047     | LCH Manual Reset Limit Control    | 450°F<br>(232.222°C) | 24"              | 3/16" x 7-5/8"<br>Nickel | #1               | 3/8"         |
| 5225-054     | LCH Manual Reset Limit Control    | 440°F<br>(226.667°C) | 30"              | 1/4" x 4-7/8"<br>Nickel  | #7               | Panel Nut    |
| 5225-112     | LCH Manual Reset Limit Control    | 450°F<br>(232.222°C) | 30"              | 1/4" x 4-7/8"<br>Nickel  | #3               | 1/4"         |

|                        |   |                    |         |                |    |    |
|------------------------|---|--------------------|---------|----------------|----|----|
| LCCM-33-036-00-00 (SA) | LC Series High Limit Safety Thermostat - Contacts NC SPDT | 232°C<br>(449.6°F) | 1.524mm | 4.76mm x 124mm | NA | NA |
|------------------------|---|--------------------|---------|----------------|----|----|

| Model | Description   | UL Rating  | CSA Rating   | European       |
|-------|---|--|--|----------------|
| LCH   | SPST - Break on Temperature Rise Manual Reset. Type M2*         | 30 A, 250V AC @ 125-480 V AC<br>35 VA PD @ 24 V, 60 Hz | 30 A @ 125-480V AC                                     | 30 A @ 480V AC |
| LCC   | SPDT - Make and / or Break on Temperature Rise. Automatic Reset | 25 A, 250 VA @ 125-480 V, 60 Hz<br>35 A @ 24V AC       | 25 A, 250 V AC @ 125-480V AC<br>35 VA PD @ 24 V, 60 Hz | 25 A @ 480V AC |



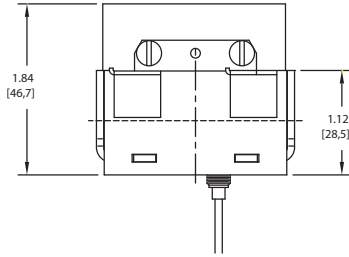


## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

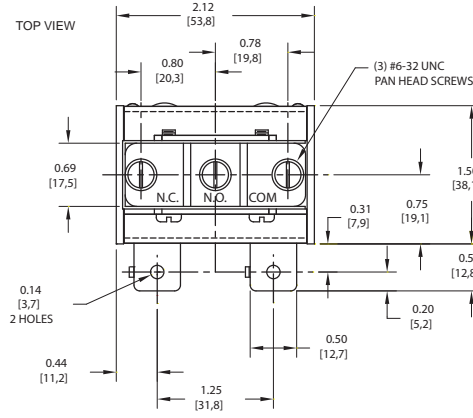
### MODEL LCC

FRONT VIEW

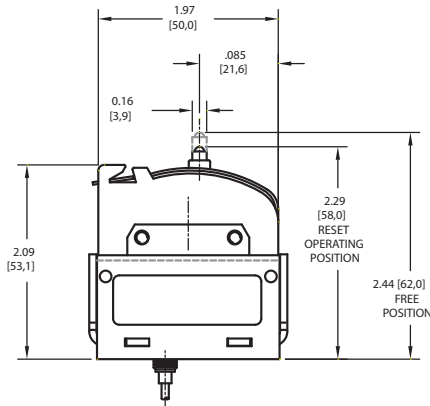


### MODEL LCC

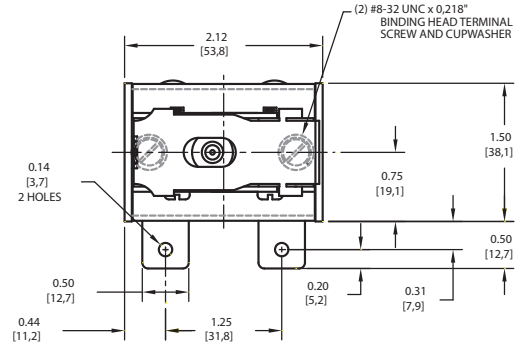
TOP VIEW



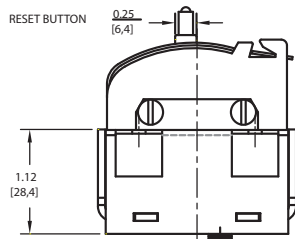
### MODEL LCH



### MODEL LCH



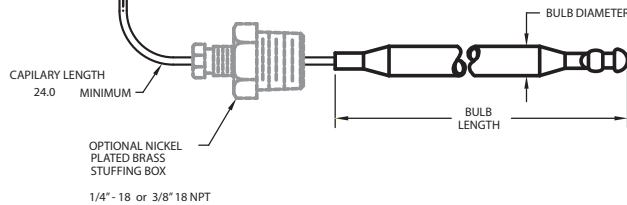
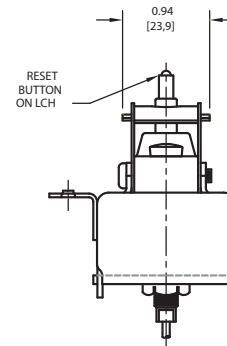
### MODEL LCH



### Panel Nut



### MODEL LCH



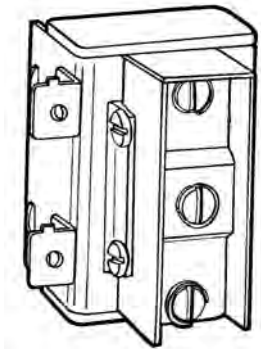




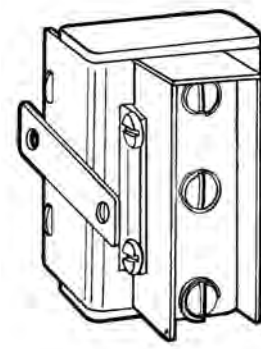
## Product Drawings

Mounting Bracket Types

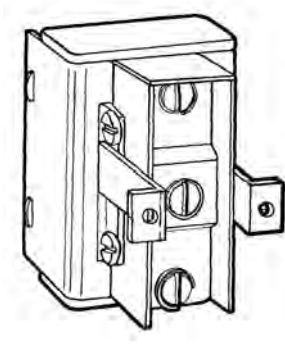
Type #1



Type #3



Type #7



*Robertshaw*<sup>®</sup>





5210-125

## ELECTRIC THERMOSTATS

### 5210 Series

The Robertshaw® 5210 Series Electric Thermostat is a direct acting, single pole, slow make and break type thermostat. Typical applications are for incubators, laboratory ovens, water baths, sterilizers, dishwashers, steam tables, scalding tanks and other equipment where a close temperature differential is required.

### Features and Benefits

- Temperature ranges to 550°F (288°C)
- Single pole, slow make and break design
- Very sensitive to temperature change
- Small temperature differential between make and break
- Fine silver contacts to assure consistent switch action and long life
- Rugged and compact design for versatility of application
- Bulb and capillary available in copper or nickel plated copper

### Specifications

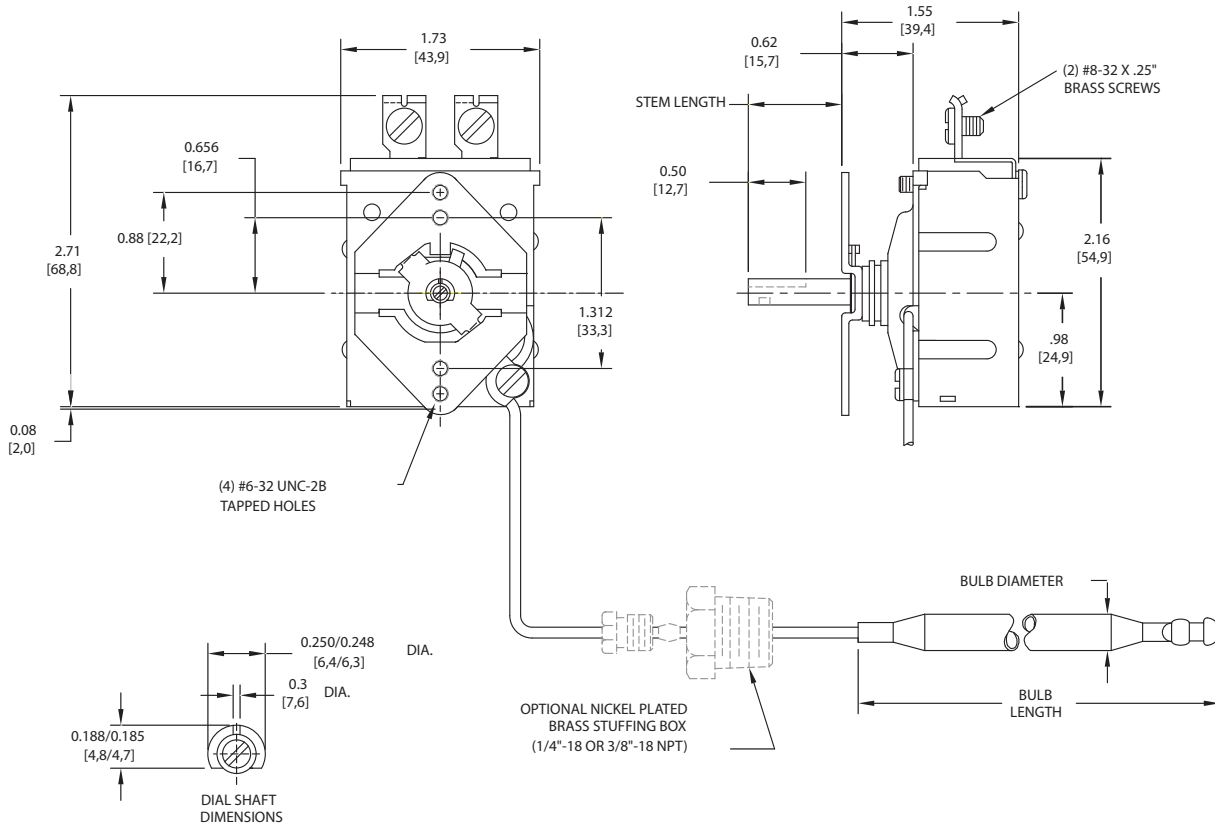
| Part Numbers | Description                              | Dial Temperature Range       | Ambient Temperature         | Capillary Length | Bulb Size              | Dial Type                              | Differential | Electrical Rating  |
|--------------|--|------------------------------|-----------------------------|------------------|------------------------|--|--------------|--|
| 5210-124     | B-10 Commercial Electric Thermostat      | 60°F to 210°F (15°C to 98°C) | NA                          | 36"              | 3/16" x 15-3/8" Nickel | Consider 40-463 dial 60-250° if needed | 2°F (-16°C)  | 20 Amp @ 120V AC<br>Resistive Load 15 Amp @ 240V AC Resistive Load |
| 5210-125     | B-10 Commercial Direct Acting Thermostat | 60°F to 200°F (15°C to 93°C) | 32°F to 150°F (0°C to 60°C) | 42"              | 3/16" x 15-3/8" Nickel | Consider 40-463 dial 60-250° if needed | NA           | 20 Amps @ 125V AC<br>15 Amps @ 250V AC<br>125VA PD @ 125V AC       |





## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].



*Robertshaw*<sup>®</sup>

**1** Year  
Limited  
Warranty



# COOKING

Robertshaw®



5000-851

## ELECTRIC THERMOSTATS

### 5000 Series

The Robertshaw® 5000 Series Electric Thermostat is a heavy-duty thermostat designed for use in harsh applications where precise temperature control is required. The control uses a double pole single throw (DPST) snap-action mechanism with a positive OFF switch. It is recommended for use on applications that require double pole operation and accurate temperature control.

### Features and Benefits

- DPST with positive OFF
- Mechanical snap-action is instantaneous, positive and non-fatiguing
- Reacts to exceedingly small movements of the diaphragms for very close temperature differential
- Diaphragm assembly features two stainless steel diaphragms electrically welded together
- Maximum sensitivity without over-stressing the metal
- Supplied with terminals mounted in four different positions
- Bulb and capillary available in copper, nickel plated copper, or stainless steel

### Specifications

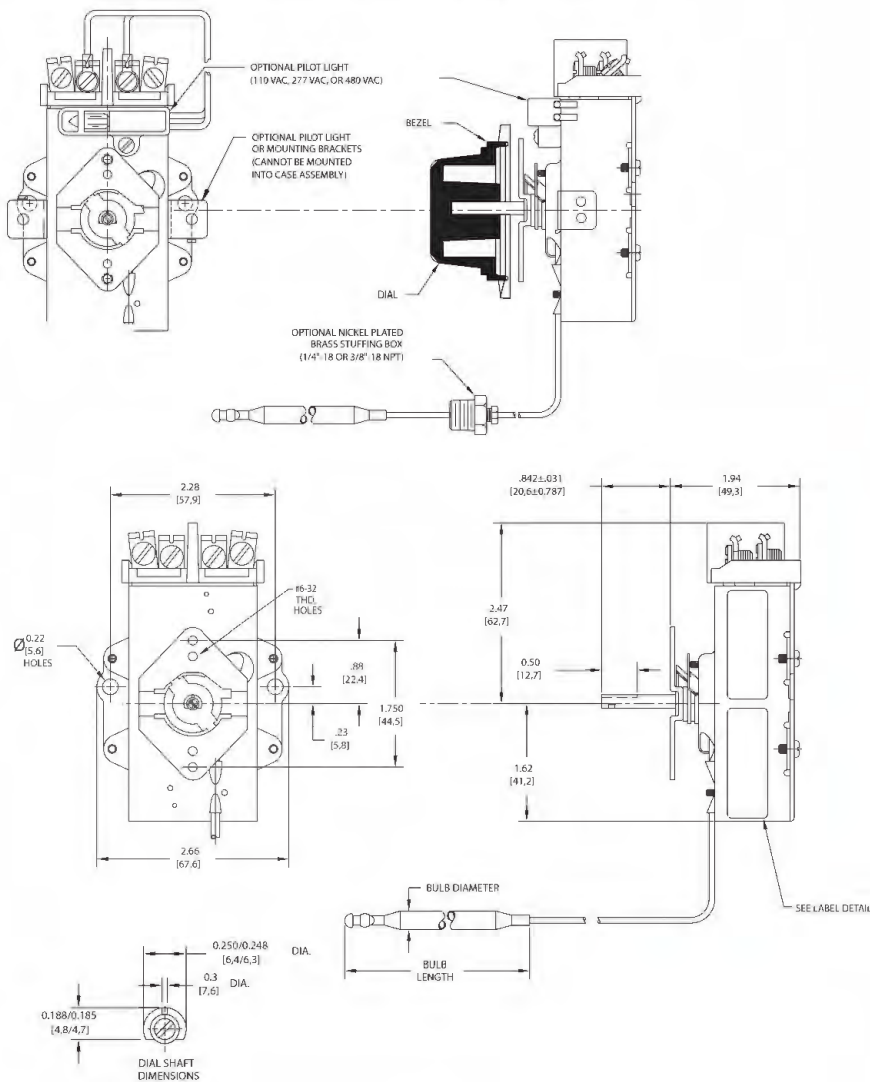
| Part Numbers | Description   | Dial Temperature Range         | Capillary Length | Bulb Size              | Dial Type | Mechanical Differential | Electrical Rating                   |
|--------------|---|--------------------------------|------------------|------------------------|-----------|-------------------------|-------------------------------------|
| 5000-811     | D1 Commercial Electric Thermostat with Pilot Light, 4-Way Dial, Bezel, Uni-Kit® | 60°F to 250°F (15°C to 121°C)  | 60"              | 3/8" x 4-1/2"          | 4-Way     | 6°F (3°C)               | 120, 277V AC @ 30A<br>480V AC @ 21A |
| 5000-851     | D1 Commercial Electric Thermostat with Pilot Light, 4-Way Dial, Bezel, Uni-Kit  | 100°F to 550°F (38°C to 288°C) | 60"              | 3/16" x 11-5/8" Nickel | 4-Way     | 6°F (3°C)               | 120, 277V AC @ 30A<br>480V AC @ 21A |





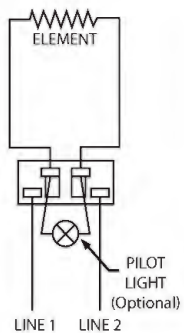
## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

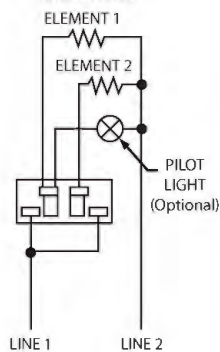


## Wiring Diagram

SINGLE ELEMENT  
DOUBLE POLE  
SINGLE PHASE



TWO ELEMENTS  
SINGLE POLE  
SINGLE PHASE



**1** Year  
Limited  
Warranty





# COOKING

Robertshaw®



4350-028



4590-705

## GAS THERMOSTATS

### 4350 Series

The Robertshaw® 4350 Series Gas Thermostat is a combination gas cock and by-pass type thermostat. It is available with both by-pass and pilot adjustments. With these thermostats, the gas is turned on and the temperature setting made with a single turn of the dial. The 4350 Series is available for a wide variety of applications, especially ranges and griddles.

### Features and Benefits

- Highly adaptable because of multiple orientations and number of outlets
- Mounted, via flange nipple, above or below the manifold
- Available with various temperature ranges
- Front adjustment for pilot and by-pass
- Modulating seat action
- Bulb and capillary available in copper, nickel plated copper and stainless steel

## Specifications

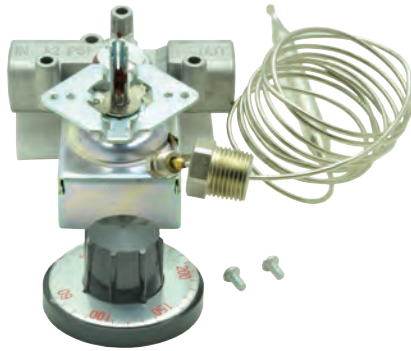
| Part Numbers | Description                | Max Inlet Pressure | Main Outlet Size | Main Outlet Position | Housing Rotated | Pilot Outlet | Flange Type | Capillary Length | Sensing Bulb     | Capacity (Natural Gas) | Temperature Range               |
|--------------|----------------------------|--------------------|------------------|----------------------|-----------------|--------------|-------------|------------------|------------------|------------------------|---------------------------------|
| 4350-015     | BJWA Control for Ovens     | 0.5 PSI            | 1/4" Pipe        | B                    | 180°            | Plug         | Narrow      | 48"              | 3/16" x 11-3/16" | 70,000 BTU/HR          | 250°F to 500°F (121°C to 260°C) |
| 4350-027     | BJWA Kit for Ovens         | 0.5 PSI            | 1/4" Pipe        | A, B, C, D           | No              | Yes          | Wide        | 48"              | 3/16" x 11-3/16" | 70,000 BTU/HR          | 250°F to 550°F (121°C to 288°C) |
| 4350-028     | BJWA Kit for Griddles      | 0.5 PSI            | 1/4" Pipe        | A, B, C, D           | No              | Yes          | Wide        | 36"              | 3/16" x 8-5/8"   | 70,000 BTU/HR          | 150°F to 400°F (66°C to 205°C)  |
| 4350-029     | BJWA Kit for Ovens         | 0.5 PSI            | 7/16" Tubing     | C                    | No              | Yes          | Wide        | 48"              | 3/16" x 11-3/16" | 70,000 BTU/HR          | 250°F to 550°F (121°C to 288°C) |
| 4350-040     | BJWA Control for Ovens     | 0.5 PSI            | 1/4" Pipe        | D                    | 90° Clockwise   | Plug         | Narrow      | 48"              | 3/16" x 11-3/16" | 70,000 BTU/HR          | 250°F to 550°F (121°C to 288°C) |
| 4350-127     | BJWA Kit for Ovens         | 0.5 PSI            | 1/4" Pipe        | A, B, C, D           | 180°            | No           | Wide        | 48"              | 3/16" x 11-3/16" | 70,000 BTU/HR          | 250°F to 550°F (121°C to 288°C) |
| 4350-128     | BJWA Kit for Griddles      | 0.5 PSI            | 1/4" Pipe        | A, B, C, D           | 180°            | No           | Wide        | 48"              | 3/16" x 8-5/8"   | 70,000 BTU/HR          | 150°F to 400°F (66°C to 205°C)  |
| 4350-02H     | BJWA Series Gas Thermostat | 0.5 PSI            | 1/4"             | NA                   | NA              | Yes          | Wide        | 914mm            | 4.76mm x 219mm   | 70,000 BTU/HR          | 66°C to 205°C                   |

## Accessories

| Part Numbers | Description                      |
|--------------|----------------------------------|
| 4590-705     | BJ Stem Extension (Package of 6) |







4290-008

## GAS THERMOSTATS

### 4290 Series

The Robertshaw® 4290 Series Gas Thermostat is a snap-acting hydraulic thermostat and used to provide temperature control by interrupting gas flow to the burner. The 4290 Series gas thermostat is available for a wide variety of applications including small ovens, griddles, brooders, warming cabinets, and fryers.

### Features and Benefits

- Capable up to 30,000 BTUs
- Applicable to use with high capacity gas operated diaphragm valves (700-800 Series) to reach 600,000 BTUs
- Available in various temperature ranges, with temperature control up to 500°F (288°C)
- Snap-acting from Off position to full gas flow
- Adapts to limited mounting space
- Bulb and capillary assemblies supplied in nickel plated copper or stainless steel
- Dials in heat resistant plastic are included
- Ambient temperature is 200°F (93°C)

## Specifications

| Part Numbers | Description                          | Capillary Length | Bulb Size            | Inlet Size  | Outlet Size | Stuffing Box | Pilot Outlet | Stem Flat | Temperature Range              |
|--------------|--------------------------------------|------------------|----------------------|-------------|-------------|--------------|--------------|-----------|--------------------------------|
| 4290-006     | GS Gas Snap-Action Hydraulic Control | 30"              | 3/8" x 5-3/8" Nickel | 1/4" Tubing | 1/4" Tubing | 1/4" Nickel  | NA           | Down      | 200°F to 410°F (93°C to 210°C) |
| 4290-008     | GS Gas Snap-Action Hydraulic Control | 60"              | 3/8" x 4-1/2" Nickel | 3/8" Pipe   | 3/8" Pipe   | 3/8" Nickel  | NA           | Down      | 60°F to 250°F (16°C to 121°C)  |
| 4290-020     | GS Gas Snap-Action Hydraulic Control | 36"              | 3/16" x 13" Nickel   | 1/4" Tubing | 1/4" Tubing | NA           | NA           | Down      | 200°F to 550°F (93°C to 288°C) |

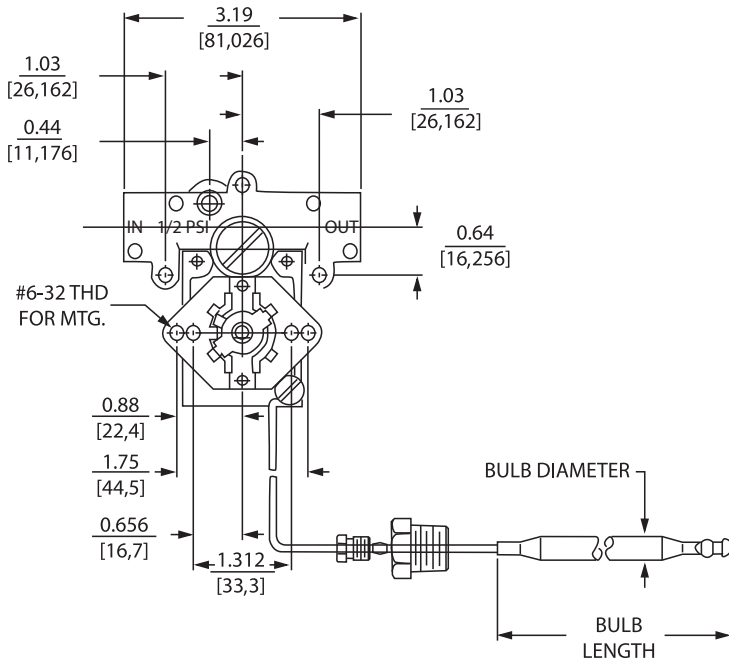




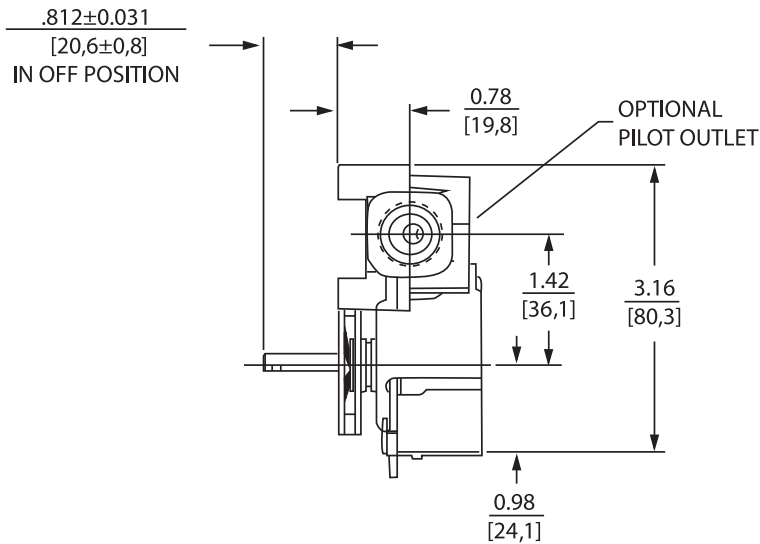
## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Front View



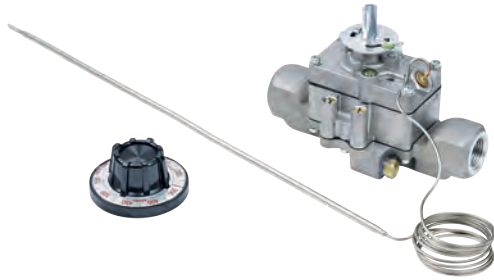
Right View





# COOKING

# Robertshaw®



4200-005  
Type #2 Body



4200-025  
Type #1 Body

## GAS THERMOSTATS

### 4200 Series

The Robertshaw® 4200 Series Gas Thermostat is a heavy-duty, high capacity gas thermostat. These units are available with modulating only or with modulating snap-acting bypass. Both pilot and bypass adjustments are provided. Pilot outlets and customized settings are optional. They are available for a wide variety of applications such as deck ovens, convection ovens, baking ovens, and ranges.

### Features and Benefits

- Heat resistant materials and rugged design
- The pilot and bypass keys are accessible and the pilot and keys are slotted for easy adjustment from the front of the control
- Provides temperature control on most gas appliance systems
- Allows for low temperature control
- Modulates the main gas supply and controls the bypass gas with a snap under the same thermostatic action
- Bulb and capillary assemblies supplied are nickel plated
- 4-Way dials included
- RoHS Compliant

### Specifications

| Part Numbers | Description                              | Inlet Side "F" | Inlet Rear "H" | Outlet Side "E" | Outlet Rear "G" | Pilot Outlet | Capillary Length | Bulb Size              | Temperature Range               |
|--------------|--|----------------|----------------|-----------------|-----------------|--------------|------------------|------------------------|---------------------------------|
| 4200-005     | FDO Gas Thermostat, Body Type #2         | 1/2" Pipe      | NA             | 1/2" Pipe       | NA              | Side         | 48"              | 3/16" x 14-3/4" Nickel | 150°F to 550°F (66°C to 288°C)  |
| 4200-007     | FDO Gas Thermostat Body Type #1          | 1/2" Pipe      | NA             | 1/2" Pipe       | NA              | Side         | 48"              | 1/4" x 8-7/16" Nickel  | 150°F to 550°F (66°C to 288°C)  |
| 4200-011     | FDTO Gas Thermostat, Body Type #2        | 1/2" Pipe      | NA             | 1/2" Pipe       | NA              | Side         | 48"              | 3/16" x 14-3/4" Nickel | 200°F to 500°F (93°C to 260°C)  |
| 4200-025     | FDO Gas Thermostat Uni-Kit® Body Type #1 | 3/8" Pipe      | 3/8" Pipe      | 3/8" Pipe       | 3/8" Pipe       | Side & Rear  | 54"              | 3/16" x 14-3/4" Nickel | 150°F to 550°F (66°C to 288°C)  |
| 4200-026     | FDTO Gas Thermostat Uni-Kit Body Type #1 | 3/8" Pipe      | 3/8" Pipe      | 3/8" Pipe       | 3/8" Pipe       | Side & Rear  | 54"              | 3/16" x 14-3/4" Nickel | 200°F to 550°F (93°C to 288°C)  |
| 4200-503     | FDTH Gas Thermostat Body Type #1         | 1/2" Pipe      | NA             | 1/2" Pipe       | NA              | Side         | 48"              | 3/16" x 15-3/8" Nickel | 300°F to 650°F (149°C to 343°C) |
| 4200-505     | FDTH Gas Thermostat, Body Type #2        | 1/2" Pipe      | NA             | 1/2" Pipe       | NA              | Side         | 48"              | 3/16" x 14-3/4" Nickel | 300°F to 650°F (149°C to 343°C) |
| 4200-508     | FDH Gas Thermostat, Body Type #2         | 1/2" Pipe      | NA             | 1/2" Pipe       | NA              | Side         | 48"              | 3/16" x 14-3/4" Nickel | 300°F to 650°F (149°C to 343°C) |

RoHS



B28



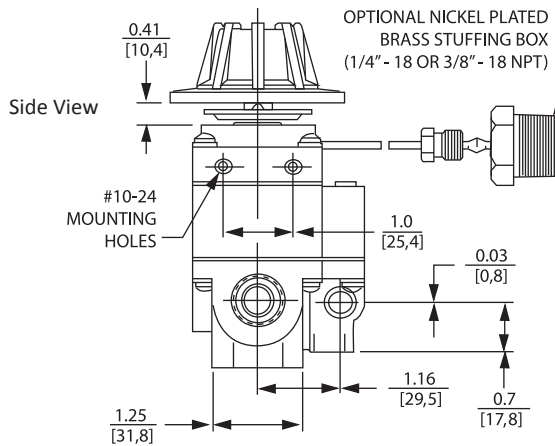
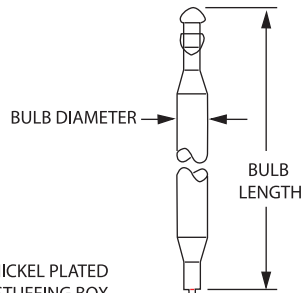
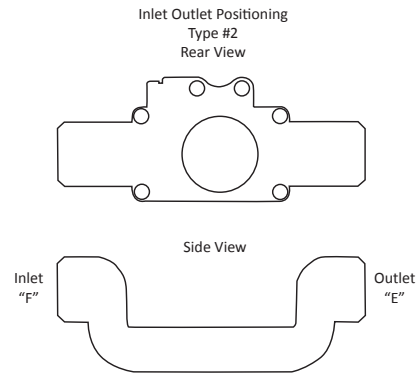
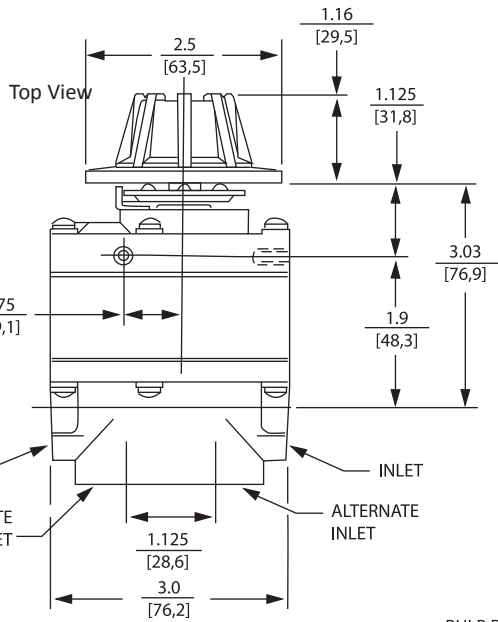
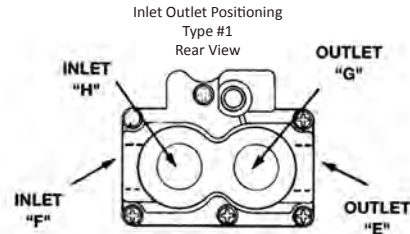
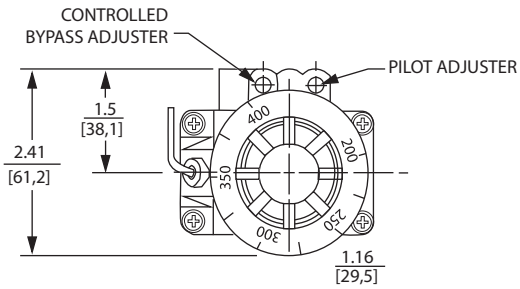


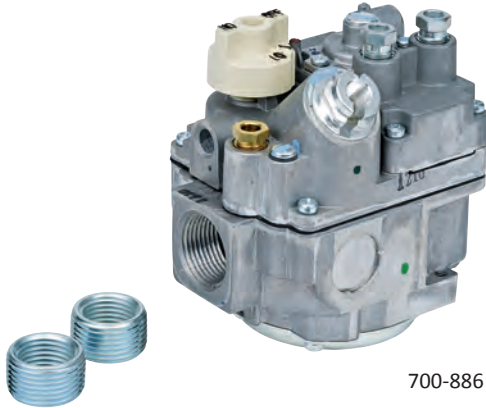
*Robertshaw*<sup>®</sup>

## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Front View





700-886

## GAS VALVES - BLEED CONTROL

### 700 Series

The Robertshaw® Unitrol® 700 Series Bleed Control Gas Valves combine a manual main and pilot gas valve, a separate automatic safety pilot valve, pilot adjustment valve, and a diaphragm valve. The regulated models also feature “straight line” gas pressure regulation. Robertshaw diaphragm gas valves are single function, and are excellent replacements for solenoid gas valves. Models are available with or without a gas cock and regulated or non-regulated. Standard features include pilot gas outlet, pilot gas filter and pilot adjustment key.

### Features and Benefits

- Normally closed solenoid
- Compact size with high flow rates
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

### Specifications

| Part Numbers | Description             | Capacity    | Inlet Size | Outlet Size | Pressure Regulation | Reducer Bushings Included | Comments   |
|--------------|-------------------------|-------------|------------|-------------|---------------------|---------------------------|--|
| 700-803      | Bleed Control Gas Valve | 305,000 BTU | 3/4"       | 3/4"        | NA                  | NA                        | Can be used on regulated LP systems and is Thermocouple driven           |
| 700-804      | Bleed Control Gas Valve | 305,000 BTU | 3/4"       | 3/4"        | 3.5" WC Natural Gas | NA                        | Has slow opening feature which can be removed and is Thermocouple driven |
| 700-886      | Bleed Control Gas Valve | 305,000 BTU | 3/4"       | 3/4"        | 3.5" WC Natural Gas | 1/2" (x2)                 | Thermopile driven  |
| 700-887      | Bleed Control Gas Valve | 240,000 BTU | 1/2"       | 1/2"        | 4.0" WC Natural Gas | NA                        | Thermopile driven  |

RoHS



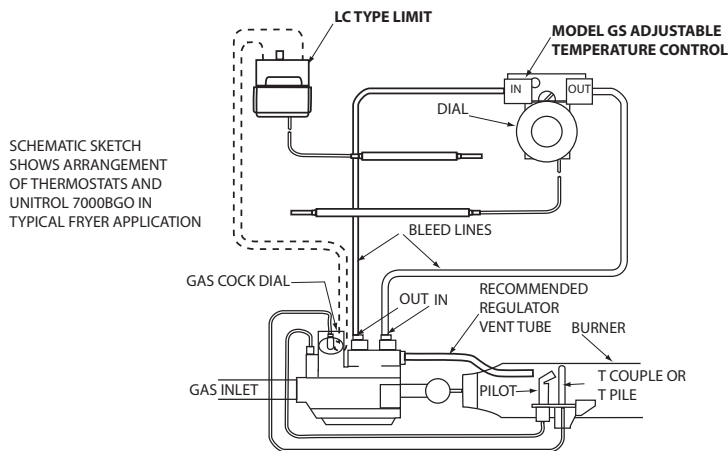
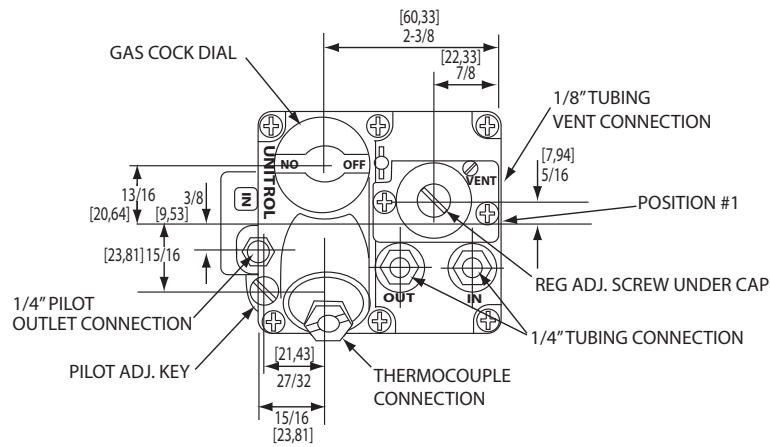
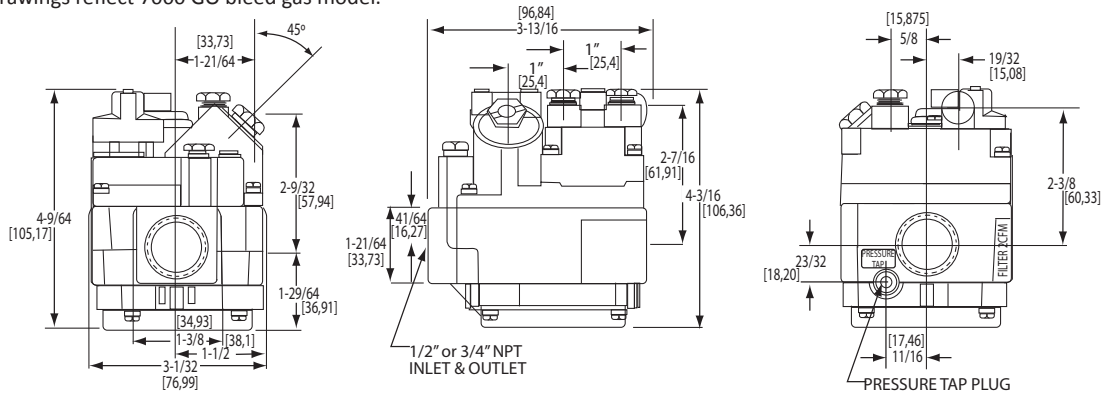
B30



## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Drawings reflect 7000 GO bleed gas model.



**1** Year Limited Warranty



4075-029



4075-200

## GAS VALVES - SOLENOID

### 4075 Series

The Robertshaw® 4075 Series Gas Solenoid is designed to control the flow of gas in cooking appliances. Both single FJT and dual FJTDO models are available for a wide variety of applications such as ovens, griddles and fryers.

### Features and Benefits

- Normally closed solenoid
- Multiple inlet/outlet configurations
- 1/8" side pilot outlets available
- Compact size with high flow rates
- Standard NEMA terminals
- Inlet filtered screen
- Gas types: natural, manufactured, fixed, LP and LP/air mixtures
- RoHS compliant
- AC rectification for silent operation

### Specifications

| Part Numbers | Description                   | Inlet     | Outlet    | Pilot Outlet   | Max Pressure | Capacity                             | Ambient Temperature             | Electrical Rating               | Comments                |
|--------------|-------------------------------|-----------|-----------|----------------|--------------|--------------------------------------|---------------------------------|---------------------------------|-------------------------|
| 4075-029     | FJT Single Gas Solenoid Valve | 3/8" Pipe | 3/8" Pipe | Left and Right | 0.5 PSI      | 119,000 BTU                          | -40°F to 275°F (-40°C to 135°C) | 24 / 120 / 240 Volts @ 50/60 Hz | Includes (2) 1/8" plugs |
| 4075-200     | FJTDO Dual Gas Solenoid Valve | 3/8" Pipe | 3/8" Pipe | NA             | 0.5 PSI      | 165,000 BTU both<br>110,000 BTU each | -40°F to 275°F (-40°C to 135°C) | 24 / 120 / 240 Volts @ 50/60 Hz | 0.10 Amp Coil           |

RoHS

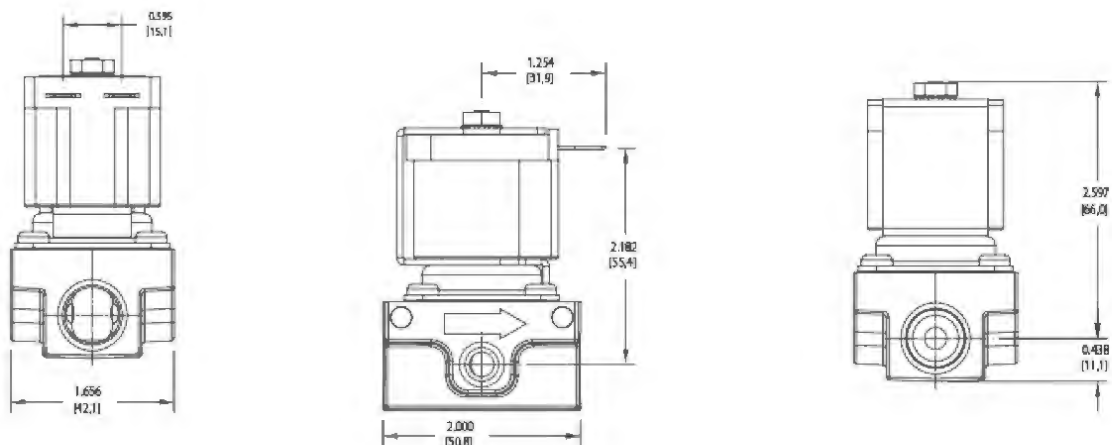




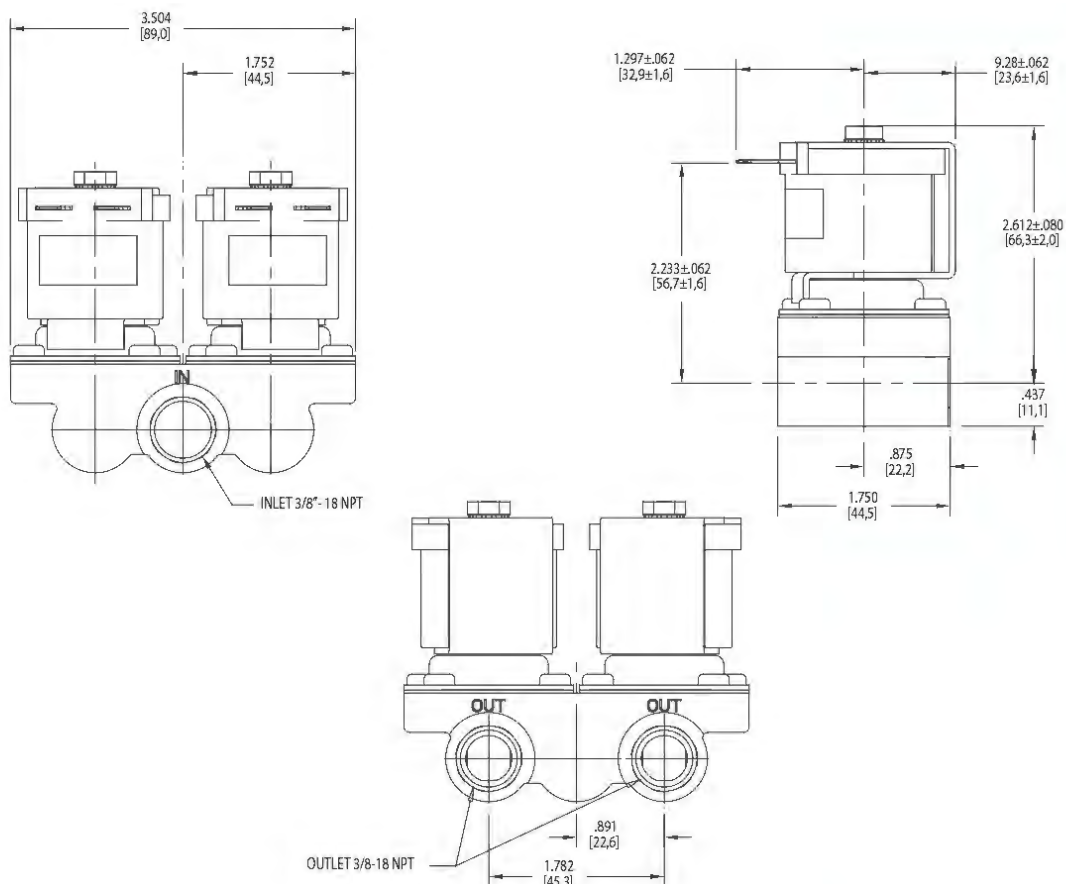
## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Single



Dual

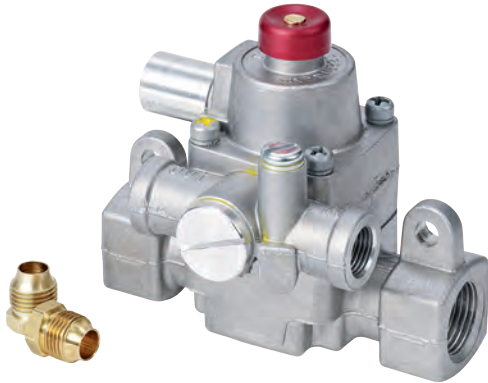


**1** Year  
Limited  
Warranty

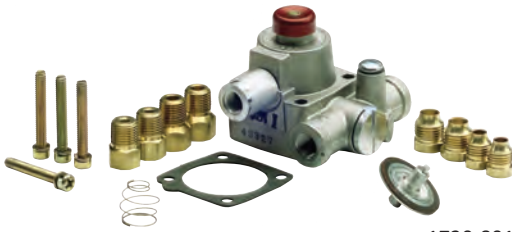




## GAS VALVES - THERMOMAGNETIC SAFETY



1720-004



1720-801

### 1720 Series

The Robertshaw® 1720 Series Thermomagnetic Safety Valve is a control used to cut off the flow of gas to the burner in the event of a pilot outage. The magnet assembly is energized by voltage generated by a thermocouple that is heated by the pilot flame. When this flame is extinguished, the thermocouple voltage decreases until a spring overcomes the magnetic force and closes off both the pilot and main gas. This control can be used for commercial and residential ovens, infrared heaters, chicken and pig brooders, recreational vehicle gas appliances and many more applications requiring automatic safety valves.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- 300°F (149°C) ambient temperature rated and 350°F (177°C) versions available
- J models available with separate pilot inlet/outlet tube connections
- K models are pilot outlet only
- Compatible with other Robertshaw models such as the BJWA, FD, and GS series thermostats
- RoHS compliant

### Specifications

| Part Numbers   | Description                                 | Body Inlet & Outlet | Head Pilot Inlet & Outlet                 | Ambient Temperature          | Max Pressure |
|----------------|---|---------------------|---|------------------------------|--------------|
| 1720-004       | TS11J Complete Magnet and Body Assembly     | 7/16" Tube          | 1/4" Tube                                 | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |
| TS11K-4512-1-0 | TS11K Complete Magnet and Body Assembly     | 1/2" Pipe           | 1/4" Tube                                 | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |
| 1720-005       | TS11J Complete Magnet and Body Assembly     | 1/4" Pipe           | 3/16" Tube                                | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |
| 1720-007       | TS11J Complete Magnet and Body Assembly     | 1/2" Pipe           | 1/4" Tube                                 | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |
| 1720-008       | TS11J Complete Magnet and Body Assembly     | 1/4" Pipe           | 1/4" Tube                                 | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |
| 1720-010       | TS11K K Magnet and Body Assembly            | 1/2" Pipe           | 1/4" Tube                                 | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |
| 1720-801       | TS11J J Magnet Head Only - Inlet and Outlet | NA                  | Kit, 1/8" Pipe, 3/16" Tubing, 1/4" Tubing | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |
| 1720-802       | TS11K K Magnet Head Only - Outlet Only      | NA                  | Kit, 1/8" Pipe, 3/16" Tubing, 1/4" Tubing | 32°F to 300°F (0°C to 149°C) | 0.5 PSI      |

RoHS

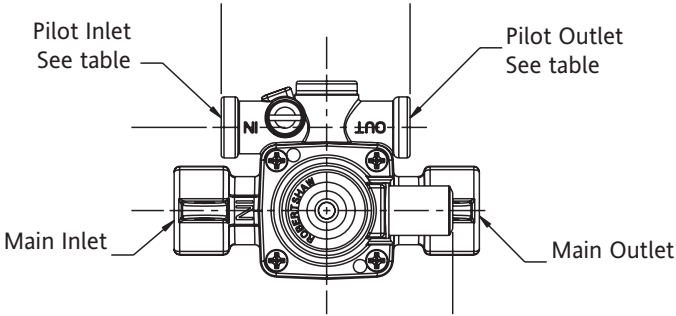




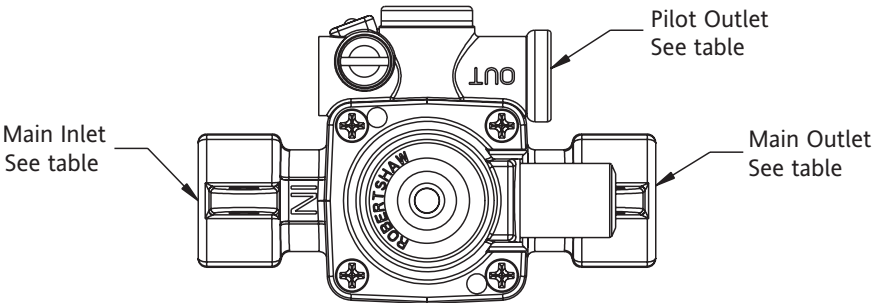
## Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

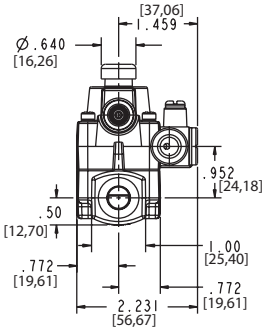
### J Model Top with Pilot In and Out



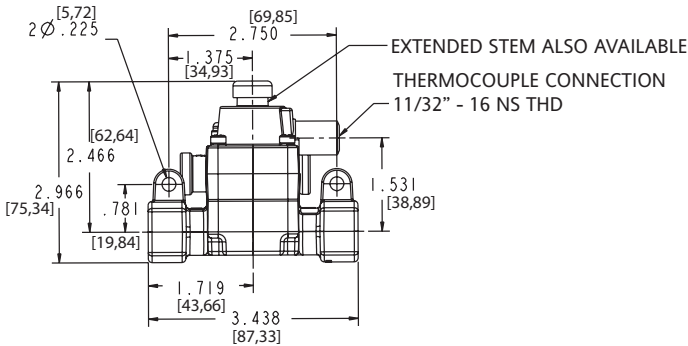
### TS11 K Model Top with No Pilot Inlet



### Side



### Front





# Robertshaw®



Y-30128-AF35

## GAS VALVES

### Single Series

The Robertshaw® Single Series Gas Valves are thermal bimetal gas control valves designed for efficient use in residential gas cooking appliances of various types. Valves with single outlets are used in conventional gas ovens.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

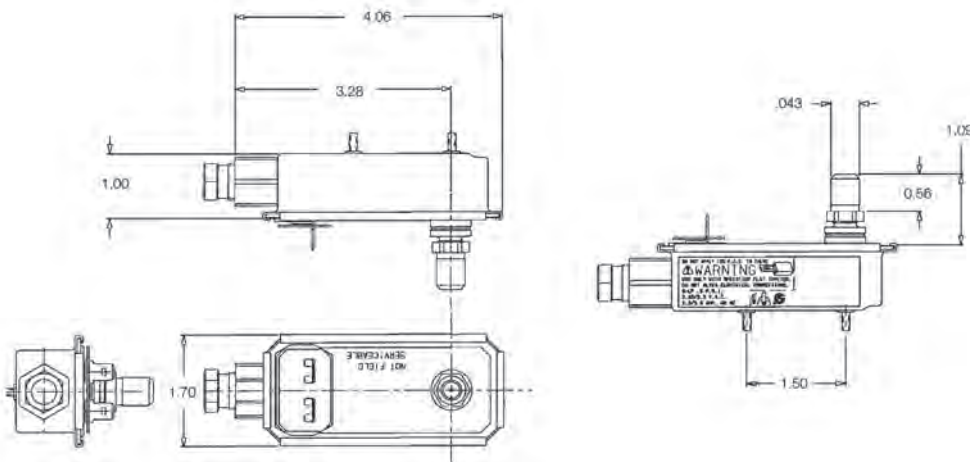
### Features and Benefits

- Positive shut-off
- Normally closed
- Used with carbide ignitor
- Mounts in any position
- Ambient temperature compensated

## Specifications

| Part Numbers | Description           | Model Number            | Inlet Size | Outlet Size 1        | Mounting Type | Terminals              | Ignition System    | Electrical Rating    |
|--------------|-----------------------|-------------------------|------------|----------------------|---------------|------------------------|--------------------|----------------------|
| Y-30128-AF35 | Single Gas Valve      | NC-4125-5               | 3/8" Loxit | Orifice              | None          | 1/4" Male & 3/16" Male | Norton w/o fitting | 3V AC @ 3.3-3.6 Amps |
| Y-76000-15   | Dual Single Gas Valve | NC-4197-5 and NC-4125-5 | 3/8" Loxit | Orifice & 3/8" Loxit | Bracket       | 1/4" Male & 3/16" Male | Norton w/o fitting | 3V AC @ 3.3-3.6 Amps |
| Y-30148-42   | Dual Thermo Gas Valve | NC-4175-5               | 3/8" Loxit | 3/8" Loxit           | Bracket       | 1/4" Male & 3/16" Male | Norton w/o fitting | 3V AC @ 3.3-3.6 Amps |

## Product Drawings



1 Year Limited Warranty



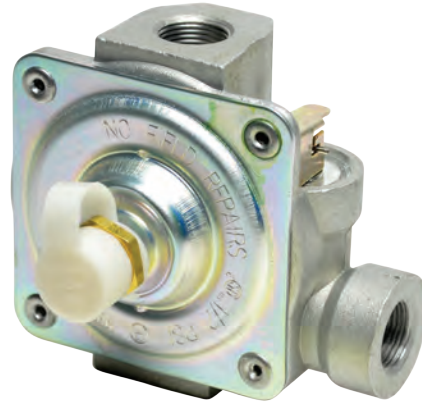
## GAS PRESSURE REGULATOR

### GPR Series

The Robertshaw® GPR Series Gas Pressure Regulator (GPR) is designed for use in any appliance to regulate the gas flow. This standard regulator can be set for 4", 5" or 6" Water Column (W.C.) Natural Gas or for 10" W.C. Liquid Propane (LP) gas outlet pressures.

### Features and Benefits

- Integral manual valve for oven supply
- Convertible for Natural or LP gas
- Can be mounted in multiple positions
- Various inlet and outlet options available

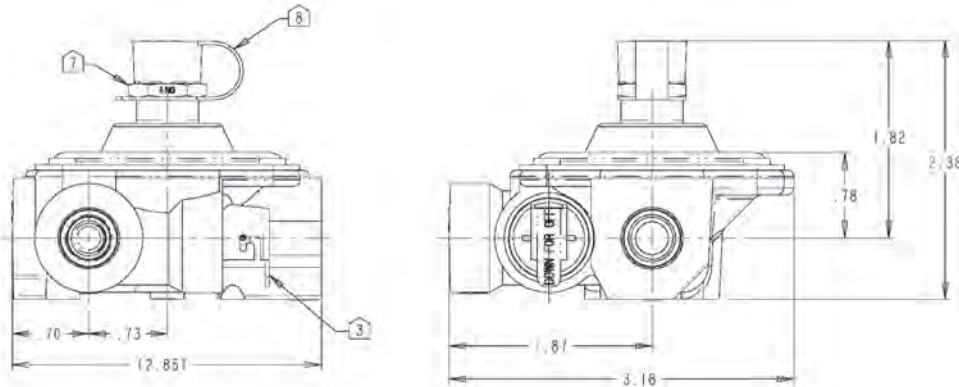


Y-68506-108

### Specifications

| Part Numbers | Description            | Model Number | Inlet Size | Outlet Size 1 | Mounting Type               | Terminals | Ignition System | Electrical Rating |
|--------------|------------------------|--------------|------------|---------------|-----------------------------|-----------|-----------------|-------------------|
| Y-68506-108  | Gas Pressure Regulator | RR-23040     | 1/2" NPT   | 1/4" Loxit    | 8/32" Thread mounting holes | NA        | NA              | NA                |

### Product Drawings



1 Year Limited Warranty



## OVEN SPARK IGNITION MODULES

### Spark Module Series

The Robertshaw® Electronic Ignition Modules are designed to enable the lighting of oven, range and stove gas burners. The component works with alternating current (AC) and the internal circuit generates a series of sparks to ignite the gas. The plastic material used in the structure and internal parts is self-extinguishing, thereby preventing the spreading of fire in case of fire.



06671-045

### Specifications

| Part Numbers           | Description                | Spark Frequency    | Terminals | Electrical Rating         |
|------------------------|----------------------------|--------------------|-----------|---------------------------|
| 06671-045<br>(SA)      | Electronic Ignition Module | 1 DK outlet 20 Hz  | 2.8mm     | 100 to 242V AC - 50/60 Hz |
| 06674-045<br>(SA)      | Electronic Ignition Module | 4 DK outlets 20 Hz | 2.8mm     | 100 to 242V AC - 50/60 Hz |
| 06674-085<br>(SA)      | Electronic Ignition Module | 4 DK outlets 7 Hz  | 2.8mm     | 100 to 242V AC - 50/60 Hz |
| IGV0521128-02U<br>(SA) | Electronic Ignition Module | 2 outlets 25 Hz    | 2.8mm     | 120/220V AC - 50/60 Hz    |
| IGV0551128-02U<br>(SA) | Electronic Ignition Module | 5 outlets 25 Hz    | 2.8mm     | 120/220V AC - 50/60 Hz    |
| IGV0551163-02U<br>(SA) | Electronic Ignition Module | 5 outlets 25 Hz    | 6.3mm     | 120/220V AC - 50/60 Hz    |
| IGV0571128-02U<br>(SA) | Electronic Ignition Module | 7 outlets 25 Hz    | 2.8mm     | 120/220V AC - 50/60 Hz    |
| IGV0571163-02U<br>(SA) | Electronic Ignition Module | 7 outlets 25 Hz    | 6.3mm     | 120/220V AC - 50/60 Hz    |

**1** Year  
Limited  
Warranty



## OVEN SPARK IGNITION MODULES

### Spark Module Series

The Robertshaw® Spark Module Series are Oven Spark Ignition Modules designed for oven re-ignition. A spark is generated for as long as the appropriate input terminal is energized.

### Features and Benefits

- Spark generator with 2,000,000 sparks
- Strong dielectric strength tested up to 1500 Volts RMS at 60 Hz for one second
- Spark frequency ranges from 1.0 to 5.0 Hz
- Humidity tested to 90% RH relative humidity for 48 hours
- AGA listed



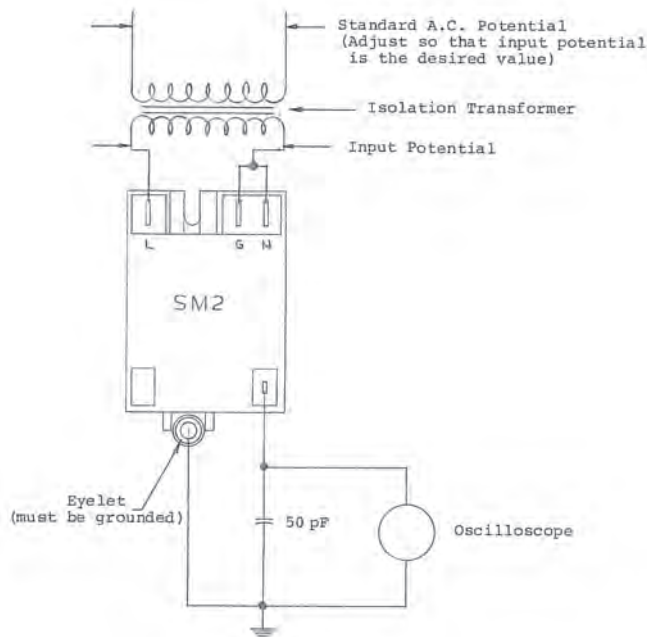
41-521

### Specifications

| Part Numbers | Description                                      | Spark Frequency      | Spark Gap | Ambient Temperature            | Electrical Rating   |
|--------------|--|----------------------|-----------|--------------------------------|---|
| 41-521       | SM2 0+1 Electronic Re-Ignition Oven Spark Module | 2.5 Hz to 4.5 Hz     | 1/8" max  | 32°F to 200°F (0°C to 93°C)    | 120V AC, 18 kV peak across 50 pF (picoFarad) capacitance load |
| U-67204-7    | 0+4 Spark Module                                 | 1 to 4 Sparks/Second | 0.16"     | 14°F to 248°F (-10°C to 120°C) | 120V AC, 25 kV peak across 50 pF (picoFarad) capacitance load |

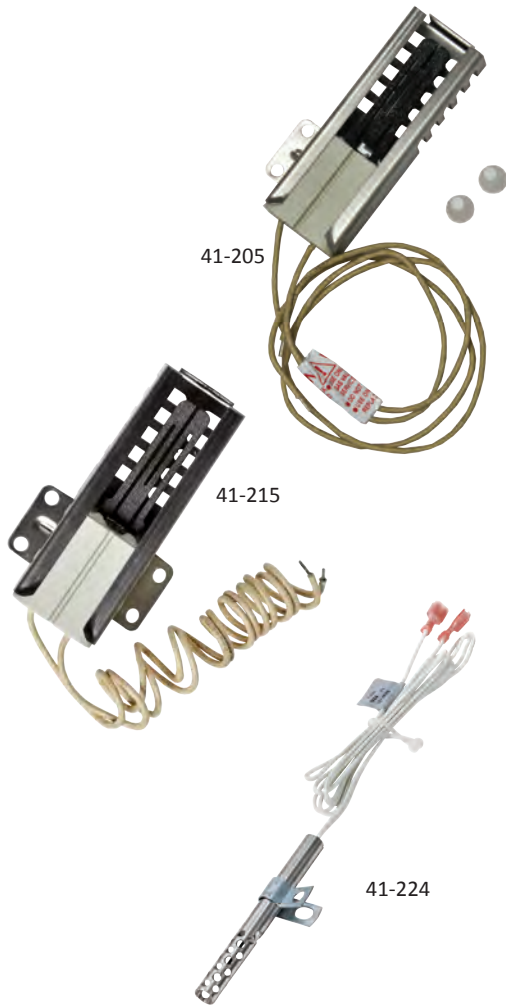
### Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].



Specifications continued on next page





## HOT SURFACE IGNITORS

### 41-200 Series

The Robertshaw® 41-200 Series Hot Surface Ignitors are engineered to meet all your gas range and oven needs. These ignitors are used in the ranges of most major appliance OEMs. In addition, these ignitors are designed to match the Robertshaw bi-metal gas valves.

### Features and Benefits

- High physical and thermal strength
- Easy mounting
- Silent ignition
- Kits include two (2) porcelain nuts

## Specifications

| Part Numbers | Description          | Length A          | Lead Length        | Type | Electrical Rating          | Comments   | Replacement Information                                  |
|--------------|----------------------|-------------------|--------------------|------|----------------------------|--|--|
| 41-202       | Hot Surface Ignitor  | 5-1/2"<br>(140mm) | 16-3/4"<br>(426mm) | 501A | 3.2 to 3.6 Amps<br>120V AC | Molex Plug   |  |
| 41-203       | Hot Surface Ignitor  | 6-1/4"<br>(159mm) | 11-1/2"<br>(292mm) | 501A | 3.2 to 3.6 Amps<br>120V AC |  |  |
| 41-204       | Hot Surface Ignitor  | 4-1/2"<br>(114mm) | 14-1/2"<br>(368mm) | 501A | 3.2 to 3.6 Amps<br>120V AC |  |  |
| 41-205       | Hot Surface Ignitor  | 3-3/4"<br>(89mm)  | 19"<br>(483mm)     | 501A | 3.2 to 3.6 Amps<br>120V AC |  |  |
| 41-206       | Hot Surface Ignitor, | 7-1/4"<br>(184mm) | 8-3/8"<br>(213mm)  | 501  | 3.2 to 3.6 Amps<br>120V AC | No Shield, 5-1/2"<br>(140mm) Lead<br>Length, Ceramic |  |
| 41-207       | Hot Surface Ignitor  | 7-1/2"<br>(191mm) | 12"<br>(305mm)     | 501A | 3.2 to 3.6 Amps<br>120V AC |  |  |
| 41-208       | Hot Surface Ignitor  | 3-3/4"<br>(114mm) | 4-1/4"<br>(108mm)  | 551A | 2.5 to 3.0 Amps<br>120V AC |  | Replaces Round<br>Carborundum Ignitors -<br>Blue Ceramic |

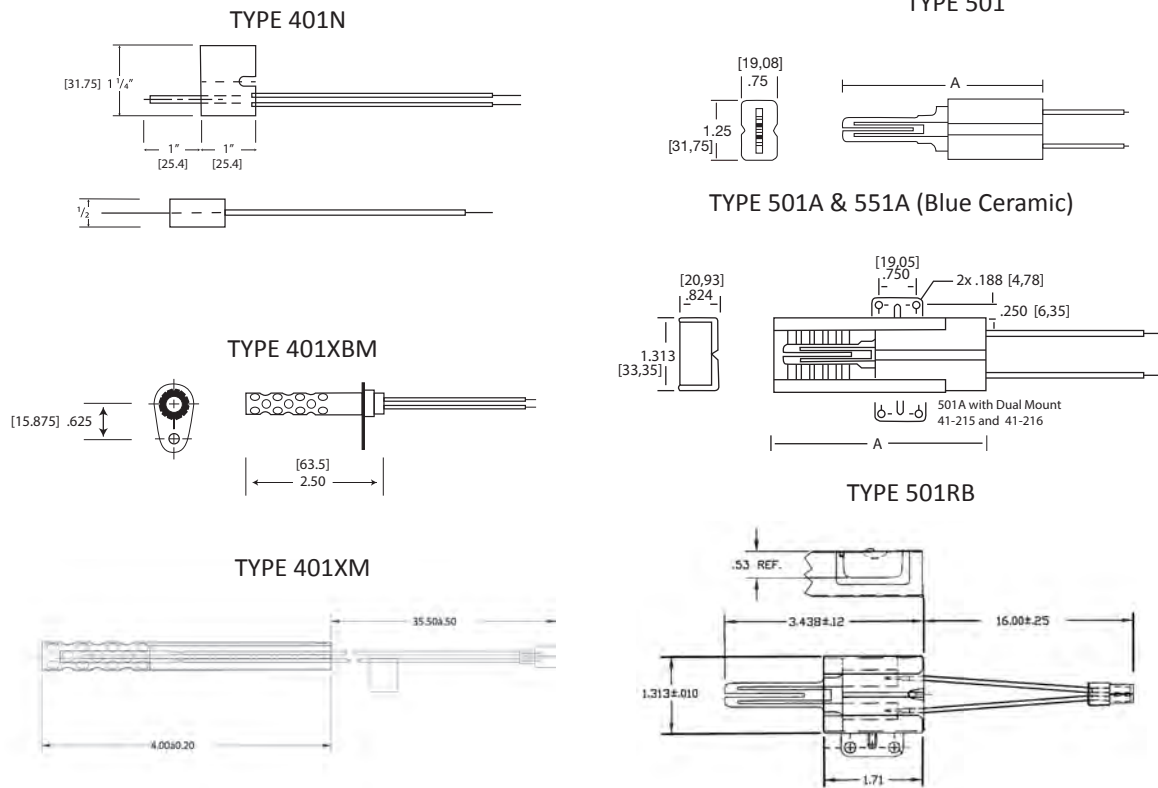


## Specifications - continued

| Part Numbers | Description                | Length A      | Lead Length     | Type   | Electrical Rating          | Comments                              | Replacement Information |
|--------------|----------------------------|---------------|-----------------|--------|----------------------------|---------------------------------------|-------------------------|
| 41-209       | Hot Surface Ignitor        | 3-3/4" (89mm) | 16-3/4" (426mm) | 501A   | 3.2 to 3.6 Amps<br>120V AC | Plug Adaptor,<br>Molex Plug           |                         |
| 41-210       | Hot Surface Ignitor        | 3-7/8" (95mm) | 8-3/8" (213mm)  | 501    | 3.2 to 3.6 Amps<br>120V AC | No Shield/Electrical<br>Terminals     |                         |
| 41-213       | Hot Surface Ignitor        | 3-7/8" (95mm) | 16" (406mm)     | 501RB  | 3.2 to 3.6 Amps<br>120V AC | Mtg Bracket, No<br>Shield, Molex Plug | Electrolux 316489403    |
| 41-214       | Hot Surface Ignitor        | 3-7/8" (95mm) | 7" (177mm)      | 501RB  | 3.2 to 3.6 Amps<br>120V AC | Mtg Bracket, No<br>Shield, Molex Plug | Electrolux 316489404    |
| 41-215       | Hot Surface Ignitor        | 3-3/4" (89mm) | 19" (482mm)     | 501A   | 3.2 to 3.6 Amps<br>120V AC | Dual mounts                           | G.E. WB2X9998           |
| 41-216       | Hot Surface Ignitor        | 3-3/4" (89mm) | 10" (254mm)     | 501A   | 3.2 to 3.6 Amps<br>120V AC | Plug Adaptor with<br>dual mounts      | G.E. WB13K21            |
| 41-218       | Hot Surface Ignitor        | 3-3/4" (89mm) | 16" (406mm)     | 501A   | 3.2 to 3.6 Amps<br>120V AC | Molex Plug Adaptor                    | Electrolux 316489408    |
| 41-423       | Hot Surface Ignitor        | NA            | 37" (1016mm)    | 401N   | 1.4 to 2.1 Amps<br>24V AC  |                                       | Southbend 4440385       |
| 41-224       | Hot Surface Ignitor - Mini | NA            | 30" (762mm)     | 401XM  | 1.2 to 2.1 Amps<br>24V AC  |                                       | Southbend 1183200       |
| 41-225       | Hot Surface Ignitor - Mini | NA            | 36" (914mm)     | 401XBM | 1.2 to 2.1 Amps<br>24V AC  |                                       | Bakers Pride M2140A/X   |

## Product Drawings - continued

Examples available.



**1** Year  
Limited  
Warranty



Timers, are essential for the longevity and energy saving functionality of important equipment.

Tork® and Theben® electric timers offer versatility and unbeatable quality to control power and compressor defrost cycles for commercial and residential applications.

- Electric Timers - Analogue.....C2
- Electric Timers - Digital.....C4
- Electric Timers - Electronic.....C5
- Electric Timers - Electromechanical.....C6



# ENERGY





THE-0027AU

## ELECTRIC TIMERS - ANALOGUE

### THE Series

The Theben® Series Electric Timers offer synchronous 24 hour time switches with automatic On/Off control when operation is required at the same time every day, seven days a week.

### Features and Benefits

- Automatic operation for 24 Hour and 7 Day/24 Hour
- Dual Clock face 24 Hour or 7 day (THE-0029AU only)
- Basic defrost functions
- Air conditioning start/stop
- Removable pin setting
- Panel mount
- Screw terminals
- Control plant automatically
- One clock for multiple installations (THE-0029AU only)
- Maintain daily defrost times
- Enable commercial A/C function
- Ease of Set-Up
- Quick mount/replacement
- Secure connection

### Specifications

| Part Numbers     | Description   | Contact Ratings               | Automatic Operation | Operating Temperature Range      | Enclosure | Switch                                | Electrical Rating |
|------------------|---|-------------------------------|---------------------|----------------------------------|-----------|---------------------------------------|-------------------|
| THE-0027AU (ANZ) | WF64B Analogue Time Switch<br>Automatic Operation<br>24 Hour Time Switch<br>Synchronous | 10 Amps (AC1)<br>2 Amps (AC3) | Yes                 | 14°F to 131°F<br>(-10°C to 55°C) | Plastic   | SPDT<br>10 Amps (AC1)<br>2 Amps (AC3) | 240V AC           |
| THE-0029AU (ANZ) | WF64C Analogue Time Switch<br>Automatic Operation<br>24 Hour/7 Day<br>Clock Display     | 10 Amps (AC1)<br>2 Amps (AC3) | Yes                 | 14°F to 131°F<br>(-10°C to 55°C) | Plastic   | SPDT<br>10 Amps (AC1)<br>2 Amps (AC3) | 240V AC           |

1 Year Limited Warranty

## ELECTRIC TIMERS - ANALOGUE

### Electric Timers Series

The Theben® Series Electric Timers offer synchronous 24 hour time switches with automatic On-Off control when operation is required at the same time every day, seven days a week.

### Features and Benefits

- Automatic operation for 24 Hour and 7 Day/24 Hour
- Basic defrost functions
- Air conditioning start/stop
- Captive pin setting
- Din rail mount (1 module wide)
- Screw terminals
- Control plant automatically
- Maintain daily defrost times
- Enable commercial A/C function
- Quick set-up/No loss of pins
- Snap-on mounting on standard DIN rail
- Modern secure connection



THE-SUL180A

**theben**®

## Specifications

| Part Numbers      | Description          | Temperature Range             | Switch                                    | Electrical Rating | Contact Ratings | Enclosure |
|-------------------|----------------------|-------------------------------|---|-------------------|-----------------|-----------|
| THE-SUL180A (ANZ) | Analogue Time Switch | 14°F to 131°F (-10°C to 55°C) | SPST N/O<br>16 Amps (AC1)<br>4 Amps (AC3) | 240V AC           | 16 Amps         | Plastic   |
| THE-SYN161D (ANZ) | Analogue Time Switch | -4°F to 131°F (-20°C to 55°C) | SPDT<br>16 Amps (AC1)<br>4 Amps (AC3)     | 240V AC           | 16 Amps         | Plastic   |

**1** Year Limited Warranty





THETR608TOP2

## ELECTRIC TIMERS - DIGITAL

### TOP2 Series

The Theben® TOP2 Series Digital Timers offer ease of setting through the "Text Orientated Programming Version 2" (TOP2).

### Features and Benefits

- Digital time switch with weekly program
- One channel
- DuoFix Spring terminals
- Text-oriented user guidance in display
- 56 memory locations
- Ten year power reserve (exchangeable lithium battery)
- On/Off switching times
- Switching pre-selection
- Permanent switching On/Off
- PIN coding
- Automatic summer/winter time changeover
- Interface for OBELISK top2 memory card (PC programming)

### Specifications

| Part Numbers       | Description                                       | Programming            | Contact            | Temperature Range              | Enclosure*                   | Automatic Operation | Material*  | Switch                             | Voltage |
|--------------------|---|------------------------|--------------------|--------------------------------|------------------------------|---------------------|--|------------------------------------|---------|
| THETR608TOP2 (ANZ) | Digital Programmable Timer with Defrost Endurance | Weekly                 | Changeover contact | 13°F to 131°F (-25°C to 55°)   | 1 modules DIN rail mount     | Automatic/ Manual   | High-Temperature resistant, self-extinguishing thermoplastic | SPDT, 16 Amps (AC1), 4 Amps (AC3)  | 240V AC |
| THETR610TOP2 (ANZ) | Digital Set Time Switch                           | Weekly program, ON-OFF | Changeover contact | -22°F to 131°F (-30°C to 55°C) | 2 Module Wide Din Rail Mount | Automatic/ Manual   | High temperature resistant, self-extinguishing thermoplastic | SPDT, 16 Amps (AC1), 10 Amps (AC3) | 240V AC |

\*For DIN rail mounted timers

**1** Year Limited Warranty



## ELECTRIC TIMERS - ELECTRONIC

### E100B Series

The Tork® E100B Series multipurpose 1 channel control comes with 120 - 277V AC input voltages for 24 hour programming. Standard enclosure for indoor and outdoor settings uses patented 40 Amp contacts. Applications include display lighting, security systems, HVAC, signs, sump pumps and ventilating fans. Tork Electric Timers are sold exclusively through Robertshaw to HVACR wholesalers.

### Features and Benefits

- Automatic input voltage detection without DIP switches
- LCD Display
- Simple programming with brief easy-to-follow instructions
- Power consumption: 6 watts minimum
- Daylight savings time is automatic (can be omitted)
- Manual override until the next regularly scheduled On or Off. Automatic operation then resumes or permanently if desired
- AM/PM clock format
- Power outage back-up with permanent schedule retention. Super-capacitor maintains real-time clock for 100 hours
- Includes load status and power failure indicators



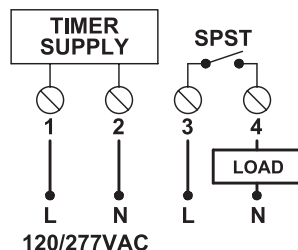
E101B

### Specifications

| Part Numbers | Description              | Contact Ratings   | Scheduling    | Setpoints                 | Operating Temperature             | Enclosure       | Switch | Voltage     |
|--------------|--------------------------|---|---------------|---------------------------|-----------------------------------|-----------------|--------|-------------|
| E101B        | 24 Hour Electronic Timer | 40 A General purpose<br>40 A Inductive 720 VA Pilot Duty<br>1HP (120V AC) | Same Everyday | 20 with 1 minute minimums | -40°F to 149°F<br>(-40°C to 65°C) | Nema 3R Plastic | SPST   | 120-277V AC |
| E103B        | 24 Hour Electronic Timer | 40 A General purpose<br>40 A Inductive 720 VA Pilot Duty<br>1HP (120V AC) | Same Everyday | 20 with 1 minute minimums | -40°F to 149°F<br>(-40°C to 65°C) | Nema 3R Plastic | DPST   | 120-277V AC |

### Product Drawings

E101B Series - Wiring Diagram



1 Year Limited Warranty



1102B



P47

## ELECTRIC TIMERS - ELECTROMECHANICAL

### 1100 Series - 24 Hour Time Switches

The Tork® 1100 Series Electric Timers offer 24 hour time switches with automatic On-Off control when operation is required at the same time every day, seven days a week.

Applications include On-Off control of heating, air conditioning, display lighting, ventilating, pumps and fans.

Tork Electric Timers are sold exclusively through Robertshaw to HVACR wholesalers.

### Features and Benefits

- Heavy-duty synchronous, self-starting high torque timing motor
- Power consumption: 3 watts maximum
- Automatic operation for 24 hour timers with one pair of On-Off trippers supplied – accommodates up to 12 pairs
- Multilingual dial markings – English, French and Spanish
- Temporary manual override
- General purpose (NEMA 1) metal enclosure of deep-drawn steel, enamel coated and lockable hasp
- Combination 1/2" and 3/4" knockouts on both sides, bottom and back



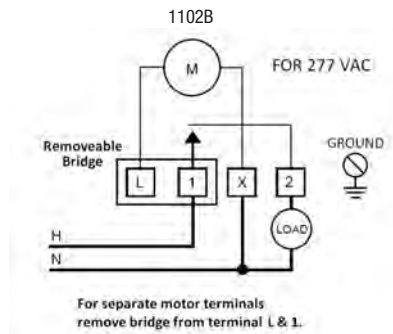
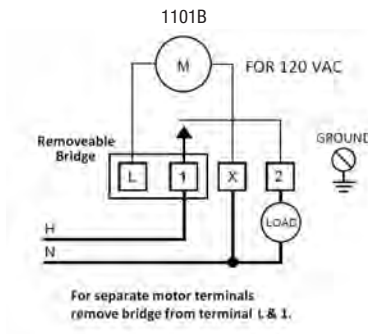


## Specifications

| Part Numbers | Description                               | Contact Ratings  | Automatic Operation                         | Operating Temperature             | Enclosure | Switch | Voltage     |
|--------------|---|--|---|-----------------------------------|-----------|--------|-------------|
| 1101B        | 24 Hour Electromechanical Timer           | 40 A Resistive<br>20 A Inductive<br>1000 VA Pilot Duty<br>2HP (24 FLA) 120V AC | Minimum<br>ON 20 minutes;<br>OFF 75 minutes | -40°F to 165°F<br>(-40°C to 74°C) | Metal     | SPST   | 120V AC     |
| 1102B        | 24 Hour Electromechanical Timer           | 40 A Resistive<br>20 A Inductive<br>1000 VA Pilot Duty<br>2HP (24 FLA) 120V AC | Minimum<br>ON 20 minutes;<br>OFF 75 minutes | -40°F to 165°F<br>(-40°C to 74°C) | Metal     | SPST   | 208-277V AC |
| 1109A        | 24 Hour Electromechanical Timer           | 40 A Resistive<br>20 A Inductive<br>1000 VA Pilot Duty<br>2HP (24 FLA) 120V AC | Minimum<br>ON 20 minutes;<br>OFF 75 minutes | -40°F to 165°F<br>(-40°C to 74°C) | Metal     | DPST   | 120V AC     |
| P47          | Accessory trippers for 1100 Series Timers | NA   | NA  | NA                                | NA        | NA     | NA          |

## Product Drawings

### Single Pole - Wiring Diagrams



**1** Year  
Limited  
Warranty



TU40

## ELECTRIC TIMERS - ELECTROMECHANICAL

### TU40 Series - Universal 24 Hour Time Switches

The Tork® TU40 Series - Universal 24 Hour Time Switches with multi-voltage options offer automatic On-Off control when operation is required at the same time every day, seven days a week.

Applications include On-Off control of heating, air conditioning, display lighting, ventilating, pumps, fans and security systems. Tork Electric Timers are sold exclusively through Robertshaw to HVACR wholesalers.

#### Features and Benefits

- Automatic input voltage detection without DIP switches
- LED indicators for load and power
- Includes On/Off/Auto switch
- Power consumption: 6 VA maximum
- Temporary manual override is standard
- Combination 1/2" and 3/4" knockouts on both sides, bottom and back
- Enclosure includes indoor/outdoor NEMA 3R plastic

### Specifications

| Part Numbers | Description                     | Contact Ratings (Normally Open)   | Automatic Operation            | Temperature Range                 | Enclosure | Switch                              | Voltage   |
|--------------|---------------------------------|---|--------------------------------|-----------------------------------|-----------|-------------------------------------|---|
| TU40         | 24 Hour Electromechanical Timer | 40 A Resistive<br>30 A Inductive<br>720 VA Pilot Duty<br>1HP 120V AC<br>2HP 240V AC | Minimum setting:<br>15 minutes | -31°F to 116°F<br>(-35°C to 47°C) | Plastic   | 4 in 1 DPDT,<br>SPST, SPDT,<br>DPST | Universal<br>Multi-Voltage<br>120/208-<br>240/277V AC |

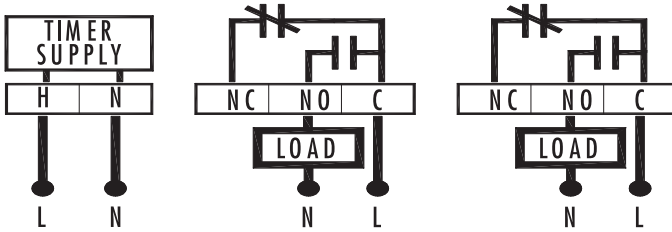




## Product Drawings

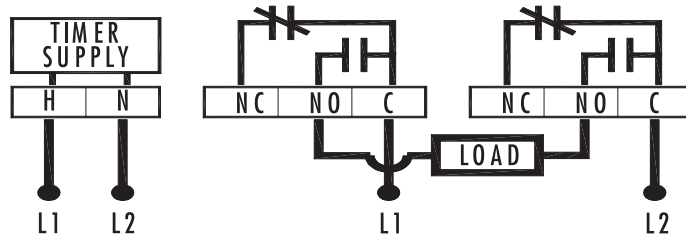
TU40 - 120/277V AC Application - Wiring Diagram

120/277V AC Application



TU40 - 208/240V AC Application - Wiring Diagram

208/240V AC Application







Heating, ventilation and air conditioning contractors value quality performance products, while consumers welcome dependable comfort. With Robertshaw® heating products, both are achievable while delivering productivity and environmentally responsible results. Robertshaw heating products offer kitted and universal solutions designed to replace hundreds of products.

- Gas Valves..... D2
- Water Heating Gas Valves ..... D15
- Electric Water Heating Thermostats..... D16
- Electric Thermostats..... D18
- Thermostatic Antifreeze Valves ..... D19
- Heating Kits ..... D20
- Ignition Controls..... D23
- Ignitors ..... D30
- Pilots..... D34
- Thermocouples..... D36
- Thermopiles..... D38
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- Heating Accessories..... D42
- Pressure Independent Balancing and Control Valves..... D46
- Motorized Actuators ..... D48
- Flare Fittings ..... D48
- Zone Valves..... D49
- Valve Accessories ..... D49



# HEATING





Robertshaw®



700-059

## GAS VALVES

### 700 Series - Pilot, Hot Surface and Direct Spark

The Robertshaw® 700 Series Universal Gas Valves are designed for intermittent pilot ignition applications. These universal models include all the necessary parts to adapt the valves to direct spark or hot surface applications. Each valve incorporates a manual valve, pilot valve, and a main gas pressure regulator (optional by model). These valves are designed for many residential and commercial applications such as central heating units, wall heaters, boilers and mobile home furnaces.

### Features and Benefits

- Universal models with pilot, hot surface and direct spark ignition systems
- Maximum inlet pressure 14" WC (0.5 PSI)
- Ambient temperature of -40°F to 175°F
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

### Specifications

| Part Numbers | Description     | Capacity    | Inlet Size | Outlet Size | Pressure Regulator Setting | Electrical Rating | Comments   |
|--------------|-----------------|-------------|------------|-------------|----------------------------|-------------------|--|
| 700-049      | Universal Model | 300,000 BTU | 1/2"       | 1/2"        | 3.0" WC Natural Gas        | 24V AC @ 60 Hz    | Includes pilot plug  |
| 700-056      | Universal Model | 350,000 BTU | 3/4"       | 3/4"        | 3.5" WC Natural Gas        | 24V AC @ 60 Hz    | Straight-thru with slow opening feature for soft ignition. Can be field removed. |
| 700-057      | Universal Model | 720,000 BTU | 1"         | 1"          | 4.0" WC Natural Gas        | 24V AC @ 60 Hz    | Straight-thru  |
| 700-059      | Universal Model | 720,000 BTU | 1"         | 1"          | 4.0" WC Natural Gas        | 24V AC @ 60 Hz    | Straight-thru with slow opening feature for soft ignition. Can be field removed. |

RoHS



1 Year Limited Warranty

D2



## GAS VALVES

### 700 Series - Millivolt

The Robertshaw® 700 Series Millivolt Gas Valves are wall thermostat actuated combination controls which provide installation flexibility from furnaces to swimming pool applications. The complete line of 700-500 millivolt gas valves offers a wide range of replacements from small capacity 3/8" pipe to high capacity 1" pipe up to 720,000 BTU usage.

#### Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of -40°F to 175°F
- Terminal type combination screw/spade
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- RoHS compliant



700-506

### Specifications

| Part Numbers      | Description            | Capacity    | Inlet Size | Outlet Straight-Thru (FPT) | Outlet Side (FPT) With Plugs | Reducer Bushing (NPT) | Pressure Regulator Setting | Electrical Rating | Compatible with                               |
|-------------------|------------------------|-------------|------------|----------------------------|------------------------------|-----------------------|----------------------------|-------------------|---|
| 700-501           | Millivolt Nonregulated | 100,000 BTU | 1/2"       | 1/2"                       | 1/2"                         | 2                     | NA                         | 250mV to 750mV    | NA  |
| 700-502           | Millivolt              | 100,000 BTU | 1/2"       | 1/2"                       | 1/2"                         | 2                     | 3.5" WC Natural Gas        | 250mV to 750mV    | Coaxial and two lead thermopile               |
| 700-503           | Millivolt              | 240,000 BTU | 1/2"       | 3/4"                       | 1/2"                         | 1                     | NA                         | 250mV to 750mV    | NA  |
| 700-504           | Millivolt              | 240,000 BTU | 1/2"       | 3/4"                       | 1/2"                         | 1                     | 3.5" WC Natural Gas        | 250mV to 750mV    | Coaxial and two lead thermopile               |
| 700-505           | Millivolt Nonregulated | 300,000 BTU | 3/4"       | 3/4"                       | Straight-thru                | 2                     | NA                         | 250mV to 750mV    | NA  |
| 700-506           | Millivolt              | 300,000 BTU | 3/4"       | 3/4"                       | Straight-thru                | 2                     | 3.5" WC Natural Gas        | 250mV to 750mV    | Coaxial and two lead thermopile               |
| 700-509           | Millivolt              | 100,000 BTU | 1/2"       | 1/2"                       | Straight-thru                | 2                     | 4.0" WC Natural Gas        | 250mV to 750mV    | Coaxial and two lead thermopile               |
| 700-511           | Pool Heater            | 400,000 BTU | 3/4"       | 3/4"                       | Straight-thru                | 2                     | Uni-Kit® Natural Gas       | 250mV to 750mV    | Teledyne-Lars coaxial and two lead thermopile |
| 700-515           | Millivolt              | 485,000 BTU | 3/4"       | 3/4"                       | Straight-thru                | 2                     | 10.0" WC L.P. Gas          | 250mV to 750mV    | NA  |
| 700-516           | Millivolt              | 240,000 BTU | 1/2"       | 1/2"                       | Straight-thru                | NA                    | 4.0" WC Natural Gas        | 250mV to 750mV    | NA  |
| 359811491A (SA)   | Gas Valve 7000MVRNAT   | 300,000 BTU | 3/4"       | NA                         | 3/4" (FPT)                   | 2 NPT                 | 3.5" WC Natural Gas        | 250mV to 750mV    | Coaxial and two lead thermopile               |
| 359-812-490A (SA) | Gas Valve 7000BMVRLP   | 485,000 BTU | 3/4"       | NA                         | 3/4" (FPT)                   | 2 NPT                 | LP Gas 10" WC              | 250mV to 750mV    | NA  |

RoHS



1 Year Limited Warranty



Robertshaw®



700-402

## GAS VALVES

### 700 Series - 24 Volt Combination

The Robertshaw® 700 Series 24 Volt Combination Gas Valves offer replacement flexibility. With capacities ranging to 720,000 BTU, three-position outlets and multi-positional capability, these combination gas valves offer unlimited replacement possibilities. The 24 Volt Uni-Kit® models are suitable for either natural or LP gas. The valve is factory set at 3.5" WC natural gas. A regulator cover plate is included to convert to LP gas.

### Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of -40°F to 175°F
- Combination screw/spade terminal type
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

## Specifications

| Part Numbers | Description         | Capacity    | Inlet Size | Outlet Size | Side Outlets  | Pressure Regulator Setting | Electrical Rating                     | Comments                               |
|--------------|---------------------|-------------|------------|-------------|---------------|----------------------------|---------------------------------------|--|
| 700-400      | 24 Volt Combination | 240,000 BTU | 1/2"       | 3/4"        | Straight-thru | Uni-Kit® Natural Gas       | 24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps | NA                                     |
| 700-402      | 24 Volt Combination | 240,000 BTU | 1/2"       | 3/4"        | 1/2"          | Uni-Kit Natural Gas        | 24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps | NA                                     |
| 700-406      | 24 Volt Combination | 300,000 BTU | 3/4"       | 3/4"        | Straight-thru | Uni-Kit Natural Gas        | 24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps | NA                                     |
| 700-409      | 24 Volt Combination | 240,000 BTU | 1/2"       | 1/2"        | Straight-thru | 3.5" WC Natural Gas        | 24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps | Thermopile type safety magnet          |
| 700-426      | 24 Volt Combination | 300,000 BTU | 3/4"       | 3/4"        | Straight-thru | 3.5" WC Natural Gas        | 24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps | Slow opening feature for soft ignition |
| 700-442      | 24 Volt Combination | 720,000 BTU | 1"         | 1"          | Straight-thru | 3.5" WC Natural Gas        | 24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps | Slow opening feature for soft ignition |

RoHS



1 Year Limited Warranty

D4





## GAS VALVES

### 700 Series - Line Voltage

The Robertshaw® 700 Series Line Voltage Gas Valves offer the same replacement flexibility as the 24 Volt combination controls. Line Voltage models are available in 120 and 240 Volts AC. Features include three-position outlets, multi-positional capability and capacities ranging up to 720,000 BTU.

#### Features and Benefits

- Slotted safety magnet
- Gas cock dial marking Off - Pilot - On
- Ambient temperature of -40°F to 175°F
- Pilot outlet 1/4" tubing
- Cover type for conduit connection
- Inlet filtered screen
- RoHS compliant



700-454

### Specifications

| Part Numbers | Description        | Capacity    | Inlet Size | Outlet Straight-Thru (FPT) | Outlet Side (FPT) With Plugs | Reducer Bushings Included (NPT)<br>3/4" x 1/2" | Pressure Regulator Setting | Lead Length | Electrical Rating    |
|--------------|--------------------|-------------|------------|----------------------------|------------------------------|--|----------------------------|-------------|----------------------|
| 700-452      | Line Voltage Valve | 240,000 BTU | 1/2"       | 3/4"                       | 1/2"                         | 1  | 3.5" WC Natural Gas        | 32"         | 120V AC @ 0.034 Amps |
| 700-453      | Line Voltage Valve | 300,000 BTU | 3/4"       | 3/4"                       | Straight-thru                | 2  | None                       | 32"         | 120V AC @ 0.034 Amps |
| 700-454      | Line Voltage Valve | 300,000 BTU | 3/4"       | 3/4"                       | Straight-thru                | 2  | 3.5" WC Natural Gas        | 32"         | 120V AC @ 0.034 Amps |

RoHS



1 Year Limited Warranty

D5





Robertshaw®



700-513

## GAS VALVES

### 700 Series - Diaphragm/Solenoid

The Robertshaw® 700 Series Diaphragm/Solenoid Gas Valves are single function, diaphragm types and are excellent replacements for solenoid gas valves. Models are available with or without a gas cock, and in regulated or non-regulated configurations. Standard features include pilot outlet, pilot gas filter and pilot adjustment key. Valves can be mounted in any position except upside down. These valves do not have a safety magnet.

### Features and Benefits

- Pilot outlet 1/4" tubing
- Maximum inlet pressure 14" WC (0.5 PSI)
- Ambient temperature of -40°F to 175°F
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

## Specifications

| Part Numbers | Description                                   | Capacity    | Inlet Size | Outlet Size | Side Outlets  | Pressure Regulator Setting | Electrical Rating                     |
|--------------|---|-------------|------------|-------------|---------------|----------------------------|---------------------------------------|
| 700-422      | 24 Volt Diaphragm Solenoid                    | 240,000 BTU | 1/2"       | 3/4"        | 1/2"          | 3.5" WC Natural Gas        | 12V DC @ 0.18 Amps, 24V AC @ 0.2 Amps |
| 700-513      | Millivolt Diaphragm Solenoid without Gas Cock | 240,000 BTU | 1/2"       | 1/2"        | Straight-thru | NA                         | 250 - 750 mV                          |

RoHS



1 Year Limited Warranty

D6



## GAS VALVES

### 700 Series - 2-Stage 24 Volt

The Robertshaw® 2-Stage 24 Volt Gas Valves - standing pilot as well as intermittent pilot models - feature reliability, performance, flexibility and easy installation all in one compact control. These valves feature a manual valve (gas cock), inlet/outlet screens, pilot gas filter, and pilot adjustment key. Models have a slotted automatic pilot safety magnet to provide gas shut-off in case of a pilot outage.

#### Features and Benefits

- Pilot outlet 1/4" tubing
- Terminal type 1/4" quick-connect
- Ambient temperature of -40°F to 175°F
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- RoHS compliant



700-064

## Specifications

| Part Numbers | Description       | Capacity    | Inlet Size | Outlet Size | Reducer Bushing (NPT) | Pressure Regulator Setting  | Electrical Rating  | Comments  |
|--------------|-------------------|-------------|------------|-------------|-----------------------|---|--|---|
| 700-064      | Universal 2-Stage | 720,000 BTU | 1"         | 1"          | 2                     | 1.3" WC low-fire,<br>3.5" WC high-fire for Natural Gas,<br>2.8" WC low-fire,<br>11.0" WC high-fire for LP | 24V AC @ 50/60 Hz,<br>0.2 Amps low-fire,<br>0.4 Amps high-fire | Slow opening feature for soft ignition. Can be field removed. |

RoHS



1 Year Limited Warranty



Robertshaw®



700-205

## GAS VALVES

### 700 Series - Snap-Throttle Hydraulic

The Robertshaw® 700 Series Snap-Throttle Hydraulic Combination Gas Valves are thermostatically operated by a remote temperature sensing bulb. Models are available with single capillary or remote dial-in snap-action and snap-throttle types. Valves can be mounted in any position except upside down.

#### Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of 32°F to 175°F
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

### Specifications

| Part Numbers | Description             | Capacity    | Inlet Size | Outlet Side (FPT) With Plugs | Pressure Regulator Setting | Capillary Length | Bulb Outer Diameter | Bulb Length | Dial Temperature | Remote Temperature |
|--------------|-------------------------|-------------|------------|------------------------------|----------------------------|------------------|---------------------|-------------|------------------|--------------------|
| 700-204      | Snap-Throttle Hydraulic | 160,000 BTU | 1/2"       | 1/2"                         | None                       | 36"              | 1/4"                | 8"          | 58°F to 90°F     | 45°F to 95°F       |
| 700-205      | Snap-Throttle Hydraulic | 100,000 BTU | 1/2"       | 1/2"                         | 3.5" WC Natural Gas        | 36"              | 1/4"                | 8"          | 58°F to 90°F     | 45°F to 95°F       |

RoHS



1 Year Limited Warranty

D8



## GAS VALVES

### 700 Series - Actuators

The Robertshaw® 700 Series Gas Valves are the industry standard with capacity ranges from 5,000 to 1,150,000 BTUs. Several actuator types are available depending upon the application such as 24 Volts, Line Voltage, Millivolt and Hydraulic.

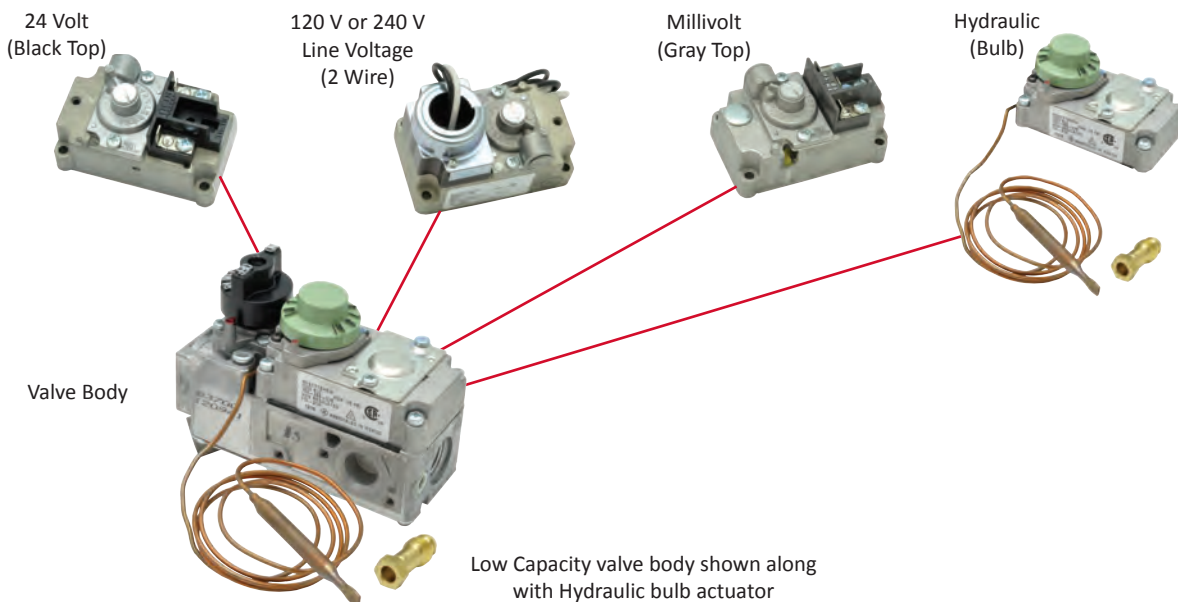


Standard 700 shown with Millivolt gray top actuator

### Specifications

| Part Numbers | Description            | Gas Valve Model | Pressure Regulator Setting | Ambient Temperature Rating     | Thermostat Temperature Range | Electrical Rating                     | NEC     |
|--------------|------------------------|-----------------|----------------------------|--------------------------------|------------------------------|---------------------------------------|---------|
| 705-401      | 12V DC/24V AC Actuator | 7000E           | NR                         | -40°F to 175°F (-40°C to 80°C) | NA                           | 12V DC, 0.18 Amps<br>24V AC, 0.2 Amps | Class 2 |
| 705-402      | 12V DC/24V AC Actuator | 7000ER          | 3.5" WC                    | -40°F to 175°F (40°C to 80°C)  | NA                           | 12V DC, 0.18 Amps<br>24V AC, 0.2 Amps | Class 2 |
| 705-452      | 12V AC Actuator        | 7000ER-120      | 3.5" WC                    | -40°F to 175°F (-40°C to 80°C) | NA                           | 120V AC, 0.034 Amps                   | Class 1 |
| 705-461      | 24V AC Actuator        | 7000E-240       | NR                         | -40°F to 175°F (-40°C to 80°C) | NA                           | 240V AC, 0.017 Amps                   | Class 1 |
| 705-462      | 24V AC Actuator        | 7000ER-240      | 3.5" WC                    | -40°F to 175°F (-40°C to 80°C) | NA <td 240V AC, 0.017 Amps   | Class 1                               |         |

Note: All the above models are available in regulated (R), high/low (RB), convertible (RC) or non-regulated (NR).

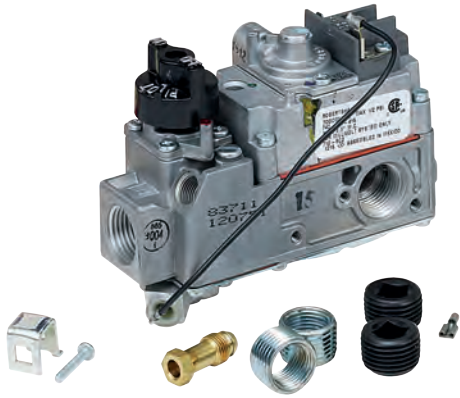


RoHS

1 Year Limited Warranty



Robertshaw®



710-502

## GAS VALVES

### 710 Series - Low Capacity

The Robertshaw® 710 Series Low Capacity Gas Valves feature an extremely compact control designed for low capacity and limited space applications. Features include three-position outlets, multi-positional capability and component replaceability.

### Features and Benefits

- Low capacity with 3-13/16"H x 4-21/32"L x 1-29/32" W dimensions
- Gas cock dial marking Off - Pilot - On
- Ambient temperature of -40°F to 175°F
- Pilot outlet 1/4" tubing
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

RoHS



D10



## Specifications

| Part Numbers | Description                        | Application           | Capacity                               | Inlet Size | Outlet Size        | Reducer Bushing (NPT) | Pressure Regulator Setting                   |
|--------------|------------------------------------|-----------------------|--|------------|--------------------|-----------------------|--|
| 710-203      | Hydraulic Snap-Action Low Capacity | Recreational vehicles | 70,000 BTU Natural Gas, 112,000 BTU LP | 1/2"       | 1/2"               | (2) 1/2" x 3/8"       | NA   |
| 710-205      | Hydraulic Snap-Action Low Capacity | Wall furnaces         | 70,000 BTU Natural Gas, 112,000 BTU LP | 1/2"       | 1/2"               | (2) 1/2" x 3/8"       | 3.5" WC Natural Gas                          |
| 710-402      | 24 Volt Low Capacity               | Wall furnaces         | 70,000 BTU                             | 1/2"       | 1/2"               | (2) 1/2" x 3/8"       | 3.5" WC Natural Gas                          |
| 710-501      | Millivolt Low Capacity             | Space heaters         | 70,000 BTU                             | 1/2"       | 1/2"               | (2) 1/2" x 3/8"       | NA   |
| 710-502      | Millivolt Low Capacity             | Space heaters         | 70,000 BTU                             | 1/2"       | 1/2"               | (2) 1/2" x 3/8"       | 3.5" WC Natural Gas                          |
| 710-503      | Millivolt Low Capacity             | Fireplace control     | 70,000 BTU                             | 1/2"       | 3/8"               | NA                    | Hi-Lo Adjustable 1.7" to 3.5" WC Natural Gas |
| 710-508      | Millivolt Low Capacity             | Fireplace control     | 70,000 BTU                             | 3/8"       | 3/8" Straight-thru | NA                    | 3.5" WC Natural Gas                          |
| 710-511      | Millivolt Low Capacity             | Fireplace control     | 70,000 BTU                             | 1/2"       | 3/8" Straight-thru | NA                    | Hi-Lo Adjustable 1.7" to 3.5" WC Natural Gas |

## Specifications continued

| Part Numbers | Capillary Length | Electrical Rating                     | Comments  |
|--------------|------------------|---------------------------------------|---|
| 710-203      | 36"              | NA                                    | Hydraulic Valve   |
| 710-205      | 36"              | NA                                    | Hydraulic Valve   |
| 710-402      | NA               | 24V DC @ 0.2 Amps, 12V AC @ 0.18 Amps | Use standard thermocouple   |
| 710-501      | NA               | 250mV to 750mV                        | Use two lead thermopiles only   |
| 710-502      | NA               | 250mV to 750mV                        | Use two lead thermopiles only   |
| 710-503      | NA               | 250mV to 750mV                        | Use two lead thermopiles only   |
| 710-508      | NA               | 250mV to 750mV                        | Special dropout safety magnet to meet Canadian specifications used with quick-dropout pilot assembly 1819-100.                                |
| 710-511      | NA               | 250mV to 750mV                        | Special dropout safety magnet to meet Canadian specifications used with quick-dropout pilot assembly 1819-100. Use two lead thermopiles only. |

**1** Year Limited Warranty





720-402

## GAS VALVES

### 720 Series - 24 Volt Dual

The Robertshaw® 720 Series 24 Volt Dual Gas Valve is a six-function gas valve incorporating a manual valve, safety shut-off magnet, dual automatic valves, main gas regulator, and pilot adjustment. Models are available with and without a pressure regulator. Uni-Kit® models are factory set at 3.5" WC for natural gas, but can be converted to LP by installing the regulator conversion kit included.

The wiring connections, manual selector and adjustments are easily accessible on top of the valve. With a 3-9/16" swing radius, the 720 Series lends itself well to replacing many OEM valves. Valve can be mounted in any position except upside down.

### Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of -40°F to 175°F
- Combination screw/spade terminal type
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

## Specifications

| Part Numbers | Description  | Capacity    | Inlet Size | Outlet Size | Side Outlets        | Pressure Regulator Setting              | Reducer Bushings Included (NPT)<br>3/4" x 1/2" | Reducer Bushings Included (NPT)<br>1/2" x 3/8" | Electrical Rating          | Comments   |
|--------------|--------------|-------------|------------|-------------|---------------------|---|--|--|----------------------------|--|
| 720-400      | 24 Volt Dual | 150,000 BTU | 1/2"       | 3/4"        | None                | Uni-Kit® Natural Gas                    | 1  | 1  | 24V AC, 0.5 Amps, 50/60 Hz | NA   |
| 720-402      | 24 Volt Dual | 150,000 BTU | 1/2"       | 3/4"        | 1/2" FPT with plugs | Uni-Kit Natural Gas                     | 1  | NA   | 24V AC, 0.5 Amps, 50/60 Hz | NA   |
| 720-406      | 24 Volt Dual | 150,000 BTU | 3/4"       | 3/4"        | None                | Uni-Kit Natural Gas                     | 2  | NA   | 24V AC, 0.5 Amps, 50/60 Hz | NA   |
| 720-472      | 24 Volt Dual | 150,000 BTU | 1/2"       | 1/2"        | 1/2" FPT with plugs | 3.5" WC Natural or 11.0" LP Convertible | NA   | 1  | 24V AC, 0.5 Amps, 50/60 Hz | Step-opening to 40% of full flow within 30 seconds for mobile home |
| 720-474      | 24 Volt Dual | 150,000 BTU | 1/2"       | 1/2"        | 1/2" FPT with plugs | 3.5" WC Natural or 11.0" LP Convertible | NA   | 1  | 24V AC, 0.5 Amps, 50/60 Hz | Step-opening for mobile home                                       |

RoHS



1 Year Limited Warranty



## GAS VALVES

### 720 Series - Lever Actuated

The Robertshaw® 720 Series Lever Actuated Gas Valves are designed for intermittent pilot ignition applications. This series incorporates a manual valve, pilot valve, dual automatic valves (2), and a main gas pressure regulator. Uni-Kit® models are factory set at 3.5" WC for natural gas, but can be converted to LP by installing the regulator conversion kit included. The 720 Series is designed for many residential applications such as central heating units, space heaters, wall heaters, boilers, and mobile home furnaces. This valve has a compact swing radius of only 3-9/16" to enable it to fit a wide range of OEM replacement applications.

### Features and Benefits

- Pilot outlet 1/4" tubing
- 1/4" quick connect terminal type
- Ambient temperature of -40°F to 175°F
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Rated as NEC Class 2
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- RoHS compliant



720-079

## Specifications

| Part Numbers | Description        | Capacity    | Inlet Size | Outlet Size | Pressure Regulator Setting | Electrical Rating                   | Comments  |
|--------------|--------------------|-------------|------------|-------------|----------------------------|-------------------------------------|---|
| 720-070      | Slow Opening Model | 150,000 BTU | 1/2"       | 3/4"        | Uni-Kit® Natural Gas       | 24V AC , 50/60 Hz, 45 Amps, 5 Watts | Has slow-opening feature for soft ignition. Not normally used on hot surface applications |
| 720-079      | Universal Model    | 150,000 BTU | 1/2"       | 3/4"        | Uni-Kit Natural Gas        | 24V AC , 50/60 Hz, 45 Amps, 5 Watts | Use on surface, spark pilot or direct spark ignition                                      |

RoHS



1 Year Limited Warranty



Robertshaw®

## GAS VALVES



### 722 Series - Low Capacity Dual

The Robertshaw® 722 Series Low Capacity Dual Gas Valve Uni-Kit® models are designed for a wide variety of intermittent pilot, direct spark or hot surface heating applications.

They incorporate dual automatic valves (redundant) that are pressure regulated and come factory set at 3.5" WC for natural gas. They can be converted to LP by installing the regulator conversion kit that is included.

### Features and Benefits

- Small, compact size, 3-9/16" swing radius
- Incorporates a manual selector valve (On-Off), dual automatic valves, main gas regulator and inlet/outlet pressure taps
- Easily accessible wiring connections, manual selector, and adjustments designed to replace many OEM valves
- Multi-positional and can be mounted in any position except upside down
- As a safety feature, special screws are used and replacement parts are not available to prevent unsafe attempts at repair

### Specifications

| Part Numbers | Description                                    | Capacity    | Inlet Size | Outlet Size | Pressure Regulator Setting | Comments      |
|--------------|--|-------------|------------|-------------|----------------------------|---------------|
| 722-051      | Hot Surface and Direct Spark Low Capacity Dual | 170,000 BTU | 1/2"       | 1/2"        | Uni-Kit® Natural Gas       | Straight-thru |
| 722-079      | Universal Low Capacity Dual                    | 170,000 BTU | 1/2"       | 1/2"        | Uni-Kit Natural Gas        | Straight-thru |



1 Year Limited Warranty



## WATER HEATING GAS VALVES

### 110 Series

The Robertshaw® 110 Series Water Heating Gas Valves are designed for universal replacement applications in water tanks. All models feature a built-in, non-cycling Energy Cut-Off (ECO) system to shut off all gas to the water heater in case of excessive water temperatures. The ECO is designed to detect over-temperature conditions and to open. Once opened, the control will not function and a new replacement will be required.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Models include 5-1/2" sensing element
- Various inlet size, outlet size, regulator settings and shank lengths
- Right hand or left hand threads
- Multiple BTU capacities available
- Domestic, commercial and recreational vehicle applications



110-202

## Specifications

| Part Numbers | Description                      | Flow Setting | Inlet Size | Outlet Size                              | Shank Length | Pressure Regulator Setting | Temperature  | Sensing Element |
|--------------|----------------------------------|--------------|------------|--|--------------|----------------------------|--------------|-----------------|
| 110-202      | Water Heater Thermostat Uni-Kit® | 45,000       | 1/2" Pipe  | 1/2" Inverted Flare                      | 1-3/8"       | 4.0" WC Natural Gas        | 160°F (71°C) | NA              |
| 110-326      | Water Heater Thermostat Uni-Kit  | 45,000       | 1/2" Pipe  | 1/2" Inverted Flare                      | 1-3/8"       | 3.5" WC Natural Gas        | 160°F (71°C) | NA              |
| 110-262      | Water Heater Thermostat Uni-Kit  | 38,000       | 1/2" Pipe  | 1/2" Inverted Flare (Right Hand Threads) | 1-3/8"       | 9" WC to 12" WC LP         | 160°F (71°C) | NA              |
| 110-265      | Water Heater Thermostat Uni-Kit  | 38,000       | 1/2" Pipe  | 1/2" Inverted Flare (Left Hand Threads)  | 1-3/8"       | 9" WC to 12" WC LP         | 160°F (71°C) | NA              |



**1** Year Limited Warranty



## ELECTRIC WATER HEATING THERMOSTATS



### ST Series

The Robertshaw® ST Series Electric Water Heating Thermostats are designed for replacement on domestic and commercial water heaters.

### Features and Benefits

- Automatic cycling
- High limit manual reset
- Compact design assures firm clamp to tank
- Snap-action operation controls
- Fast and easy wiring
- Adjustable temperature ranges

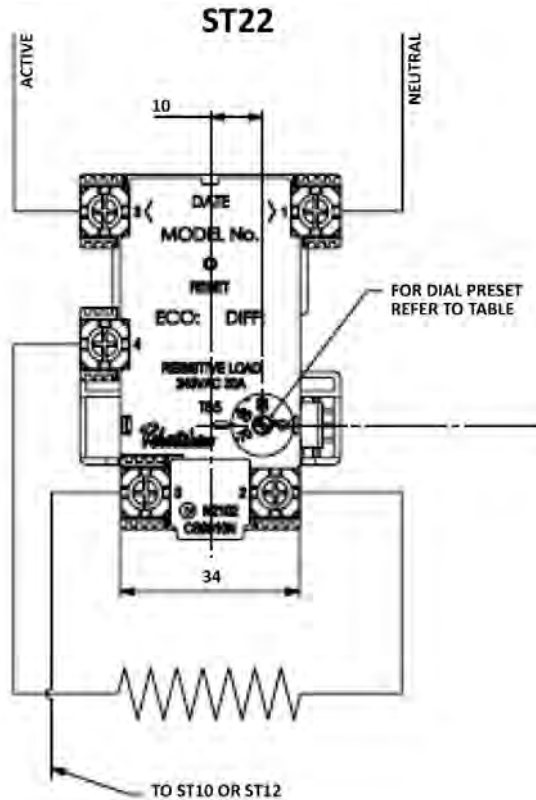
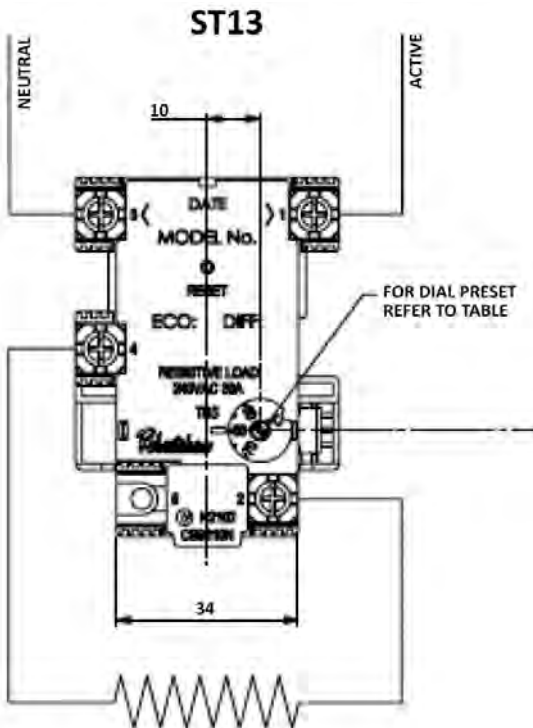
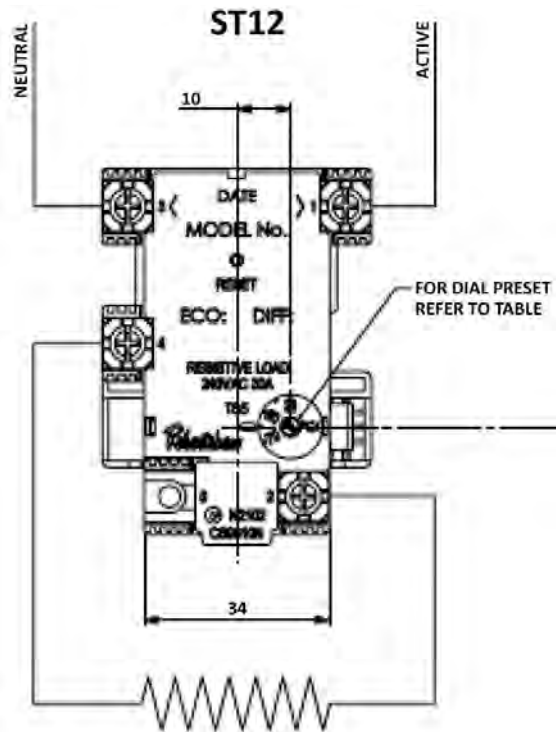
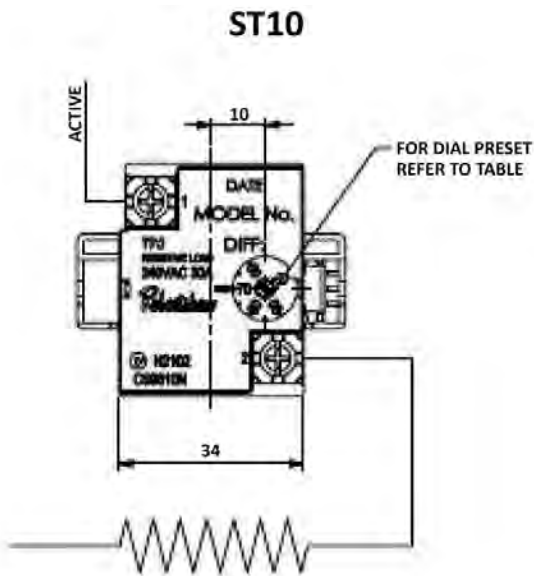
### Specifications

| Part Numbers       | Description                                  | Replaces | Typical Application | Switch Type | Temperature Range | High Limit | Differential | Electrical Ratings | Power      |
|--------------------|--|----------|---------------------|-------------|-------------------|------------|--------------|--------------------|------------|
| ST10-80K (ANZ, EU) | Hot Water Surface Thermostat                 | EWT-1    | Single              | SPST        | 60°C to 80°C      | NA         | 8°C (± 4°C)  | 240V AC<br>30 Amps | 7200 Watts |
| ST10-90K (ANZ, EU) | Hot Water Surface Thermostat                 | EWT-1    | Single              | SPST        | 60°C to 90°C      | NA         | 8°C (± 4°C)  | 240V AC<br>30 Amps | 7200 Watts |
| ST12-70K (ANZ, EU) | Hot Water Surface Thermostat with High Limit | EWT-1L2  | Single              | SPST/DPST   | 50°C to 70°C      | 84°C ± 5°C | 8°C (± 4°C)  | 240V AC<br>30 Amps | 7200 Watts |
| ST12-80K (ANZ, EU) | Hot Water Surface Thermostat with High Limit | EWT-1L2  | Single              | SPST/DPST   | 60°C to 80°C      | 84°C ± 5°C | 8°C (± 4°C)  | 240V AC<br>30 Amps | 7200 Watts |
| ST13-70K (ANZ, EU) | Hot Water Surface Thermostat with High Limit | EWT-1L2S | Single              | SPST/DPST   | 50°C to 70°C      | 84°C ± 5°C | 8°C (± 4°C)  | 240V AC<br>30 Amps | 7200 Watts |
| ST22-60K (ANZ, EU) | Hot Water Surface Thermostat with High Limit | EWT-2L2  | Double /Off Peak*   | SPDT/DPST   | 50°C to 70°C      | 84°C ± 5°C | 8°C (± 4°C)  | 240V AC<br>30 Amps | 7200 Watts |
| ST22-80K (ANZ, EU) | Hot Water Surface Thermostat with High Limit | EWT-2L2  | Double /Off Peak*   | SPDT/DPST   | 50°C to 70°C      | 84°C ± 5°C | 8°C (± 4°C)  | 240V AC<br>30 Amps | 7200 Watts |

\* Off Peak power in Australia ST22 coupled to ST12 for two element system.



## Product Drawings



*Robertshaw*<sup>®</sup>

**1** Year  
Limited  
Warranty





## ELECTRIC THERMOSTATS

### WH9 Series

The Robertshaw® WH9 Electric Thermostat is a surface contact temperature control device for water tanks heated by electric heaters (boilers) and solar heated tanks. It is placed next to the tank's metal wall and has a bimetallic strip that is triggered in case of overheating.



WH9

### Specifications

| Part Numbers | Description                   | Temperature Range | Reset      |
|--------------|-------------------------------|-------------------|------------|
| WH9 (SA)     | Bimetallic Contact Thermostat | 43°C to 66°C      | No Reset   |
| WH9WL6 (SA)  | Bimetallic Contact Thermostat | 43°C to 66°C      | With Reset |



## THERMOSTATIC ANTIFREEZE VALVES

### FP Series

The Robertshaw® FP-45 Antifreeze Valve uses a reliable, self-contained power element that is sensitive to temperature and operates without electrical power or sensors. In solar applications, the gate of the valve typically opens as temperatures decrease, allowing the liquid to spill and to be replaced by warmer water when the water is near the freezing point in solar panels. When warmer water enters, the gate of the valve is closed and the removal of water is interrupted.

### Features and Benefits

- Protect solar collectors and exposed piping from freezing
- Easily installed on existing systems
- 125 P.S.I. maximum operating pressure
- Corrosion resistant
- Tamper resistant
- Anti-siphon and alternate discharge port
- Discharge port for 1/4" plastic pipe or 5/8" I.D. hose
- 1/2" Brass male pipe thread inlet port for positive seal
- Nominal start to open water temperature of FP-45 is 43°F
- High temperature U.V. stabilized body material
- Ideal for back-up freeze protection
- Actual size is 5" high
- Available in standard and lead-free versions upon request.



FP-45

*Robertshaw*<sup>®</sup>

## Specifications

| Part Numbers | Description                             | Temperature Range |
|--------------|---|-------------------|
| FP-45        | FP Series Thermostatic Antifreeze Valve | 6°C               |

**1** Year  
Limited  
Warranty



# HEATING

Robertshaw®



710-296

## HEATING KITS

### 710 Series - Millivolt Kit

The Robertshaw® 710-296 Millivolt Kit includes a low profile millivolt actuated gas valve, a pilot generator kit and an easy-to-use mechanical wall thermostat. The kit includes the Robertshaw gas valve cross reference pocket guide.

#### Features and Benefits

- Most common parts needed in retrofit millivolt applications
- Reduces inventory with most common parts
- Easy-to-select, use and install

### Specifications

| Part Numbers | Description   | Hood Type          | Thermostat     | Gas Valve           |
|--------------|---------------|--------------------|----------------|---------------------|
| 710-296      | Millivolt Kit | 1820-009 Pilot Kit | 505 Thermostat | 710-502 Low Profile |

## HEATING KITS

### 712 Series - Pilot Kits

The Robertshaw® 712 Series Intermittent Pilot Ignition System Kit features flame rectification with solid-state logic and flame sensing to provide automatic sequencing that will ensure proper operation of an intermittent pilot ignition device. The 712 pilot ignition systems are available with one of four different gas valve types to fit a wide range of furnace applications.

Caution: Do not use on LP gas applications

#### Features and Benefits

- Quick and easy installation
- Complete in-depth instructions and trouble shooting information
- Used on natural gas systems only



712-017

### Specifications

| Part Numbers | Description                            | Gas Valve | Inlet | Outlet | Capacity    | Restart            | Pressure Regulator Setting | Ignition Control   |
|--------------|--|-----------|-------|--------|-------------|--------------------|----------------------------|--|
| 712-008      | Intermittent Pilot Ignition System Kit | 720-070   | 1/2"  | 3/4"   | 150,000 BTU | 3 Try Lockout      | Uni-Kit® Natural Gas       | 780-845 (Lockout)  |
| 712-016      | Intermittent Pilot Ignition System Kit | 700-056   | 3/4"  | 3/4"   | 350,000 BTU | Restart Nonlockout | 3.5" Natural Gas           | Nonlockout - Caution: Do not use on L.P. Gas Applications. |
| 712-017      | Intermittent Pilot Ignition System Kit | 720-070   | 1/2"  | 3/4"   | 200,000 BTU | Nonlockout         | 3.5" WC Natural Gas Only   | 780-715 (Nonlockout)                                       |
| 712-022      | Intermittent Pilot Ignition System Kit | 722-079   | 1/2"  | 1/2"   | 170,000 BTU | Restart Nonlockout | Uni-Kit Natural Gas        | 780-715 (Nonlockout)                                       |

1 Year Limited Warranty

D20



## HEATING KITS

### Hot Surface Uni-Kit360

The Robertshaw® Uni-Kit360 Heating Kit has you covered 360° with universal products all in one box for use with HSI (Hot Surface Ignition) gas systems. Kit includes the following:

- Universal gas valve
- Universal ignition control
- Universal nitride ignitor
- Universal flame sensor
- Universal air pressure sensing switch
- Gas valve cross reference pocket book, screwdriver and toolbag

### Features and Benefits

- Universal controls with the necessary parts included for most hot surface heating applications
- Reduces inventory with one easy-to-order SKU
- Trusted brand in heating controls for over 100 years

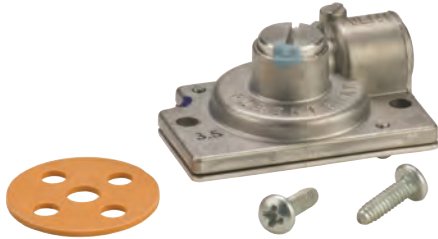


UNI-KIT360

## Specifications

| Part Numbers | Description                              | Gas Valve | Inlet | Outlet | Capacity    | Hot Surface Ignitor | Flame Pattern | Ignition Control | Air Sensing Switch |
|--------------|--|-----------|-------|--------|-------------|---------------------|---------------|------------------|--------------------|
| UNI-KIT360   | Universal Hot Surface Heating Repair Kit | 720-079   | 1/2"  | 3/4"   | 150,000 BTU | 41-802N             | 10-760        | ICM-283          | 2374-510           |

**1** Year Limited Warranty



1751-003

## HEATING KITS

### Regulator Kits

The Robertshaw® 1751 Series Add-on Pressure Regulator Kits are available for use on the following factory model types; 7000, 7010, 7100, 7200 and 7222. Each 1751 pressure regulator kit provides straight-line regulation and includes all the necessary parts including instructions to convert a specific factory model gas valve.

### Features and Benefits

- Converts natural gas to LP and vice versa
- Not for use with hydraulic models which cannot be field converted
- Includes all necessary parts for easy regulation conversion

## Specifications

| Part Numbers | Description                   | Suitable For | Series                                  | Regulator Type                  | Adjustable WC Pressure Low/High |
|--------------|-------------------------------|--------------|---|---------------------------------|---------------------------------|
| 1751-003     | Add-On Pressure Regulator Kit | Natural Gas  | 700 & 710 Series (Models 7000 & 7000LC) | 3.5" WC Natural Gas             | 3" / 7"                         |
| 1751-013     | Add-On Pressure Regulator Kit | LP           | 700 & 710 Series (Models 7000 & 7000LC) | 11.0" WC LP Gas                 | 8" / 12"                        |
| 1751-021     | Add-On Pressure Regulator Kit | LP           | 700 & 710 Series (Models 7000 & 7000LC) | Hi-Low Adjustable Output LP Gas | 2.7" / 11"                      |

**1** Year Limited Warranty



## IGNITION CONTROLS

### 780 Series - Pilot Controls

The Robertshaw® 780 Series Pilot Controls feature flame rectification with solid-state logic and flame sensing to provide automatic sequencing that will ensure proper operation of an intermittent pilot ignition device. When the thermostat calls for heat, the 780 series control simultaneously initiates ignition sparking and opens the pilot valve portion of the gas valve. Pilot flame recognition stops ignition sparking and opens the main valve portion of the gas valve. Pilot burner flame is continuously monitored at a synchronous frequency for the duration of the heating cycle. Should the pilot flame fail during the heating cycle, the control will shut off the main valve until the pilot flame is established.

The Robertshaw 780-845 lockout ignition control provides 90 seconds of spark, followed by a six minute time delay (purge) between ignition attempts. If the pilot flame is not sensed after three tries, the control goes into a one-hour lockout period. At the end of the lockout period, if the demand for heat is still present, the unit will repeat the three tries for ignition.

### Features and Benefits

- Reduces truck stock inventory, saving space and money
- Easy-to-install with complete in-depth installation instructions
- Pilot and main valves draw 1 Amp at 0.5 power factor
- Combined load at 1.5 Amps at 0.4 power factor
- 95% relative humidity noncondensing at 104°F



780-715

## Specifications

| Part Numbers | Description                     | Spark Rate         | Flame Sense Current | Max Total Current Load | Flame Failure Re-Ignition Time | Thermostat Anticipator Setting | Safety Lockout Timing | Temperature Range | Transformer   | Input Voltage     |
|--------------|---------------------------------|--------------------|---------------------|------------------------|--------------------------------|--------------------------------|-----------------------|-------------------|---------------|-------------------|
| 780-715      | Intermittent Pilot - Nonlockout | 3 to 4 per second  | 0.7mA DC @ 25°C     | 1.5 Amps               | 0.8 seconds                    | 0.7 Amps                       | NA                    | -40°F to 175°F    | 24V AC, 20 VA | 24V AC @ 50/60 Hz |
| 780-735      | Intermittent Pilot - Lockout    | 3 to 4 per second  | 0.7mA DC @ 25°C     | 1.5 Amps               | 0.8 seconds                    | 0.7 Amps                       | NA                    | -40°F to 175°F    | 24V AC, 20 VA | 24V AC @ 50/60 Hz |
| 780-845      | Intermittent Pilot - Lockout    | 4 to 15 per second | 0.7mA DC @ 25°C     | 1.5 Amps               | 2 seconds                      | 0.7 Amps                       | 90 seconds            | -40°F to 175°F    | 24V AC, 20 VA | 24V AC @ 50/60 Hz |



1 Year Limited Warranty





780-001

## IGNITION CONTROLS

### 780 Series - Pilot Controls Uni-Kits

The Robertshaw® 780 Series Pilot Controls Uni-Kits® feature a flame sense circuit that will work equally well on a one rod (local sense) or a two rod (remote sense) application. The automatic recycle features assure that, in the event of flame failure, main gas is disabled and the spark repetition sequence is restarted until pilot gas is ignited. Only after pilot ignition has been re-established can main gas be returned to the burner.

The Robertshaw lockout version kits include the capability to shut off all gas to the furnace, should pilot ignition fail to occur after a predetermined time period. The 780-002 provides three tries for ignition. Each ignition period is 90 seconds followed by a six minute time delay between ignition attempts. If the pilot flame is not sensed after three tries, the unit goes into lockout and must be reset at the thermostat.

### Features and Benefits

- Replaces one rod and/or two rod systems
- Reduces truck stock inventory, saving space and money
- Includes vent damper adapter assembly
- Easy-to-install with complete in-depth installation instructions
- Pilot and main valves draw 1 Amp at 0.5 power factor
- Combined load at 1.5 Amps at 0.4 power factor
- 95% relative humidity noncondensing at 104°F

## Specifications

| Part Numbers | Description                       | Spark Rate        | Flame Sense Current | Max Total Current Load | Flame Failure Re-Ignition Time | Thermostat Anticipator Setting | Temperature Range | Transformer   | Input Voltage     |
|--------------|-----------------------------------|-------------------|---------------------|------------------------|--------------------------------|--------------------------------|-------------------|---------------|-------------------|
| 780-001      | Gas ignition control - nonlockout | 3 to 4 per second | 0.7mA DC @ 25°C     | 1.5 Amps               | 0.8 seconds                    | 0.7 Amps                       | -40°F to 175°F    | 24V AC, 20 VA | 24V AC @ 50/60 Hz |
| 780-002      | Gas ignition control - lockout    | 3 to 4 per second | 0.7mA DC @ 25°C     | 1.5 Amps               | 0.8 seconds                    | 0.7 Amps                       | -40°F to 175°F    | 24V AC, 20 VA | 24V AC @ 50/60 Hz |



**1** Year Limited Warranty



## IGNITION CONTROLS

### 780 Series - Hot Surface Controls

The Robertshaw® 780 Series Hot Surface Controls are designed for use on gas fired systems. The system acts on a demand for heat by a switch or thermostat to supply power to the ignition control. On non pre-purge models, the ignitor will be energized immediately and remain on for either of two optional selected ignitor heat-up times: approximately 17 or 34 seconds. For models with the prepurge option, there is a time delay equal to the heat-up time selected before the ignitor is energized. At the end of the ignitor heat-up time, the gas valve is opened supplying gas to the main burner. After several seconds, the ignitor is turned off and the sensor is energized. As long as flame is sensed, the system continues to operate.

### Features and Benefits

- Reduces truck stock inventory, saving space and money
- Easy-to-install with complete in-depth installation instructions
- Molded-in terminal barriers between terminals
- Models available for local and remote sense application
- Mounting screw provides a positive ground connection
- Small compact size provides no hassle installation
- Main valve current is 1.5 Amps at 24V AC
- 95% relative humidity noncondensing at 104°F



780-785

## Specifications

| Part Numbers | Description                  | Valve Trial Time | Supply Voltage | Ignition Attempts | Pre-Purge Timer | Ignitor Warm-Up Timer | Sensor Type | Max Ignitor Current | Thermostat Anticipator Setting | Temperature Range |
|--------------|------------------------------|------------------|----------------|-------------------|-----------------|-----------------------|-------------|---------------------|--------------------------------|-------------------|
| 780-783      | Hot Surface Ignition Control | 8 seconds        | 120V AC        | 3                 | 34 seconds      | 34 seconds            | Local       | 5 Amps              | 0.1 Amps                       | -40°F to 176°F    |
| 780-785      | Hot Surface Ignition Control | 6 seconds        | 120V AC        | 3                 | NA              | 34 seconds            | Local       | 5 Amps              | 0.1 Amps                       | -40°F to 176°F    |
| 780-790      | Hot Surface Ignition Control | 4 seconds        | 120V AC        | 1                 | NA              | 17 seconds            | Local       | 5 Amps              | 0.1 Amps                       | -40°F to 176°F    |

## Specifications continued

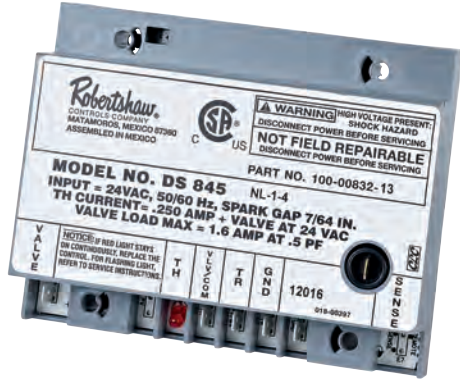
| Part Numbers | Input Voltage     | Supply Voltage        |
|--------------|-------------------|-----------------------|
| 780-783      | 24V AC @ 50/60 Hz | 120, 208/240, 277V AC |
| 780-785      | 24V AC @ 50/60 Hz | 120, 208/240, 277V AC |
| 780-790      | 24V AC @ 50/60 Hz | 120, 208/240, 277V AC |



1 Year Limited Warranty



# Robertshaw®



780-502

## IGNITION CONTROLS

### 780 Series - Direct Spark Controls

The Robertshaw® 780 Series Direct Spark Controls are applicable to commercial cooking equipment, gas fired heating, and water heating systems of many types. The system acts on a demand for heat by a switch or thermostat to open the gas valve. At the same time, the 780 series ignition control supplies a spark to the electrode which ignites the gas. After the gas is lit, an electronic circuit proves the presence of flame using flame rectification. When the thermostat is satisfied, the gas valve will be closed to shut off the main burner gas.

### Features and Benefits

- Replaces one rod and/or two rod systems
- Reduces truck stock inventory, saving space and money
- Easy-to-install with complete in-depth installation instructions

### Specifications

| Part Numbers | Description                    | Type                                  | Supply Voltage | Ignition Attempts | Valve Trial Time |
|--------------|--------------------------------|---------------------------------------|----------------|-------------------|------------------|
| 780-502      | Direct Spark Ignition Controls | Non Pre-Purge, Enclosed               | 24V AC         | 1                 | 4 seconds        |
| 780-511      | Direct Spark Ignition Controls | Pre-Purge, Remote, Enclosed, 1/4 Q.C. | 24V AC         | 3                 | 7 seconds        |

## IGNITION CONTROLS

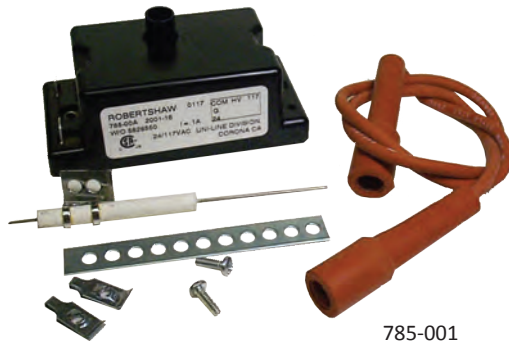
### 785 Series - Automatic Pilot Relight Kits

The Robertshaw® 785 Series Automatic Pilot Relight Kits are designed for use on rooftop heating equipment, water heaters, boilers, space heaters, unit heaters, dryers, and other commercial, industrial, and residential appliances where the problem of pilot outage may occur. It should only be applied to those systems which already incorporate the necessary pilot-safety control system.

### Features and Benefits

Kit Includes:

- Ignitor assembly
- Mounting bracket



785-001

### Specifications

| Part Numbers | Description       | Spark Gap | Temperature Range | High Voltage Output | Electrical Rating   |
|--------------|-------------------|-----------|-------------------|---------------------|---------------------|
| 785-001      | Pilot Relight Kit | 1/8"      | -40°F to 185°F    | 15kV                | 24/120V AC, 0.1 Amp |



**1** Year Limited Warranty



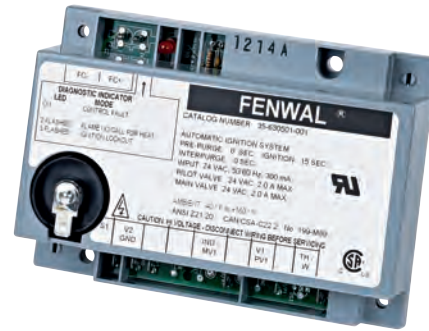
## IGNITION CONTROLS

### 35 Series - Fenwal® Intermittent Pilot Controls

The Fenwal 35 Series Pilot Controls are a 24V AC intermittent pilot ignition control. The microprocessor circuit design provides precise, repeatable timing and operating sequences. The on-board diagnostics with LED output provide assistance with troubleshooting to ensure safe and efficient operation.

#### Features and Benefits

- Quick connect terminals for easy connection
- Easy-to-install with complete in-depth installation instructions
- Pilot valve draws 2.0 Amps maximum
- Main valve draws 2.0 Amps maximum
- Gray enclosure (Noryl N-190) of fire retardant plastic
- Reduces truck stock inventory, saving space and money



35-630501-001

#### Specifications

| Part Numbers  | Description                         | Flame Sense Method | Auto Reset | Ignition Tries Before Lockout | Trial For Ignition | Pre-Purge | Inter-Purge | Gas Valve Rating (Main and Pilot) | Control Voltage | Electrical Rating |
|---------------|-------------------------------------|--------------------|------------|-------------------------------|--------------------|-----------|-------------|-----------------------------------|-----------------|-------------------|
| 35-630501-001 | Intermittent Pilot Ignition Control | Remote             | No         | 1                             | 15                 | 0 seconds | 0 seconds   | 2.0 Amps @ 24V AC                 | 18 - 30V AC     | 24V AC @ 300mA    |

## IGNITION CONTROLS

### 790 Series Ignition Controls

The RAM hot surface ignition controls are 24V AC. When the thermostat calls for heat, RAM's HSI control simultaneously energizes the hot surface ignitor and initiates current sensing function. Gas valve(s) remain closed until current sense threshold is reached. Once the current draw threshold has been reached or exceeded, the gas valve(s) and flame rectification circuits are energized. Upon proof of flame, the hot surface ignitor is shut off. Main burner flame is continuously monitored. Loss of flame detection results in cycling to check the current draw of the hot surface ignitor. If the hot surface ignitor is below the current draw threshold, the gas valve(s) will remain off and the hot surface ignitor will remain on until the current threshold is reached.



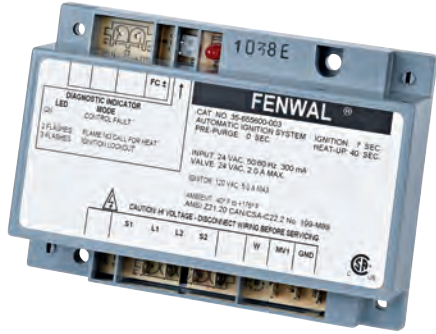
790-015

#### Specifications

| Part Numbers | Description                  | Type              | Temperature Range | Ignition Tries Before Lockout | Gas Valve Relay Rating | Ignitor Relay Rating | Electrical Rating |
|--------------|------------------------------|-------------------|-------------------|-------------------------------|------------------------|----------------------|-------------------|
| 790-015      | Hot Surface Ignition Control | Pre-Purge, Remote | -40°F to 175°F    | 3                             | 5.0 Amps               | 10.0 Amps            | 24V AC            |



1 Year Limited Warranty



35-655800-003

## IGNITION CONTROLS

### 35 Series - Fenwal® Hot Surface Controls

The Fenwal 35 Series Hot Surface Controls are designed to perform many gas-fired 24V AC appliance functions in a single control, resulting in lower system costs. This series monitors the demand for heat, ignites and maintains the flame during heating, and provides diagnostic support.

The on-board diagnostics with LED output provide assistance with troubleshooting and ensures safe and efficient burner operation. The microprocessor circuit design provides precise, repeatable timing sequences for ignition and pre-purge and inter-purge times, as well as multiple tries for ignition.

### Features and Benefits

- Edge connector type for easy connection
- Easy-to-install with complete in-depth installation instructions
- Gray enclosure (Noryl N-190) of fire retardant plastic
- Reduces truck stock inventory, saving space and money

## Specifications

| Part Numbers  | Description  | Flame Sense Method | Auto Restart | Ignition Tries Before Lockout | Trial for Ignition | Pre-Purge | Inter-Purge | Hot Surface Ignitor                        | Gas Valve Rating  | Control Voltage      | Electrical Rating                               |
|---------------|--|--------------------|--------------|-------------------------------|--------------------|-----------|-------------|--|-------------------|----------------------|---|
| 35-655800-003 | Hot Surface Ignition Control, Field Selectable Line Voltage Capability | Local / Remote     | Yes          | 1                             | 7                  | 0 seconds | 0 seconds   | 40 second Heat Up, 120/240V AC, 5 Amps Max | 2.0 Amps @ 24V AC | 18 - 30V AC 50/60 Hz | 24V AC @ 300mA, 120 or 240V AC (L1 and L2 only) |
| 35-655801-013 | Hot Surface Ignition Control, Field Selectable Line Voltage Capability | Local / Remote     | Yes          | 3                             | 7                  | 0 seconds | 15 seconds  | 40 second Heat Up, 120/240V AC, 5 Amps Max | 2.0 Amps @ 24V AC | 18 - 30V AC 50/60 Hz | 24V AC @ 300mA, 120 or 240V AC (L1 and L2 only) |



1 Year Limited Warranty



## IGNITION CONTROLS

### 35 Series - Fenwal® Direct Spark Controls

The Fenwal 35 Series Direct Spark Ignition Controls utilize a microprocessor to continually analyze and control the proper operation of the gas burner.

The microprocessor circuit design provides precise, repeatable timing sequences for ignition times and purge times, one hour automatic reset and flame sensing during pre-purge.

The 35 Series includes on-board diagnostics with LED output to provide assistance with troubleshooting, and to ensure safe and efficient burner operation.

#### Features and Benefits

- Various connection and construction types available
- Easy-to-install with complete in-depth installation instructions
- Gray enclosure (where applicable Noryl N-190) of fire retardant plastic
- Reduces truck stock inventory, saving space and money



35-605606-223

## Specifications

| Part Numbers  | Description                   | Flame Sense Method | Auto Reset | Ignition Tries Before Lockout | Trial For Ignition | Pre-Purge | Inter-Purge | Connection              | Construction | Gas Valve Rating   | Control Voltage          | Electrical Rating |
|---------------|-------------------------------|--------------------|------------|-------------------------------|--------------------|-----------|-------------|-------------------------|--------------|--------------------|--------------------------|-------------------|
| 35-605606-111 | Direct Spark Ignition Control | Remote             | Yes        | 3                             | 4                  | 15        | 15          | Edge Connector          | Gray Noryl   | 2.0 Amps @ 24V AC  | 18 - 30V AC, 50/60 Hz    | 24V AC @ 300mA    |
| 35-605606-223 | Direct Spark Ignition Control | Remote             | Yes        | 3                             | 7                  | 30        | 30          | Edge Connector          | Gray Noryl   | 2.0 Amps @ 24V AC  | 18 - 30V AC, 50/60 Hz    | 24V AC @ 300mA    |
| 35-704600-005 | Direct Spark Ignition Control | Local              | No         | 1                             | 10                 | 0         | 0           | Quick Connect Terminals | Open Board   | 1.5 Amps @ 120V AC | 102 to 138V AC, 50/60 Hz | 120V AC @ 350mA   |



**1** Year Limited Warranty







41-401

## IGNITORS

### Carbide Series

The Robertshaw® Carbide Series Hot Surface Ignitors deliver dependable ignition in heating systems of every description: furnaces, boilers, rooftop heaters, infrared burners, unit heaters, water heaters, and many other types of HVAC equipment.

### Features and Benefits

- Made from high-purity recrystallized silicon carbide (Crystar™) which combines physical and thermal strength with stable electrical properties
- Designed to reach ignition temperature(s) within 17 seconds
- Have 18-gauge nickel chrome lead wires embedded and metalized in place for maximum holding strength and electrical conductivity
- Manufactured with lead wires enclosed in a special high-temperature fiberglass insulation providing electrical protection
- Operate at 120V AC. Some modules are rated for 208/240V input, however, the voltage to the ignitor is stepped down to 120V AC

## Specifications

| Part Numbers | Description                 | Ceramic Block Style | Lead Wire Length | Terminal Connector Type | Comments                           |
|--------------|-----------------------------|---------------------|------------------|-------------------------|------------------------------------|
| 41-401       | Hot Surface Carbide Ignitor | A                   | 4-1/2"           | A                       | Includes a gasket                  |
| 41-402       | Hot Surface Carbide Ignitor | B                   | 19"              | NA                      |                                    |
| 41-403       | Hot Surface Carbide Ignitor | C                   | 5-1/2"           | NA                      |                                    |
| 41-404       | Hot Surface Carbide Ignitor | C                   | 4-1/2"           | D                       | Includes special mounting adaptors |
| 41-405       | Hot Surface Carbide Ignitor | D                   | 5-1/2"           | NA                      |                                    |
| 41-406       | Hot Surface Carbide Ignitor | E                   | 10-1/2"          | NA                      | Includes a gasket                  |
| 41-407       | Hot Surface Carbide Ignitor | C                   | 4-1/2"           | B                       |                                    |
| 41-408       | Hot Surface Carbide Ignitor | B                   | 5"               | C                       |                                    |
| 41-409       | Hot Surface Carbide Ignitor | C                   | 4-1/2"           | D                       |                                    |
| 41-410       | Hot Surface Carbide Ignitor | B                   | 4-1/2"           | B                       |                                    |
| 41-411       | Hot Surface Carbide Ignitor | B                   | 4-1/2"           | C                       | Includes special mounting adaptors |
| 41-412       | Hot Surface Carbide Ignitor | F                   | 5-1/4"           | D                       |                                    |
| 41-414       | Hot Surface Carbide Ignitor | F                   | 5-1/4"           | D                       | Includes special mounting adaptors |
| 41-418       | Hot Surface Carbide Ignitor | B                   | 5-1/4"           | C                       | Includes bracket                   |
| 41-419       | Hot Surface Carbide Ignitor | G                   | 5"               | D                       |                                    |



## Product Drawings



41-402



41-403



41-404



41-405



41-406



41-407



41-408



41-409



41-410



41-411



41-412



41-414

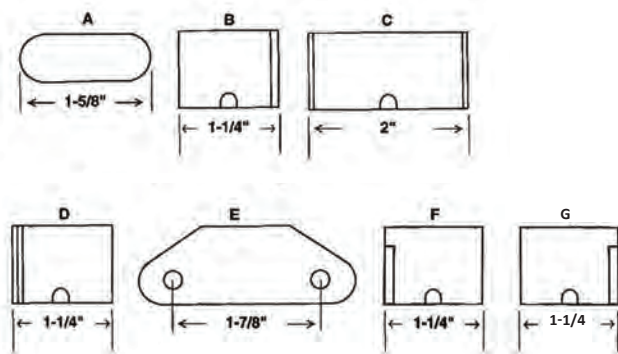


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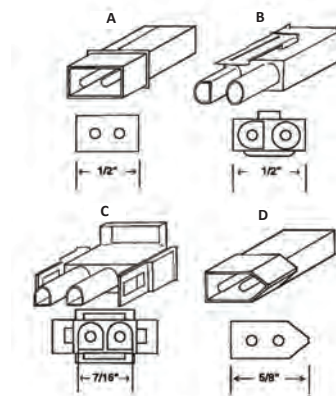


41-419

## Ceramic Block Styles



## Terminal Block Styles





Robertshaw®



## IGNITORS

### Hot Surface Mini-Ignitor Series

The Robertshaw® 41-600 Series Hot Surface Mini-Ignitors deliver dependable ignition in all heating systems. The mini-ignitor's five-second heat-up time, in combination with its small size, have been embraced by gas furnace OEMs.

### Features and Benefits

- Engineered for easy handling, simple installation and trouble-free operation
- Made of a unique, non-porous, high strength material
- Operates at 120V AC

## Specifications

| Part Numbers | Description   | Ceramic Block Style | Replaces   |
|--------------|---|---------------------|--|
| 41-602       | Hot Surface Furnace Mini-Ignitor with bracket and connector | None                | Amana 20165702<br>White-Rodgers 767A-378                   |
| 41-603       | Hot Surface Furnace Mini-Ignitor                            | 2.5"                | York International 025-33421-000<br>White-Rodgers 767A-378 |
| 41-604       | Hot Surface Furnace Mini-Ignitor                            | 4"                  | Armstrong #44744-2   |
| 41-605       | Hot Surface Furnace Mini-Ignitor with bracket and connector | 2.5"                | York Conversion Kit #473-20937-001                         |

1 Year Limited Warranty



## IGNITORS

### Universal Ignitor Series

The Robertshaw® IgnitorPro™ Universal Ignitors are the perfect truck stock item. All universal ignitors replace over 150 ignitors currently used in the field. To allow for universal applications, mounting brackets and hardware are included.

Robertshaw IgnitorPro Universal Ignitors are recommended for operating voltage of 120V AC. Two models are available. The 41-802N is the best model available with the highest level of durability. The 41-803 offers good durability.

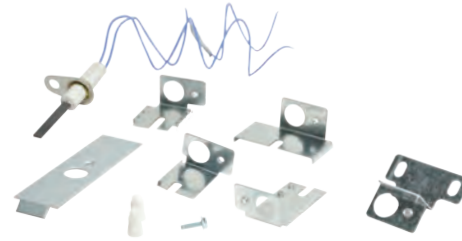
### Features and Benefits

#### 41-802N

- The ultimate in silicon nitride with technology from Kyocera™ for the best durability
- Flat blade heating element for best heat dissipation

#### 41-803

- High density silicon carbide for good physical strength and durability
- Flat blade heating element for best heat dissipation



41-802N



41-803

## Specifications

| Part Numbers | Description                   | Heating Element | Warranty Duration |
|--------------|-------------------------------|-----------------|-------------------|
| 41-802N      | Universal Hot Surface Ignitor | Flat blade      | 3 years           |
| 41-803       | Universal Hot Surface Ignitor | Flat blade      | 1 year            |

**1** Year  
Limited  
Warranty

**3** Year  
Limited  
Warranty





1820-009



1830-490

## PILOTS

### 1820 and 1830 Series

The Robertshaw® 1820 Series Pilot Uni-Kit® models are designed to replace hard-to-find ITT-General PG9 type pilots. A special 1/4" tubing adaptor is typically provided with nut and ball sleeve. Uni-Kits are available with and without a 32" [810mm] thermopile.

The 1830 Series Pilot Uni-Kit models are designed to be used with all Robertshaw and most competitive thermocouples. Uni-Kit models include an adaptor that converts a threaded thermocouple/thermopile model 2CH to a snap-in thermocouple type, model 2C.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Many flame pattern types available
- Thermocouple or thermopile options
- Spark electrode available
- Horizontal or vertical gas inlet
- Several mounting bracket types available
- Aerated pilots with non-linting characteristics

## Specifications

| Part Numbers | Description                                | Hood Type | Mounting Bracket Type | Flame Pattern Type | Lead Lengths | Includes                         |
|--------------|--|-----------|-----------------------|--------------------|--------------|----------------------------------|
| 1820-009     | PG9 Replacement Pilot Uni-Kit®             | NA        | NA                    | 90° Right Hand     | 36"          | 1950-532 Thermopile and Orifices |
| 1820-019     | PG9 Replacement Pilot Uni-Kit              | NA        | NA                    | 90° Left Hand      | 36"          | 1950-532 Thermopile and Orifices |
| 1830-001     | 2CH & 2C Incinerator -Target Pilot Uni-Kit | 2         | 6                     | Standard           | NA           | Orifices                         |
| 1830-113     | 9B Replacement Pilot Uni-Kit®              | 180 STD   | NA                    | NA                 | NA           | Orifices                         |
| 1830-210     | 2CH & 2C Incinerator-Target Pilot Uni-Kit  | 2         | 2                     | Standard           | NA           | Orifices                         |
| 1830-489     | 2CH & 2C Incinerator-Target Pilot Uni-Kit  | 6         | 6                     | 3-Way              | NA           | Orifices                         |
| 1830-490     | 2CH & 2C Incinerator-Target Pilot Uni-Kit  | 6         | 6                     | 3-Way              | NA           | Orifices                         |
| 1830-491     | 2CH & 2C Incinerator-Target Pilot Uni-Kit  | 6         | 6                     | 3-Way              | NA           | Orifices                         |
| 1830-702     | 9B Replacement Pilot Uni-Kit®              | STD       | NA                    | NA                 | NA           | Orifices                         |
| 66705 (SA)   | LP pilot, 6CH14-10                         | 6         | NA                    | 3-Way              | NA           | Orifices                         |



## Product Drawings

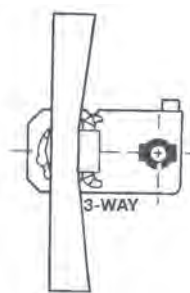
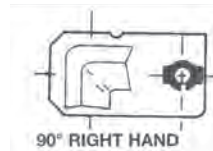
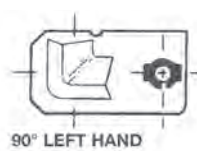
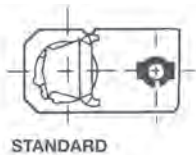
### Hood Type



### Mounting Bracket Type



### Flame Pattern Type



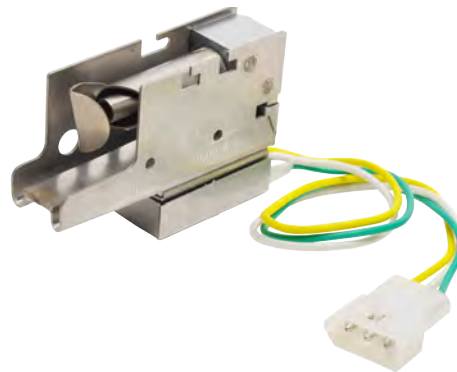
## ELECTRONIC PILOT BURNER SAFETY SWITCH

### 1830 Series

The Robertshaw® 1830 Series Pilot Burner Safety Switch is an ignition control with an embedded safety switch. The control's sensing technology automatically detects when a flame is not present and shuts off gas flow to help prevent an unsafe condition. This hard-to-find part is a key replacement component for over 1,700 Carrier, Payne, Bryant and Daynight (BPD) furnace models.

### Features and Benefits

- Differential expansion pilot with a 3-lead SPDT switch for use with a hot surface ignitor or spark ignition
- Yellow, white and green wires with Molex plug adaptor
- Pilot includes flame sensing, heat activated relay at base of pilot module



1830-620

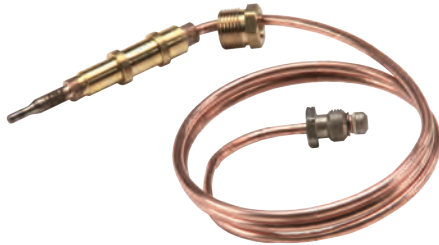
### Specifications

| Part Numbers | Description                | Switch | Orifice Size | Inlet Pressure | Input Rating | Dimensions         | Electrical Rating    |
|--------------|----------------------------|--------|--------------|----------------|--------------|--------------------|----------------------|
| 1830-620     | Pilot Burner Safety Switch | SPDT   | .017         | 7.0" W.C.      | 950 BTU/Hr   | 4.7"L x 3"W x .7"H | 30V AC, 60 Hz, 1 Amp |

### Replacement Information

| Part Numbers | Replaces  |
|--------------|---|
| 1830-620     | 740A, 535-740A, LH680005, 535-740, P671-1406, CARL38999, CAR1830620 |





1960 Series



1970 Series



1980 Series

## THERMOCOUPLES

### Thermocouple Series

The Robertshaw® Thermocouple Series includes the 1900, 1960-027, 1970 and 1980 models. The 1960-027 thermocouple is a special low-mass or quick dropout thermocouple. The 1960-027 is usually used on applications that require an oxygen depletion system on the thermo safety. It is also used on many LP gas applications that require a quick dropout of the thermo safety if there is a loss of pilot flame.

The Robertshaw 1900 Series and 1970 Series Uni-Couple® design allows for installation to virtually all pilot burners. The versatile zip nut may be pushed, pulled or threaded onto the thermocouple's rolled threads for proper positioning in every application.

The Robertshaw 1980 Series Snap-Fit Thermocouples offer easy installation into the majority of pilot burners. They are manufactured without complicated adaptors, but with extra insulation that the brass sheath provides under high ambient temperatures.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Easy burner installation with attached threaded nut
- Stainless steel outer jacket for long life and resistance to heat blistering
- Combination of copper and nickel alloys for good electrical conductivity
- Mica washer to insulate from shorting conditions
- Tinnerman clip included
- Various lengths available for multiple applications

## Specifications

| Part Numbers | Description                     | "inches" Length (cm) |
|--------------|---------------------------------|----------------------|
| 1900-018     | T-46 Thermocouple               | 18" (45cm)           |
| 1900-024     | T-46 Thermocouple               | 24" (60cm)           |
| 1900-030     | T-46 Thermocouple               | 30" (76cm)           |
| 1900-036     | T-46 Thermocouple               | 36" (91cm)           |
| 1900-048     | T-46 Thermocouple               | 48" (120cm)          |
| 1900-072     | T-46 Thermocouple               | 72" (182cm)          |
| 1960-027     | Low Mass Thermocouple           | 27" (68cm)           |
| 1970-018     | Uni-Couple® 20 to 30 Millivolts | 18" (45cm)           |
| 1970-024     | Uni-Couple 20 to 30 Millivolts  | 24" (60cm)           |
| 1970-030     | Uni-Couple 20 to 30 Millivolts  | 30" (76cm)           |
| 1970-036     | Uni-Couple 20 to 30 Millivolts  | 36" (91cm)           |
| 1970-048     | Uni-Couple 20 to 30 Millivolts  | 48" (120cm)          |
| 1970-060     | Uni-Couple 20 to 30 Millivolts  | 60" (152cm)          |
| 1970-072     | Uni-Couple 20 to 30 Millivolts  | 72" (182cm)          |
| 1980-012     | Snap-Fit Thermocouple           | 12" (30cm)           |

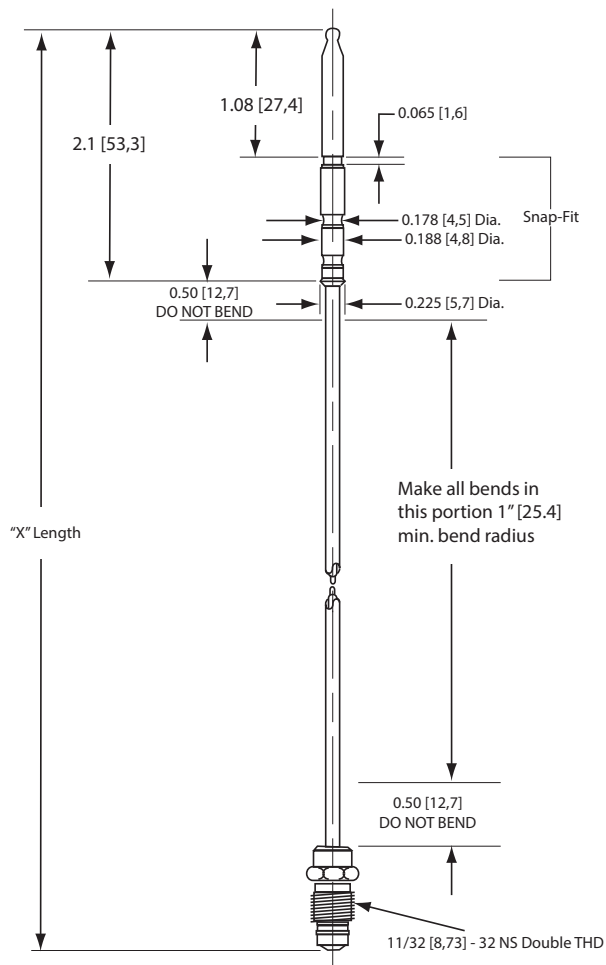


## Specifications - continued

| Part Numbers   | Description           | "inches" Length (cm) |
|----------------|-----------------------|----------------------|
| 1980-018       | Snap-Fit Thermocouple | 18" (45cm)           |
| 1980-024       | Snap-Fit Thermocouple | 24" (60cm)           |
| 1980-030       | Snap-Fit Thermocouple | 30" (12cm)           |
| 1980-036       | Snap-Fit Thermocouple | 36" (91cm)           |
| 1980-048       | Snap-Fit Thermocouple | 48" (120cm)          |
| 1980-060       | Snap-Fit Thermocouple | 60" (152cm)          |
| 1980-072       | Snap-Fit Thermocouple | 72" (182cm)          |
| 1980-818 (CAN) | Snap-Fit Thermocouple | 18" (45cm)           |
| 1980-824 (CAN) | Snap-Fit Thermocouple | 24" (60cm)           |
| 1980-830 (CAN) | Snap-Fit Thermocouple | 30" (12cm)           |
| 1980-836 (CAN) | Snap-Fit Thermocouple | 36" (91cm)           |

## Product Drawings

### 1980 Series



**1** Year  
Limited  
Warranty



## THERMOPILES



1950-001



1951-001

### 1950 and 1951 Series

The Robertshaw® 1950 and 1951 Series Thermopiles lead the industry for gas appliance applications. Their primary function is to ensure a standing pilot light is operative so that on a call for heat, the main burner gas will be properly ignited. Thermopiles are placed in gas applications to detect the existence of a flame for safety purposes by shutting off the potential gas flow to a burner.

A thermopile is the assembly of many thermocouples to increase the millivolt output.

Robertshaw thermopiles have two types of connections: coaxial and two-wire spade connectors. The 1950 Series Thermopiles, also known as TP-75, are two-wire spade connectors. The 1951 Series Thermopiles, also known as CP-2 (250 to 750 millivolts), are coaxial connectors. The 1950 and 1951 Series Thermopiles (pilot generators) are designed for use on self-powered gas control systems. They can be used to replace similar competitive devices.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Easy burner installation with attached threaded nut
- Stainless steel outer jacket for long life and resistance to heat blistering
- Combination of copper and nickel alloys for good electrical conductivity
- Mica washer to insulate from shorting conditions
- Tinnerman clip included
- Various lengths available for multiple applications

## Specifications

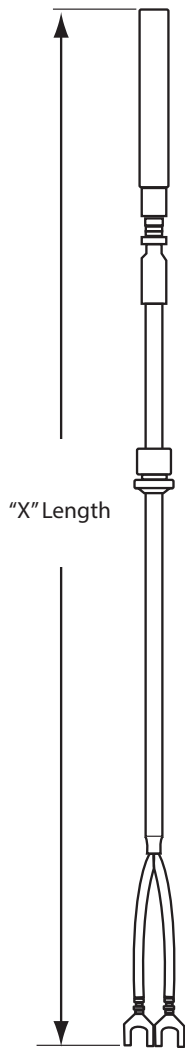
| Part Numbers | Description             | "X" Length  | Includes          | Connection Type | Open Circuit Output |
|--------------|-------------------------|-------------|-------------------|-----------------|---------------------|
| 1950-001     | Thermopile              | 36" (91cm)  | PG9 Pilot Adaptor | Two Lead        | 250-750 mV          |
| 1950-002     | Thermopile              | 48" (120cm) | PG9 Pilot Adaptor | Two Lead        | 250-750 mV          |
| 1950-532     | Thermopile              | 36" (91cm)  | NA                | Two Lead        | 250-750 mV          |
| 1951-001     | Thermopile              | 36" (91cm)  | PG9 Pilot Adaptor | Coaxial         | 250-750 mV          |
| 1951-536     | Thermopile              | 36" (91cm)  | NA                | Coaxial         | 250-750 mV          |
| 21424 (SA)   | Unitrol® 110 Thermopile | 914mm       | NA                | Two Lead        | NA                  |



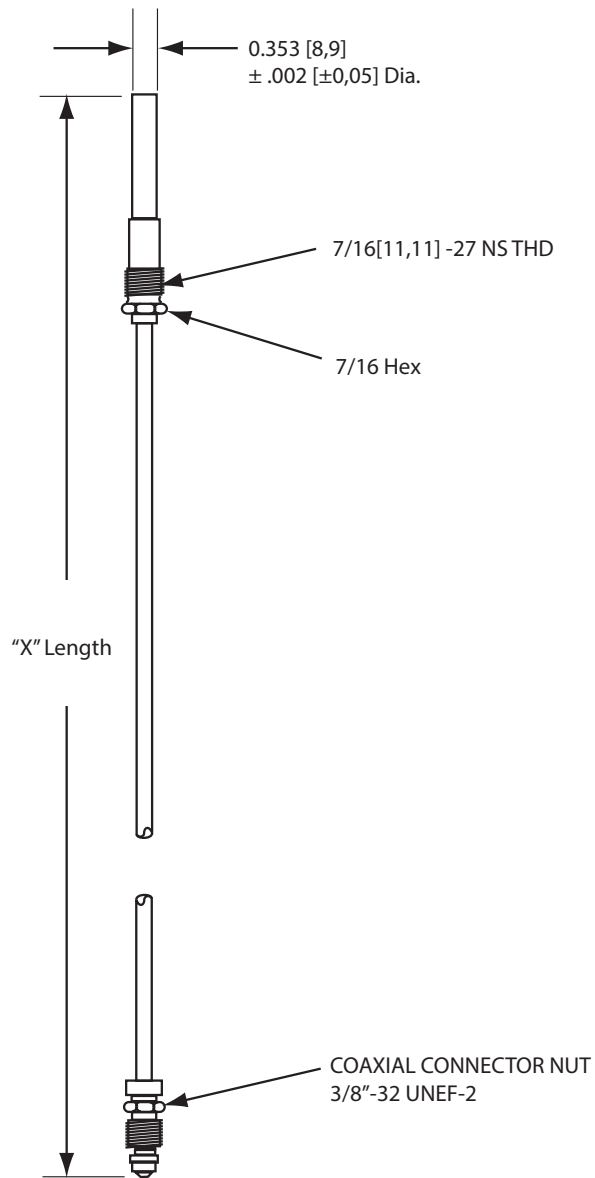


## Product Drawings

1950 Series



1951 Series

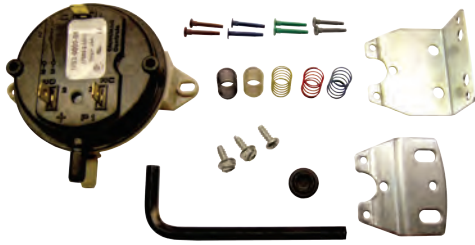




# HEATING

Robertshaw®

## AIR PRESSURE SENSING SWITCHES



2374-510



10-650

### 2374 Series - Universal

The Robertshaw® 2374-510 Air Pressure Sensing Switch has a glass-filled polycarbonate housing containing a sensing diaphragm and an integral snap-acting switch with three male 90° quick-connect terminals. The switch can sense positive, negative or differential air pressure. The field adjustable set point range of this switch is 0.10" WC to 10.0" WC. Using the switch accessories contained in this kit, the switch can be applied to a wide variety of residential and light commercial HVAC applications.

#### 2374-510 Kit Contents:

- Air pressure sensing switch
- Calibration springs (5 options)
- Orifice flows (4 options)
- Mounting brackets (2 options)
- Calibration tool (hex wrench)

The Robertshaw 10-650 Sensing Probe Kit provides a simple, practical and standardized approach to sampling air for HVAC air pressure sensing applications. This convenient kit includes a seven inch universal air sample probe suitable for both static and impact applications. The included mounting flange is efficiently installed using the (2) 6# x 3/8" type 25 tap screws. The mounting flange locks the air sample probe in place via a 6# x 1/4" slotted set screw, providing a standard method of controlling the insertion depth of the air sample probe into the air stream. Three feet of clear vinyl tubing is included in the kit for connecting the air sample probe to the air switch. Also provided is a slip-on adaptor for use with an installed air switch equipped with a compression style air sample line connector.

#### 10-650 Kit Contents:

- Universal 7" probe
- Mounting flange
- Flange-locking screw set
- 3' vinyl tubing
- Slip-on adaptor

### Specifications

| Part Numbers | Description                           | Set Point Range   | Temperature Range              | Connection                   | Electrical Rating   |
|--------------|---------------------------------------|-------------------|--------------------------------|------------------------------|---|
| 2374-510     | Universal Air Pressure Sensing Switch | 0.10" to 10.0" WC | -40°F to 190°F (-40°C to 88°C) | Silver Contacts              | SPDT, SPST Electrical Load: 1/10 HP @ 120 to 277 VAC; 28VA Pilot Duty @ 24VAC; 125VA Pilot Duty @ 120 VAC. SPST Electrical Load: 5 Amps Resistive @ 24, 120 to 277 VAC. |
| 10-650       | Sensing Probe Kit with 7" Probe       | NA                | -40°F to 190°F (-40°C to 88°C) | 3/16" Flexible Rubber Tubing | NA  |



2 Year Limited Warranty

D40



## AIR PRESSURE SENSING SWITCHES

### 2374 Series - Adjustable

The Robertshaw® 2374 Series Adjustable Air Sensing Switches are designed to replace a wide variety of air sensing switches found in residential and light commercial applications including furnaces, electronic air cleaners and humidifiers. Two models are currently available with adjustable ranges. Both models are provided with an SPDT switch that can be actuated by positive or negative pressure or by pressure differential. Highly accurate, these switches are practically insensitive to temperature change with an operating temperature range of -40°F to 190°F (-40°C to 88°C). Each switch includes mounting hardware and an adjustment tool for easy installation and calibration.

### Features and Benefits

- Field adjustable control set point
- Air sample line connectors will accept 1/8", 1/4" or 3/8" tubing
- Electrical connection is 1/4" spade
- Vertical operating mounting position for diaphragm
- UL File Number MH6213, CSA File Number LR18754



2374-495

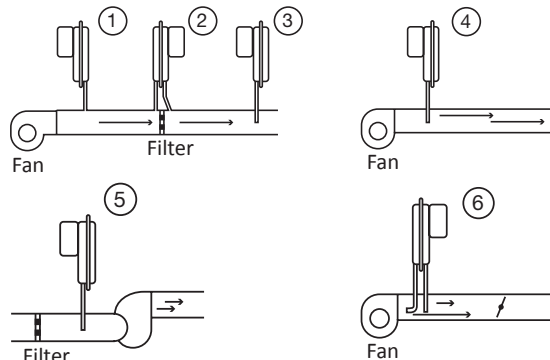
## Specifications

| Part Numbers | Description                   | Switch | Set Point Range  | Maximum Pressure | Temperature Range              | Electrical Rating  |
|--------------|-------------------------------|--------|------------------|------------------|--------------------------------|--|
| 2374-495     | Adjustable Air Sensing Switch | SPDT   | 0.25" to 1.0" WC | 0.5 PSI          | -40°F to 190°F (-40°C to 88°C) | 5 Amps @ 120-277V AC, 5 Amps @ 28V DC, 1 Amp Pilot Duty 120 VA |
| 2374-498     | Adjustable Air Sensing Switch | SPDT   | 1.00" to 4.0" WC | 0.5 PSI          | -40°F to 190°F (-40°C to 88°C) | 5 Amps @ 120-277V AC, 5 Amps @ 28V DC, 1 Amp Pilot Duty 120 VA |
| 2374-499     | Adjustable Air Sensing Switch | SPDT   | 0.05" to 12" WC  | 0.5 PSI          | -40°F to 190°F (-40°C to 88°C) | 5 Amps @ 120-277V AC, 5 Amps @ 28V DC, 1 Amp Pilot Duty 120 VA |

## Typical Applications For Sensing Switch and Sensing Probe Kit

|    |  |
|----|--|
| 1  | Positive static pressure increases as the filter gets dirty.   |
| 2* | Differential across filter changes as filter gets dirty.   |
| 3  | Flow is reduced as filter gets dirty.  |
| 4  | Fan operation or air flow with little or no static pressure.   |
| 5  | Negative pressure increases as the filter gets dirty.  |
| 6* | Fan operation and true air flow with varying amounts of static pressure. Probes must be perpendicular to the air flow. |

\* Applications use two (2) Sensing Probe Kits



2 Year Limited Warranty



## HEATING ACCESSORIES



### Flame Sensors

The Robertshaw® Flame Sensor Assembly and Replacement Sensors have high temperature Kanthol sensor rods that will withstand 1800°F (982°C). The sensor rod is 4" long and can be cut and bent to match an original unit. Excellent replacement for most manufacturers' flame sensors.

### Features and Benefits

- Includes 30" of Teflon® insulated lead wire with a 482°F (250°C) rating
- Connects to a 1/4" quick connect terminal

### Specifications

| Part Numbers | Description           | Comments                                  |
|--------------|-----------------------|---|
| 10-227       | Replacement S1 Sensor | S1 Sensor has 1/4" quick connect terminal |
| 10-681       | Flame Sensor          | NA  |
| 10-760       | Flame Sensor Assembly | Full assembly                             |

## HEATING ACCESSORIES



### Universal Pilot Ignitor Sensor

The Robertshaw® Universal Pilot Mounting Ignitor Sensor is primarily used with the 712 series intermittent pilot ignition Uni-Kit®. This ignitor and sensor assembly includes mounting bracket, mounting hardware and 24" lead.

### Features and Benefits

- Includes all necessary parts for installation
- Quick replacement parts

### Specifications

| Part Numbers | Description                             | Length      | Comments  |
|--------------|---|-------------|---|
| 1751-729     | Universal Pilot Mounting Ignitor Sensor | 24" (60cm)  | Includes ignitor/sensor assembly, mounting bracket and hardware |
| 1751-749     | Universal Pilot Mounting Ignitor Sensor | 72" (182cm) | Includes ignitor/sensor assembly, mounting bracket and hardware |

**1** Year Limited Warranty





## HEATING ACCESSORIES

### Pilot Orifices

The Robertshaw® Pilot Orifices are used as replacement parts in Robertshaw 1820 and 1830 type pilots.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Compatible with 1820, 1830 (2C, 2CH, 2S, 2SH) Pilots
- Orifice can fit into 3/16" or 1/4" tubing



10-021

### Specifications

| Part Numbers | Description                          | Type Gas    | Tube Size     | Orifice Size |
|--------------|--------------------------------------|-------------|---------------|--------------|
| 10-021       | Pilot Orifice for Heating or Cooking | Natural Gas | 3/16" or 1/4" | 0.018"       |
| 10-066       | Pilot Orifice for Heating or Cooking | Natural Gas | 3/16"         | 0.018"       |
| 10-067       | Pilot Orifice for Heating or Cooking | LP          | 3/16"         | 0.010"       |
| 10-114       | Pilot Orifice for Heating or Cooking | LP          | 3/16" or 1/4" | 0.010"       |
| 10-166       | Pilot Orifice for Heating or Cooking | LP          | 1/4"          | 0.011"       |
| 10-168       | Pilot Orifice for Heating or Cooking | Natural Gas | 1/4"          | 0.018"       |
| 10-209       | Pilot Orifice for Heating or Cooking | Natural Gas | 3/16" or 1/4" | 0.026"       |
| 10-210       | Pilot Orifice for Heating or Cooking | LP          | 3/16" or 1/4" | 0.016"       |

## HEATING ACCESSORIES

### Tubing

The Robertshaw® aluminum tubing is versatile for all your replacement needs. It comes in a full range of sizes in 50 and 5 foot lengths.

### Features and Benefits

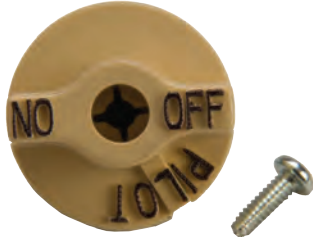
- Aluminum tubing meets ASTM Standard #483
- Uses a 1435 alloy with a 0.035 wall thickness
- Tubing is rated at 90 PSI with an 11,000 tensile, 9500 yield and a 25% elongation



11-193

### Specifications

| Part Numbers | Description                   | Length | Diameter Size |
|--------------|-------------------------------|--------|---------------|
| 11-193       | Aluminum Tubing               | 50'    | 1/4"          |
| 11-195       | Aluminum Tubing               | 50'    | 3/8"          |
| 11-293       | Aluminum Tubing with Fittings | 5'     | 1/4"          |



1751-012

## HEATING ACCESSORIES

### Dial - Gas

The Robertshaw® line of replacement gas dials for gas valves come in many colors with various options. More selections can be viewed at [www.robertshaw.com](http://www.robertshaw.com).

### Features and Benefits

- Replacement dial for use with Unitrol® 7000 gas valves
- Beige color with On, Off and Pilot selections
- Not for use with 700 Series Pilot Ignition gas valves

### Specifications

| Part Numbers | Description     |
|--------------|-----------------|
| 1751-012     | Beige knob dial |
| 82020 (SA)   | Beige knob dial |

**1** Year  
Limited  
Warranty



## HEATING ACCESSORIES

### 4590 Series - Breakaway Ferrules

The Robertshaw® 4590 Series Breakaway Ferrules are used for attaching tubing to gas valves. Applications include heating, cooking and water heating.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

#### Features and Benefits

- One breakaway ferrule part replaces the need for an additional nut
- Sold in multiple quantities for convenience
- Screw machined brass fittings for quality performance



*Robertshaw*  
®

### Specifications

| Part Numbers | Description                           | Size                  | Quantity      |
|--------------|---------------------------------------|-----------------------|---------------|
| 4590-065     | Breakaway Ferrules For Venting        | 1/8" Tubing           | Package of 15 |
| 4590-067     | Breakaway Ferrules                    | 3/16" Tubing          | Package of 15 |
| 4590-069     | Breakaway Ferrules                    | 1/4" Tubing           | Package of 15 |
| 4590-071     | Breakaway Ferrules                    | 3/8" Tubing           | Package of 6  |
| 4590-170     | Male Compression Nut and Ball Sleeves | 1/4" to 3/16" Reducer | Package of 12 |
| 4590-816     | Extended Breakaway Ferrules           | 1/4" Extended         | Package of 15 |





VP229E-25S-L75-S101

## PRESSURE INDEPENDENT BALANCING AND CONTROL VALVES

### SmartX PIBCV Valves and Actuators Series

Schneider Electric™ Smart Pressure Independent Balancing and Control Valves (PIBCV) and Actuators Series are automatic balancing and control valves that provide flow limitation with full control authority over hydronic regulation. Typical applications include temperature control of chillers, air handling units, heat exchangers and terminal units such as fan coils, induction units and radiant panels.

### Features and Benefits

- Compact design integrates the valve, flow limiter and pressure regulator
- Selection is based on coil flow rate, eliminating the need for Cv calculations
- Modular design enables straightforward installation
- Performs a continual balancing function to maintain system performance at varying loads
- Predictable flow throughout valve travel eliminates over-pumping and saves energy
- Constant flow performance reduces actuator movement, hunting, and wear on the valve assembly
- Allows simple troubleshooting during system operation

### Specifications

| Part Numbers               | Description    | Temperature Range              | Electrical Rating | Size  | Flow Rate | Valve Design                     |
|----------------------------|----------------|--------------------------------|-------------------|-------|-----------|----------------------------------|
| VP229E-25S-L75-S101 (CAN)  | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | 1"    | 7.5 GPM   | PR (Proportional)                |
| VP229E-32S-014-S101 (CAN)  | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | 1.25" | 14 GPM    | PR (Proportional)                |
| VP229E-15HN-L25-S101 (CAN) | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | .5"   | 2.5 GPM   | PR (Proportional)                |
| VP228E-15S-L15-S101 (CAN)  | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | .5"   | 1.5 GPM   | PR (Proportional)                |
| VP228E-15SN-L20-S101 (CAN) | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | .5"   | 2 GPM     | PR (Proportional)                |
| VP228E-15S-L20-S101 (CAN)  | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | .5"   | 2 GPM     | PR (Proportional)                |
| VP228E-15SN-L15-S101 (CAN) | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | .5"   | 1.5 GPM   | PR (Proportional)                |
| VP228E-20S-L40-S101 (CAN)  | Valve Assembly | -40°F to 158°F (-40°C to 70°C) | 24V AC            | .75"  | 4 GPM     | PR (Proportional)                |
| VP229E-15HN-L35-U301 (CAN) | Valve Assembly | 32°F to 55°F (0°C to 131°C)    | 24V AC            | .5"   | 3.5 GPM   | FLPR (Floating and Proportional) |
| VP228E-15LN-L10-U301 (CAN) | Valve Assembly | 32°F to 55°F (0°C to 131°C)    | 24V AC            | .5"   | 1 GPM     | FLPR (Floating and Proportional) |
| VP228E-20S-L40-U201 (CAN)  | Valve Assembly | 32°F to 55°F (0°C to 131°C)    | 24V AC            | .75"  | 4 GPM     | FLPR (Floating and Proportional) |



## Specifications - continued

| Part Numbers                  | Description    | Temperature Range                 | Electrical Rating | Size  | Flow Rate | Valve Design                        |
|-------------------------------|----------------|-----------------------------------|-------------------|-------|-----------|-------------------------------------|
| VP228E-15LN-L10-S101<br>(CAN) | Valve Assembly | -40°F to 158°F<br>(-40°C to 70°C) | 24V AC            | .5"   | 1 GPM     | PR<br>(Proportional)                |
| VP220E-40S-018-U231<br>(CAN)  | Valve Assembly | -13°F to 149°F<br>(-25°C to 65°C) | 24V AC, 24V DC    | 1.5"  | 18 GPM    | FLPR<br>(Floating and Proportional) |
| VP228E-15SN-L20-U301<br>(CAN) | Valve Assembly | 32°F to 55°F<br>(0°C to 131°C)    | 24V AC            | .5"   | 1.5 GPM   | FLPR<br>(Floating and Proportional) |
| VP229E-32S-014-U201<br>(CAN)  | Valve Assembly | 32°F to 55°F<br>(0°C to 131°C)    | 24V AC            | 1.25" | 14 GPM    | FLPR<br>(Floating and Proportional) |

**1** Year  
Limited  
Warranty



## MOTORIZED ACTUATOR

### Erie® PopTop™ Two-Position Zone Valves and Actuators Series

Erie® PopTop™ Motorized Valves and Actuators are suitable for the control of hot and chilled water in terminal unit applications such as fan coil units and baseboard heating.

#### Features and Benefits

- One-handed engagement or removal of the motorized actuator to the valve body
- Valve actuator can be easily attached after the valve body has been installed into the system
- Mounts quickly and easily without the need of linkages or calibration
- Available in 2-way and 3-way port configurations
- Available factory coupled, or as individual bodies and actuators
- Direct replacement for all existing PopTop™ applications
- Rugged 300 PSG rated brass forged body design for long life

### Specifications

| Part Numbers   | Description        | Temperature Range   | Lead Wire Length | Electrical Rating  | Comments                      |
|----------------|--------------------|---|------------------|--------------------|-------------------------------|
| AG13A02A (CAN) | Motorized Actuator | 32°F to 200°F (Fluid) @ 104°F (Ambient)<br>(0°C to 93°C @ 40°C) | 18" (45.7cm)     | 24V AC, 50/60 Hz   | Includes auxiliary end switch |
| AG13A020 (CAN) | Motorized Actuator | 32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)    | 18" (45.7cm)     | 24V AC, 50/60 Hz   |                               |
| AG23A020 (CAN) | Motorized Actuator | 32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)    | 18" (45.7cm)     | 24V AC, 50/60 Hz   |                               |
| AG13B020 (CAN) | Motorized Actuator | 32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)    | 18" (45.7cm)     | 110-120V AC, 60 Hz |                               |
| AG23A02A (CAN) | Motorized Actuator | 32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)    | 18" (45.7cm)     | 24V AC, 50/60 Hz   |                               |

## FLARE FITTINGS

### Erie® PopTop™ Two-Position Zone Valves and Actuators Series

The Erie® PopTop™ Inverted Flare Fitting is used for attaching tubing to Erie PopTop zone valves. The fittings are compatible with zone valve bodies with 3/4" inverted flare connections.

### Specifications

| Part Numbers  | Description                      | Diameter Size | Length   |
|---------------|----------------------------------|---------------|----------|
| 436-252 (CAN) | Sweat Female Tube & Nut Assembly | 3/4" Tubing   | 1-27/32" |
| 436-220 (CAN) | Sweat Female Tube & Nut Assembly | 1/2" Tubing   | 1-1/16"  |

1 Year Limited Warranty



## ZONE VALVES

### Erie® PopTop™ Two-Position Zone Valves and Actuators Series

Erie® PopTop™ Motorized Valves and Actuators are suitable for the control of hot and chilled water in terminal unit applications such as fan coil units and baseboard heating.

#### Features and Benefits

- One-handed engagement or removal of the motorized actuator to the valve body
- Valve actuator can be easily attached after the valve body has been installed into the system
- Mounts quickly and easily without the need of linkages or calibration
- Available in 2-way and 3-way port configurations
- Available factory coupled, or as individual bodies and actuators
- Direct replacement for all existing PopTop™ applications
- Rugged 300 PSG rated brass forged body design for long life



### Specifications

| Part Numbers    | Description | Body Style | Size | Connection Type | Flow Setting  | Temperature Range   |
|-----------------|-------------|------------|------|-----------------|---------------|---|
| VT2343<br>(CAN) | Zone Valve  | 2-Way      | 3/4" | Inverted Flare  | 3.5 Cv (3 Kv) | 32°F to 200°F (Fluid) @ 104°F (Ambient)<br>(0°C to 93°C @ 40°C) |
| VT3343<br>(CAN) | Zone Valve  | 3-Way      | 3/4" | Inverted Flare  | 4 Cv (3.5 Kv) | 32°F to 200°F (Fluid) @ 104°F (Ambient)<br>(0°C to 93°C @ 40°C) |
| VT2323<br>(CAN) | Zone Valve  | 2-Way      | 3/4" | Threaded NPT    | 3.5 Cv (3 Kv) | 32°F to 200°F (Fluid) @ 104°F (Ambient)<br>(0°C to 93°C @ 40°C) |
| VT2427<br>(CAN) | Zone Valve  | 2-Way      | 1"   | Threaded NPT    | 8 Cv (7 Kv)   | 32°F to 200°F (Fluid) @ 104°F (Ambient)<br>(0°C to 93°C @ 40°C) |

## VALVE ACCESSORIES

### Erie® Valve Accessory Series

The Erie® Valve Motor is a replacement motor for Erie Classic G and L Dampers. Class "F" Rated.

The Erie® T200 Series thermostats provide temperature control on a variety of heating, cooling and single stage heat pump applications.

### Specifications

| Part Numbers         | Description               | Application   | Dial Temperature                               | Electrical Rating              | Size   | Terminations | Comments         |
|----------------------|---------------------------|---|--|--------------------------------|--|--------------|------------------|
| 30-118-A<br>(CAN)    | Motor Valve               | NA  | NA   | 24V AC,<br>50/60 Hz            | NA   | NA           | NA               |
| 30-118-B<br>(CAN)    | Motor Valve               | NA  | NA   | 110/120V AC,<br>50/60 Hz       | NA   | NA           | NA               |
| KEL-31-<br>100 (CAN) | Mechanical<br>Thermostats | 1 Heat / 1 Cool Heat Pump or<br>Conventional, Electric, Gas, Oil or<br>Millivolt, 2 Wire Hydronic Systems | 50°F to 90°F +/- 2°F<br>(10°C to 32°C) +/- 1°C | 24-30V AC,<br>1 Amp<br>maximum | 4.50" x 2.75" x<br>1.25" (11.4cm x<br>7cm x 3.2cm) | W, Y, R      | Celsius<br>model |

1 Year  
Limited  
Warranty



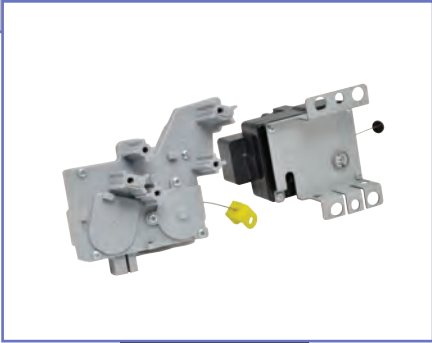


Cleanliness is important in all areas of life. Robertshaw® controls keep clothes washing and dishwashing equipment running smoothly to assist you in the quest for cleanliness. Turn to quality Robertshaw controls for all your commercial and residential laundry appliance needs.

Pressure Sensors ..... E2  
Accessories ..... E3



# LAUNDRY





F301C

## PRESSURE SENSOR

### F3 Series

The Robertshaw® F3 Linear Pressure Sensor is a transducer engineered to measure the level of water in a washing machine tank. The sensor continuously informs the main electronic control about the water level to control it during all phases of the wash program. The F3 sensor is designed to improve energy efficiency and water consumption constantly.

### Features and Benefits

- Class II insulated sensor
- Tolerances calibrated around one preferred working point (0-700 Pa)
- Analog frequency output (Hz)
- High pressure accuracy along all the calibrated pressure range
- No offset, zero drift, low hysteresis
- Allows for use by main electronic control units of washing machines by being PEC (Protective Electronic Circuit)
- Strong immunity from internal and external interference like EMI and induced magnetic fields
- Conforms to EC Standard IEC 60730-1 and IEC 60730-2-6
- Life time 100,000 cycles in active mode
- Made in EU

## Specifications

| Part Numbers | Description     | Calibrated Pressure Range | Frequency | Resolution | Pressure Range     | Temperature Range             | Current Consumption | Electrical Rating |
|--------------|-----------------|---------------------------|-----------|------------|--------------------|-------------------------------|---------------------|-------------------|
| F301C (EU)   | Pressure Sensor | 0-3000 Pa                 | 625 Hz    | 8 Pa       | 30 Pa up to 800 Pa | 68°F to 176°F (-20°C to 80°C) | 10 mA               | 5V DC             |

## Replacement information

| OEM Brand | OEM Equivalent Part Code              |
|-----------|---------------------------------------|
| Bosch     | BSH 9000605830 BOSCH-SIEMENS 00622474 |

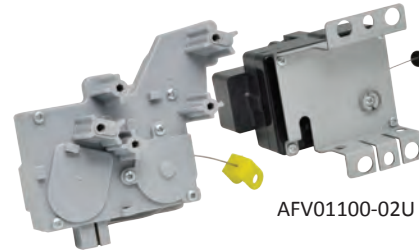




## ACCESSORIES

### Laundry Accessories Series

The Robertshaw® Laundry Accessories Series includes a Brake Actuator which functions as a safety device to block the washing machine's drum as per the programmed commands or on opening a vertical washing machine's lid.



AFV01100-02U

### Specifications

| Part Numbers         | Description    | Application     | OEM Code    | Electrical Rating |
|----------------------|----------------|-----------------|-------------|-------------------|
| AFV01100-02U<br>(SA) | Brake Actuator | Brastemp/Consul | 326.055.533 | 127V AC/60 Hz     |
| AFV01200-02U<br>(SA) | Brake Actuator | Brastemp/Consul | 326.055.534 | 220V AC/60 Hz     |
| AFV09100-02U<br>(SA) | Brake Actuator | Electrolux      | 64.484.603  | 127V AC/60 Hz     |
| AFV09200-02U<br>(SA) | Brake Actuator | Electrolux      | 64.484.604  | 220V AC/60 Hz     |

**Robertshaw**<sup>®</sup>

**1** Year  
Limited  
Warranty





Installers prefer a vast selection of quality solutions for commercial refrigeration applications while requiring intuitive installation set-up and dependable performance.

The Ranco®, Paragon® and AKO brands are trusted in commercial refrigeration for ease-of-use, performance, reliability and innovation.

Defrost Timers - Auto Voltage ..... F2  
 Defrost Timers - Electromechanical..... F8  
 Defrost Timers - Electronic ..... F12  
 Defrost Modules..... F16  
 Residential and Light Commercial Defrost Timers..... F17  
 Electronic Controls ..... F18  
 Temperature Controls - Cold Controls ..... F20  
 Temperature Controls - Specialty Applications..... F32  
 Lube Oil Controls ..... F35  
 Temperature Controls - Wide Range ..... F36  
 Pressure Controls ..... F38  
 Mini Pressure Sensors ..... F42  
 Refrigeration Accessories ..... F43  
 Reversing Valves ..... F44  
 Copper Products..... F46  
 Reversing Valves - Solenoid Coils..... F48  
 Low Temperature Limit Controls ..... F49  
 Refrigeration Regulators..... F50  
 Refrigerator Air Dampers..... F51  
 AKO Electronic Controls..... F52  
 AKO Accessories ..... F57



# REFRIGERATION





# REFRIGERATION

**PARAGON®**



8145-AV

## Replacement Information

| Supco   | Grasslin/Intermatic | Precision | Paragon |
|---------|---------------------|-----------|---------|
| S804100 | DTAV40              | 6041-0    | 8041-00 |
| S804120 | DTAV40IM            | 6045-0    | 8041-20 |
| S804500 | DTAV40M             | 6045-20   | 8043-00 |
| S804520 | G8045-00            | 6141-0    | 8043-20 |
| S814100 | G8045-20            | 6141-20   | 8045-00 |
| S814120 | G8145-00            | 6145-20   | 8045-20 |
| S814500 | G8145-20            |           | 8045-21 |
| S814520 |                     |           | 8046-00 |
| M814520 |                     |           | 8046-20 |
|         |                     |           | 8047-00 |
|         |                     |           | 8047-20 |
|         |                     |           | 8141-00 |
|         |                     |           | 8141-20 |
|         |                     |           | 8141-21 |
|         |                     |           | 8143-00 |
|         |                     |           | 8143-20 |
|         |                     |           | 8145-00 |
|         |                     |           | 8145-20 |
|         |                     |           | 8145-21 |
|         |                     |           | 8243-20 |
|         |                     |           | 8245-20 |
|         |                     |           | 8247-20 |

## DEFROST TIMERS - AUTO VOLTAGE

### 8000 Series

The Paragon® 8000 Series Auto Voltage Defrost Timer is designed for commercial freezers and refrigerators. Paragon Defrost Controls have provided reliable automatic defrost capability for decades. They accommodate various types of defrost systems including electric defrost heaters, hot gas, and compressor off cycle.

This all-in-one auto voltage defrost timer replaces over 40 competitive voltage-specific mechanical defrost timers, eliminating the need for a separate short cycle timer and single-phase voltage monitor. The 8145-AV will become a mainstay in any contractor's truck. The 8145-AV reduces installation time, and minimizes the number of SKUs to stock.

### Features and Benefits

- Replaces over 40 competitive models
- Now available in 50 Hz and 60 Hz models
- Auto voltage automatically adjusts for 120-277V AC
- Compressor contacts 3HP
- Heater/fan contacts 2HP
- LED indicators for defrost and refrigeration cycles
- Built-in permanent housing protects components from damage
- Mounts into existing enclosures, no tools required
- Real-time clock face for easy accurate settings
- Defrost times programmable in 15-minute intervals with captive trippers
- Heavy-duty steel enclosure with knockouts (on the bottom, back and side) and hasp
- Mechanism only models also available 8145-AV-M (60 Hz model) and 8145-AV50M (50 Hz model)

### Ratings Terminal 3 and 5

|       |            |             |
|-------|------------|-------------|
| 40A   | Resistive  | 120-277V AC |
| 3HP   | Motor      | 240V AC     |
| 1.5HP | Motor      | 120V AC     |
| 720VA | Pilot Duty | 120-240V AC |

### Ratings Terminal F and 2

|       |            |             |
|-------|------------|-------------|
| 30A   | Resistive  | 120-277V AC |
| 2HP   | Motor      | 240V AC     |
| 1/4HP | Motor      | 120V AC     |
| 290VA | Pilot Duty | 120-240V AC |





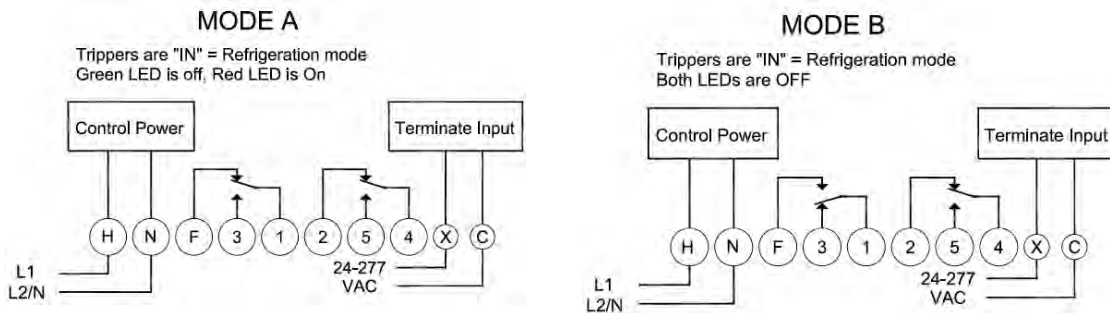


## Specifications - for all models

| Part Numbers | Description                                      | Normally Open Contact Terminal 3 and 5 |            |             | Normally Closed Contact Terminal F and 2 |            |             |
|--------------|--|--|------------|-------------|--|------------|-------------|
| 8145-AV      | Auto Voltage Defrost Timer in Metal Casing 60 Hz | 40A                                    | Resistive  | 120-240V AC | 30A                                      | Resistive  | 120-240V AC |
| 8145-AV-M    | Auto Voltage Defrost Timer Mechanism Only 60 Hz  | 3HP                                    | Motor      | 240V AC     | 2HP                                      | Motor      | 240V AC     |
|              |  | 1.5HP                                  | Motor      | 120V AC     | 1/4HP                                    | Motor      | 120V AC     |
|              |  | 720VA                                  | Pilot Duty | 120-240V AC | 290VA                                    | Pilot Duty | 120-240V AC |
| 8145-AV50    | Auto Voltage Defrost Timer in Metal Casing 50 Hz | 40A                                    | Resistive  | 120-240V AC | 30A                                      | Resistive  | 120-240V AC |
| 8145-AV50M   | Auto Voltage Defrost Timer Mechanism Only 50 Hz  | 3HP                                    | Motor      | 240V AC     | 2HP                                      | Motor      | 240V AC     |
|              |  | 1.5HP                                  | Motor      | 120V AC     | 1/4HP                                    | Motor      | 120V AC     |
|              |  | 720VA                                  | Pilot Duty | 120-240V AC | 290VA                                    | Pilot Duty | 120-240V AC |

## Product Drawings

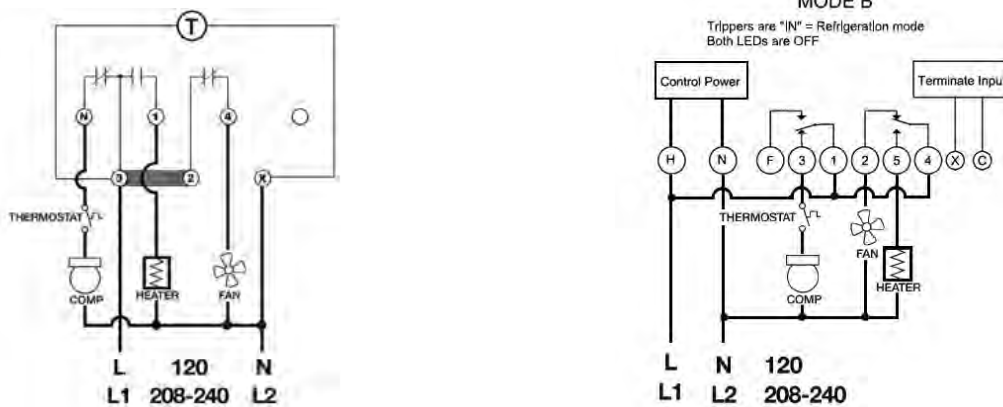
### 8145-AV



Applying power (24-277V AC) between Terminate Input terminals "X" and "C" causes the unit to return to Refrigeration Mode. If the Terminate input voltage is removed while the trippers are ON, the unit remains in the Refrigeration Mode. The unit remains in Refrigeration until both the Terminate input voltage is removed and the trippers cycle OFF then ON again.

### 8041-00 and 8041-20

Electric Heat Defrosting



|         |             |             |   |           |             |          |             |             |   |   |
|---------|-------------|-------------|---|-----------|-------------|----------|-------------|-------------|---|---|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F | 3<br>COMP | 1<br>(L/L1) | 2<br>FAN | 5<br>HEATER | 4<br>(L/L1) | X | C |
| 8041-00 | 3           | X           |   | N         | 3           | 4        | 1           | 3           |   |   |
| 8041-20 | (L/L1)      | (N/L2)      |   |           | (L/L1)      |          |             | (L/L1)      |   |   |
| DTAV40  | 3           | X           |   | 4         | 2           | N        | 1           | 3           |   |   |
|         | (L/L1)      | (N/L2)      |   |           | (L/L1)      |          |             | (L/L1)      |   |   |

**1** Year  
Limited  
Warranty



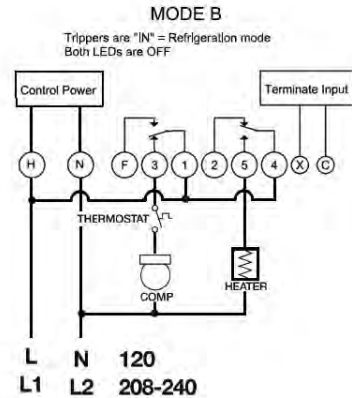
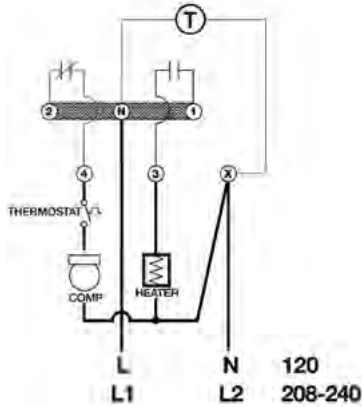
# REFRIGERATION

**PARAGON**

## Product Drawings

### 8045-00 and 8045-20

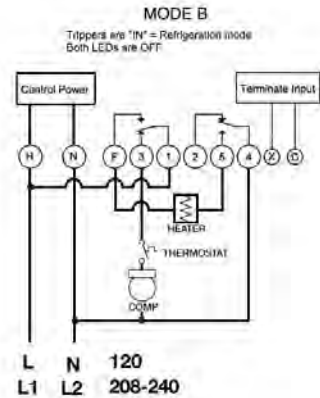
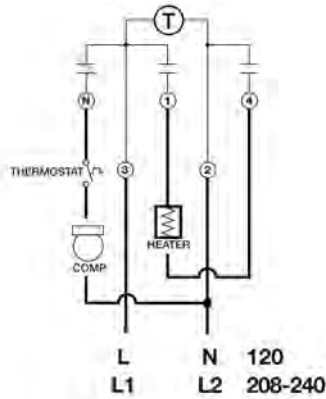
Electric Heat Defrosting



|         |             |             |   |           |             |   |             |             |   |   |
|---------|-------------|-------------|---|-----------|-------------|---|-------------|-------------|---|---|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F | 3<br>COMP | 1<br>(L/L1) | 2 | 5<br>HEATER | 4<br>(L/L1) | X | C |
| 8045-00 | N<br>(L/L1) | X<br>(N/L2) |   | 4         | N<br>(L/L1) |   | 3           | N<br>(L/L1) |   |   |
| 8045-20 |             |             |   |           |             |   |             |             |   |   |
| DTAV40  | 1-N<br>(L1) | X<br>(L2)   |   | 4         | 1-N<br>(L1) |   | 3           | 2<br>(L1)   |   |   |

### 8047-00 and 8047-20

Electric Heat Defrosting



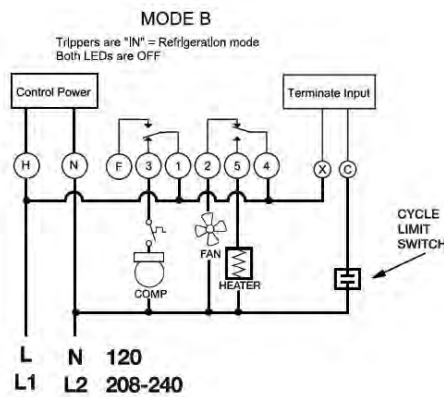
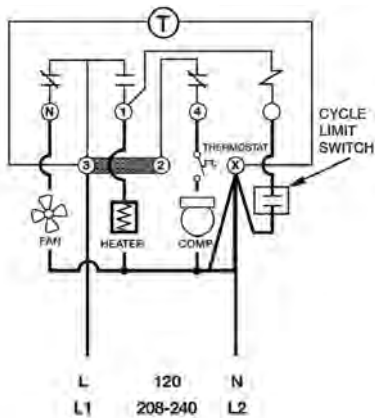
|         |             |             |             |           |             |   |             |             |   |   |
|---------|-------------|-------------|-------------|-----------|-------------|---|-------------|-------------|---|---|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F           | 3<br>COMP | 1<br>(L/L1) | 2 | 5<br>HEATER | 4<br>(N/L2) | X | C |
| 8047-00 | 3<br>(L/L1) | 2<br>(N/L2) | 1<br>HEATER | N<br>COMP | 3<br>(L/L1) |   | 4<br>HEATER | 2<br>(N/L2) |   |   |
| 8047-20 |             |             |             |           |             |   |             |             |   |   |
| DTAV40  | 3<br>(L/L1) | 2<br>(N/L2) | 1<br>HEATER | N<br>COMP | 3<br>(L/L1) |   | 4<br>HEATER | 2<br>(N/L2) |   |   |



## Product Drawings

### 8141-00 and 8141-20

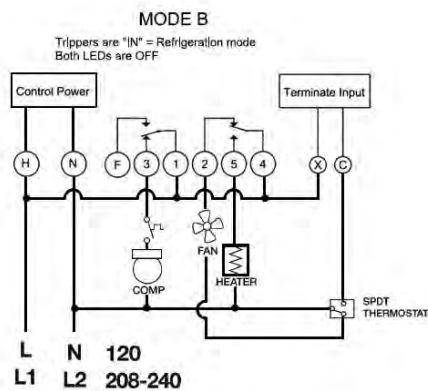
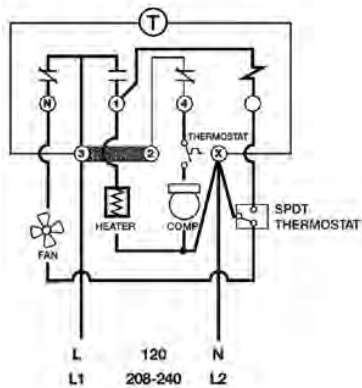
Electric Heat Defrosting (Cycle Limit Switch)



|         |             |             |   |           |             |          |             |             |             |                |
|---------|-------------|-------------|---|-----------|-------------|----------|-------------|-------------|-------------|----------------|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F | 3<br>COMP | 1<br>(L/L1) | 2<br>FAN | 5<br>HEATER | 4<br>(L/L1) | X<br>(L/L1) | C<br>LIMIT     |
| 8141-00 | 3<br>(L/L1) | X<br>(N/L2) |   | 4<br>COMP | 3<br>(L/L1) | N<br>FAN | 1<br>HEATER | 3<br>(L/L1) | 3<br>(L/L1) | INPUT<br>LIMIT |
| 8141-20 |             |             |   |           |             |          |             |             |             |                |

### 8141-00 and 8141-20

Electric Heat Defrosting (SPDT Thermostat)



|         |             |             |   |           |             |          |             |             |             |               |
|---------|-------------|-------------|---|-----------|-------------|----------|-------------|-------------|-------------|---------------|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F | 3<br>COMP | 1<br>(L/L1) | 2<br>FAN | 5<br>HEATER | 4<br>(L/L1) | X<br>(L/L1) | C<br>SPDT     |
| 8141-00 | 3<br>(L/L1) | X<br>(N/L2) |   | 4<br>COMP | 3<br>(L/L1) | N<br>FAN | 1<br>HEATER | 3<br>(L/L1) | 3<br>(L/L1) | INPUT<br>SPDT |
| DTAV40  | 3<br>(L/L1) | X<br>(N/L2) |   | 4<br>COMP | 2<br>(L/L1) | N<br>FAN | 1<br>HEATER | 3<br>(L/L1) | 3<br>(L/L1) | INPUT<br>SPDT |



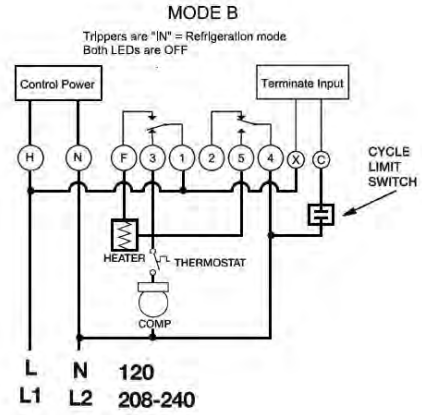
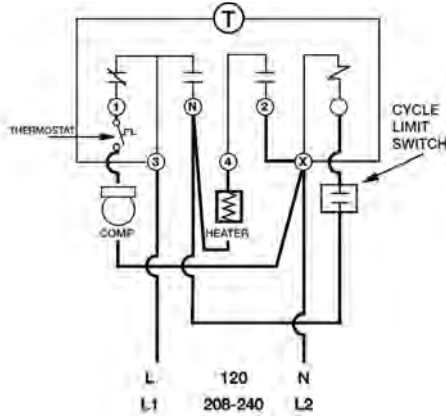
# REFRIGERATION

**PARAGON®**

## Product Drawings

### 8143-00 and 8143-20

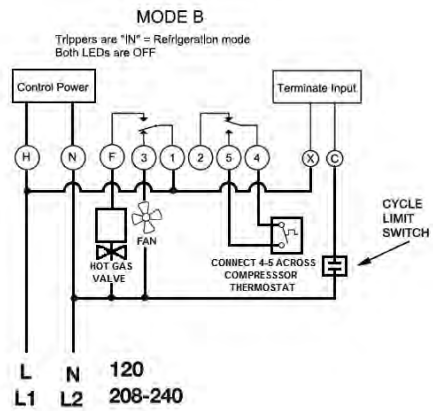
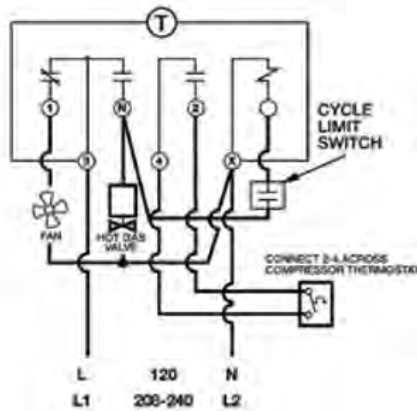
Electric Heat Defrosting (Cycle Limit Switch)



|         |          |          |          |         |          |   |          |          |          |             |
|---------|----------|----------|----------|---------|----------|---|----------|----------|----------|-------------|
| 8145-AV | H (L/L1) | N (N/L2) | F HEATER | 3 COMP  | 1 (L/L1) | 2 | 5 HEATER | 4 (N/L2) | X (L/L1) | C LIMIT     |
| 8143-00 | 3 (L/L1) | X (N/L2) | N HEATER | 1 COMP  | 3 (L/L1) |   | 4 HEATER | X (N/L2) | 3 (L/L1) | INPUT LIMIT |
| 8143-20 | 3 (L/L1) | X (N/L2) | N HEATER | 1 VALVE | 3 (L/L1) |   | 4 HEATER | 2 (N/L2) | 3 (L/L1) | INPUT STAT  |

### 8143-00 and 8143-20

Hot Gas Defrosting (Cycle Limit Switch)



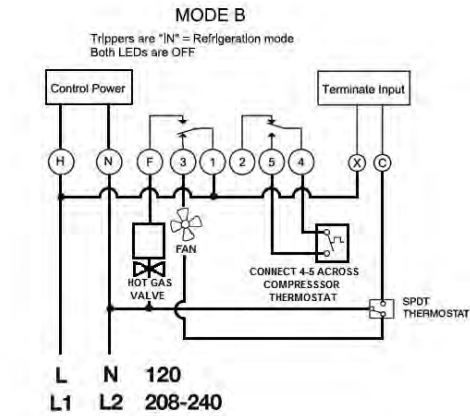
|         |          |          |         |       |          |   |         |         |          |             |
|---------|----------|----------|---------|-------|----------|---|---------|---------|----------|-------------|
| 8145-AV | H (L/L1) | N (N/L2) | F H GAS | 3 FAN | 1 (L/L1) | 2 | 5 TSTAT | 4 TSTAT | X (L/L1) | C LIMIT     |
| 8143-00 | 3 (L/L1) | X (N/L2) | N H GAS | 1 FAN | 3 (L/L1) |   | 2 TSTAT | 4 TSTAT | 3 (L/L1) | INPUT LIMIT |
| 8143-20 | 3 (L/L1) | X (N/L2) | N H GAS | 1 FAN | 3 (L/L1) |   | 2 TSTAT | 4 TSTAT | 3 (L/L1) | INPUT LIMIT |



## Product Drawings

### 8143-00 and 8143-20

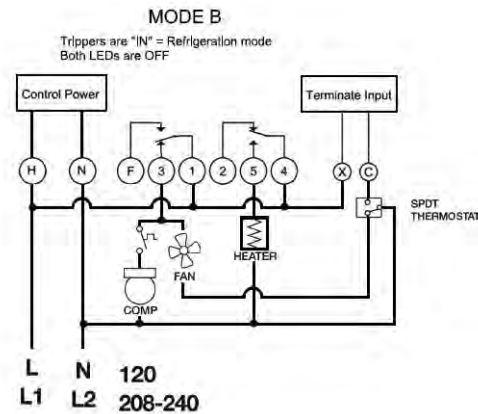
Hot Gas Defrosting (SPDT Thermostat)



|         |             |             |            |          |             |   |            |            |             |               |
|---------|-------------|-------------|------------|----------|-------------|---|------------|------------|-------------|---------------|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F<br>H GAS | 3<br>FAN | 1<br>(L/L1) | 2 | 5<br>TSTAT | 4<br>TSTAT | X<br>(L/L1) | C<br>SPDT     |
| DTAV40  | 3<br>(L/L1) | X<br>(N/L2) | N<br>H GAS | 1<br>FAN | 3<br>(L/L1) |   | 2<br>TSTAT | 4<br>TSTAT | 3<br>(L/L1) | INPUT<br>SPDT |

### 8145-00 and 8145-20

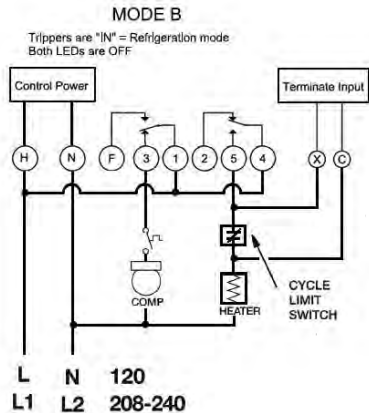
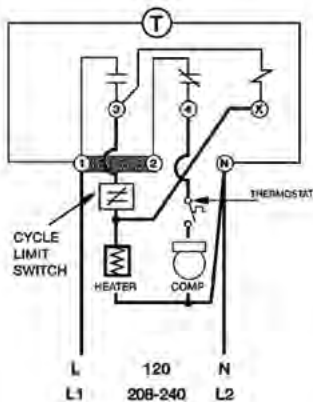
Electric Heat Defrosting (SPDT Thermostat)



|         |             |             |                  |             |                  |             |                  |             |             |           |
|---------|-------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|-------------|-----------|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F<br>COMP<br>FAN | 3<br>(L/L1) | 1<br>(L/L1)      | 2           | 5<br>HEAT-<br>ER | 4<br>(L/L1) | X<br>(L/L1) | C<br>SPDT |
| DTAV40  | 1<br>(L/L1) | N<br>(N/L2) | 4<br>COMP<br>FAN | 2<br>(L/L1) | 3<br>HEAT-<br>ER | 1<br>(L/L1) | 1<br>(L/L1)      | 1<br>(L/L1) | X<br>SPDT   |           |

### 8145-00 and 8145-20

Electric Heat Defrosting (Cycle Limit Switch)



|         |             |             |   |           |             |   |            |             |              |                       |
|---------|-------------|-------------|---|-----------|-------------|---|------------|-------------|--------------|-----------------------|
| 8145-AV | H<br>(L/L1) | N<br>(N/L2) | F | 3<br>COMP | 1<br>(L/L1) | 2 | 5<br>LIMIT | 4<br>(L/L1) | X<br>5/LIMIT | C<br>HEATER/<br>LIMIT |
| 8145-00 | 1<br>(L/L1) | N<br>(N/L2) |   | 4<br>COMP | 1<br>(L/L1) |   | 3<br>LIMIT | 1<br>(L/L1) |              | X<br>HEATER/<br>LIMIT |
| 8145-20 |             |             |   |           |             |   |            |             |              |                       |



# REFRIGERATION

**PARAGON**<sup>®</sup>

## DEFROST TIMERS - ELECTROMECHANICAL



8045-00



8245-20

### 8000 Series

The Paragon<sup>®</sup> 8000 Series Commercial Defrost Controls are designed for commercial freezers and refrigerators to provide automatic defrost capability. They accommodate various types of defrost systems including electric defrost heaters, hot gas, and compressor off cycle.

### Features and Benefits

- Time initiated; temperature, pressure or time terminated models available
- High-amp switch contacts: 40 amps, 2 HP
- Positive slider bar switch design assures positive electrical contact and wipes the contact surface of contaminants
- Temperature or pressure terminated models are designed for defrost termination using an external temperature or pressure device
- Safety back-up – mechanical time-driven defrost termination
- Heavy-duty synchronous design drive motor
- Choice of three contact arrangements
- Adjustable frequency of defrost initiation from 1 to 6cycles per day with a minimum of 4 hours between successive operations
- Adjustable back-up defrost termination from 4 to 110minutes in 2 minute increments
- Heavy-duty steel enclosure with knockouts (on the bottom, back and sides) and hasp and staple padlock
- All 8240 models have an adjustable cut-in pressure dial calibrated from 36-110 pounds for R12, R22, R502











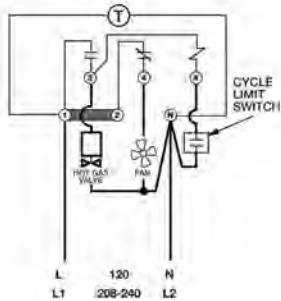
# REFRIGERATION

**PARAGON**

## Product Drawings

### Hot Gas Defrosting

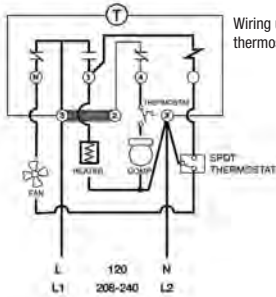
Models 8145-00, 8145-20, E357-00, D81-8145-ZIEX Wiring Diagram



Wiring using 120V or 240V single phase line with compressor thermostat closed during defrost.

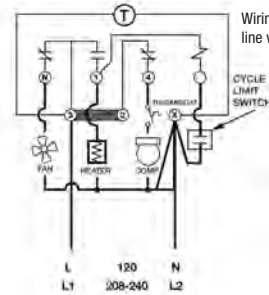
### Electric Heat Defrosting

Models 8141-00 and 8141-20 - Wiring Diagram



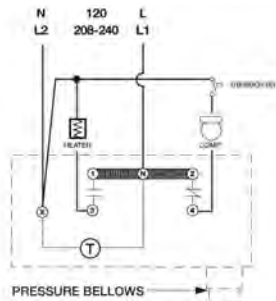
Wiring using differential of SPDT thermostat to delay fan after defrosting

Models 8141-00, 8141-20 - Wiring Diagram



Wiring using 120V or 240V single phase line with auxiliary fan circuit

Models 8245-00 and 8245-20 - Wiring Diagram



Wiring for electric heat system without magnetic starter

| Key to Symbols       |                |
|----------------------|----------------|
| Timer                | Compressor     |
| Customer Connections | Defrost Heater |
| Timer Wiring         | Fan            |
| Jumper Wire          | Solenoid       |
| Normally Closed      | Water Spray    |
| Normally Open        | Hot Gas Valve  |
|                      | Thermostat     |



## DEFROST TIMERS - ELECTROMECHANICAL

### 632 Series

The Paragon® 632 Series Defrost Timers provide an adjustable cycle, time initiated, with one to 8 On/Off operations daily with a minimum of three hours between operations.

#### Features and Benefits

- Adjustable delay or pump down cycle
- Drain or fan delay cycle adjustable
- Defrost initiation and length adjustable



632-20

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### Specifications

| Part Numbers | Description   | Switch Rating   | Enclosure        | Adjustable Defrost Initiation                                 | Adjustable Delay or Pump Down Cycle   | Adjustable Drain or Fan Delay Cycle | Adjustable Length of Defrost      | Sequence Switching | High Pressure (Open High) Cut-Out | Electrical Rating |
|--------------|---------------|---|------------------|---|---|-------------------------------------|-----------------------------------|--------------------|-----------------------------------|-------------------|
| 632-00       | Defrost Timer | 120-240V AC, 10 Amps, 245 VA Switches 2-4 and 3-4 carry 1/2 HP rating | Heavy-Duty Steel | 1-8 cycles per day; minimum 3 hours between successive cycles | 0-30 minutes; 3 minute graduation: for stopping fans, reducing refrigerant pressure, or hot gas pump down cycle | 3-15 minutes; 3 minute graduation   | 3-45 minutes; 3 minute graduation | 2 NO 2 NC          | 4.75 (2.2)                        | 120V AC           |
| 632-20       | Defrost Timer | 120-240V AC, 10 Amps, 245 VA Switches 2-4 and 3-4 carry 1/2 HP rating | Heavy-Duty Steel | 1-8 cycles per day; minimum 3 hours between successive cycles | 0-30 minutes; 3 minute graduation: for stopping fans, reducing refrigerant pressure, or hot gas pump down cycle | 3-15 minutes; 3 minute graduation   | 3-45 minutes; 3 minute graduation | 2 NO 2 NC          | 4.75 (2.2)                        | 240V AC           |



**1** Year  
Limited  
Warranty



# REFRIGERATION

**PARAGON**<sup>®</sup>

## DEFROST TIMERS - ELECTRONIC



9045-00



9045-00M

### 9000 Series

The Paragon<sup>®</sup> 9045-00 and 9145-00 Universal Defrost Timers (UDT) are the only multi-voltage defrost timers engineered to industry refrigeration standards.

Designed to withstand the most rigorous refrigeration applications, this control offers a real-time clock and 100 hours of power loss protection for both time and defrost schedules. Mechanism-only models also are available to fit in standard defrost timer enclosures.

### Features and Benefits

- Certified to UL873 standard for temperature-indicating and regulating equipment
- Wires directly to 120V AC, 208V AC or 240V AC power sources without jumpers or switches
- Rated to 30,000 cycles for refrigeration controllers with switches
- Easy programming, easy set-up, set time, set defrost start and defrost end
- Initiate 15 minute manual defrost
- 100 hours of power loss protection for both time and defrost schedule
- Real-time clock
- Lighted display shows defrost start time and duration
- System status indicators





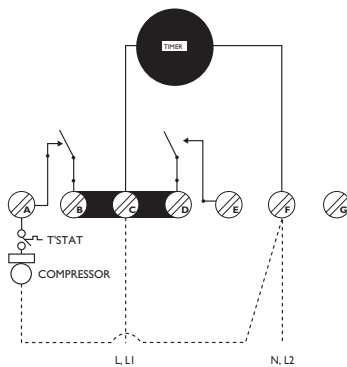
## Specifications

| Part Numbers | Description             | Relay Switch | Initiation Type | Termination Type       | Voltage         |
|--------------|-------------------------|--------------|-----------------|------------------------|-----------------|
| 9045-00      | Universal Defrost Timer | SPST         | Time            | Time                   | 120-208-240V AC |
| 9045-00M     | Mechanism Only          | SPST         | Time            | Time                   | 120-208-240V AC |
| 9145-00      | Universal Defrost Timer | SPDT         | Time            | Time, Temp or Pressure | 120-208-240V AC |
| 9145-00M     | Mechanism Only          | SPDT         | Time            | Time, Temp or Pressure | 120-208-240V AC |

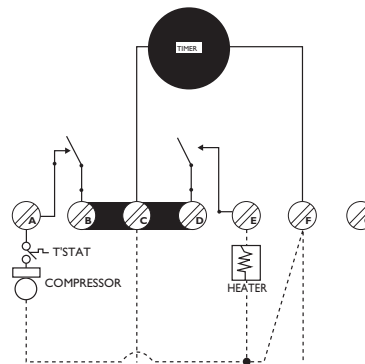
| 9045 Terminal Data | A   | B                            | C                       | D   | E                            | F                            | G                                |
|--------------------|---|------------------------------|-------------------------|---|------------------------------|------------------------------|----------------------------------|
| Relay Contact      | SPST #1<br>NC Contact   | SPST #1<br>Common<br>Contact | L1 Power in to<br>Timer | SPST #2<br>No Contact   | SPST #2<br>Common<br>Contact | L2/N<br>Power in<br>to timer | No<br>Connection                 |
| Relay Rating       | 30 A resistive @<br>120 to 240V AC<br>1 HP @ 120V AC,<br>2 HP @ 208<br>to 240V AC |                              |                         | 30 A resistive @<br>120 to 240V AC<br>1 HP @ 120V AC,<br>2 HP @ 208<br>to 240V AC |                              |                              |                                  |
| Device Connections | Compressor<br>(Typical)   |                              |                         |   | Defrost Device<br>(Typical)  |                              | Defrost<br>Termination<br>Switch |

| 9145 Terminal Data | A   | B   | C   | D                  | E  | F   | G   |
|--------------------|---|---|---|--------------------|--|---|---|
| Relay Contact      | SPDT<br>NC Contact  | SPDT<br>NO Contact  | SPDT<br>Common<br>Contact                                       | SPST<br>NO Contact | SPST<br>Common<br>Contact  | L2/N<br>Power in<br>to timer              | Defrost<br>Termination<br>Device Input<br>L2/N side |
| Relay Rating       | 15 A resistive @<br>120 to 240V AC<br>1/4 HP @ 120V AC,<br>1/2 HP @ 208<br>to 240V AC | 30 A resistive @<br>120 to 240V AC<br>1 HP @ 120V AC,<br>2 HP @ 208<br>to 240V AC | L1 Power<br>to Timer and to<br>Defrost<br>Termination<br>Device |                    | 30 A resistive @<br>120 to 240V AC<br>1 HP @ 120V AC,<br>2 HP @ 208<br>to 240 AC | Compressor<br>(Typical)<br>Fan (Optional) |   |
| Device Connections | Fan (Typical)<br>Compressor<br>(Optional)   | Defrost Device<br>(Typical)   |   |                    | Compressor<br>(Typical)<br>Fan (Optional)  | Defrost<br>Termination<br>Switch          |   |

## Product Drawings



9045 AIR DEFROST - Time Initiated  
Time Terminated - Wiring Diagram



9045 ELECTRIC DEFROST - Time Initiated  
Time Terminated - Wiring Diagram

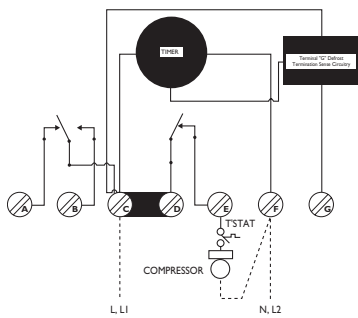
1 Year  
Limited  
Warranty



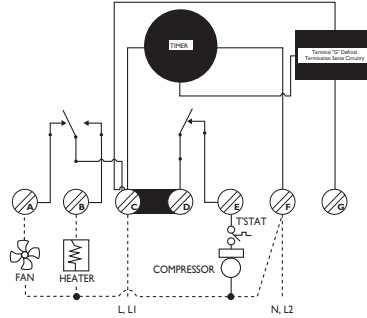
# REFRIGERATION

**PARAGON**

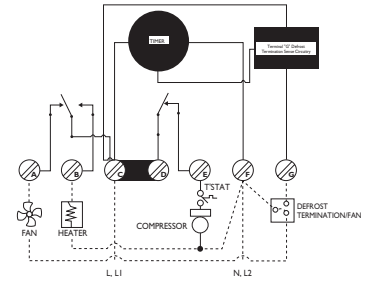
## Product Drawings



9145 AIR DEFROST - Time Initiated  
Time Terminated - Wiring Diagram



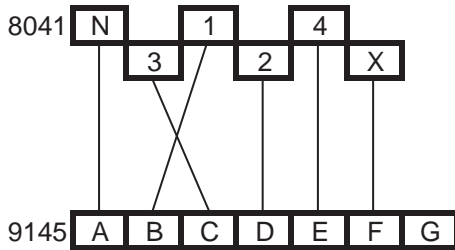
9145 ELECTRIC DEFROST - Time Initiated  
Time Terminated - Wiring Diagram



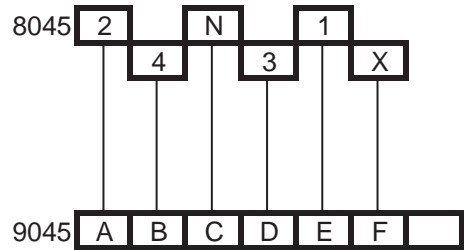
9145 ELECTRIC DEFROST - Time Initiated  
Temperature Terminated - Wiring Diagram

## Conversion Diagrams for Paragon Mechanical Controls

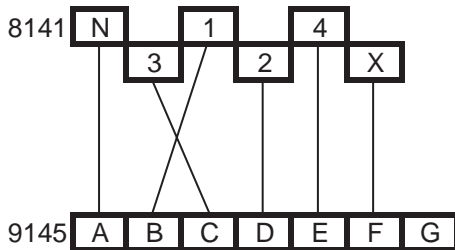
### Convert 8041 to 9145



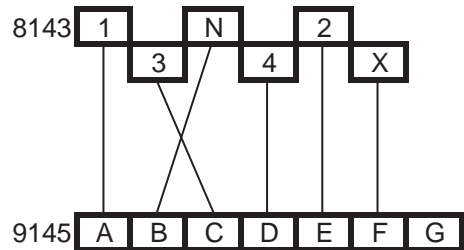
### Convert 8045 to 9045



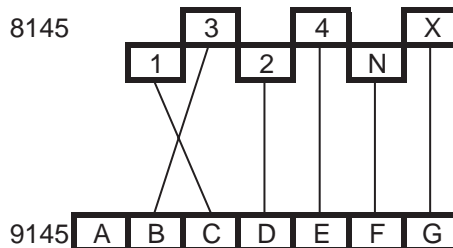
### Convert 8141 to 9145



### Convert 8143 to 9145



### Convert 8145 to 9145





## DEFROST TIMERS - ELECTRONIC

### ERC-2 Series

The Paragon® ERC-2 Electronic Refrigeration Control is a microprocessor-based electronic controller designed to manage both the temperature and the defrost functions of a commercial refrigeration unit.

### Features and Benefits

- Real-time clock for defrost control
- Integrated control
- Temperature control function
- 4 relay outputs 120-240V AC @ 50/60 Hz
- Compressor
- Evaporator fan
- Alarm
- Digital display module
- Keypad programming
- Two temperature sensors (supplied)
- Refrigeration cycle
- Safe mode operation
- Continues operation based on performance average in the event sensor fails
- Power failure recovery
- All settings retained in memory
- Time-of-day carried over for 100 hours



ERC2-212111-370

### Specifications

| Part Numbers    | Description                                      | Case Type | Temperature Sensor | Defrost Cycles                     | Temperature Range             | Electrical Rating                     |
|-----------------|--|-----------|--------------------|------------------------------------|-------------------------------|---------------------------------------|
| ERC2-212111-370 | ERC-2 Electronic Control with integrated display | NEMA 1    | NTC thermistor     | 1 to 8 per day or 1 every 48 hours | -40°F to 60°F (-40°C to 16°C) | 120/208/240V AC (+10, -15%), 50/60 Hz |

### Output Relay Rating

|                                | 120V AC | 208V AC | 240V AC |
|--------------------------------|---------|---------|---------|
| <b>Compressor: SPST</b>        |         |         |         |
| Horsepower Rating (HP)         | 1       | 1.5     | 2       |
| FLA/LRA                        | 16/96   | 12/72   | 12/72   |
| Pilot Duty (VA)                | 470     | 470     | 470     |
| <b>Defrost: SPST NO</b>        |         |         |         |
| Resistive Amps                 | 16      | 16      | 16      |
| Horsepower Rating (HP)         | 1/2     | 3/4     | 1       |
| Pilot Duty (VA)                | 470     | 470     | 470     |
| <b>Evaporator Fan: SPST NC</b> |         |         |         |
| Resistive Amps                 | 16      | 16      | 16      |
| Horsepower Rating (HP)         | 1/2     | 3/4     | 1       |
| FLA/LRA                        | 10/59   | 8/48    | 8/48    |
| Pilot Duty (VA)                | 470     | 470     | 470     |
| <b>Alarms: SPST NO</b>         |         |         |         |
| Resistive Amps                 | 5       | 5       | 5       |
| Pilot Duty (VA)                | 240     | 240     | 240     |

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**1** Year Limited Warranty

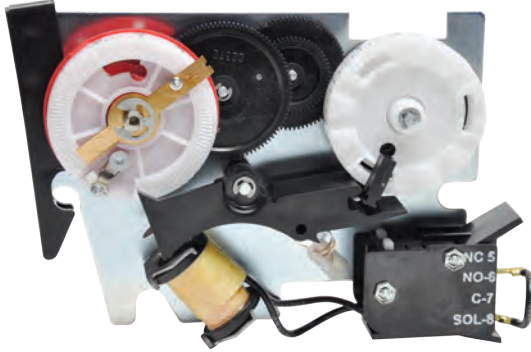




# REFRIGERATION

**PARAGON**

## DEFROST MODULES



RM Series

### RM Series

The Paragon® RM Series includes program and motor modules. Defrost initiation is adjustable from 1-12 operations per circuit, per day; minimum 2 hours required between successive operations. Mechanical defrost termination is adjustable from 6-106 minutes in one-minute increments. Solenoid termination is optional. Instantaneous transfer if solenoid is energized at time of defrost initiation. Two SPDT snap switches per module. 3/16" male push-on switch terminals. Switch rating: 10 Amps, 1/3 HP, 120-240V AC; 345 VA pilot duty.

### Features and Benefits

- Extra trippers, part number X-7248 (12 per bag)
- UL Listed and CSA Approved

## Specifications

| Part Numbers | Description              | Circuit        | Hour         | High Pressure (Open High) Cut-Out | Comments      | Electrical Rating  |
|--------------|--------------------------|----------------|--------------|-----------------------------------|---------------|--------------------|
| A877-20      | RM Series Program Module | Circuit Module | Even Hour    | 1 (0.5)                           | With solenoid | 208-240V AC, 60 Hz |
| A878-20      | RM Series Motor Module   | NA             | Drive Module | 1 (0.5)                           | NA            | 208-240V AC, 60 Hz |



**1** Year Limited Warranty



## RESIDENTIAL AND LIGHT COMMERCIAL DEFROST TIMERS

### Residential and Light Commercial Defrost Timers Series

The Paragon® Residential and Light Commercial Defrost Timer Series is synchronous motor control that activates an internal SPDT switch to actuate a defrost heater in a refrigerator. These heavy-duty 15 Amp Paragon timers are used by OEM manufacturers to replace both the older classic designs and the newer designs installed for residential as well as light commercial applications.

#### Features and Benefits

- Quiet - synchronous design provides extremely quiet operation
- Position freedom - timer can be mounted in various locations
- Interchangeability - standard mounting allows use in all applications
- Double insulated - requires no earth grounding
- Brass contacts for better corrosion protection
- Approved for use in propane based systems



A1401-00

### Specifications

| Part Numbers | Description                   | Bulk Quantity | Timing              | Electrical Rating              |
|--------------|-------------------------------|---------------|---------------------|--------------------------------|
| A1400-00     | Defrost Timer in Refrigerator | 12            | 6 hours 21 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| B1400-00     | Defrost Timer in Refrigerator | 12            | 8 hours 20 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| A1401-00     | Defrost Timer in Refrigerator | 12            | 6 hours 21 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| B1401-00     | Defrost Timer in Refrigerator | 12            | 8 hours 20 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| G1401-00     | Defrost Timer in Refrigerator | 12            | 6 hours 25 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| A1401-20     | Defrost Timer in Refrigerator | 12            | 6 hours 21 minutes  | 240V AC 60 Hz 8 Amp 1/2 HP     |
| B1401-20     | Defrost Timer in Refrigerator | 12            | 8 hours 20 minutes  | 240V AC 60 Hz 8 Amp 1/2 HP     |
| A1401-21     | Defrost Timer in Refrigerator | 12            | 6 hours 21 minutes  | 240V AC 50 Hz 8 Amp 1/2 HP     |
| B1401-21     | Defrost Timer in Refrigerator | 12            | 8 hours 20 minutes  | 240V AC 50 Hz 8 Amp 1/2 HP     |
| A1402-00     | Defrost Timer in Refrigerator | 12            | 8 hours 21 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| DJ2000-00    | Defrost Timer in Refrigerator | 12            | 4 hours 20 minutes  | 120V AC 60 Hz 10 Amp 1/3 HP    |
| G1400-00     | Defrost Timer in Refrigerator | 12            | 6 hours 25 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| G1401-21     | Defrost Timer in Refrigerator | 12            | 6 hours 25 minutes  | 240V AC 50 Hz 8 Amp 1/2 HP     |
| GV3001-00    | Defrost Timer in Refrigerator | 12            | 12 hours 21 minutes | 120V AC 60 Hz 9 Amp 1/2 HP     |
| GX3001-00    | Defrost Timer in Refrigerator | 12            | 10 hours 21 minutes | 120V AC 60 Hz 15 Amp 1/2 HP    |
| GY3001-00    | Defrost Timer in Refrigerator | 12            | 10 hours 25 minutes | 120V AC 60 Hz 15 Amp 1/2 HP    |
| NK2001-21    | Defrost Timer in Refrigerator | 12            | 8 hours 7 minutes   | 208-240V AC 50 Hz 8 Amp 1/2 HP |
| AF2001-00    | Defrost Timer in Refrigerator | NA            | 12 hours 21 minutes | 127V AC 60 Hz 15 Amps          |
| AF2001-20    | Defrost Timer in Refrigerator | NA            | 12 hours 21 minutes | 240V AC 60 Hz 5 Amp 1/3 HP     |
| AF2001-21    | Defrost Timer in Refrigerator | NA            | 12 hours 21 minutes | 240V AC 50 Hz 15 Amps          |
| DL2001-21    | Defrost Timer in Refrigerator | NA            | 12 hours 30 minutes | 240V AC 50 Hz                  |
| EB2001-21    | Defrost Timer in Refrigerator | NA            | 12 hours 30 minutes | 240V AC 50Hz                   |
| K1400-00     | Defrost Timer in Refrigerator | 12            | 10 hours 25 minutes | 120V AC 60 Hz 10 Amp 1/3 HP    |
| LJ2001-21    | Defrost Timer in Refrigerator | NA            | 8 hours 7 minutes   | 240V AC 50Hz                   |
| OA1401-00    | Defrost Timer in Refrigerator | 12            | 6 hours 21 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| OE1401-00    | Defrost Timer in Refrigerator | 12            | 8 hours 20 minutes  | 120V AC 60 Hz 15 Amp 1/2 HP    |
| OA1400-21    | Defrost Timer in Refrigerator | NA            | 6 hours 21 minutes  | 230V AC 50 Hz 15 Amps          |
| OA1401-21    | Defrost Timer in Refrigerator | NA            | 6 hours 21 minutes  | 208-240V AC 50 Hz 15 Amps      |
| PF2001-00    | Defrost Timer in Refrigerator | NA            | 8 hours 21 minutes  | 127V AC 60 Hz 15 Amps          |
| PF2001-20    | Defrost Timer in Refrigerator | NA            | 8 hours 21 minutes  | 220V AC 60 Hz 15 Amps          |
| PF2001-21    | Defrost Timer in Refrigerator | NA            | 8 hours 21 minutes  | 240V AC 50 Hz 15 Amps          |
| QE2001-21    | Defrost Timer in Refrigerator | NA            | 6 hours 15 minutes  | 240V AC 50 Hz 15 Amps          |
| RZ2001-21    | Defrost Timer in Refrigerator | NA            | 4 hours 15 minutes  | 240V AC 50 Hz                  |
| SJ2001-20    | Defrost Timer in Refrigerator | NA            | 8 hours 21 minutes  | 240V AC 50 Hz 8 Amp 1/2 HP     |
| TX2001-00    | Defrost Timer in Refrigerator | NA            | 12 hours 21 minutes | 127V AC 60 Hz 15 Amps          |
| TX2001-20    | Defrost Timer in Refrigerator | NA            | 12 hours 25 minutes | 127V AC 60 Hz 15 Amps          |
| WB2001-00    | Defrost Timer in Refrigerator | NA            | 8 hours 8 minutes   | 127V AC 60 Hz 15 Amps          |
| WB2001-20    | Defrost Timer in Refrigerator | NA            | 8 hours 8 minutes   | 220V AC 60 Hz 15 Amps          |
| WV2001-59    | Defrost Timer in Refrigerator | NA            | 6 hours 21 minutes  | 240V AC 50/60 Hz               |
| XC2001-21    | Defrost Timer in Refrigerator | NA            | 8 hours 20 minutes  | 240V AC 50 Hz                  |
| XH2001-21    | Defrost Timer in Refrigerator | NA            | 12 hours 45 minutes | 240V AC 50 Hz                  |

RoHS

C US  
Recognized Component



1 Year Limited Warranty



# REFRIGERATION

**RANCO**



ETC-111000-000

## ELECTRONIC CONTROLS

### ETC Series

The Ranco® ETC Series Electronic Temperature Control offers a full-featured electronic replacement for electrical-mechanical temperature controls used in many commercial refrigeration applications. With its wide temperature range, one and two stage capability, selectable heating/cooling modes and multi-voltage input, the ETC is designed to provide application flexibility. Models available include 120/208/240V AC and 24V AC.

### Features and Benefits

- Anti-short cycle compressor delay for cooling applications
- Wide temperature range -30°F to 220°F (-34,4°C to 104,4°C)
- Wide differential adjustment 1°F to 30°F (-17°C to -1°C)
- LCD read-out for sensor temperature, control settings, and relay status
- High Amp output relay (FLA 16 Amps @ 120V AC and 8 Amps @ 208/240V AC) single stage
- EEPROM memory retains control settings during power outages
- Keypad lockout to prevent end-user alteration of settings
- 8 foot lead with sensor is extendable up to 400 feet using 18 or 22-gauge thermostat wire
- Easy 4-step set-up
- Heavy-duty relay is 1 HP rated
- Selectable °F or °C heating/cooling modes
- Single and two stage models
- NEMA 1 case and cover
- NEMA 4X models available
- White backlight on display
- Sensor rated IP67 for dust and water (<1m) resistance





## Specifications

| Part Numbers   | Description  | Number of Stages | Enclosure Type | Temperature Range                  | Differential Range           | Electrical Rating | 0 to 10 Volt Output |
|----------------|--|------------------|----------------|------------------------------------|------------------------------|-------------------|---------------------|
| ETC-111000-000 | Electronic Temperature Control                                   | One              | NEMA 1         | -30°F to 220°F<br>(-34°C to 104°C) | 1°F to 30°F<br>(1°C to 16°C) | 120/208/240V AC   | No                  |
| ETC-111100-000 | Electronic Temperature Control                                   | One              | NEMA 1         | -30°F to 220°F<br>(-34°C to 104°C) | 1°F to 30°F<br>(1°C to 16°C) | 120/208/240 V AC  | No                  |
| ETC-112000-000 | Electronic Temperature Control                                   | One              | NEMA 1         | -30°F to 220°F<br>(-34°C to 104°C) | 1°F to 30°F<br>(1°C to 16°C) | 24V AC            | No                  |
| ETC-141000-000 | Electronic Temperature Control                                   | One              | NEMA 4X        | -30°F to 220°F<br>(-34°C to 104°C) | 1°F to 30°F<br>(1°C to 16°C) | 120/208/240 V AC  | No                  |
| ETC-211000-000 | Electronic Temperature Control                                   | Two              | NEMA 1         | -30°F to 220°F<br>(-34°C to 104°C) | 1°F to 30°F<br>(1°C to 16°C) | 120/208/240 V AC  | No                  |
| ETC-212000-000 | Electronic Temperature Control                                   | Two              | NEMA 1         | -30°F to 220°F<br>(-34°C to 104°C) | 1°F to 30°F<br>(1°C to 16°C) | 24V AC            | No                  |
| ETC-241000-000 | Electronic Temperature Control                                   | Two              | NEMA 4X        | -30°F to 220°F<br>(-34°C to 104°C) | 1°F to 30°F<br>(1°C to 16°C) | 120/208/240 V AC  | No                  |
| 1309007-044    | Thermistor Sensor, 2" long x 1/4" diameter with 8' #22 AWG cable | NA               | NA             | NA                                 | NA                           | NA                | NA                  |

## Relay Electrical Ratings

| Single Stage Models |             |                   | Two Stage Models |             |
|---------------------|-------------|-------------------|------------------|-------------|
| 120V AC             | 208/240V AC | NO Contact        | 120V AC          | 208/240V AC |
| 16 Amps             | 8 Amps      | Full-load Amps    | 9.8 Amps         | 4.9 Amps    |
| 96 Amps             | 48 Amps     | Locked Rotor Amps | 58.8 Amps        | 29.4 Amps   |
| 15 Amps             | 8 Amps      | Resistive Amps    | 9.8 Amps         | 4.9 Amps    |
| 1 HP                | 1 HP        | Horsepower        | 1/2 HP           | 1/2 HP      |
| 120V AC             | 208/240V AC | NC Contact        | 120V AC          | 208/240V AC |
| 5.8 Amps            | 2.9 Amps    | Full-load Amps    | 5.8 Amps         | 2.9 Amps    |
| 34.8 Amps           | 17.4 Amps   | Locked Rotor Amps | 34.8 Amps        | 17.4 Amps   |
| 5.8 Amps            | 2.9 Amps    | Resistive Amps    | 5.8 Amps         | 2.9 Amps    |
| 1/4 HP              | 1/4 HP      | Horsepower        | 1/4 HP           | 1/4 HP      |

**1** Year  
Limited  
Warranty



# REFRIGERATION

**RANCO**

## TEMPERATURE CONTROLS - COLD CONTROLS



A12-701

### A12 and 9531 Series - Constant Cut-in

The Ranco® A12 and 9531 Series Constant Cut-in Temperature Controls are designed to switch electrical components of refrigeration systems in response to sensed temperatures.

#### Features and Benefits

- Laser-welded stainless steel bellows
- Fixed or adjustable temperature settings
- High-amperage contacts
- Pneumatic action provided by vapor-filled capillary or capillary with bulb sensing elements
- Constant On or Off positions available
- Choice of mounting brackets, adjustment ranges and cams, and slotted or flattened shafts
- Standard 1/4" quick-connect terminals with optional screw terminals

### Specifications

| Part Numbers | Description                          | Cold Off          | Normal Off         | Warm Off         | Cut-In          | Capillary Length    |
|--------------|--------------------------------------|-------------------|--------------------|------------------|-----------------|---------------------|
| A12-1506     | Constant Cut-In Control              | 9°F<br>(-12.7°C)  | 15°F<br>(-9.4°C)   | 22°F<br>(-5.5°C) | 38°F<br>(3.3°C) | 39" x 3/8" x 1-3/8" |
| A12-1560     | Constant Cut-In Control              | 19°F<br>(-7.2°C)  | 24°F<br>(-4.4°C)   | 29°F<br>(-1.6°C) | 38°F<br>(3.3°C) | 72"                 |
| A12-700      | Constant Cut-In Control              | 11.5°F<br>(-11°C) | 18°F<br>(-7.7°C)   | 22°F<br>(-5.5°C) | 37°F<br>(2.7°C) | 84"                 |
| A12-701      | Constant Cut-In Control              | 15°F<br>(-9.4°C)  | 23.5°F<br>(-4.7°C) | 31°F<br>(-0.5°C) | 41°F<br>(5°C)   | 84"                 |
| 9531N320     | Constant Cut-In Control              | 11°F<br>(-11°C)   | 16°F<br>(-8°C)     | 21°F<br>(-6°C)   | 40°F<br>(-4°C)  | 20.5"               |
| 9531N395     | Constant Cut-In Control with Pigtail | 12°F<br>(-11°C)   | 19°F<br>(7°C)      | 25°F<br>(-3°C)   | 38°F<br>(-3°C)  | 48.5"               |
| 9531N251     | Constant Cut-In Control              | 14°F<br>(-10°C)   | 18°F<br>(-7.7°C)   | 22°F<br>(-5.5°C) | 40°F<br>(-4°C)  | 42.5"               |
| 9531N388     | Constant Cut-In Control with Pigtail | 15.8°F<br>(-9°C)  | 20°F<br>(-6.6°C)   | 26.6°F<br>(-3°C) | 37°F<br>(2.7°C) | 33.5"               |

**CRUS**  
Recognized  
Component

**1** Year  
Limited  
Warranty



## TEMPERATURE CONTROLS -COLD CONTROLS

### A22, A30 and 9530 Series - Constant Differentials

The Ranco® A22, A30 and 9530 Series Constant Differential Temperature Controls are designed to switch electrical components of refrigeration systems in response to sensed temperatures.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Laser-welded stainless steel bellows
- Fixed or adjustable temperature settings
- High-amperage contacts
- Pneumatic action provided by vapor-filled capillary or capillary with bulb sensing elements
- Constant On or Off positions available
- Choice of mounting brackets, adjustment ranges and cams, and slotted or flatted shafts
- Standard 1/4" quick-connect terminals with optional screw terminals



A30-2210

### Specifications

| Part Numbers | Description                             | Switch | Off Position | Cold Off        | Cold On       | Normal Off     | Normal On       | Warm On       | Differential  | Capillary Length |
|--------------|---|--------|--------------|-----------------|---------------|----------------|-----------------|---------------|---------------|------------------|
| A22-391      | Adaptable Constant Differential Control | SPDT   | No           | 11°F (-11°C)    | 19°F (-7°C)   | 27°F (-2°C)    | 35°F (1°C)      | 51°F (10°C)   | 8°F (-13°C)   | 66"              |
| A22-1112     | Adaptable Constant Differential Control | SPST   | No           | 25°F (-3°C)     | 30°F (-1°C)   | 34°F (1°C)     | 39°F (3°C)      | 44°F (6°C)    | 5°F (-15°C)   | 72"              |
| A22-1129     | Ice Bin Level and Harvest Control       | SPDT   | NA           | NA              | NA            | 35°F (1°C)     | 51°F (10°C)     | NA            | 6°F (-14°C)   | 48"              |
| A30-180      | Adaptable Constant Differential Control | SPST   | Yes          | -4°F (-20°C)    | 9°F (-12°C)   | 9°F (-12°C)    | 22°F (-5°C)     | 38°F (3°C)    | 13°F (-10°C)  | 42"              |
| A30-182      | Constant Differential Control           | SPST   | Yes          | 0.5°F (-17.5°C) | 5.5°F (-14°C) | 16°F (-8°C)    | 22°F (-5.5°C)   | 30°F (-1°C)   | 6°F (-14°C)   | 42"              |
| A30-260      | Adaptable Constant Differential Control | SPST   | Yes          | 0.5°F (-17.5°C) | 5.5°F (-14°C) | 16°F (-8°C)    | 22°F (-5.5°C)   | 30°F (-1°C)   | 6°F (-14°C)   | 72"              |
| A30-261      | Adaptable Constant Differential Control | SPST   | Yes          | 32°F (0°C)      | 38°F (3.3°C)  | NA             | NA              | 61°F (16°C)   | 6°F (-14°C)   | 84"              |
| A30-262      | Adaptable Constant Differential Control | SPST   | Yes          | 0.5°F (-17.5°C) | 23°F (-5°C)   | 11°F (-11°C)   | 33.5°F (0.83°C) | 47°F (8°C)    | 22.5°F (-5°C) | 84"              |
| A30-263      | Adaptable Constant Differential Control | SPST   | Yes          | -24°F (-31°C)   | NA            | -3°F (-19°C)   | 5.5°F (-14°C)   | 20.5°F (-6°C) | 8.5°F (-13°C) | 84"              |
| A30-301      | Adaptable Constant Differential Control | SPST   | No           | -24°F (-31°C)   | NA            | -3°F (-19°C)   | 5.5°F (-14°C)   | 20°F (-6°C)   | 8.5°F (-13°C) | 84"              |
| A30-313      | Constant Differential Control           | SPST   | Yes          | -20°F (-28°C)   | NA            | -10°F (-23°C)  | 2°F (-16°C)     | 21°F (-6°C)   | 8°F (-13°C)   | 42"              |
| A30-2209     | Constant Differential Control with Dial | SPST   | Yes          | 35°F (1.5°C)    | NA            | 36.5°F (2.5°C) | 44.5°F (6.9°C)  | NA            | 8°F (-13°C)   | 48"              |
| A30-2210     | Constant Differential Control with Dial | SPST   | Yes          | 12°F (-11°C)    | NA            | 16°F (-8°C)    | 40°F (4.4°C)    | 43°F (6°C)    | 24°F (-4.4°C) | 48"              |
| A30-2311     | Fixed                                   | SPST   | NA           | NA              | NA            | 30°F           | 56°F            | NA            | 26°F          | 30"              |
| 9530N814     | Constant Differential Control with Dial | SPST   | Yes          | 12°F            | NA            | 16°F           | 40°F            | 43°F          | 24°F          | 30"              |



# REFRIGERATION

**RANCO**

## TEMPERATURE CONTROLS - COLD CONTROLS



K12L-1529-002

### K Series

The Ranco® K Controls are used all over the globe to control the temperature in commercial and domestic refrigeration, air conditioning and heating applications. Typical uses include refrigerators, freezers, bottle and liquid coolers, and refrigerator display cases.

### Features and Benefits

- Compact size
- Standard mounting configurations
- Constant/fixed differential
- SPST close-on-rise switching
- Various capillary lengths

### Specifications

| Part Numbers     | Description                        | Country of Origin | Switch | Cold Cut-In    | Cold Cut-Out     | Normal Cut-Out   | Warm Cut-In   | Warm Cut-Out     | Constant Cut-In | Capillary Length |
|------------------|------------------------------------|-------------------|--------|----------------|------------------|------------------|---------------|------------------|-----------------|------------------|
| K12L-1529-002    | Cold Control International Models  | Czech Republic    | SPST   | NA             | 17.06°F (-8.3°C) | 23.54°F (-4.7°C) | NA            | 30.56°F (-0.8°C) | 41.9°F (5.5°C)  | 2130mm           |
| K50P-1125-001    | Cold Control International Models  | Czech Republic    | SPST   | 15.8°F (-9°C)  | 64.4°F (-18°C)   | NA               | 48.2°F (9°C)  | NA               | NA              | 1200mm           |
| K50P-1126-001    | Cold Control International Models  | Czech Republic    | SPST   | -0.4°F (-18°C) | 75.2°F (-24°C)   | NA               | 15.8°F (-9°C) | NA               | NA              | 1200mm           |
| K50P-1127-001    | Cold Control International Models  | Czech Republic    | SPST   | 41°F (5°C)     | 35.6°F (2°C)     | NA               | 55.4°F (13°C) | NA               | NA              | 1200mm           |
| K50P-6063-001    | Cold Control International Models  | Czech Republic    | SPST   | 41°F (5°C)     | 42.8°F (-6°C)    | NA               | 51.8°F (11°C) | NA               | NA              | 1200mm           |
| K50Q-1125-001    | Cold Control International Models  | China             | SPST   | 15.8°F (-9°C)  | 64.4°F (-18°C)   | NA               | 48.2°F (9°C)  | NA               | NA              | 1200mm           |
| K50Q-1126-001    | Cold Control International Models  | China             | SPST   | -0.4°F (-18°C) | 75.2°F (-24°C)   | NA               | 15.8°F (-9°C) | NA               | NA              | 1200mm           |
| K50Q-1127-001    | Cold Control International Models  | China             | SPST   | 41°F (5°C)     | 35.6°F (2°C)     | NA               | 55.4°F (13°C) | NA               | NA              | 1200mm           |
| K50P1110005 (EU) | Cold Controls International Models | Czech Republic    | SPST   | -14.5°C        | -23°C            | NA               | 2°C           | -3.4°C           | NA              | 1200mm           |
| K50P1115002 (EU) | Cold Controls International Models | Czech Republic    | SPST   | 4°C            | 1.5°C            | NA               | 11°C          | 8.9°C            | NA              | 2000mm           |
| K52L4510001 (EU) | Cold Controls International Models | Czech Republic    | SPST   | 3.5°C          | -16.5°C          | NA               | 3.5°C         | -3.5°C           | NA              | 1000mm           |
| K59H2840001 (EU) | Cold Controls International Models | Czech Republic    | SPST   | 2.3°C          | -25.4°C          | NA               | 2.3°C         | -15.8°C          | NA              | 900mm            |
| K59L1821000 (EU) | Cold Controls International Models | Czech Republic    | SPST   | 2.5°C          | -25°C            | NA               | 2.5°C         | -15.5°C          | NA              | 900mm            |

**1** Year Limited Warranty





## TEMPERATURE CONTROLS - COLD CONTROLS

### R Series

The Ranco® R Series Cold Controls are used to control the temperature in commercial and residential refrigeration, air conditioning and heating applications. Typical uses include refrigerators, freezers, bottle and liquid coolers, and refrigerator display cases.

### Features and Benefits

- Compact size
- Standard mounting configurations
- Constant/fixed differential
- SPST close-on-rise switching
- Various capillary lengths



R-302

## Specifications

| Part Numbers | Description  | Temperature Range           | Warm Cut-In | Warm Cut-Out | Normal Cut-In | Normal Cut-Out | Cold Cut-In | Cold Cut-Out | Capillary Length |
|--------------|--------------|-----------------------------|-------------|--------------|---------------|----------------|-------------|--------------|------------------|
| R-302 (NA)   | Cold Control | Thermostat 16°F to 50°F     | 50°F        | NA           | 40.1°F        | 21.7°F         | NA          | 13.3°F       | 32" (81.28mm)    |
| R-323 (NA)   | Cold Control | Thermostat -25°F to 50°F    | 49.5°F      | NA           | 39°F          | 34°F           | NA          | 24.3°F       | 30" (76.2mm)     |
| R-289 (NA)   | Cold Control | Thermostat 18°F to 48°F     | 48.9°F      | NA           | 39°F          | 23.9°F         | NA          | 15.6°F       | 30" (76.2mm)     |
| R-290 (NA)   | Cold Control | Thermostat 11.4°F to 50.6°F | 50°F        | NA           | 40.1°F        | 18.7°F         | NA          | 9.7°F        | 30" (76.2mm)     |
| R-111 (NA)   | Cold Control | Thermostat -12°F to 18°F    | 15.6°F      | NA           | 10°F          | 5.1°F          | NA          | -13.2°F      | 18" (45.72mm)    |
| R-140 (NA)   | Cold Control | Thermostat 16°F to 44°F     | 43.5°F      | NA           | 36.7°F        | 22.8°F         | NA          | 13.1°F       | 30" (76.2mm)     |
| R-353 (NA)   | Cold Control | Thermostat 16.4°F to 45°F   | 44.2°F      | 30°F         | 38.7°F        | 22.8°F         | 32.4°F      | 14.9°F       | 31" (78.74mm)    |

## Replacement Information

| Part Numbers | Bev-Air Part Numbers | Used In                       |
|--------------|----------------------|-------------------------------|
| R-302 (NA)   | 502-302B             | WTR27, MT27, SP, UCR27        |
| R-323 (NA)   | 502-323B             |                               |
| R-289 (NA)   | 502-289B             |                               |
| R-290 (NA)   | 502-290B             |                               |
| R-111 (NA)   | 502-111A             |                               |
| R-140 (NA)   | 502-140A             | DP119, DP41, DP46, DP67, DP93 |
| R-353 (NA)   | 502-353B             | UCR20                         |

**1** Year Limited Warranty



# REFRIGERATION

**RANCO**

## TEMPERATURE CONTROLS - COLD CONTROLS



RC15000-2PI

### RC Series

The Robertshaw® and Ranco® RC Series Cold Controls are thermostats for refrigeration applications. Models include the RC, TSV and TXV Series which are designed for controlling temperature in refrigerators, freezers, air conditioners, water coolers and other applications requiring operation cutoff by temperature. The RC Controls are a traditional design which offer ease of use and versatility, in a wide range of models. The TSV Controls incorporate a low-noise electrical switch, and the TXV Controls include explosion-proof models.

RC Thermostat Codes - see page J11

### Specifications

| Part Numbers | Description  | Application   | Defrosting On | Hot On | Hot Off | Cool On | Cool Off |
|--------------|--------------|---|---------------|--------|---------|---------|----------|
| RC02601-4U   | Cold Control | Consul - Refrigerator with semi-automatic defrost - Push Button (defrosting button)             | 5.4°C         | -4.7°C | -13.5°C | -11.8°C | -23.2°C  |
| RC02636-2P   | Cold Control | CCE/Dako - 1-Door refrigerator with semi-automatic defrosting (Push Button)                     | 5.7°C         | -2.6°C | -13.1°C | -12.5°C | -26.7°C  |
| RC03009-2P   | Cold Control | Electrolux - 1-Door refrigerator with semi-automatic defrosting Push-Button (Defrosting button) | 5.4°C         | -0.8°C | -6.5°C  | -14.0°C | -23.0°C  |
| RC03672-2E   | Cold Control | Briket S/A (Argentina)  | 5.3°C         | -1.7°C | NA      | NA      | -20.1°C  |
| RC04509-2P   | Cold Control | 1-Door refrigerator with semi-automatic defrosting Push-Button (Defrosting button)              | NA            | -4.0°C | -15.5°C | -12.1°C | -26.9°C  |
| RC11375-2E   | Cold Control | Indurama (Ecuador)  | NA            | 12.4°C | 7.7°C   | -3.7°C  | -10.5°C  |
| RC-1201-4P   | Cold Control | Consul - Door refrigerator/compact (replaces RC12601-2P)  | 2.8°C         | -3.8°C | -13.1°C | -9.2°C  | -12.4°C  |
| RC-12473-8   | Cold Control |   | NA            | 3.6°C  | -4.1°C  | -6.3°C  | -17.2°C  |
| RC12636-4P   | Cold Control | CCE/Dako - 1-Door refrigerator 280L R31 Blue Sky  | NA            | -0.9°C | -8.9°C  | -7.8°C  | -18.0°C  |
| RC12709-5P   | Cold Control | Prosdócimo - 1-Door refrigerator  | 2°C           | -2.7°C | -8.8°C  | -10.7°C | -18.3°C  |
| RC13309-2P   | Cold Control | Prosdócimo - 1-Door refrigerator  | 2°C           | -2.7°C | -8.8°C  | -10.7°C | -18.3°C  |
| RC-13312-4   | Cold Control | Refrigeration Thermostat  | NA            | 2.8°C  | -2.4°C  | -2.9°C  | -9.0°C   |
| RC-13312-4U  | Cold Control | Refrigeration Thermostat  | NA            | 2.8°C  | -2.4°C  | -2.9°C  | -9.0°C   |
| RC13509-2P   | Cold Control | Electrolux - 1-Door refrigerator, "Magical" defrosting 250/280L                                 | NA            | -3.0°C | -13.0°C | -10.5°C | -23.7°C  |
| RC-13600-3U  | Cold Control | Standard - 1-Door Refrigerator / Refrigerated Counter   | 3.8°C         | -0.9°C | -6.8°C  | -7.8°C  | -15.4°C  |
| RC-13646-2   | Cold Control | Robertshaw (Argentina)  | NA            | -1.7°C | NA      | NA      | -20.1°C  |
| RC13646-2S   | Cold Control | Robertshaw (Argentina)  | NA            | -1.7°C | NA      | NA      | -20.1°C  |
| RC14001-2P   | Cold Control | Consul 1-Door refrigerator Slim 230/240L  | 1.5°C         | -4.9°C | -16.2°C | -10.0°C | -23.9°C  |
| RC14825-2F   | Cold Control | Export Resale (Ecuador)   | NA            | 7.2°C  | NA      | -10.5°C | -19.4°C  |
| RC-15000-2   | Cold Control | Standard - Refrigerated Counter   | 3.1°C         | -1.7°C | -7.7°C  | -8.8°C  | -16.7°C  |



## Specifications - continued

| Part Numbers | Description  | Application   | Defrosting On | Hot On | Hot Off | Cool On | Cool Off |
|--------------|--------------|---|---------------|--------|---------|---------|----------|
| RC15000-2P   | Cold Control | Standard - Refrigerated Counter   | 3.1°C         | -1.7°C | -7.7°C  | -8.8°C  | -16.7°C  |
| RC15067-2E   | Cold Control | Cold Import (Peru)  | 2.3°C         | -2.5°C | -8.7°C  | -9.8°C  | -18.5°C  |
| RC-22027-2   | Cold Control | Kronen International (Argentina)  | NA            | 3.5°C  | -9.1°C  | 3.5°C   | -25.1°C  |
| RC22036-4P   | Cold Control | CCE/Dako - Duplex Refrigerator C35 - National   | NA            | 3.5°C  | -9.1°C  | 3.5°C   | -25.1°C  |
| RC-22336-2U  | Cold Control | CCE/Dako - Duplex Refrigerator  | NA            | 3.5°C  | -9.9°C  | 3.5°C   | -26.1°C  |
| RC-22867-4   | Cold Control |   | NA            | 3.0°C  | -12.0°C | 3.0°C   | -26.1°C  |
| RC23626-2S   | Cold Control | Oscos Lima (Argentina)  | NA            | 4.8°C  | -14.2°C | 4.8°C   | -20.4°C  |
| RC23669-2S   | Cold Control | Salvo Phillips (Argentina)  | NA            | 4.2°C  | -13.6°C | 4.2°C   | -16.6°C  |
| RC23669-4E   | Cold Control | Salvo Phillips (Argentina)  | NA            | 4.2°C  | -16°C   | 4.2°C   | -27°C    |
| RC23670-2S   | Cold Control | Piraguas (Argentina)  | NA            | 6.4°C  | -9.2°C  | 6.4°C   | -19.3°C  |
| RC24001-2P   | Cold Control | Consul - Refrigerator Biplax Constant-on (replaces RC23301-2)                                   | NA            | 5.7°C  | -19.0°C | 5.7°C   | -25.4°C  |
| RC24001-2S   | Cold Control | Consul - Refrigerator Biplax Constant-on (replaces RC23301-2)                                   | NA            | 5.7°C  | -19.0°C | 5.7°C   | -25.4°C  |
| RC24001-6P   | Cold Control | Consul - Refrigerator Biplax Constant-on 330L   | NA            | 5.7°C  | -21.8°C | 5.7°C   | -29.1°C  |
| RC24001-7P   | Cold Control | Consul - Refrigerator Biplax Constant-on 351/360/370/383/390/400 L                              | NA            | 3.5°C  | -18.9°C | 3.5°C   | -33.8°C  |
| RC-24001-9   | Cold Control | Consul - Refrigerator Biplax Constant-on  | NA            | 3.5°C  | -15.6°C | 3.5°C   | -29.7°C  |
| RC24001-9P   | Cold Control | Consul - Refrigerator Biplax Constant-on  | NA            | 3.5°C  | -15.6°C | 3.5°C   | -29.7°C  |
| RC24522-2S   | Cold Control | Helametal (Argentina)   | NA            | 3°C    | -19°C   | 3°C     | -28.4°C  |
| RC31209-2P   | Cold Control | Electrolux - A/C Cold 7,500 to 12,000 BTU   | NA            | 30.4°C | 28.3°C  | 17.1°C  | 14°C     |
| RC-32010-5   | Cold Control | Springer - A/C Cold 7,000-21,000 BTU - 25 A (without mounting thread)                           | NA            | 31.7°C | NA      | 18.8°C  | 16°C     |
| RC32010-5P   | Cold Control | Springer - A/C Cold 7,000-21,000 BTU - 25 A (without mounting thread)                           | NA            | 31.7°C | NA      | 18.8°C  | 16°C     |
| RC-32010-6   | Cold Control | Springer - A/C Cold - Silentia 7,500-12,000 BTU   | NA            | 28.6°C | NA      | 19.5°C  | 16.7°C   |
| RC32010-6P   | Cold Control | Springer - A/C Cold - Silentia 7,500-12,000 BTU   | NA            | 28.6°C | NA      | 19.5°C  | 16.7°C   |
| RC33610-2P   | Cold Control | Springer - Duplo Ar - Climazon  | NA            | 18.4°C | 15°C    | 0.5°C   | -5.5°C   |
| RC-33647-2U  | Cold Control | Double Air A/C for automobiles/cabins/tractors (encapsulated thermostat /attached with nut M10) | NA            | 18.4°C | 15°C    | 0.5°C   | -5.5°C   |
| RC-42040-2   | Cold Control | Mastefrio - Water Cooler with Adjustable Temperature  | NA            | 14.9°C | 10.9°C  | 7.6°C   | 2.6°C    |
| RC-42600-2U  | Cold Control | Refrigeration Thermostat  | NA            | 15.4°C | 12.3°C  | 7.5°C   | 3.6°C    |
| RC42648-2P   | Cold Control | Metalfrio - Commercial Chest Refrigerator   | NA            | 10°C   | 7°C     | -10.0°C | -16.5°C  |
| RC-42655-4   | Cold Control | Tria (Argentina)  | NA            | 6.5°C  | 3.6°C   | 1°C     | 2.4°C    |
| RC-43048-2   | Cold Control | Metalfrio - Medium temperature display case (replaces a RC42948-2P)                             | NA            | 11.3°C | 4.2°C   | 3°C     | -6.0°C   |
| RC43048-2P   | Cold Control | Metalfrio - Medium temperature display case (replaces a RC42948-2P)                             | NA            | 11.3°C | 4.2°C   | 3°C     | -6.0°C   |



# REFRIGERATION

**R**BRANCO

## Specifications - continued

| Part Numbers | Description  | Application  | Defrosting On | Hot On  | Hot Off | Cool On | Cool Off |
|--------------|--------------|--|---------------|---------|---------|---------|----------|
| RC-43600-2U  | Cold Control | Standard - Water Cooler/Juice Dispenser                      | NA            | 15.5°C  | 12.5°C  | 6.9°C   | 3°C      |
| RC-44827-2   | Cold Control | Juice Dispenser Hielomatic (Ecuador), FEMSA/Alpunto (Brazil) | NA            | 10.9°C  | NA      | 2.7°C   | -1.1°C   |
| RC44827-2F   | Cold Control | Juice Dispenser Hielomatic (Ecuador), FEMSA/Alpunto (Brazil) | NA            | 10.9°C  | NA      | 2.7°C   | -1.1°C   |
| RC-45000-2U  | Cold Control | Standard - Water Cooler/Juice Dispenser                      | NA            | 15.5°C  | 12.5°C  | 6.9°C   | 3°C      |
| RC-45070-2   | Cold Control | Frimetal - Refrigerators/Juice Dispenser                     | NA            | 8.6°C   | 1.7°C   | 2.3°C   | -5.9°C   |
| RC45070-2S   | Cold Control | Frimetal - Refrigerators/Juice Dispenser                     | NA            | 8.6°C   | 1.7°C   | 2.3°C   | -5.9°C   |
| RC45070-4S   | Cold Control | Frimetal S/A (Argentina) - Juice Dispenser                   | NA            | 6°C     | -0.4°C  | -0.7°C  | -8.6°C   |
| RC-46040-2   | Cold Control | Everest - Ice machine  | NA            | 11.3°C  | 8.8°C   | 4°C     | 1°C      |
| RC-52601-2   | Cold Control | Consul - Compact Upright Freezer 90/100L                     | NA            | -16.1°C | -26.0°C | -24.2°C | -37.3°C  |
| RC52609-2P   | Cold Control | Electrolux - Upright freezer                                 | NA            | -15.6°C | -20.8°C | -27°C   | -34°C    |
| RC-53600-2   | Cold Control | Standard - Freezer   | NA            | -11.5°C | -16.3°C | -20.2°C | -26.8°C  |
| RC-53600-2U  | Cold Control | Standard - Freezer   | NA            | -11.5°C | -16.3°C | -20.2°C | -26.8°C  |
| RC53626-2S   | Cold Control | Frare Freezer (Argentina)                                    | NA            | 12.9°C  | -19.4°C | -20.8°C | -29.1°C  |
| RC53648-6P   | Cold Control | Metalfrio - Freezer (for ice cream)                          | NA            | -13.3°C | -16.7°C | -22.0°C | -26.8°C  |
| RC53670-4S   | Cold Control | Frimetal S/A (Argentina) - Freezer                           | NA            | -11.3°C | NA      | NA      | -29.1°C  |
| RC-54001-2   | Cold Control | Consul - Freezer Slim Line (RB 23) 157/170/200L              | NA            | -18.1°C | -25.7°C | -25.7°C | -35.7°C  |
| RC-55001-2   | Cold Control | Brastemp - Freezer   | NA            | -18.1°C | -25.8°C | -25.8°C | -35.8°C  |
| RC-72040-6   | Cold Control | Masterfrio - Water cooler with fixed temperature             | NA            | 7.3°C   | 3.3°C   | NA      | NA       |
| RC72609-2P   | Cold Control | Prosdócimo - Upright freezer 180/220/260L                    | NA            | -21.5°C | -26.5°C | NA      | NA       |
| RC72640-2P   | Cold Control | Acqua Gelata/Bellieri/Everest/Geltec/Lider -Water cooler     | NA            | 11°C    | 4.9°C   | NA      | NA       |
| RC-72640-9   | Cold Control | Everest - Water cooler                                       | NA            | 6.7°C   | 2.6°C   | NA      | NA       |
| RC93301-2P   | Cold Control | Consul - Duplex Refrigerator (old)                           | NA            | 5.7°C   | -19.0°C | 5.7°C   | -25.4°C  |
| RC93600-2E   | Cold Control | Export resale (Ecuador) - Standard constant-on               | NA            | 3.1°C   | -20.6°C | 3.1°C   | -27.5°C  |
| RC-93609-4   | Cold Control | Electrolux - Duplex Refrigerator DC 360                      | NA            | 4°C     | -5.7°C  | 4°C     | -15°C    |
| RC93609-4P   | Cold Control | Electrolux - Duplex Refrigerator DC 360                      | NA            | 4°C     | -5.7°C  | 4°C     | -15°C    |
| RC93670-2S   | Cold Control | Constant-on Adzen (Argentina)                                | NA            | 4.3°C   | -15.1°C | 4.3°C   | -25.7°C  |
| RC94012-4S   | Cold Control | Brastemp - Duplex Refrigerator 300/340/430/440L (Argentina)  | NA            | 6.5°C   | -18.0°C | 6.5°C   | -29.0°C  |
| RC-94012-6   | Cold Control | Brastemp - Duplex Refrigerator 300/340/430/440L              | NA            | 6.5°C   | -18.0°C | 6.5°C   | -29.0°C  |
| RC-94012-6U  | Cold Control | Brastemp - Duplex Refrigerator 300/340/430/440L              | NA            | 6.5°C   | -18.0°C | 6.5°C   | -29.0°C  |
| RC-94072-4U  | Cold Control | Constant-on RC Fribe (Argentina)                             | NA            | 4.2°C   | -15.4°C | 4.2°C   | -28.5°C  |
| RC-94072-5   | Cold Control | Briket (Argentina) - Constant-on with switch                 | NA            | 5°C     | -12.5°C | 5°C     | -21.6°C  |



## Specifications - continued

| Part Numbers | Description  | Application   | Defrosting On | Hot On | Hot Off | Cool On | Cool Off |
|--------------|--------------|---|---------------|--------|---------|---------|----------|
| RC94522-4S   | Cold Control | Briket (Argentina) - Constant-on with switch  | NA            | 3°C    | -17.6°C | 3°C     | -26.8°C  |
| RC-95009-4   | Cold Control | Electrolux - 2-Door refrigerator, automatic defrosting 470L                               | NA            | 3.5°C  | -20.7°C | 3.5°C   | -28.0°C  |
| RC95019-2P   | Cold Control | Climax/Electrolux - D33/D45 White-Westinghouse -Duplex Refrigerator (replaces RC-94319-2) | NA            | 3.6°C  | -20.7°C | 3.6°C   | -27.5°C  |
| RC95509-2P   | Cold Control | Electrolux - 2-Door refrigerator, automatic defrosting 470L (replaces RC-95009-2)         | NA            | 3.5°C  | -20.7°C | 3.5°C   | -28.0°C  |
| RCV-1601-2   | Cold Control | Air Conditioning Thermostat   | NA            | 29.9°C | 26.9°C  | 15.5°C  | 12.7°C   |
| RCV-1601-4   | Cold Control | Consul - A/C Cold, with semi-automatic switch   | NA            | 28.8°C | 26.8°C  | 19.1°C  | 16.6°C   |
| RFR-2601-2   | Cold Control | Consul - Dual action chest freezer  | NA            | 4.5°C  | -0.5°C  | -17.0°C | -26.2°C  |
| RFR-2601-2U  | Cold Control | Consul - Dual action chest freezer  | NA            | 4.5°C  | -0.5°C  | -17.0°C | -26.2°C  |
| RFR2601-6P   | Cold Control | Consul - Dual action chest freezer  | NA            | 6.1°C  | 1.8°C   | -18.6°C | -28.0°C  |
| RFR-3001-2   | Cold Control | Consul - Dual action chest freezer  | NA            | 4.8°C  | 1.3°C   | -24.0°C | -32.3°C  |
| RFR3648-2P   | Cold Control | Metalfrio - Dual Action Chest Preserving Freezer (old) (replaces RFR3609)                 | NA            | 4°C    | 0.3°C   | -16.8°C | -23.4°C  |
| RFR-4000-4   | Cold Control | Metalfrio - Dual Action Chest Preserving Freezer  | NA            | 5.2°C  | 0.6°C   | -17.8°C | -27.0°C  |
| RFR-4000-4U  | Cold Control | Dual Action Chest Preserving Freezer  | NA            | 5.2°C  | 0.6°C   | -17.8°C | -27.0°C  |
| RFR-4009-2   | Cold Control | Prosdócimo - Dual action chest freezer 220/310L   | NA            | 5.3°C  | 0.5°C   | -17.3°C | -26.6°C  |
| RFR4009-2P   | Cold Control | Prosdócimo - Dual action chest freezer 220/310L   | NA            | 5.3°C  | 0.5°C   | -17.3°C | -26.6°C  |
| RFR-4009-5   | Cold Control | Electrolux - Dual action chest freezer 220/310L   | NA            | 5°C    | 0.1°C   | -17.8°C | -27.0°C  |
| RFR4009-5P   | Cold Control | Electrolux - Dual action chest freezer 220/310L   | NA            | 5°C    | 0.1°C   | -17.8°C | -27.0°C  |
| RFR4009-8P   | Cold Control | Electrolux - Double action chest freezer H300   | NA            | 6°C    | 3°C     | -20.5°C | -28.5°C  |
| RFR-4056-2   | Cold Control |   | NA            | 6°C    | 3°C     | -20.5°C | -28.5°C  |
| RFR-4070-2   | Cold Control | Briket/Frimetal (Argentina) - Dual action   | NA            | 8.2°C  | 2.9°C   | -17.8°C | -28.6°C  |
| RFR4070-2S   | Cold Control | Briket/Frimetal (Argentina) - Dual action   | NA            | 8.2°C  | 2.9°C   | -17.8°C | -28.6°C  |
| RFR4070-4S   | Cold Control | Bambi (Argentina) - Dual action   | NA            | 6°C    | 1.5°C   | -16°C   | -25°C    |
| RFR-7272-2   | Cold Control | Fribe (Argentina) - Dual action   | NA            | 6°C    | 1.5°C   | -16°C   | -25°C    |
| RFR7272-2S   | Cold Control | Fribe (Argentina) - Dual action   | NA            | 6°C    | 1.5°C   | -16°C   | -25°C    |
| TSV-0001-48U | Cold Control | BSH Continental - 1-Door refrigerator Semiautomatic (Push Button) 270/300/370L (old)      | 5.5°C         | -3.8°C | -11.6°C | -13.0°C | -24.0°C  |
| TSV0002-01   | Cold Control | Consul - 1-Door refrigerator dry defrosting   | 6.7°C         | -3.2°C | -12.4°C | -11.1°C | -23.1°C  |
| TSV-0002-01U | Cold Control | Consul - 1-Door refrigerator dry defrosting   | 6.7°C         | -3.2°C | -12.4°C | -11.1°C | -23.1°C  |



# REFRIGERATION

**R**BRANCO®

## Specifications - continued

| Part Numbers | Description  | Application   | Defrosting On | Hot On  | Hot Off | Cool On | Cool Off |
|--------------|--------------|---|---------------|---------|---------|---------|----------|
| TSV0005-01   | Cold Control | Consul - 1-door Frevo refrigerator with semi-automatic defrosting Push-Button (Defrosting button) CRA28 | 6.7°C         | -3.3°C  | -12.3°C | -10.9°C | -23.0°C  |
| TSV0005-01P  | Cold Control | Consul - 1-door Frevo refrigerator with semi-automatic defrosting Push-Button (Defrosting button) CRA28 | 6.7°C         | -3.3°C  | -12.3°C | -10.9°C | -23.0°C  |
| TSV0007-09P  | Cold Control | Electrolux - 1-Door semiautomatic refrigerator 320/340/370L   | 8.5°C         | -4.0°C  | -15.5°C | -12.1°C | -26.9°C  |
| TSV0008-09   | Cold Control | Electrolux - 1-door semiautomatic refrigerator, "Magical" defrosting 250/280L                           | 5°C           | -4.8°C  | -14.1°C | -11.6°C | -23.6°C  |
| TSV0008-09P  | Cold Control | Electrolux - 1-door semiautomatic refrigerator, "Magical" defrosting 250/280L                           | 5°C           | -4.8°C  | -14.1°C | -11.6°C | -23.6°C  |
| TSV0011-09   | Cold Control |   | 5.1°C         | -4.6°C  | -13.9°C | -11.4°C | -23.3°C  |
| TSV0011-09P  | Cold Control |   | 5.1°C         | -4.6°C  | -13.9°C | -11.4°C | -23.3°C  |
| TSV0013-01   | Cold Control | Brastemp 2-Door refrigerator  | 6.7°C         | -3.3°C  | -12.3°C | -10.9°C | -23.0°C  |
| TSV1003-01P  | Cold Control | Brastemp - Upright Freezer 240/260/380/300L   | NA            | -16.4°C | -23.6°C | -21.4°C | -30.0°C  |
| TSV1005-01   | Cold Control | Consul - 1-Door Frevo Refrigerator  | NA            | -3.3°C  | -12.3°C | -10.9°C | -23.0°C  |
| TSV1005-01P  | Cold Control | Consul - 1-Door Frevo Refrigerator  | NA            | -3.3°C  | -12.3°C | -10.9°C | -23.0°C  |
| TSV1008-01   | Cold Control | Consul - Minibar glass door 80 (BZA08)  | 0.2°C         | -4.1°C  | -17.8°C | -7.4°C  | -23.0°C  |
| TSV1009-01   | Cold Control | Consul / Brastemp - 1-Door refrigerator 80 / 120L, CRC08/CRC12/ BRC12X (replaces a RC1201-2)            | 2.8°C         | -3.8°C  | -13.1°C | -9.2°C  | -20.4°C  |
| TSV1009-01P  | Cold Control | Consul / Brastemp - 1-Door refrigerator 80 / 120L, CRC08/CRC12/ BRC12X (replaces a RC1201-2)            | 2.8°C         | -3.8°C  | -13.1°C | -9.2°C  | -20.4°C  |
| TSV1017-01   | Cold Control | Consul - 1-Door refrigerator 280L   | 6.5°C         | -2.8°C  | -11.0°C | -10.9°C | -21.9°C  |
| TSV1017-01P  | Cold Control | Consul - 1-Door refrigerator 280L   | 6.5°C         | -2.8°C  | -11.0°C | -10.9°C | -21.9°C  |
| TSV1020-40   | Cold Control | Brasilter - Water cooler  | NA            | 15°C    | 12.1°C  | 9°C     | 4.4°C    |
| TSV1021-01   | Cold Control | Brastemp - 1-Door refrigerator (Salsa)  | NA            | -2.6°C  | -10.5°C | -11.4°C | -22.4°C  |
| TSV1022-01   | Cold Control | Brastemp - 1-Door refrigerator (Salsa) - Export   | NA            | -3.3°C  | -12.3°C | -10.9°C | -23.0°C  |
| TSV2004-01   | Cold Control | Brastemp - 2-Door refrigerator 330/350L, BRH33/ WRH35 (replaces RC-24001-6)                             | NA            | 3.5°C   | -22.8°C | 3.5°C   | -33.2°C  |
| TSV2004-01P  | Cold Control | Brastemp - 2-Door refrigerator 330/350L, BRH33/ WRH35 (replaces RC-24001-6)                             | NA            | 3.5°C   | -22.8°C | 3.5°C   | -33.2°C  |
| TSV2005-01   | Cold Control | Brastemp - 2-Door refrigerator 350/360/370/380/390/470 L (replaces RC-24001-7)                          | NA            | 3.5°C   | -19.5°C | 3.5°C   | -32.9°C  |
| TSV2005-01P  | Cold Control | Brastemp - 2-Door refrigerator 350/360/370/380/390/470 L (replaces RC-24001-7)                          | NA            | 3.5°C   | -19.5°C | 3.5°C   | -32.9°C  |
| TSV2006-01   | Cold Control | Brastemp/Consul 2-Door refrigerator 360/450/470L (replaces RC-23001-6)                                  | NA            | 3.5°C   | -19.5°C | 3.5°C   | -32.9°C  |
| TSV2006-01P  | Cold Control | Brastemp/Consul 2-Door refrigerator 360/450/470L (replaces RC-23001-6)                                  | NA            | 3.5°C   | -19.5°C | 3.5°C   | -32.9°C  |



## Specifications - continued

| Part Numbers | Description  | Application   | Defrosting On | Hot On | Hot Off | Cool On | Cool Off |
|--------------|--------------|---|---------------|--------|---------|---------|----------|
| TSV2007-01   | Cold Control | Brastemp - 2-Door refrigerator 320/330/340L (replaces RC-24001-6) | NA            | 5.7°C  | -22.1°C | 5.7°C   | -28.4°C  |
| TSV2007-01P  | Cold Control | Brastemp - 2-Door refrigerator 320/330/340L (replaces RC-24001-6) | NA            | 5.7°C  | -22.1°C | 5.7°C   | -28.4°C  |
| TSV2011-01   | Cold Control | Brastemp 2-Door refrigerator                                      | NA            | 3.5°C  | -17.8°C | 3.5°C   | -28.1°C  |
| TSV2012-01   | Cold Control | Brastemp/Consul - Refrigerator Constant-on CRD36FB/CRD36FC        | NA            | 5.5°C  | -21.6°C | 5.5°C   | -29.1°C  |
| TSV2012-01P  | Cold Control | Brastemp/Consul - Refrigerator Constant-on CRD36FB/CRD36FC        | NA            | 5.5°C  | -21.6°C | 5.5°C   | -29.1°C  |
| TSV2013-01   | Cold Control | Brastemp - Refrigerator 2-door Constant-on                        | NA            | 3.5°C  | -22.8°C | 3.5°C   | -33.2°C  |
| TSV2013-01P  | Cold Control | Brastemp - Refrigerator 2-door Constant-on                        | NA            | 3.5°C  | -22.8°C | 3.5°C   | -33.2°C  |
| TSV2014-01   | Cold Control | Brastemp - Refrigerator 2-door Constant-on                        | NA            | 3.5°C  | -22.8°C | 3.5°C   | -33.2°C  |
| TSV2014-01P  | Cold Control | Brastemp - Refrigerator 2-door Constant-on                        | NA            | 3.5°C  | -22.8°C | 3.5°C   | -33.2°C  |
| TSV5002-09P  | Cold Control | Electrolux - Chest freezer 400L, H400                             | NA            | 7.6°C  | -3.3°C  | -2.0°C  | -17.1°C  |
| TSV9003-09   | Cold Control | Electrolux - Chest Freezer  | NA            | 4.5°C  | -20.5°C | 4.5°C   | -31.0°C  |
| TSV9003-09P  | Cold Control | Electrolux - Chest Freezer  | NA            | 4.5°C  | -20.5°C | 4.5°C   | -31.0°C  |
| TSV9004-09P  | Cold Control | Electrolux - Chest Freezer  | NA            | 4.1°C  | -5.6°C  | 4.1°C   | -14.8°C  |
| TSV9011-09P  | Cold Control | Electrolux - 2-Door refrigerator                                  | NA            | 4°C    | -17.2°C | 4°C     | -30.0°C  |
| TSV9012-09P  | Cold Control | Electrolux - 2-Door refrigerator 02322DBA                         | NA            | 4°C    | -17.2°C | 4°C     | -30.0°C  |
| TSV9013-22   | Cold Control | Finpak, Helametal (Argentina), 2 Cold Philco / Saiar 380          | NA            | 3°C    | -15.3°C | 3°C     | -23.5°C  |



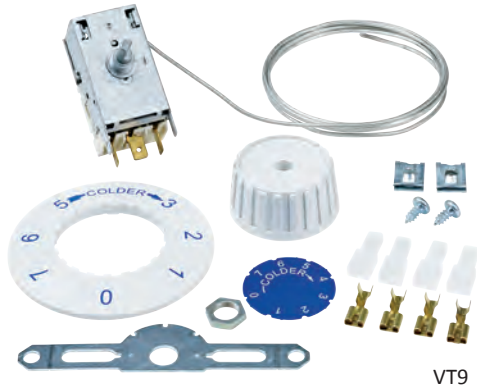




# REFRIGERATION

**RANCO**

## TEMPERATURE CONTROLS - COLD CONTROLS



VT9

### Varifix® Series

The Ranco® Varifix International Cold Controls are designed for fast and easy service replacements. They are available for both refrigerator and freezer applications.

### Features and Benefits

- Trusted brand
- Capillary is crimped and sealed for maximum reliability
- High level of performance
- Complete kit includes all necessary hardware

### Specifications

| Part Numbers | Description  | Application                                    | Cold Cut-Out       | Cold Cut-In      | Warn Cut-Out      | Warm Cut-In     | Capillary Length(mm) |
|--------------|--------------|--|--------------------|------------------|-------------------|-----------------|----------------------|
| VC1          | Cold Control | Refrigerator one-door                          | -23.5°C (-10.3°F)  | -14.5°C (5.9°F)  | 2°C (35.6°F)      | NA              | 1200mm               |
| VC101        | Cold Control | Refrigerator one-door                          | -22.5°C (-8.5°F)   | NA               | -5°C (23°F)       | 2°C (35.6°F)    | 1200mm               |
| VC110        | Cold Control | Bottle Cooler                                  | -12°C (10.4°F)     | -4°C (24.8°F)    | NA                | 4°C (39.2°F)    | 2000mm               |
| VA21         | Cold Control | Absorption Refrigerator with Auxiliary Contact | -11.2°C (11.84°F)  | -5.7°C (21.74°F) | -1.2°C (29.84°F)  | 3.3°C (37.94°F) | 1500mm               |
| VA2          | Cold Control | Absorption Refrigerator                        | -18°C (-0.4°F)     | -14.5°C (5.9°F)  | NA                | 3.5°C (38.3°F)  | 2000mm               |
| VA102        | Cold Control | Absorption Refrigerator                        | -18°C (-0.4°F)     | -14.5°C (5.9°F)  | NA                | 3.5°C (38.3°F)  | 1200mm               |
| VF3          | Cold Control | Freezer without signal, ice cream cabinet      | -34°C (-29.2°F)    | NA               | -16.5°C (2.3°F)   | -12°C (10.4°F)  | 2000mm               |
| VF103        | Cold Control | Freezer without signal, ice cream cabinet      | -32°C (-25.6°F)    | NA               | -16.5°C (2.3°F)   | -12°C (10.4°F)  | 2000mm               |
| VP4          | Cold Control | Refrigerator one-door, manual defrost          | -25°C (-13°F)      | NA               | -10°C (14°F)      | -4°C (24.8°F)   | 1200mm               |
| VP104        | Cold Control | Refrigerator one-door, manual defrost          | -19°C (-2.2°F)     | NA               | -11°C (12.2°F)    | -1°C (30.2°F)   | 1600mm               |
| VP111        | Cold Control | Refrigerator two-door, manual defrost          | -31°C (-23.8°F)    | NA               | -13°C (8.6°F)     | -5°C (23°F)     | 1500mm               |
| VS5          | Cold Control | Freezer, with active signal                    | -34°C (-29.2°F)    | NA               | -16.5°C (2.3°F)   | -12°C (10.4°F)  | 2000mm               |
| VS105        | Cold Control | Freezer, with active signal                    | -34°C (-29.2°F)    | NA               | -16.5°C (2.3°F)   | -12°C (10.4°F)  | 2000mm               |
| VR6          | Cold Control | Freezer, with passive signal                   | -34°C (-29.2°F)    | NA               | -16.5°C (2.3°F)   | -12°C (10.4°F)  | 2000mm               |
| VR106        | Cold Control | Freezer, with passive signal                   | -32°C (-25.6°F)    | NA               | -20°C (-4°F)      | -15°C (5°F)     | 2000mm               |
| VB7          | Cold Control | Bottle and Liquid Cooler                       | -3°C (26.6°F)      | 2°C (38.3°F)     | NA                | 12.5°C (54.5°F) | 1200mm               |
| VB107        | Cold Control | Bottle and Liquid Cooler                       | -3°C (26.6°F)      | 2°C (38.3°F)     | NA                | 12.5°C (54.5°F) | 2000mm               |
| VB110        | Cold Control | Fridge Freezer                                 | -3°C (26.6°F)      | 2°C (38.3°F)     | NA                | 13°C (55.4°F)   | 400mm                |
| VT72         | Cold Control | Fridge Freezer                                 | -20.3°C (-4.54°F)  | 2.9°C (38.3°F)   | -11.2°C (11.84°F) | 7.9°C (46.22°F) | 2000mm               |
| VT9          | Cold Control | Refrigerator two-door                          | -26°C (-14.8°F)    | 3.5°C (38.3°F)   | -11°C (12.2°F)    | 3.5°C (38.3°F)  | 1200mm               |
| VT9E         | Cold Control | Refrigerator two-door Egypt                    | -26°C (-14.8°F)    | 3.5°C (38.3°F)   | -11°C (12.2°F)    | 3.5°C (38.3°F)  | 1200mm               |
| VT92         | Cold Control | Refrigerator two-door                          | -26°C (-14.8°F)    | 3.5°C (38.3°F)   | -11°C (12.2°F)    | 3.5°C (38.3°F)  | 2000mm               |
| VT93         | Cold Control | Refrigerator two-door                          | -26°C (-14.8°F)    | 3.5°C (38.3°F)   | -11°C (12.2°F)    | 3.5°C (38.3°F)  | 3000mm               |
| VTD9         | Cold Control | Fridge/freezer with heat assisted defrost      | -26.9°C (-16.42°F) | NA               | -14.3°C (6.26°F)  | 4.8°C (40.64°F) | 1000mm               |



## Specifications - continued

| Part Numbers | Description  | Application                          | Cold Cut Out    | Cold Cut In                 | Warn Cut Out   | Warm Cut In    | Capillary Length(mm) |
|--------------|--------------|--------------------------------------|-----------------|-----------------------------|----------------|----------------|----------------------|
| VT9R         | Cold Control | Refrigerator two-door, with resistor | -20°C (-4°F)    | 3.5°C (38.3°F)              | -8°C (17.6°F)  | 3.5°C (38.3°F) | 1200mm               |
| VI109        | Cold Control | Refrigerator two-door                | -21°C (-5.8°F)  | 4.5°C (40.1°F)              | -6.5°C (20.3°) | 4.5°C (40.1°F) | 2000mm               |
| VI 112       | Cold Control | Refrigerator two-door                | -28°C (-18.4°F) | 5°C (41°F)                  | -11°C (12.2°F) | 5°C (41°F)     | 1500mm               |
| VW8          | Cold Control | Air Conditioning                     | 15°C (15°F)     | 3.6°C (38.48°F)<br>max diff | NA             | 34°C (93.2°F)  | 1200mm               |
| VX0          | Cold Control | Refrigerator two-door                | -15°C (5°F)     | 3.5°C (38.3°F)              | -5°C (23°F)    | 3.5°C (38.3°F) | 1500mm               |
| VX03         | Cold Control | Refrigerator two-door, with resistor | -15°C (5°F)     | 3.5°C (38.3°F)              | -5°C (23°F)    | 3.5°C (38.3°F) | 3000mm               |
| VG7          | Cold Control | Bottle Cooler, positive temperature  | 1.5°C (34.7°F)  | 4°C (39.2°F)                | NA             | 11°C (51.8°F)  | 2000mm               |

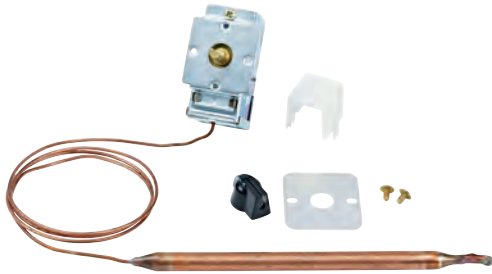




# REFRIGERATION

**RANCO**

## TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS



C12-5010

### Heat/Cool

The Ranco® Heat / Cool Controls replace many OEM controls which govern the on/off compressor function. Heat and cool controls are found on room air conditioners such as packaged terminal, room and through-the-wall heat and cool units.

### Features and Benefits

- Fixed or adjustable temperature settings
- Laser-welded stainless steel sensing elements
- Narrower differentials attainable
- C12 can be used for cool only units or heat/cool units when used with a separate changeover switch
- C17 has two SPDT electrically isolated switches, calibrated at different set points and differentials
- Two stage SPDT switches are staged 3.5°F

### Specifications

| Part Numbers | Description                      | Application  | Switch | Temperature Range                                  | Differential | Capillary | Sensing Element    |
|--------------|----------------------------------|--|--------|--|--------------|-----------|--------------------|
| C12-5010     | Single Stage Heat / Cool Control | Packaged Terminal, Room and Through-the-Wall Heat / Cool Units | SPDT   | 60°F to 98°F                                       | 3°F          | 36"       | 3/8" x 9" Bulb     |
| C17-100      | Two Stage Heat / Cool Control    | Packaged Terminal, Room and Through-the-Wall Heat / Cool Units | 2 SPDT | 71°F to 101°F (Cooling),<br>64°F to 94°F (Heating) | 3.5°F        | 26"       | 3/8 x 8-9/16" Bulb |

**1** Year  
Limited  
Warranty



## TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS

### Heat Pump Controls

The Ranco® Heat Pump Controls provide accurate control of temperature and defrost for heat pumps.

The C12-2001 control is an adjustable resistance heat thermostat used to turn on heat in response to outdoor temperature.

The E15-2601 provides field-adjustable timer control for de-icing of heat pump outdoor coils.

Interlock prevents more than one defrost cycle per time period and temperature must be 28°F or lower to start.

### Features and Benefits

- Laser-welded stainless steel sensing elements
- Narrower differentials attainable
- Defrost includes field selectable defrost cycles



C12-2001

### Specifications

| Part Numbers | Description                              | Application        | Switch | Temperature Range          | Timing  | Differential | Capillary Length | Sensing Element      |
|--------------|--|--------------------|--------|----------------------------|---|--------------|------------------|----------------------|
| C12-2001     | Resistance Heat Lockout Thermostat       | Heat Pump Controls | SPDT   | -1°F to 59°F               | NA  | 5°F          | 30"              | 3/8" x 6" Bulb       |
| E15-2601     | Timer-Initiated Heat Pump De-Ice Control | Heat Pump Controls | SPDT   | Adjustable<br>55°F to 78°F | Field Selectable:<br>30, 45, or 90<br>Minutes | NA           | 60"              | 5/16" x 5-1/16" Bulb |



# REFRIGERATION

RANCO®

## TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS



F25-107

### F Series - Fan Control

The Ranco® Fan Controls terminate defrost, and delay the evaporator fan operation on electric heat, hot gas and reverse cycle commercial refrigeration systems.

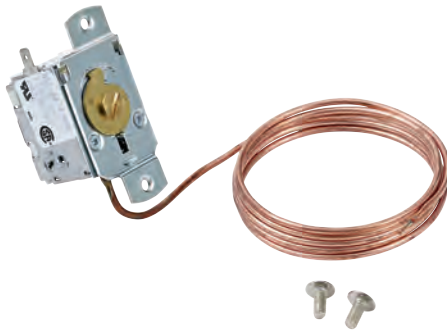
### Features and Benefits

- Prevents warm, moist air from being circulated into the refrigerated space
- Remote bulb sensing
- Factory-fixed low event for fan delay

### Specifications

| Part Numbers | Description                             | Application                            | Switch | Fan On     | Defrost Termination Range  | Capillary Length | Sensing Element              |
|--------------|---|--|--------|------------|----------------------------|------------------|------------------------------|
| F25-107      | Defrost Termination / Fan Delay Control | Beverage / Reach-in Medium Temperature | SPDT   | 20°F Fixed | 40°F to 75°F (5°C to 24°C) | 60"              | 3/8" X 4" Cross Ambient Bulb |

## TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS



K-3001

### Water Cooler Control

The Ranco® Water Cooler Control is designed as a universal replacement for water and beverage cooler applications.

### Features and Benefits

- Small, compact design
- Laser-welded bellows for reliability
- Computer calibrated
- Patented switch for high performance
- Screwdriver adjustment

### Specifications

| Part Numbers | Description                                | Application  | Cold Off | Normal Off | Normal On | Warm On | Differential | Capillary Length |
|--------------|--|--|----------|------------|-----------|---------|--------------|------------------|
| K-3001       | Universal Replacement Water Cooler Control | Ice Equipment, Thermal Storage and Water Cooler Controls | 37°F     | 46°F       | 53°F      | 61°F    | 7°F          | 48"              |

1 Year Limited Warranty



## LUBE OIL CONTROLS

### P30 Series

The Ranco® P30 Series Lube Oil Protection Controls guard pressure-lubricated refrigeration compressors against major damage due to loss of oil pressure.

This control utilizes the built-in P30 Time Delay Switch to start timing when oil pressure drops below operating requirements.

The timer is designed not only to track oil pressure recovery within a set period, but also to alert the control circuit to open and stop the compressor when the recovery period is exceeded.

These controls also feature replaceable time delay modules, Super Cap® capillary protection system and front-located captive cover screw.

### Features and Benefits

- Alarm circuit standard
- Ambient temperature compensated
- Super Cap® capillary protection system
- High impact, non-conductive cover
- Field replaceable switch module
- Manual reset
- Industry standard circuitry and terminal identification



P30-5826

## Specifications

| Part Numbers               | Description                 | Pressure Connection Lube and Suction | Time Delay  | Pressure Range      | Electrical Rating                    |
|----------------------------|-----------------------------|--------------------------------------|-------------|---------------------|--------------------------------------|
| P30-3701                   | Lube Oil Protection Control | 36" Capillary with Flare Nut         | 90 seconds  | 8-60 PSI Adjustable | 120V AC or 240V AC, Pilot Duty 720VA |
| P30-3801                   | Lube Oil Protection Control | 36" Capillary with Flare Nut         | 120 seconds | 8-60 PSI Adjustable | 120V AC or 240V AC, Pilot Duty 720VA |
| P30-5826                   | Lube Oil Protection Control | 36" Capillary with Flare Nut         | 120 seconds | 9 PSID Fixed        | 120V AC or 240V AC, Pilot Duty 720VA |
| P30-5856-080 (ANZ, EU, SA) | Lube Oil Protection Control | 36" Capillary with Flare Nut         | 120 seconds | 9 PSID Fixed        | 120V AC or 240V AC, Pilot Duty 720VA |



**1** Year Limited Warranty



# REFRIGERATION

**RANCO**



O10-1409  
with Coil Capillary



O10-1418  
with Air Coil

## TEMPERATURE CONTROLS - WIDE RANGE

### O Series

The Ranco® Wide Range O Series Temperature Controls provide a wide selection of controls customized to allow users exact adjustments within manufacturers' limits.

The Ranco O Series features heavy-duty plated steel frames, non-conductive covers with front-located captive cover screws, raised screw terminals for fully accessible wiring, and large easy-to-read scales.

Recognizing the need for flexibility in design of refrigeration equipment, these controls offer a wide selection for such products as self-contained refrigerators, freezers, coolers, walk-in units, and refrigeration display cases.

### Features and Benefits

- Maximum adjustment accuracy with 7 revolution range adjustment screws
- NEMA 1 enclosure with non-conductive cover
- Universal mounting and compact design
- Laser-welded bellows for extended life
- Wide range adjustable differential

### The O60 Series have these additional features:

- 10 times setting sensitivity of most other wide range controls (O60 series only)
- Gas-filled, nonposition-sensitive bulb (O60 series only)
- Cap included on all Australia temperature controls. Optional for all other regions.



**UL** US  
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Product

**RA** US  
Recognized  
Component





## Specifications

| Part Numbers  | Description                              | Switch | Temperature Range                    | Differential                         | Capillary Length   | Bulb/Coil   | Replaces            |
|---------------|--|--------|--------------------------------------|--------------------------------------|--------------------|---|---------------------|
| 010-1408 (NA) | Low Temperature Control                  | SPST   | -15°F to 40°F<br>(-26.11°C to 4.4°C) | 3°F to 20°F<br>(-16.11°C to -6.67°C) | 72"<br>(182.88cm)  | Remote  |                     |
| 010-1409 (NA) | Medium Temperature Control               | SPST   | 0°F to 55°F<br>(-17.78°C to 12.78°C) | 3°F to 20°F<br>(-16.11°C to -6.67°C) | 72"<br>(182.88cm)  | Remote  |                     |
| 010-1410 (NA) | High Temperature Control                 | SPST   | 25°F to 75°F<br>(-25°C to 23.88°C)   | 3°F to 20°F<br>(-16.11°C to -6.67°C) | 72"<br>(182.88cm)  | Remote  |                     |
| 010-1416 (NA) | Medium Temperature Control               | SPST   | 0°F to 55°F<br>(-17.77°C to 12.78°C) | 3°F to 20°F<br>(-16.11°C to -6.67°C) | 72"<br>(182.88 cm) | Cross Ambient   |                     |
| 010-1418 (NA) | Medium Temperature Control               | SPST   | 0°F to 55°F<br>(-17.77°C to 12.78°C) | 3°F to 20°F<br>(-16.11°C to -6.67°C) | Air Coil           | Remote  |                     |
| 060-100 (NA)  | Extra Low-Wide Range Temperature Control | SPDT   | -35°F to 95°F<br>(-37.22°C to 35°C)  | 4°F to 50°F<br>(-15.55°C to 10°C)    | 96"<br>(243.84cm)  | 3/8" x 6" Cross Ambient   |                     |
| 016-930 (ANZ) | Extra Low Temperature Control            | SPDT   | -34°C to 32°C<br>(-29.2°F to 89.6°F) | 2°C to 28°C<br>(35.6°F to 82.4°F)    | 1.8m<br>(5.90')    | Cross Ambient with Capillary and Bulb<br>9.5mm diameter x 152mm length      | 016-6930<br>016-641 |
| 016-950 (ANZ) | Extra Low Temperature Control            | SPDT   | -35°C to -7°C<br>(-31°F to 19.4°F)   | 1.7°C to 12°C<br>(35.06°F to 53.6°F) | 2m<br>(6.56')      | Cross Ambient with capillary and coiled end<br>9.5mm diameter x 38mm length | 016-6950<br>016-639 |
| 016-951 (ANZ) | Low Temperature Control                  | SPDT   | -18°C to 13°C<br>(-0.4°F to 55.4°F)  | 1.7°C to 12°C<br>(35.06°F to 53.6°F) | 1.8m<br>(5.90')    | Cross Ambient with capillary and coiled end<br>9.5mm diameter x 38mm length | 016-636<br>016-6951 |
| 016-954 (ANZ) | Medium Temperature Control               | SPDT   | -5°C to 25°C<br>(23°F to 77°F)       | 1.7°C to 12°C<br>(35.06°F to 53.6°F) | 2m<br>(6.56')      | Cross Ambient with capillary and coiled end<br>9.5mm diameter x 38mm length | 016-6954<br>016-637 |
| 016-980 (ANZ) | Low Temperature Control                  | SPDT   | -18°C to 13°C<br>(-0.4°F to 55.4°F)  | 1.7°C to 12°C<br>(35.06°F to 53.6°F) | 2m<br>(6.56')      | Cross Ambient with Capillary and Bulb<br>12.7mm diameter x 102mm length     | 016-6980<br>016-640 |
| 016-981 (ANZ) | Medium Temperature Control               | SPDT   | -5°C to 25°C<br>23°F to 77°F         | 1.7°C to 12°C<br>(35.06°F to 53.6°F) | 1.8m<br>(5.90')    | Cross Ambient with Capillary and Bulb<br>14.5mm diameter x 140mm length     | 016-6981<br>016-642 |
| 016-900 (ANZ) | Low Temperature Control                  | SPDT   | -18°C to 13°C<br>(-0.4°F to 55.4°F)  | 4°C to 30°C<br>(39.2°F to 86°F)      | 2m<br>(6.56')      | Cross Ambient with capillary and coiled end<br>9.5mm diameter x 38mm length | 016-8900<br>016-643 |
| 016-983 (ANZ) | High Temperature Control                 | SPDT   | 10°C to 40°C<br>(50°F to 104°F)      | 1.7°C to 12°C<br>(35.06°F to 53.6°F) | 1.8m<br>(5.90')    | Cross Ambient with Capillary and Bulb<br>14.5mm diameter x 140mm length     | 016-6983<br>016-644 |





# REFRIGERATION

**RANCO**



O10-1402



O16-528-081

## PRESSURE CONTROLS

### O Series - Single Low Pressure Controls

The Ranco® O Series Single Low Pressure Controls offer a variety of pressure ranges and switch action to provide maximum application flexibility.

#### Features and Benefits

- Controls available for most refrigerant types
- High-amp rated switch (SPST) design (O10-1402/O10-1483)
- Super Cap® capillary vibration protection system
- Non-conductive front cover with captive screw
- Adjustable differential and range
- Easy-to-read scale plate
- Vibration cone (absorbs and reduces vibration away from brazed joint)
- Low mass copper alloy capillary tube (reduces capillary stress caused by equipment vibration)

#### The O16-624 control has additional features:

- Compatible with refrigerants 134A, 401A, 401B, 402A, 402B, 403A, 403B and 404A
- Originally designed for use with obsolete refrigerants R12, R22, R500 and R502
- Cap included on all Australia temperature controls. Optional for all other regions.

## Specifications

| Part Numbers                         | Description          | Reset  | Switch | Pressure Range                       | Differential                    | Pressure Connection                                    | Capillary Length | Replaces                        |
|--------------------------------------|----------------------|--------|--------|--------------------------------------|---------------------------------|--|------------------|---------------------------------|
| O10-1402 (NA)                        | Low Pressure Control | Auto   | SPST   | 12" Hg to 50 PSI<br>(0.4 to 3.5 bar) | 5 to 35 PSI<br>(0.3 to 2.4 bar) | 1/4" SAE Flare Nut                                     | 36" (0.9m)       |                                 |
| O10-1483 (NA)                        | Low Pressure Control | Auto   | SPST   | 10" Hg to 100 PSI<br>(0.3 to 7 bar)  | 10 to 40 PSI<br>(1 to 3 bar)    | 1/4" SAE Flare Nut                                     | 36" (0.9m)       |                                 |
| O16-107 (NA)<br>O16-107-057 (EU, SA) | Low Pressure Control | Auto   | SPDT   | 10" Hg to 100 PSI<br>(0.3 to 7 bar)  | 10 to 40 PSI<br>(1 to 3 bar)    | 1/4" SAE Flare Nut                                     | NA               | Johnson P70AB-1                 |
| O16-527 (NA)                         | Low Pressure Control | Auto   | SPDT   | 10" Hg to 100 PSI<br>(0.3 to 7 bar)  | 10 to 40 PSI<br>(1 to 3 bar)    | 1/4" SAE Flare Nut                                     | 36" (0.9m)       |                                 |
| O16-528 (NA)<br>O16-528-081 (EU, SA) | Low Pressure Control | Auto   | SPDT   | 10" Hg to 100 PSI<br>(0.3 to 7 bar)  | 10 to 40 PSI<br>(1 to 3 bar)    | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | O16-H6703-101                   |
| O16-706 (ANZ)                        | Low Pressure Control | Auto   | SPDT   | -30 to 700 kPa                       | 60 to 275 kPa                   | 1/4" SAE Flare Male<br>(color dark)                    | NA               | O16-528<br>O16-6706<br>O16-8706 |
| O16-713 (ANZ)                        | Low Pressure Control | Auto   | SPDT   | -30 to 700 kPa                       | 60 to 300 kPa                   | 1/4" SAE Flare Female<br>(color gold)                  | 36" (0.9m)       | O16-529<br>O16-8713<br>O16-6713 |
| O16-585-000 (EU, SA)                 | Low Pressure Control | Manual | SPDT   | 10" Hg to 100 PSI<br>(0.3 to 7 bar)  | 10 PSI<br>(1 bar) Fixed         | 1/4" SAE Flare Nut                                     | NA               |                                 |
| O16-624 (NA)                         | Low Pressure Control | Auto   | SPDT   | 12" Hg to 80 PSI<br>(0.4 to 5.5 bar) | 5 to 38 PSI<br>(0.3 to 2.6 bar) | 1/4" SAE Flare Nut                                     | 36" (0.9m)       |                                 |
| O16-638 (NA)<br>O16-638-081 (EU, SA) | Low Pressure Control | Manual | SPDT   | 10" Hg to 100 PSI<br>(0.3 to 7 bar)  | 9 PSI<br>(0.6 bar) Fixed        | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | O16-H6705-101                   |
| O16-705 (ANZ)                        | Low Pressure Control | Manual | SPDT   | -30 to 700 kPa                       | 60 kPa Fixed                    | 1/4" SAE Flare Male                                    | NA               | O16-638<br>O16-8705<br>O16-6705 |



**UL**  
LISTED  
Listed  
Product

**RA**  
US  
Recognized  
Component

**1** Year  
Limited  
Warranty



## PRESSURE CONTROLS

### O Series - Single High and Ultra High Pressure Controls

The Ranco® O Series Single High and Ultra High Pressure Controls offer a variety of pressure ranges and switch action to provide maximum application flexibility.

#### Features and Benefits

- NEMA 1 enclosure with non-conductive cover
- Front-located captive cover screw
- Large, easy-to-read scale plate
- Super Cap® capillary protection system
- Universal mounting and compact design
- Screw terminals are raised and fully accessible for easy wiring
- Laser-welded bellows for extended life
- Heavy-duty plated steel frame
- Cap included on all Australia temperature controls. Optional for all other regions.

#### The O16-6201-070 control has additional features:

- Suitable for 404A, 407A 410A, and R507 applications



O16-200

## Specifications

| Part Numbers                         | Description                  | Reset  | Switch | Pressure Range                      | Differential                   | Pressure Connection                                    | Capillary Length | Replaces  |
|--------------------------------------|------------------------------|--------|--------|-------------------------------------|--------------------------------|--|------------------|---|
| O16-6201-070                         | Ultra High Pressure Control  | Auto   | SPDT   | 200 to 700 PSI<br>(14 to 48 bar)    | 50 to 150 PSI<br>(3 to 10 bar) | ¼" flare nut with<br>7/16-20<br>UNF straight<br>thread | 36" (0.9m)       | Johnson Controls P70CA-400C, P70AA-400C, P70CA-3C, Danfoss 060-5245, 060-5242 |
| O10-2054 (NA)                        | Single High Pressure Control | Auto   | SPST   | 100 to 400 PSI<br>(7 to 27 bar)     | 40 to 150 PSI<br>(3 to 10 bar) | 1/4" SAE Flare Nut                                     | 36" (0.9m)       |   |
| O16-108 (NA)                         | Single High Pressure Control | Auto   | SPDT   | 100 to 400 PSI<br>(7 to 27 bar)     | 40 to 150 PSI<br>(3 to 10 bar) | 1/4" SAE Flare Nut                                     | 36" (0.9m)       |   |
| O16-200 (NA)                         | Single High Pressure Control | Manual | SPDT   | 150 to 450 PSI<br>(10 to 31 bar)    | 40 PSI<br>(3 bar) Fixed        | 1/4" SAE Flare Nut                                     | 48" (1.2m)       |   |
| O20-7006 (NA)                        | Single High Pressure Control | Auto   | DPST   | 100 to 400 PSI<br>(7 to 27 bar)     | 40 to 150 PSI<br>(3 to 10 bar) | 1/4" SAE Flare Nut                                     | 36" (0.9m)       |   |
| O16-209-000 (EU, SA)                 | Single High Pressure Control | Manual | SPDT   | 10" Hg to 100 PSI<br>(0.3 to 7 bar) | 40 PSI (3 bar)<br>Fixed        | 1/4" SAE Flare Nut                                     | NA               |   |
| O16-530 (NA)<br>O16-530-081 (EU, SA) | Single High Pressure Control | Auto   | SPDT   | 100 to 400 PSI<br>(7 to 27 bar)     | 40 to 150 PSI<br>(3 to 10 bar) | Male Connection<br>7/16" - 20 UNF                      | NA               | O16-H6750-101   |
| O16-750 (ANZ)                        | Single High Pressure Control | Auto   | SPDT   | 700 to 2800 kPa                     | 300 to 1000 kPa                | 1/4" SAE Flare Male<br>(color silver)                  | NA               | O16-530<br>O16-8750<br>O16-6750   |
| O16-531 (NA)<br>O16-531-081 (EU, SA) | Single High Pressure Control | Manual | SPDT   | 150 to 450 PSI<br>(10 to 31 bar)    | 40 PSI (3 bar)<br>Fixed        | Male Connection<br>7/16" - 20 UNF                      | NA               | O16-H6751-101   |
| O16-751 (ANZ)                        | Single High Pressure Control | Manual | SPDT   | 1000 to 3000 kPa                    | 350 kPa Fixed                  | 1/4" SAE Flare Male<br>(color silver)                  | NA               | O16-531<br>O16-8751<br>O16-6751   |





# REFRIGERATION

**RANCO**

## PRESSURE CONTROLS



O12-1506



O12-1550-081

### O Series - Dual Pressure

The Ranco® Dual Pressure Controls combine the functions of a single high-pressure limit control and a single low-pressure control in one unit with a single pole, single throw (SPST) switch.

### Features and Benefits

- Convertible feature allows selection of manual or reset function when operating at high pressure (O12-4833/ O12-4834)
- A wide range of high-pressure manual or automatic reset controls can be replaced (O12-4833 or O12-4834)
- A high-pressure limit is combined with suction pressure sensing to provide temperature control and/or pumpdown
- High-limit adjustment screw
- Low-pressure differential and range adjusting screws
- Selector screw for manual or automatic
- Reset button
- Low-pressure scale plate
- High-impact plastic cover with center mount screw
- High-pressure scale plate
- Super Cap® capillary protection system
- Color-coded for easy identification of pressure line
- High-side capillary flare nut (silver)
- Low-side capillary flare nut (brass)
- Cap included on all Australia temperature controls. Optional for all other regions.

### Specifications

| Part Numbers                           | Description           | Switch | Low Reset | Low Cut-In                        | Low Differential             | High Reset | High Cut-Out                  | Pressure Connection | Capillary Length | Replaces |
|--|-----------------------|--------|-----------|-----------------------------------|------------------------------|------------|-------------------------------|---------------------|------------------|----------|
| O12-1502 (NA)                          | Dual Pressure Control | SPST   | Auto      | 12" Hg to 50 PSI (0.4 to 3.5 bar) | 5 to 35 PSI (0.3 to 2.4 bar) | Auto       | 150 to 450 PSI (10 to 31 bar) | 1/4" SAE Flare Nut  | 36" (0.9m)       |          |
| O12-1506 (NA)                          | Dual Pressure Control | SPST   | Auto      | 12" Hg to 50 PSI (0.4 to 3.5 bar) | 5 to 35 PSI (0.3 to 2.4 bar) | Auto       | 100 to 250 PSI (7 to 17 bar)  | 1/4" SAE Flare Nut  | 36" (0.9m)       |          |
| O12-1549 (NA)<br>O12-1549-000 (EU, SA) | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 10 to 40 PSI (1 to 3 bar)    | Auto       | 150 to 450 PSI (10 to 31 bar) | 1/4" SAE Flare Nut  | 36" (0.9m)       |          |
| O12-1549-080 (ANZ, EU, SA)             | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 10 to 40 PSI (1 to 3 bar)    | Auto       | 150 to 450 PSI (10 to 31 bar) | 1/4" SAE Flare Nut  | 36" (0.9m)       |          |
| O12-1550-081 (EU, SA)                  | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 11 to 40 PSI                 | Auto       | 150 to 450 PSI (10 to 31 bar) | 1/4" SAE Flare Nut  | NA               |          |



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Recognized Component



## Specifications

| Part Numbers                           | Description           | Switch | Low Reset | Low Cut-In                        | Low Differential             | High Reset       | High Cut-Out                  | Pressure Connection                                    | Capillary Length | Replaces  |
|--|-----------------------|--------|-----------|-----------------------------------|------------------------------|------------------|-------------------------------|--|------------------|---|
| 012-4154 (NA)<br>012-4154-081 (EU, SA) | Dual Pressure Control | SPST   | Manual    | 10" Hg to 100 PSI (0.3 to 7 bar)  | 10 PSI (1 bar) Fixed         | Manual           | 150 to 450 PSI (10 to 31 bar) | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | 017-H6703-101<br>017-H4703-101                              |
| 017-703 (ANZ)                          | Dual Pressure Control | SPDT   | Manual    | -30 to 700 kPa                    | 60 kPa Fixed                 | Manual           | 1000 to 3000 kPa              | 1/4" SAE Flare Male Low-color dark High-color silver   | NA               | Low: 017-8703<br>012-5002<br>High:<br>017-H6703<br>012-4154 |
| 012-4833 (NA)                          | Dual Pressure Control | SPST   | Auto      | 12" Hg to 50 PSI (0.4 to 3.5 bar) | 5 to 35 PSI (0.3 to 2.4 bar) | Convertible      | 150 to 450 PSI (10 to 31 bar) | 1/4" SAE Flare Nut                                     | 48" (1.2m)       |   |
| 012-4834 (NA)                          | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 10 to 40 PSI (1 to 3 bar)    | Convertible      | 150 to 450 PSI (10 to 31 bar) | 1/4" SAE Flare Nut                                     | 48" (1.2m)       |   |
| 012-4860 (NA)<br>012-4860-081 (EU, SA) | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 10 to 40 PSI (1 to 3 bar)    | Convertible      | 150 to 450 PSI (10 to 31 bar) | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | 017-H4705-101<br>017-H6705-101                              |
| 017-705 (ANZ)                          | Dual Pressure Control | SPDT   | Auto      | -30 to 700 kPa                    | 60 to 300 kPa                | Auto/Convertible | 1000 to 3000 kPa              | 1/4" SAE Flare Male Low-color dark High-color silver   | NA               | Low: 017-8705<br>012-5003<br>High:<br>017-H6705<br>012-4860 |
| 012-4900 (NA)<br>012-4900-081 (EU, SA) | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 10 to 40 PSI (1 to 3 bar)    | Auto             | 150 to 450 PSI (10 to 31 bar) | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | 017-H6701-101   |
| 017-701 (ANZ)                          | Dual Pressure Control | SPDT   | Auto      | -30 to 700 kPa                    | 60 to 300 kPa                | Auto             | 1000 to 3000 kPa              | 1/4" SAE Flare Male Low-color dark High-color silver   | NA               | Low: 017-8701<br>012-5502<br>High:<br>017-H6701<br>012-4900 |
| 012-4902 (NA)                          | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 10 to 40 PSI (1 to 3 bar)    | Auto             | 145 to 435 PSI (10 to 30 bar) | 1/4" SAE Flare Nut                                     | 36" (0.9m)       | 017-8711  |
| 017-711 (ANZ)                          | Dual Pressure Control | SPDT   | Auto      | -30 to 700 kPa                    | 60 to 300 kPa                | Auto             | 1000 to 3000 kPa              | 1/4" SAE Flare Male Low-color dark High-color silver   | 36" (0.9m)       | Low: 017-8711<br>012-5503<br>High:<br>017-H6711<br>012-4902 |
| 012-5501-080 (EU, SA)                  | Dual Pressure Control | SPST   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 9 to 57 PSI (0.6 to 3.9 bar) | Auto             | 100 to 435 PSI (7 to 30 bar)  | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | 206-00231-003   |
| 012-5500-080 (EU, SA)                  | Dual Pressure Control | SPDT   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 9 to 57 PSI (0.6 to 3.9 bar) | Auto             | 100 to 435 PSI (7 to 30 bar)  | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | 206-00231-003   |
| 012-5001-080 (EU, SA)                  | Dual Pressure Control | SPDT   | Manual    | 10" Hg to 100 PSI (0.3 to 7 bar)  | 9 PSI (0.6 bar) Fixed        | Manual           | 100 to 435 PSI (7 to 30 bar)  | Male Connection 7/16" - 20 UNF for a 1/4" Female Flare | NA               | 206-00231-002   |
| 012-5000-080 (EU, SA)                  | Dual Pressure Control | SPDT   | Auto      | 10" Hg to 100 PSI (0.3 to 7 bar)  | 9 to 57 PSI (0.6 to 3.9 bar) | Manual           | 100 to 435 PSI (7 to 30 bar)  | 1/4" SAE Male Flare Fitting                            | NA               | 206-00231-001   |





# REFRIGERATION

**RANCO**

## PRESSURE CONTROLS



### O Series - Ice Bank Control

The Ranco® O Series Ice Bank Control is suitable for soft drink dispensers, drink vending machines and ice builders for thermal storage. Uses a special water-filled bulb and transmission fluid to control ice thickness in applications utilizing a refrigerated water bath with ice bank reserve capacity.

### Specifications

| Part Numbers                 | Description      | Switch | Cut-In | Cut-Out | Temperature | Capillary Length | Sensing Element |
|------------------------------|------------------|--------|--------|---------|-------------|------------------|-----------------|
| 018-100                      | Ice Bank Control | SPST   | 34.5°F | 27.5°F  | Fixed 32°F  | 76"              | Bulb            |
| 018-100-080<br>(ANZ, EU, SA) | Ice Bank Control | SPST   | 34.5°F | 27.5°F  | Fixed 32°F  | 76"              | Bulb            |

## MINI PRESSURE SENSORS



### MPV Series

The Ranco® Mini Pressure Sensors are electromechanical pressure microswitches with fixed settings. It is compact and easy to install. These pressure microswitches are used to protect refrigeration systems that work under critical conditions by programming the high- and low-pressure limit values. Thanks to the innovative technology used in its manufacture, the Ranco® pressure microswitches offer the best solutions to the refrigeration and air conditioning industry.

RoHS

### Specifications

| Part Numbers | Description                                  | Refrigerant Gas That is Normally Applied | Off                  | On                 | Electrical Connection | Pressure Connection |
|--------------|--|--|----------------------|--------------------|-----------------------|---------------------|
| MPV0121-02U  | Mini Pressure Sensor Low Pressure            | R22/R407C/R134A/R404A/R507               | 3 PSI (0.2 bar)      | 20 PSI (1.4 bar)   | Appendage 1m          | 1/4" SAE            |
| MPV0221-02U  | Mini Pressure Sensor Medium Average Pressure | R410A                                    | 34.8 PSI (2.4 bar)   | 59.5 PSI (4.1 bar) | Appendage 1m          | 1/4" SAE            |
| MPV0321-02U  | Mini Pressure Sensor High Pressure           | R22/R407C/R404A/R507                     | 385.3 PSI (26.5 bar) | 261 PSI (18.0 bar) | Appendage 1m          | 1/4" SAE            |
| MPV0421-02U  | Mini Pressure Sensor Low Pressure            | R410A                                    | 75 PSI (5.2bar)      | 100 PSI (6.9 bar)  | Appendage 1m          | 1/4" SAE            |
| MPV0521-02U  | Mini Pressure Sensor High Pressure           | R410A                                    | 600 PSI (41.4 bar)   | 475 PSI (32.8 bar) | Appendage 1m          | 1/4" SAE            |



1 Year Limited Warranty

F42



## REFRIGERATION ACCESSORIES

### Refrigerant Hoses

The Ranco® Refrigerant Hose is a heavy-duty hose designed for critical applications such as commercial refrigeration.

Made of Teflon® tubing and surrounded by a braided 304 stainless steel wire, the hose is designed to resist breakage from compressor vibration.

### Features and Benefits

- Hose inner diameter - 3/16"
- Hose outer diameter - 5/16"
- Maximum operating pressure - 3,000 PSI
- Minimum burst pressure - 12,000 PSI
- Minimum bend radius - 2"
- Vacuum - 28" Hg



1290132-A24



1290132-A36

### Specifications

| Part Numbers | Description      | Hose Length | Fittings (1/4 SAE)   |
|--------------|------------------|-------------|--|
| 1290132-A24  | Refrigerant Hose | 24"         | One straight and one 90° elbow. Both ends have 7/16" - 20 Female Flare Connector |
| 1290132-A36  | Refrigerant Hose | 36"         | One straight and one 90° elbow. Both ends have 7/16" - 20 Female Flare Connector |



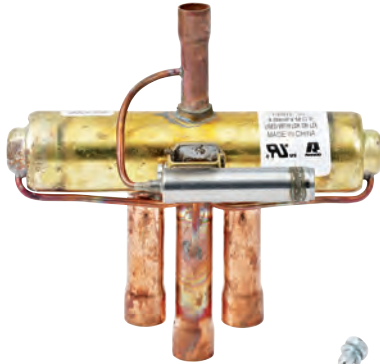




# REFRIGERATION

**RANCO**

## REVERSING VALVES



V2-408060-170

### V Series

The Ranco® 4-Way Reversing Valves (Generation 4) are designed for heat pump applications such as window-type, unitary and split systems.

They are the key component to provide heating and cooling from the heat pump system by reversing the flow direction of the refrigerant.

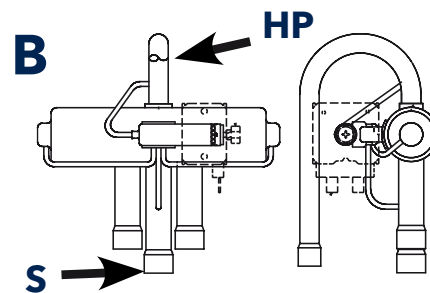
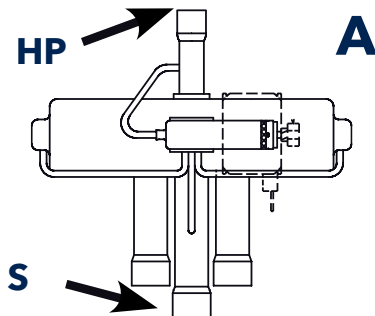
These solenoid operated valves are slide type with a 4-way pilot valve, and operate under the full pressure of the heat pump system.

Note: Solenoid coils are not included. Generation 4 type Ranco Reversing Valves work with LDK Series Solenoid Coils.

### Specifications

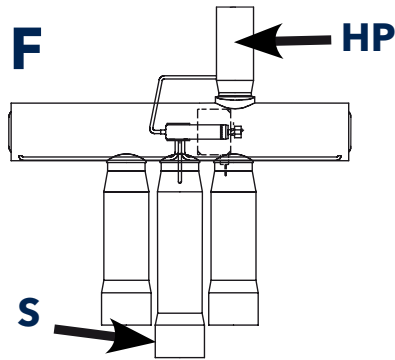
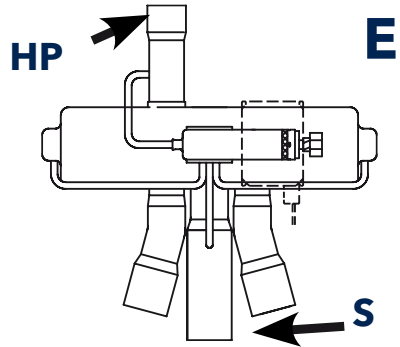
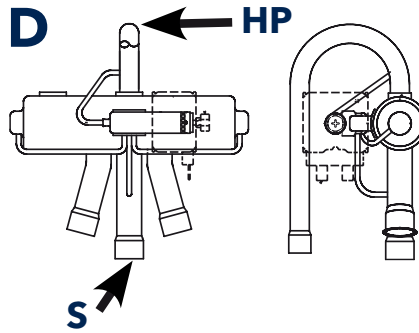
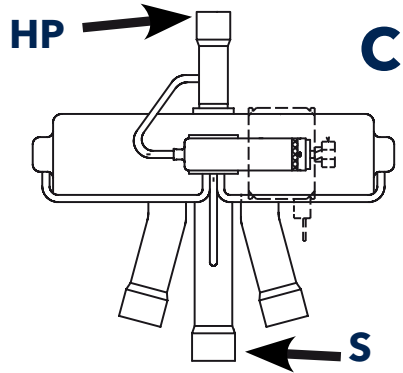
| Part Numbers   | Description           | Capacity Nominal | Capacity R-22    | Capacity R-410A  | Tube Size Suction | Tube Size Discharge   | Style |
|----------------|-----------------------|------------------|------------------|------------------|-------------------|-----------------------|-------|
| V2-408060-170  | 4-Way Reversing Valve | 1 ton            | 0.75 to 2.0 tons | 0.9 to 2.2 tons  | 1/2"              | 3/8"                  | A     |
| V2-408060-270  | 4-Way Reversing Valve | 2 tons           | 0.75 to 2.0 tons | 0.9 to 2.2 tons  | 1/2"              | 3/8"                  | B     |
| V2-410060-470  | 4-Way Reversing Valve | 2 tons           | 1.0 to 2.5 tons  | 1.3 to 2.5 tons  | 5/8"              | 3/8"                  | D     |
| V2-4100F0-370  | 4-Way Reversing Valve | 2 tons           | 1.0 to 2.5 tons  | 1.3 to 2.5 tons  | 5/8"              | 3/8" Outer Diameter   | C     |
| V3-410080-770  | 4-Way Reversing Valve | 3 tons           | 1.0 to 2.8 tons  | 1.3 to 3.1 tons  | 5/8"              | 1/2"                  | E     |
| V3-412080-870  | 4-Way Reversing Valve | 3 tons           | 1.0 to 3.0 tons  | 1.3 to 3.5 tons  | 3/4"              | 1/2"                  | E     |
| V6-412080-170  | 4-Way Reversing Valve | 6 tons           | 1.0 to 5.5 tons  | 1.3 to 6.7 tons  | 3/4"              | 1/2"                  | A     |
| V6-414080-170  | 4-Way Reversing Valve | 6 tons           | 1.0 to 5.5 tons  | 1.3 to 6.7 tons  | 7/8"              | 1/2"                  | A     |
| V10-414080-170 | 4-Way Reversing Valve | 10 tons          | 3.0 to 9.9 tons  | 3.8 to 11.9 tons | 7/8"              | 1/2"                  | A     |
| V10-418140-170 | 4-Way Reversing Valve | 10 tons          | 3.0 to 11.2 tons | 3.8 to 13.5 tons | 1-1/8"            | 7/8"                  | A     |
| V12-4220T0-270 | 4-Way Reversing Valve | 12 tons          | 6.0 to 14.0 tons | 6.3 to 16.8 tons | 1-3/8"            | 1-1/8" Outer Diameter | F     |

### Product Drawings





## Product Drawings

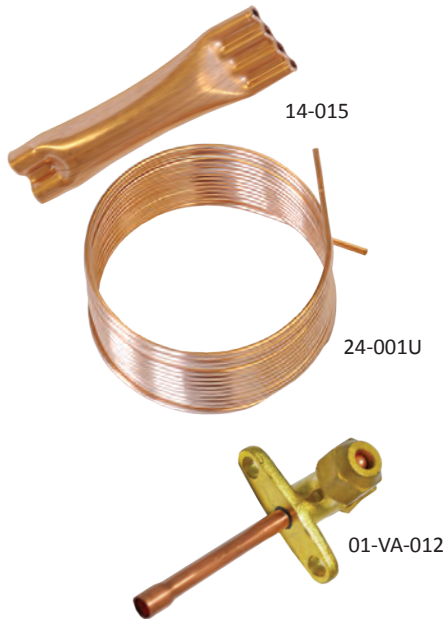


| Legend            |
|-------------------|
| HP: High Pressure |
| S: Suction        |

**R**  
**R**  
**A**  
**N**  
**G**  
**O**

**1** Year  
Limited  
Warranty

F45



## COPPER PRODUCTS

### Copper Products

The Ranco® CT Series Capillary Tubes and the ST Series Strainers are designed for copper replacement on air conditioning and commercial refrigeration installations.

The Copper Capillary Tubes are used in air conditioning systems with small capacity (split and window) equipment. They are used along with expansion elements to create pressure drops in the coolant circuit to balance the thermodynamic of these units. Capillary tubes are available in individual packages of 10' (3 meters) lengths with various inner diameters (ID) sizes.

The Copper Strainer Filters are copper spun and designed to trap particulates found within refrigerant systems. Various inlet and outlet sizes are available with stainless steel mesh.

The Copper Access Valves, which are also known as "Schrader", are valves installed to measure the pressure in the high or low side of the refrigeration system. This valve also facilitates the charging and extraction and refrigeration into and from refrigeration systems. The valve has an extension with a copper tube for welding, and it provides an excellent finish to the seal cap.

The Copper Service Valve is designed to block or open the circuit of the cooling system. This valve allows the extraction of the system element without losing the refrigerant gas and eliminates the possibility of contaminating the system.

### Features and Benefits

- Quality and Engineering Excellence
  - Experts on copper processes for over 50 years
  - Bending, end forming, collaring, swaging, cold drawing, brazing, burr free cutting, bright annealing and stamping
- Trusted brand for over 100 years
- Fast delivery
- Many sizes available





## Specifications

### Capillary Tubes

| Part Numbers | Description           | Inner Diameter  | Length   |
|--------------|-----------------------|-----------------|----------|
| 24-001U      | Copper Capillary Tube | 0.031" (0,79mm) | 10' (3m) |
| 24-005U      | Copper Capillary Tube | 0.070" (1,80mm) | 10' (3m) |
| 24-010U      | Copper Capillary Tube | 0.080" (2,03mm) | 10' (3m) |

### Strainer Filters

| Part Numbers | Description            | Body           | Length        | Input Inner Diameter | Output Inner Diameter |
|--------------|------------------------|----------------|---------------|----------------------|-----------------------|
| 14-015       | Copper Strainer Filter | 3/4" (19,05mm) | 2-3/4" (70mm) | 3/8" (9,53mm)        | 3-1/8" (80mm)         |
| 14-016       | Copper Strainer Filter | 3/4" (19,05mm) | 2-3/4" (70mm) | 1/4" (6,35mm)        | 1-3/16" (30mm)        |

### Access Valves

| Part Numbers | Description                     | Diameter    | Size  |
|--------------|---------------------------------|-------------|-------|
| 16-136       | Liquid Accumulator Access Valve | 1" (25,4mm) | 100mm |

### Service Valves

| Part Numbers | Description   | Application                | Connection Type | Size of Extender Tube | Attachment Holes |
|--------------|---------------|----------------------------|-----------------|-----------------------|------------------|
| 01-VA-012    | Service Valve | Split Type Air Conditioner | 1/4"            | 60mm                  | 2 x 7.0mm        |
| 01-VA-013    | Service Valve | Split Type Air Conditioner | 3/8"            | 60mm                  | 2 x 7.0mm        |
| 01-VA-014    | Service Valve | Split Type Air Conditioner | 1/2"            | 60mm                  | 2 x 7.0mm        |
| 01-VA-015    | Service Valve | Split Type Air Conditioner | 5/8"            | 60mm                  | 2 x 7.0mm        |
| 01-VA-022    | Service Valve | Split Type Air Conditioner | 3/4"            | 41.5mm                | 2 x 7.0mm        |

**1** Year Limited Warranty





# REFRIGERATION

**RANCO**



LDK-110000-070

## REVERSING VALVES - SOLENOID COILS

### LDK and SHF Series

The Ranco® LDK Series Solenoid Coils are designed for use with current production (Generation 4) V0, V1, V2, V3, V6, V10 and V12 Ranco 4-way Reversing Valves.

The Ranco® SHF Series Solenoid Coils are designed for use with current production (Generation 5) V0, V1, V2, V3, V6, V10 and V12 Ranco 4-way Reversing Valves.

These color-coded, encapsulated, continuous duty, moisture resistant electro-magnetic coils are designed to operate the pilot valve that controls these reversing valves.

A W29 wiring harness with 48" leads is included with the solenoid coil.

### Features and Benefits

- Epoxy encapsulated
- Continuous duty
- Moisture resistant magnetic coils
- Includes wiring harness

### Specifications

| Part Numbers   | Description                         | Color Code | Lead Length    | Electrical Rating | Power                              |
|----------------|-------------------------------------|------------|----------------|-------------------|------------------------------------|
| LDK-110000-070 | Solenoid Coils for Reversing Valves | Red        | 48"<br>(120cm) | 24V AC            | 5 Watts at 50 Hz, 4 Watts at 60 Hz |
| LDK-310000-070 | Solenoid Coils for Reversing Valves | Black      | 48"<br>(120cm) | 120V AC           | 5 Watts at 50 Hz, 4 Watts at 60 Hz |
| LDK-410000-070 | Solenoid Coils for Reversing Valves | Green      | 48"<br>(120cm) | 208/240V AC       | 5 Watts at 50 Hz, 4 Watts at 60 Hz |
| SHF-110000-070 | Solenoid Coils for Reversing Valves | NA         | 48"<br>(120cm) | 24V AC            | 6 Watts at 50 Hz, 5 Watts at 60 Hz |
| SHF-310000-070 | Solenoid Coils for Reversing Valves | NA         | 48"<br>(120cm) | 120V AC           | 6 Watts at 50 Hz, 5 Watts at 60 Hz |
| SHF-410000-070 | Solenoid Coils for Reversing Valves | NA         | 48"<br>(120cm) | 208/240V AC       | 6 Watts at 50 Hz, 5 Watts at 60 Hz |
| SHF-510000-070 | Solenoid Coils for Reversing Valves | NA         | 48"<br>(120cm) | 277V AC           | 6 Watts at 50 Hz, 5 Watts at 60 Hz |

**1** Year  
Limited  
Warranty



## LOW TEMPERATURE LIMIT CONTROLS

### Evaporator Low Temperature Limit Controls

The Ranco® Evaporator Coil Low Temperature Limit Control is attached to the suction line of the evaporator coil wired in series with the Y connection to the compressor. Its normally closed contact will shut down the refrigeration compressor when it senses the evaporator coil freezing up. The control has a preformed clip to secure it to the evaporator suction line.

#### Features and Benefits

- Performed clip
- Normally closed contact



PS2703-022

### Specifications

| Part Numbers | Description                              | Factory Part Number |
|--------------|--|---------------------|
| PS2703-022   | Evaporator Low Temperature Limit Control | ECL-35              |





# REFRIGERATION

**RANCO**

## REFRIGERATION REGULATORS



DCV0100-01

### DCV Series

The Ranco® DCV Series of flow controllers for refrigeration is specially designed to allow the control of the temperature in refrigerators by opening and closing a flow passage for the cooled air from the equipment's cooler environment, normally the freezer.

### Specifications

| Part Numbers    | Description              | Application   | Hot On | Hot Off | Cool On | Cool Off |
|-----------------|--------------------------|---|--------|---------|---------|----------|
| DCV0100-01 (SA) | Refrigeration Regulators | Consul/Brastemp - Duplex Refrigerator 330/340/430/440L (BRM43A)   | 10.1°C | 3.6°C   | 2.3°C   | -6.2°C   |
| DCV0400-09 (SA) | Refrigeration Regulators | Electrolux - Refrigerator   | 13°C   | 2°C     | -1.0°C  | -12.0°C  |
| DCV0600-01 (SA) | Refrigeration Regulators | Consul/Brastemp - Duplex Refrigerator BRB44/BRB48                 | 7.5°C  | 0.5°C   | -2.5°C  | -10.2°C  |
| DCV1300-01 (SA) | Refrigeration Regulators | Consul/Brastemp - Refrigerator                                    | 10.2°C | 3.6°C   | 2.3°C   | -6.2°C   |
| DCV1400-01 (SA) | Refrigeration Regulators | Consul/Brastemp - Refrigerator                                    | 6.5°C  | 0.5°C   | 0°C     | -9.0°C   |
| DCV1800-64 (SA) | Refrigeration Regulators | Mabe - Refrigerator   | 10°C   | -2.5°C  | -3.0°C  | -15.0°C  |
| DCV2500-01 (SA) | Refrigeration Regulators | Consul/Brastemp - Duplex Frost Free Refrigerator (DC45/DC47/DF36) | 9.4°C  | 2.8°C   | 1.5°C   | -7.0°C   |

RoHS

**1** Year  
Limited  
Warranty

F50





## REFRIGERATOR AIR DAMPERS

### RAD Series

The Ranco® RAD Series Refrigerator Air Dampers allow cold air to flow from the freezer to the refrigerator. The damper is controlled by a thermostat, which triggers the damper to open and close depending on the temperature of the air in the refrigerator. In some cases, the damper is triggered by a timer, or a combination of the thermostat and timer.

### Features and Benefits

- Highest output force for ice breakage
- Unidirectional door motion allows for positive sealing
- Motorized



MD40-1011

### Specifications

| Part Numbers | Description   | Bulk Quantity | Replaces             | Electrical Rating |
|--------------|---|---------------|----------------------|-------------------|
| RAD-1011     | Refrigerator Air Damper Control, Motorized              | 1 piece       | Whirlpool WP67003903 | 115V AC           |
| RAD-5021     | Refrigerator Air Damper Control, 6 Terminals, Motorized | 1 piece       | Electrolux 241600902 | 115V AC           |
| RAD-7001     | Refrigerator Air Damper Control, 2 Terminals, Motorized | 1 piece       | Electrolux 241600906 | 115V AC           |
| MD20-5021    | Refrigerator Air Damper Control, 6 Terminals, Motorized | 144           | Electrolux 241600902 | 115V AC           |
| MD20-7001    | Refrigerator Air Damper Control, 2 Terminals, Motorized | 144           | Electrolux 241600906 | 115V AC           |
| MD40-1011    | Refrigerator Air Damper Control, Motorized              | 200           | Whirlpool WP67003903 | 115V AC           |





# REFRIGERATION

# AKO

## AKO ELECTRONIC CONTROLS



AKO-D14112



AKO-D14123

### 1510 Series

The AKO 1510 Series Temperature Controller is a family of electronic controllers engineered to manage various refrigeration and cooking commercial applications. With its wide temperature range, NTC and PTC probe inputs, and ambient storage humidity range, the AKO 1510 Series can be used in commercial refrigeration display cases, incubators and even vehicles.

This series has intelligent menus and easy browsing for quick and intuitive configurations. Key shortcuts provide direct access to the most common functions to speed up typical operations. Plus, AKO's proprietary algorithms are tested to achieve greater energy efficiency.

In addition, HACCP and installation status information is stored in memory to help maintain the control settings.

The AKO-D14918 Copy Card Device for AKO Refrigeration Temperature and Compressor Controllers is an easy to use plug-in tool to copy digital controller parameters device-to-device. This device allows an installer to load pre-programmed settings quickly.

### Features and Benefits

- Maximum flexibility, with a large number of electronic, mechanical and appearance combinations
- Built-in universal power supply for installation anywhere in the world
- Copy Card accessory – copies configuration from one controller to another
- Configurable PTC/NTC temperature sensor inputs
- Ability to integrate Modbus communications
- Standard panel format with white display (in addition to monochrome green and blue)
- One-relay controller up to 2 HP with 5mm terminals for all inputs and outputs
- Automated processes for the configuration, calibration and verification of the entire controller in approximately 20 minutes





# AKO

## Specifications

| Part Numbers | Description                   | Electrical Rating | Temperature Range               | Defrost Cycles      | Display Dimensions   | Switch  |
|--------------|-------------------------------|-------------------|---------------------------------|---------------------|--|---|
| AKO-D14112   | Medium Temperature Controller | 12/24V AC         | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 1 Compressor Relay SPDT 16 Amp max  |
| AKO-D14120   | Medium Temperature Controller | 120V AC           | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 1 Compressor Relay SPDT 16 Amp max  |
| AKO-D14123   | Medium Temperature Controller | 230V AC           | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 1 Compressor Relay SPDT 16 Amp max  |
| AKO-D14123-2 | Medium Temperature Controller | 230V AC           | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 1 Compressor Relay SPDT 2CV   |
| AKO-D14223   | Medium Temperature Controller | 230V AC           | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 2 Compressor Relay SPDT 16 Amp max; 1 Auxiliary Relay SPDT 8 Amp max                              |
| AKO-D14320   | Medium Temperature Controller | 120V AC           | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 3 Compressor Relays SPDT 16 Amp max; 1 Auxiliary Relay SPDT 8 Amp max; 1 Fan Relay SPST 6 Amp max |
| AKO-D14323   | Low Temperature Controller    | 230V AC           | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 3 Compressor Relays SPDT 16 Amp max; 2 Auxiliary Relay SPDT 8 Amp max; 1 Fan Relay SPST 6 Amp max |
| AKO-D14323-C | Universal Temperature Control | 90-240V           | -58°F to 212°F (-50°C to 100°C) | Compressor shutdown | Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm | 3 Compressor Relays SPDT 16 Amp max; 2 Auxiliary Relay SPDT 8 Amp max; 1 Fan Relay SPST 6 Amp max |

RoHS

1 Year Limited Warranty

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# REFRIGERATION

# AKO

## AKO ELECTRONIC CONTROLS



AKO-15490

AKO-D14918

### 1535 Series

The AKO 1535 Series Temperature Controller is a versatile electronic control engineered to manage various refrigeration and cooking commercial applications. With its wide temperature range, NTC and PTC probe inputs, and ambient storage humidity range, the AKO 1535 Series can be used in ovens, industrial panels, and electrical panels for refrigeration applications.

This series has intelligent menus and easy browsing for quick and intuitive configurations. Key shortcuts provide direct access to the most common functions to speed up typical operations. Plus, AKO's proprietary algorithms are tested to achieve greater energy efficiency.

In addition, HACCP and installation status information is stored in memory to help maintain the control settings.

The 1580 Series AKO Copy Card Device for AKO Refrigeration Temperature and Compressor Controllers is an easy to use plug-in tool to copy digital controllers parameters device to device. This device allows an installer to quickly load pre-programmed settings. Maximum operating temperature is 14°F to 122°F (-10°C to 50°C).

### Features and Benefits

- Maximum flexibility, with a large number of electronic, mechanical and appearance combinations
- Built-in universal power supply for installation anywhere in the world
- Copy Card accessory – copies configuration from one controller to another
- Configurable PTC/NTC temperature sensor inputs
- Ability to integrate Modbus communications
- Standard panel format with white display (in addition to monochrome green and blue)
- Two outputs allow the controller to be used as a stage plus alarm
- Automated processes for the configuration, calibration and verification of the entire controller in approximately 20 minutes

### Specifications

| Part Numbers | Description        | Electrical Rating  | Temperature Range   | Defrost Cycles      | Display Dimensions | Switch  |
|--------------|--------------------|--------------------|---|---------------------|--------------------|---|
| AKO-15490    | Electronic Control | 100V AC to 240V AC | -58°F to 212°F (-50°C to 100°C)<br>Pt100 probe -99.9°C to 850°C;<br>Thermocouple J -99.9°C to 800°C<br>Thermocouple K -99.9°C to 1370°C | Compressor shutdown | 48mm x 48mm        | R1 SPST Relay 6 Amp (250V) R2 SPDT Relay 5 Amp (250V) |
| AKO-D14918   | Copy Card          | NA                 | NA  | NA                  | NA                 | NA  |

**1** Year  
Limited  
Warranty



## AKO ELECTRONIC CONTROLS

### Cam Regis Series

The AKO Temperature and Humidity Data Logger is designed for industrial and commercial refrigeration installations requiring a high degree of accuracy over a broad temperature range. Installation is simple through the set-up wizard tool and text menus in multiple languages plus on-screen help.

### Features and Benefits

- Large, bright graphic display
- Five input logger with five NTC probes
- Quick print button
- Internal memory up to three years with a recording frequency of 15 minutes
- Recording interval of 5, 15 or 30 minutes available



AKO-15752

## Specifications

| Part Numbers | Description                          | Accuracy            | Temperature Range                     | Switch                            | Electrical Rating  |
|--------------|--------------------------------------|---------------------|---------------------------------------|-----------------------------------|--------------------|
| AKO-15752    | Temperature and Humidity Data Logger | +/-34°F<br>(+/-1°C) | -238°F to 1094°F<br>(-150°C to 590°C) | Two relays, SPDT, 8 Amps, 250V AC | 100V AC to 240V AC |

**1** Year  
Limited  
Warranty



# REFRIGERATION

# AKO

## AKO ELECTRONIC CONTROLS



AKO-80025

### Thermometer Series

The AKO Thermometer Series is ideal for monitoring the temperature in a variety of refrigeration and heating applications for industrial and commercial displays.

### Features and Benefits

- Easy to read LCD display
- Extensive temperature range
- High degree of accuracy
- Probe up to three meters long

### Specifications

| Part Numbers | Description | Length                | Temperature Range                 | Power                    |
|--------------|-------------|-----------------------|-----------------------------------|--------------------------|
| AKO-80025    | Thermometer | 1.8"H x 1.3"W x .55"D | -58°F to 158°F<br>(-50°C to 70°C) | Battery power, 1.5 Volts |

**1** Year  
Limited  
Warranty



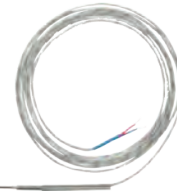
## AKO ACCESSORIES

### Probes

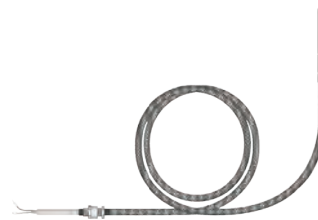
The AKO Probe Series are designed to cover a range of temperatures. PTC, NTC, and Pt100 probes are available in a variety of lengths.



AKO-14901



AKO-15601  
AKO-15602



AKO-155801

### Specifications

| Part Numbers | Description      | Length | Temperature Range                |
|--------------|------------------|--------|----------------------------------|
| AKO-14901    | NTC Probe Sensor | 4' 11" | 23°F to 212°F<br>(-5°C to 100°F) |
| AKO-155801   | PTC Probe        | 4' 11" | 23°F to 212°F<br>(-5°C to 100°F) |
| AKO-15601    | J Probe          | 9' 10" | 32°F to 1112°F<br>(0°C to 600°C) |
| AKO-15602    | K Probe          | 9' 10" | 32°F to 1112°F<br>(0°C to 600°C) |

**1** Year  
Limited  
Warranty





Installers need a manufacturer who can deliver specialized controls for unique applications. Uni-Line® offers a variety of specialized controls designed to integrate seamlessly into almost any system.

|   |     |
|---|-----|
| Motorized Diverter Valves .....                   | G2  |
| Heating Cables.....                               | G4  |
| Mini-Tek Liquid Level Detectors .....             | G8  |
| Overflow Safety Valves .....                      | G10 |
| Smoke Alarms.....                                 | G12 |
| Carbon Monoxide Alarms.....                       | G14 |
| Smoke and Carbon Monoxide Combination Alarms..... | G16 |
| Safety Products.....                              | G18 |
| Contractor Wipes .....                            | G22 |



# SPECIALTY





MDV8201A



MDV8231B



MDV0106A

## MOTORIZED DIVERTER VALVES

### 8200 Series

The Robertshaw® Motorized Diverter Valve is a device that controls the distribution of water in different zones inside an appliance.

Designed specifically for dishwashers, the 8200 Series Motorized Diverter Valve controls the water pressure between upper and lower spray arms, allowing for a higher rinsing pressure and lower water consumption.

With its rotating shaft the motorized diverter moves a distribution disc into position so the disc can direct water flow through the designated spray arms. Existing models can perform a full rotation of the disk in 26 or 32 seconds.

The motorized diverter valve also incorporates an electronic timer that keeps track of the distribution disc position and sends the signal to the electronic control board. If the diverter fails, the dishwasher stops and displays an error code.

The motorized diverter valve is secured to the appliance housing through two hooks, two screws and a grommet seal to ensure a watertight joint in the connection interface.

### Features and Benefits

- Proven high quality motor reliability
- Cam position detection with tact switch
- Position detection through Hall effect sensor
- Models with three or four different positions
- Low consumption motor
- Life time: 3500 hours for 400,000 turnings
- Compact design
- Connector system: RAST 2,5
- Compliant with the EU RoHS Directive 2002/95/EC and EC REACH Regulation No 1907/2006
- Made in EU (Czech Republic) - Robertshaw Integrated Motor Manufacturing Centre of Excellence





## Specifications

| Part Numbers | Description                          | Shaft Commutation Positions | Total Commutation Timing | Working Temperature         | Motor Voltage - Frequency | Tact Switch Nominal Voltage/Max. Current | OEM Equivalent Part Code  |
|--------------|--------------------------------------|-----------------------------|--------------------------|-----------------------------|---------------------------|--|---|
| MDV8201A     | Motorized Diverter Valve             | 3                           | 26 sec.                  | 32°F to 167°F (0°C to 75°C) | 220V AC, 50 Hz            | 5V DC/50mA                               | Whirlpool 486081500365 / 481010745146 480140102678 / 400010526930 |
| MDV8221A     | Motorized Diverter Valve             | 4                           | 32.6 sec.                | 32°F to 167°F (0°C to 75°C) | 220V AC, 50 Hz            | 5V DC/50mA                               | Whirlpool 486081500366 / 461972580441                             |
| MDV8231B     | Motorized Diverter Valve             | 4                           | 26.1 sec.                | 32°F to 167°F (0°C to 75°C) | 220V AC, 50 Hz            | 5V DC/50mA                               | Whirlpool U86081500428 / 400010457476                             |
| MDV0106A*    | Motorized Diverter Valve Rubber Seal | NA                          | NA                       | NA                          | NA                        | 5V DC/50mA                               | Whirlpool 481253029121 / 261908090054                             |

\* Optional rubber seal fits all diverter models





## HEATING CABLES



AKO-5LT1-TJ

### AKO Heating Cables Series

AKO Heating Cables Series are built with quality tinned copper to provide accurate heating performance. AKO-5LT1-TJ and AKO-5LT2-TJ self-regulating heating cables are suitable for freeze protection and process temperature control, up to 150°F (65°C). They may be applied on metal or plastic surfaces. The modified polyolefin over jacket is appropriate when the heating cable is exposed to aqueous inorganic chemicals. The heat cables are approved for use in ordinary and hazardous areas. The cables can be cut to size using the AKO-LT-ICPE sizing kit.

### Features and Benefits

- Tinned copper protective braid
- Outer and Inner insulator
- Timer On/Off
- Typical Application are freeze protection, chemical and petrochemical industries, pipe heating, vessel and tanks
- Polyolefin insulation

### Specifications

| Part Numbers                | Description   | Voltage | Temperature  | T-Rating | Nominal Output                             |
|-----------------------------|---|---------|--------------|----------|--|
| AKO-5LT1-TJ<br>(NA, SA, EU) | Low Temperature Heating Cable for Freeze Protection       | 120V AC | 150°F (65°C) | T5       | 5 Watts/ft. at 50°F<br>(5 Watts/m at 20°C) |
| AKO-5LT2-TJ<br>(NA, SA, EU) | Low Temperature Heating Cable for Freeze Protection       | 230V AC | 150°F (65°C) | T6       | 5 Watts/ft. at 50°F<br>(5 Watts/m at 20°C) |
| AKO-LT-ICPE<br>(NA, SA, EU) | Sizing Kit with 1 Direct Connection and 1 Termination Kit | NA      | NA           | NA       | NA   |

1 Year Limited Warranty



## HEATING CABLES

### AKO Self-Regulating Heating Cables

AKO Self-Regulating Heating Cables are built with quality tinned copper to provide accurate heating performance. Designed for electric heating of pipes and tanks, the cables help maintain temperature when steam cleaning is not available. Cables are available in either polyolefin or fluoropolymer insulation. Termination Kits are also available for proper installation of the cables.

#### Features and Benefits

- Adjusts power output in line with the temperature in the pipes
- Available in multiple lengths for any size job
- Applications include freeze protection, chemical and petrochemical industries, pipe heating, vessel and tanks



AKO-71214T3

### Specifications

| Part Numbers       | Description                                    | Voltage | Temperature | T-Rating (Max.) | Nominal Output   | Length   |
|--------------------|--|---------|-------------|-----------------|------------------|----------|
| AKO-12213 (ANZ)    | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 25Watts/m @ 10°C | 3 Meter  |
| AKO-12215 (ANZ)    | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 25Watts/m @ 10°C | 5 Meter  |
| AKO-122110 (ANZ)   | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 25Watts/m @ 10°C | 10 Meter |
| AKO-122130 (ANZ)   | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 25Watts/m @ 10°C | 30 Meter |
| AKO-71214T3 (ANZ)  | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 15Watts/m @ 10°C | 3 Meter  |
| AKO-71214T5 (ANZ)  | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 15Watts/m @ 10°C | 5 Meter  |
| AKO-71214T10 (ANZ) | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 15Watts/m @ 10°C | 10 Meter |
| AKO-71214T30 (ANZ) | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 15Watts/m @ 10°C | 30 Meter |
| AKO-71218T3 (ANZ)  | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 30Watts/m @ 10°C | 3 Meter  |
| AKO-71218T5 (ANZ)  | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 30Watts/m @ 10°C | 5 Meter  |
| AKO-71218T10 (ANZ) | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 30Watts/m @ 10°C | 10 Meter |
| AKO-71218T30 (ANZ) | Self-regulating heating cable Sizing Kit Meter | 230V AC | 40°C        | 65°C            | 30Watts/m @ 10°C | 30 Meter |

### Termination Kits

| Part Numbers | Description                                | Length                                    |
|--------------|--|---|
| AKO-5239     | Heat-Shrink Sleeve                         | 3 x 20mm, 2 x 130mm, 1 x 50mm             |
| AKO-12292    | Heat-Shrink Sleeve and Gland and Lock Ring | 4 x 20mm, 2 x 130mm, 1 x 50mm<br>1 x 25mm |

**1** Year Limited Warranty



AKO-71863

## HEATING CABLES

### AKO Crankcase Heating Cables

AKO Crankcase Heating Cables are designed to provide universal resistance for hermetic compressors and heating resistances for refrigerator compressors. They are suitable for any type of cylindrical or oval shape boiler or tank.

### Features and Benefits

- Adjusts power output in line with the temperature in the pipes
- Available in multiple lengths for any size job
- Applications include freeze protection, chemical and petrochemical industries, pipe heating, vessel and tanks

## Specifications

| Part Numbers    | Description              | Voltage | Nominal Output | Length                    |
|-----------------|--------------------------|---------|----------------|---------------------------|
| AKO-71863 (ANZ) | Crankcase Heating Cables | 230V AC | 35 Watts       | 120mm x 175mm (min x max) |
| AKO-71864 (ANZ) | Crankcase Heating Cables | 230V AC | 45 Watts       | 150mm x 280mm (min x max) |
| AKO-71866 (ANZ) | Crankcase Heating Cables | 230V AC | 65 Watts       | 220mm x 320mm (min x max) |
| AKO-71867 (ANZ) | Crankcase Heating Cables | 230V AC | 75 Watts       | 245mm x 370mm (min x max) |

**1** Year  
Limited  
Warranty



## ACCESSORIES

### AKO Sticker Kit

AKO Safety Sticker Kits provide highly visible labels to alert users to the use of power or other hazardous circumstances.



AKO-717445K

## Specifications

| Part Numbers      | Description  |
|-------------------|--|
| AKO-717445K (ANZ) | Safety Sticker Kit includes 5 pieces in assorted sizes |

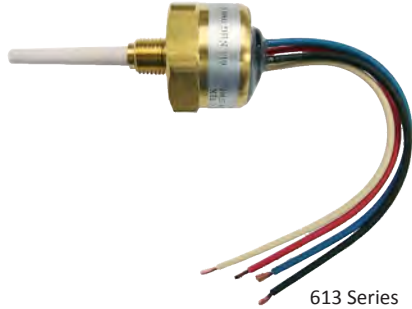
# AKO

**1** Year  
Limited  
Warranty

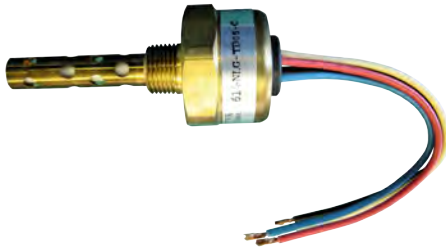




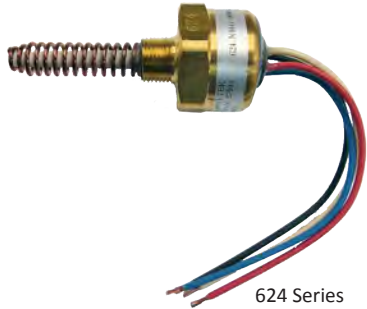
Robertshaw®



613 Series



614 Series



624 Series

## MINI-TEK LIQUID LEVEL DETECTORS

### Mini-Tek Liquid Level Detector Series

The Robertshaw® Mini-Tek Liquid Level Detector is used to detect the levels of liquids in major diesel engines. The Robertshaw Mini-Tek operates on the electrostatic or “capacitance” sensing principle. The probe portion of the unit, extending into the liquid, produces a change in electrical “capacitance” when liquid displaces the air immediately surrounding the probe. The Robertshaw Mini-Tek detector will provide warning when liquid levels reach approximately 50% of capacity. This provides time to take action before damage is done to the engine. The Robertshaw Mini-Tek comes in three different models. Model 613 Coolant level Detector, 614 hydraulic oil or fuel detector, Model 624 Motor or gear fuel or oil detector.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Voltage protected
- Rugged construction
- All solid state with no moving parts
- Reverse polarity protection
- Self-test capability





## Specifications

| Part Numbers   | Description                          | Alarm Mode        | Load Configuration | Time Delay | Terminal Configuration |
|----------------|--------------------------------------|-------------------|--------------------|------------|------------------------|
| 613-NHG-0000-C | Coolant Level Detector               | High Liquid Level | Grounded           | None       | C                      |
| 613-NHU-0000-B | Coolant Level Detector               | High Liquid Level | Ungrounded         | None       | B                      |
| 613-NLG-0000-0 | Coolant Level Detector               | Low Liquid Level  | Grounded           | None       | 0                      |
| 613-NLG-0000-C | Coolant Level Detector               | Low Liquid Level  | Grounded           | None       | C                      |
| 613-NLG-TD12-0 | Coolant Level Detector               | Low Liquid Level  | Grounded           | 12 seconds | 0                      |
| 613-NLG-TD12-C | Coolant Level Detector               | Low Liquid Level  | Grounded           | 12 seconds | C                      |
| 613-NLU-0000-0 | Coolant Level Detector               | Low Liquid Level  | Ungrounded         | None       | 0                      |
| 613-NLU-0000-B | Coolant Level Detector               | Low Liquid Level  | Ungrounded         | None       | B                      |
| 613-NLU-TD07-B | Coolant Level Detector               | Low Liquid Level  | Ungrounded         | 7 seconds  | B                      |
| 613-NLU-TD12-0 | Coolant Level Detector               | Low Liquid Level  | Ungrounded         | 12 seconds | 0                      |
| 613-NLU-TD12-C | Coolant Level Detector               | Low Liquid Level  | Ungrounded         | 12 seconds | C                      |
| 614-NHG-0000-C | Hydraulic Oil or Fuel Level Detector | High Liquid Level | Grounded           | None       | C                      |
| 614-NHU-0000-C | Hydraulic Oil or Fuel Level Detector | High Liquid Level | Ungrounded         | None       | C                      |
| 614-NLG-0000-0 | Hydraulic Oil or Fuel Level Detector | Low Liquid Level  | Grounded           | None       | 0                      |
| 614-NLG-0000-C | Hydraulic Oil or Fuel Level Detector | Low Liquid Level  | Grounded           | None       | C                      |
| 614-NLG-TD07-B | Hydraulic Oil or Fuel Level Detector | Low Liquid Level  | Grounded           | 7 seconds  | B                      |
| 614-NLG-TD12-0 | Hydraulic Oil or Fuel Level Detector | Low Liquid Level  | Grounded           | 12 seconds | 0                      |
| 624-NHG-0000-C | Motor or Gear Oil Level Detector     | High Liquid Level | Grounded           | None       | C                      |
| 624-NHU-0000-B | Motor or Gear Oil Level Detector     | High Liquid Level | Ungrounded         | None       | B                      |
| 624-NHU-0000-C | Motor or Gear Oil Level Detector     | High Liquid Level | Ungrounded         | None       | C                      |
| 624-NLG-0000-0 | Motor or Gear Oil Level Detector     | Low Liquid Level  | Grounded           | None       | 0                      |
| 624-NLG-0000-B | Motor or Gear Oil Level Detector     | Low Liquid Level  | Grounded           | None       | B                      |
| 624-NLG-0000-C | Motor or Gear Oil Level Detector     | Low Liquid Level  | Grounded           | None       | C                      |
| 624-NLG-TD12-0 | Motor or Gear Oil Level Detector     | Low Liquid Level  | Grounded           | 12 seconds | 0                      |
| 624-NLU-0000-0 | Motor or Gear Oil Level Detector     | Low Liquid Level  | Ungrounded         | None       | 0                      |
| 624-NLU-0000-B | Motor or Gear Oil Level Detector     | Low Liquid Level  | Ungrounded         | None       | B                      |
| 624-NLU-0000-C | Motor or Gear Oil Level Detector     | Low Liquid Level  | Ungrounded         | None       | C                      |
| 624-NLU-TD12-B | Motor or Gear Oil Level Detector     | Low Liquid Level  | Ungrounded         | 12 seconds | B                      |
| 624-NLU-TD12-C | Motor or Gear Oil Level Detector     | Low Liquid Level  | Ungrounded         | 12 seconds | C                      |

### Part Number Legend 6XX-NXX-XXXX-X

| 6XX<br>Model Number                  | N<br>Polarity | X<br>Alarm Mode       | X<br>Load Configuration | XXXX<br>Time Delays  | X<br>Terminal Configurations |
|--------------------------------------|---------------|-----------------------|-------------------------|----------------------|------------------------------|
| 613 = Coolant Level Detector         | Negative      | L = Low Liquid Level  | U = Ungrounded          | 0000 = No Time Delay | 0 = Three Spade Terminals    |
| 614 = Hydraulic Oil or Fuel Detector |               | H = High Liquid Level | G = Grounded            | TD12 = 12 Seconds    | B = Four Spade Terminals     |
| 624 = Motor or Gear Oil Detector     |               |                       |                         | TD07 = 7 Seconds     | C = Four Wire Leads          |
|                                      |               |                       |                         | TD10 = 10 Seconds    |                              |

**1** Year  
Limited  
Warranty



Robertshaw®



OSV-001



OSVR-001



OSV-002



OSVR-002

## OVERFLOW SAFETY VALVE

### OSV Series

The Robertshaw® Overflow Safety Valve provides fully automatic hands-free flood prevention by stopping excessive water flow of an appliance before damage can occur. The Overflow Safety Valve operates as an independent flow-meter valve by measuring the water volume passing through it for each cycle of an appliance. The Overflow Safety Valve will shut off the water supply when the maximum set volume is exceeded. The valve resets itself after each cycle when no overflow occurs, and is ready for the next cycle. If the overflow safety valve does exceed the set volume, and stops the flow of water, it must be reset manually.

An External Reset device is available as an optional component (Order part number OSVR-001 or OSVR-002.) It allows for easy reset of the Overflow Safety Valve with the push of a button after safe conditions have been reestablished.

The Overflow Safety Valve and optional External Reset component are available for European and North American markets. Both versions are made of suitable materials to address water conditions specific for these regions.

### Features and Benefits

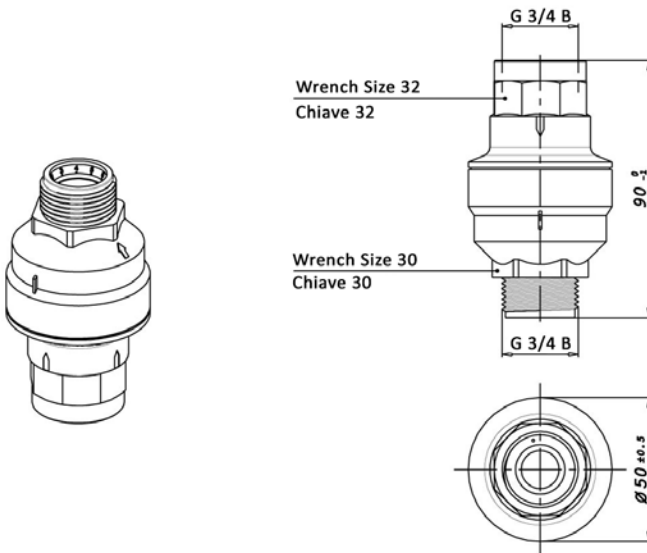
- Fully integrated mechanical flow-meter control
- Controls and measures flow volume between 5 and 50 liters (1.3 and 13.2 gallons)
- Provides protection when the appliance is off
- Features a 10-position dial to set desired maximum flow volume
- Prevents backflow pollution
- Resistant to bursting >50 Bar at 25°C (725.19 PSI at 77°F)
- Rated lifespan over 300,000 liters (79,000 gallons)
- Approved WRAS food grade compliant
- 2002/95/EC Directive (RoHS) compliant, TUV approved
- Material is Pb, Cd, Cr VI, Hg, PBD, PBDE free according to RoHS Directive 2002/95/EC
- Does not require an external energy source; water simply flows through the device
- Resists chlorine and chloramines damage
- Works with hot and cold water



## Specifications

| Part Numbers              | Description  | Inlet                       | Outlet                    | Operating Pressure | Flow Rate       | Fluid Temperature | Color |
|---------------------------|--|-----------------------------|---------------------------|--------------------|-----------------|-------------------|-------|
| OSV-001<br>(EU, ANZ, SA)  | Overflow Safety Valve<br>Europe                          | 3/4" threaded female<br>BSP | 3/4" threaded male<br>BSP | 0.7 to 8.6 bar     | 2 to 30 LPM     | 2°C to 70°C       | Grey  |
| OSVR-001<br>(EU, ANZ, SA) | Overflow Safety Valve<br>External Reset<br>Europe        | 3/4" threaded female<br>BSP | 3/4" threaded male<br>BSP | Max. 10 bar        | NA              | Up to 70°C        | Grey  |
| OSV-002<br>(NA)           | Overflow Safety Valve<br>North America                   | 3/4" threaded female<br>GHT | 3/4" threaded male<br>GHT | 10 to 125 PSI      | 0.53 to 7.9 GPM | 35°F to 158°F     | Black |
| OSVR-002<br>(NA)          | Overflow Safety Valve<br>External Reset<br>North America | 3/4" threaded female<br>GHT | 3/4" threaded male<br>GHT | Max. 146 PSI       | NA              | Up to 158°F       | Black |

## Product Drawings



**1** Year  
Limited  
Warranty





## SMOKE ALARMS

### Smoke Alarm Series

The Kidde Smoke Alarm models are sealed-in lithium battery devices available with either photoelectric or ionization sensing technology. Photoelectric sensing alarms are designed to detect visible particles (associated with smoldering fires) sooner than ionization alarms. Ionization sensing alarms are designed to detect invisible fire particles (associated with flaming fires) sooner than photoelectric alarms. This series includes models for living areas, bedrooms, and hallways. All models offer worry-free features to make installation easy and to help users aware of replacement requirements.

### Features and Benefits

- Sealed-In Lithium Battery – Sealed-in lithium power supply to reduce the need for battery replacement over the 10 year life of the alarm
- Alarm automatically activates when attached to the mounting bracket
- Rapidly flashing LED alerts user if the alarm has sounded since the last time the test/reset button was used
- Test/Hush Button tests alarm circuitry and activates Hush features
- Smart Hush™ – Button to temporarily silence nuisance alarm for approximately 10 minutes and will not allow hush mode unless the unit is in alarm mode
- End of life warning - Alarm chirps every 30 seconds to indicate the unit is in need of replacement
- End of Life Hush® - Alarm can be silenced three days at a time up to 30 days to allow for alarm replacement at a more convenient time





## Specifications

| Part Numbers | Factory Number | Description                 | Humidity Range                                | Power                                  | Sensor Type   | Size                           | Standard LED                                       | Temperature Range               |
|--------------|----------------|-----------------------------|---|--|---------------|--------------------------------|--|---------------------------------|
| 21010064     | P3010L         | Smoke Alarm                 | 10%-85% non-condensing relative humidity (RH) | Sealed Lithium Battery                 | Photoelectric | 5.22" in diameter x 1.6" depth | Red LED blinks in conjunction with the alarm sound | 40°F to 100°F (4.4°C to 37.8°C) |
| 21010067     | P3010B         | Smoke Alarm                 | 10%-85% non-condensing relative humidity (RH) | Sealed Lithium Battery                 | Photoelectric | 5.22" in diameter x 1.6" depth | Red LED blinks in conjunction with the alarm sound | 40°F to 100°F (4.4°C to 37.8°C) |
| 21010069     | P3010H         | Smoke Alarm                 | 10%-85% non-condensing relative humidity (RH) | Sealed Lithium Battery                 | Photoelectric | 5.22" in diameter x 1.6" depth | Red LED blinks in conjunction with the alarm sound | 40°F to 100°F (4.4°C to 37.8°C) |
| 21010407     | i120105        | Smoke Alarm AC Powered      | 10%-85% non-condensing relative humidity (RH) | 120V AC Sealed Lithium Battery Back-up | Ionization    | 5.22" diameter x 1.6" depth    | Red LED blinks in conjunction with the alarm sound | 40°F to 100°F (4.4°C to 37.8°C) |
| 21008697     | i9010          | Smoke Alarm Battery Powered | 10%-85% non-condensing relative humidity (RH) | Sealed Lithium Battery                 | Ionization    | 5.6" diameter x 1.55" depth    | Red LED blinks in conjunction with the alarm sound | 40°F to 100°F (4.4°C to 37.8°C) |
| 21006374     | i12020         | Smoke Alarm AC Powered      | 10%-85% non-condensing relative humidity (RH) | 120V AC, 80mA max                      | Ionization    | 5.6" diameter x 1.55" depth    | Green for normal operation, Red for alarm          | 40°F to 100°F (4.4°C to 37.8°C) |
| 21006378     | i2040          | Smoke Alarm AC/DC Powered   | 10%-85% non-condensing relative humidity (RH) | 120V AC with 9V Battery Back-up        | Ionization    | 5.6" diameter x 1.55" depth    | Green for normal operation, Red for alarm          | 40°F to 100°F (4.4°C to 37.8°C) |
| 0916E        | i9060          | Smoke Alarm Battery Powered | 10%-85% non-condensing relative humidity (RH) | 9V Battery                             | Ionization    | 5" diameter x 1.5" depth       | Red LED blinks in conjunction with the alarm sound | 40°F to 100°F (4.4°C to 37.8°C) |



**10** Year Limited Warranty







21010073

## CARBON MONOXIDE ALARMS

### Carbon Monoxide Alarm Series

The Kidde Carbon Monoxide (CO) Alarms are sealed-in lithium battery devices that use electrochemical sensing technology to monitor CO levels. Each alarm automatically activates when it is attached to the mounting bracket, eliminating the need for pull tags or switches to activate the alarm. At the end of alarm life, the unit will chirp, indicating the alarm is in need of replacement. These alarms are suitable for all living areas.

### Features and Benefits - all models

- Test/Reset Button tests the unit for proper operation and resets the Carbon Monoxide Alarm
- Loud 85 decibel alarm alerts of deadly CO gas
- Low Battery Hush – Silences low battery chirp warning for up to 12 hours in order to maintain protection without having to replace the batteries at an inconvenient time

### Specifications

| Part Numbers | Factory Number | Description  | Humidity Range                                | Power  | Sensor Type     | Size                        | Standard LEDs   | Temperature Range               |
|--------------|----------------|--|---|--|-----------------|-----------------------------|---|---------------------------------|
| 21010073     | C3010          | Carbon Monoxide Alarm                                    | 10%-95% non-condensing relative humidity (RH) | Sealed Lithium Battery                         | Electrochemical | 4.5"L x 2.75" H x 1.5"D     | LED Lights - Green for normal operation, Red for alarm, Amber for Error                         | 40°F to 100°F (4.4°C to 37.8°C) |
| 21010075     | C3010-D        | Carbon Monoxide Alarm with Digital display               | 10%-95% non-condensing relative humidity (RH) | Sealed Lithium Battery                         | Electrochemical | 4.5"L x 2.75" H x 1.5"D     | LED Lights - Green for normal operation, Red for alarm, Amber for Error                         | 40°F to 100°F (4.4°C to 37.8°C) |
| 21025761     | KN-COB-DP2     | AC Powered Carbon Monoxide Alarm with Battery Back-Up    | 10%-95% non-condensing relative humidity (RH) | 120V AC, 60 Hz, 60mA max; 2-AA battery back-up | Electrochemical | 2.75"W x 4.5"H x 1.5"D      | Two LEDs : Red - Illuminates when in alarm mode. Green - AC power is present, normal operation. | 40°F to 100°F (4.4°C to 37.8°C) |
| 21025788     | KN-COB-LP2     | Battery Powered Carbon Monoxide Alarm                    | 10%-95% non-condensing relative humidity (RH) | 2 AA Batteries                                 | Electrochemical | 4.5"L x 2.75" H x 1.5"D     | Two LEDs : Red - Illuminates when in alarm mode. Green - AC power is present, normal operation. | 40°F to 100°F (4.4°C to 37.8°C) |
| 21006406     | KN-COP-1C      | AC/DC Powered Carbon Monoxide Alarm with Battery Back-Up | 10%-95% non-condensing relative humidity (RH) | 120V AC, 60 Hz; 9V battery back-up             | Electrochemical | 5.75" diameter x 1.8" depth | LED Lights - Green for normal operation. Red for alarm. Amber for CO initiated alarm.           | 40°F to 100°F (4.4°C to 37.8°C) |
| 21026344     | KN-COP-DP-B    | Plug in Carbon Monoxide Alarm with Digital Display       | 10%-95% non-condensing relative humidity (RH) | 120V AC, 60 Hz, 90mA max; 2-AA battery back-up | Electrochemical | 3.0"L x 5.6"H x 1.5"D       | LED Lights - Green for normal operation. Red for alarm. Amber for CO initiated alarm.           | 40°F to 100°F (4.4°C to 37.8°C) |



LISTED  
Listed Product

10 Year Limited Warranty



## KIDDE NIGHTHAWK GENERAL PURPOSE CARBON MONOXIDE ALARM

### 900 Series

The Kidde 900 Series Nighthawk Carbon Monoxide Alarm are devices that use electrochemical sensing technology to monitor CO levels for all living areas. The specification chart highlights the unique features of each model. The unit incorporates two LEDs. A red LED illuminates when in alarm mode and a green LED illuminates when power is present.

### Features and Benefits

- Test / Reset Button tests the unit for proper operation and resets the Carbon Monoxide Alarm
- Loud 85 decibel alarm alerts of deadly CO gas
- Tamper Resistant Feature – If activated, unit goes into constant alarm mode if it has been unplugged or has come loose from the outlet
- End of life warning – Ten years after unit is first powered, this alarm will chirp two times every 30 seconds to indicate it is time to replace the alarm
- Multiple mounting options for 900-0230 and 900-0233 allow installation on a wall or tabletop
- Manufactured for Canadian installations



900-0233



900-0230



900-0263CO-CA



### Specifications

| Part Number         | Factory Number  | Description  | Humidity Range                   | Power  | Sensor Type     | Size                   | Standard LEDs   | Temperature Range               |
|---------------------|-----------------|--|----------------------------------|--|-----------------|------------------------|---|---------------------------------|
| 900-0233 (CAN)      | KN-COB-B-LS-CA  | Battery Powered Carbon Monoxide Alarm                      | 10% - 95% relative humidity (RH) | Battery Operated (3 AA Batteries included)                           | Electrochemical | 13cm x 7.5cm x 4cm     | Two LEDs: Red – illuminates when in alarm mode. Green – AC power is present, normal operation | 4.4°C to 37.8°C (40°F to 100°F) |
| 900-0230 (CAN)      | KN-COPP-B-LS-CA | Battery Powered Carbon Monoxide Alarm with Digital Display | 10% - 95% relative humidity (RH) | Battery Operated (3 AA Batteries included)                           | Electrochemical | 13cm x 7.5cm x 4cm     | Two LEDs: Red – illuminates when in alarm mode. Green – AC power is present, normal operation | 4.4°C to 37.8°C (40°F to 100°F) |
| 900-0263CO-CA (CAN) | KN-COB-DP-2CA   | 120V AC Plug-in Carbon Monoxide Alarm with Battery Back-Up | 10% - 95% relative humidity (RH) | 120V AC, 60 Hz, 90 mA max; battery back-up (2 AA Batteries included) | Electrochemical | 7.2cm x 4.0cm x 11.9cm | Two LEDs: Red – illuminates when in alarm mode. Green – AC power is present, normal operation | 4.4°C to 37.8°C (40°F to 100°F) |



**10** Year Limited Warranty

G15



21010071

## SMOKE AND CARBON MONOXIDE COMBINATION ALARMS

### Smoke and Carbon Monoxide Combination Alarm Series

The Kidde Smoke and Carbon Monoxide (CO) Combination Alarm Series are devices that use smoke and CO sensing technologies together to detect fires and to monitor CO levels. Each alarm automatically activates when it is attached to the mounting bracket, eliminating the need for pull tags or switches to activate the alarm. At the end of alarm life, the unit will chirp, indicating the alarm is in need of replacement.

### Features and Benefits

- Photoelectric sensor smoke alarms contain advanced photoelectric sensing technology that may detect visible particles (associated with smoldering fires) sooner than ionization alarms that detect less visible fire particles like those produced by flaming fires
- Electrochemical CO sensor
- Rapidly flashing LED alerts user if the alarm has sounded since the last time the test/reset button was used
- Smart Hush™ temporarily silences nuisance alarms for approximately nine (9) minutes and will not allow hush mode unless the unit is in alarm mode
- Test/Hush Button tests alarm circuitry and activates Hush features
- Alarm chirps every 30 seconds to indicate the unit is in need of replacement
- End of Life Hush® indication can be silenced three days at a time up to 30 days to allow for alarm replacement at a more convenient time





## Specifications

| Part Numbers | Factory Number | Description  | Humidity Range                                | Power  | Sensor Type                                 | Size                        | Standard LEDs  | Temperature Range               |
|--------------|----------------|--|---|--|---|-----------------------------|--|---------------------------------|
| 21010071     | P3010K-CO      | Smoke and Carbon Monoxide Combination Alarm  | 10%-85% non-condensing relative humidity (RH) | Sealed Lithium Battery                                   | Smoke: Photoelectric<br>CO: Electrochemical | 5.22" diameter x 1.6" depth | Red LED blinks in conjunction with the alarm sound   | 40°F to 100°F (4.4°C to 37.8°C) |
| 21010408     | i12010SCO      | Smoke and Carbon Monoxide Combination Alarm AC Powered with Sealed Lithium Battery Back-up | 10%-95% non-condensing relative humidity (RH) | 120V AC 60Hz, 45mA max per alarm; Sealed Lithium Battery | Smoke: Ionization<br>CO: Electrochemical    | 5.5" diameter x 1.75" depth | LED Lights-Green for normal operation, Red for alarm | 40°F to 100°F (4.4°C to 37.8°C) |
| 21006974     | KN-COSM-BA     | Smoke and Carbon Monoxide Combination Alarm AC Powered                                     | 10%-95% non-condensing relative humidity (RH) | 120V AC 60Hz, 45mA max 2-AA Battery Back-up              | Smoke: Ionization<br>CO: Electrochemical    | 5.6" diameter x 1.8" depth  | LED Lights-Green for normal operation, Red for alarm | 40°F to 100°F (4.4°C to 37.8°C) |
| 21006377     | KN-COS-IBA     | Smoke and Carbon Monoxide Combination Alarm AC Powered                                     | 10%-95% non-condensing relative humidity (RH) | 120V AC 60Hz, 45mA max 2-AA Battery Back-up              | Smoke: Ionization<br>CO: Electrochemical    | 5.6" diameter x 1.8" depth  | LED Lights-Green for normal operation, Red for alarm | 40°F to 100°F (4.4°C to 37.8°C) |



**10** Year Limited Warranty



UL-SS-0500



UL-SS-0501

## CONTRACTOR LIGHTING PROTECTION

### Lighting

The Contractor Lighting Protection products from Uni-Line<sup>®</sup> offer unique features in a powerful headlamp and spotlight.

### Features and Benefits

- 90-degree vertical tilt directs light exactly where needed
- Water and impact resistant
- Lightweight and compact

#### Technician Pro-Grade 250+ Headlamp

- Four light modes for varying conditions:
  - 250+ lumen hi-power intense white
  - Dimmed white
  - Dual green LEDs
  - Dual red LEDs
- Powered by three AAA batteries (included)
- Top-positioned On/Off button

#### Big Cryket Compact Work/Spotlight

- Incredible LED lighting output across three settings:
  - High power intense white spotlight
  - High power intense white flood light
  - Low power red light
- Fully dimmable
- Work hands-free! Powerful magnetic base secures to metal surfaces and surroundings
- Powered by two AA batteries (included)

## Specifications

| Part Numbers | Description                        | Minimum Purchase |
|--------------|------------------------------------|------------------|
| UL-SS-0500   | Technician Pro Grade 250+ Headlamp | 6 Lights         |
| UL-SS-0501   | Big Cryket Work / Spot Light       | 6 Lights         |



## CONTRACTOR EYE PROTECTION AND SURFACE PROTECTION

### Eye Protection and Surface Protection

The Contractor Eye and Surface Protection products from Uni-Line® include three safety glass models and super grip cover cloths.

### Features and Benefits

#### Safety Glasses

- These glasses are made with a sleek wraparound design to maintain excellent peripheral vision
- Lightweight and comfortable for extended wear
- Wide temple protects eyes from airborne dust, debris and particles
- UL tested to meet ANSI Z87.1+
- Scratch and fog resistant
- Available in Clear, Gray Smoke and Silver Mirror\* lens color
- The glasses are available in three tints for indoor and outdoor installation needs

\*Silver mirror is not anti-fog

#### CoverGrip Protective Drop Cloths

- Quickly and easily deploy on job sites and work zone areas
- Ideal for use on flat surfaces and stairways
- Durable canvas with pressure sensitive rubberized dots to grip surfaces without leaving behind blemishes or sticky residue
- Machine washable



UL-SS-0201

### Specifications

| Part Numbers | Description                                    | Size              | Color               | Minimum Purchase              |
|--------------|--|-------------------|---------------------|-------------------------------|
| UL-SS-0300   | Clear Wraparound Safety Glasses                | NA                | Clear               | 1 Carton (10 pair per carton) |
| UL-SS-0301   | Gray Smoke, Anti-Fog Wraparound Safety Glasses | NA                | Grey Smoke          | 1 Carton (10 pair per carton) |
| UL-SS-0302   | Gray, Silver Mirror Wraparound Safety Glasses  | NA                | Grey, Silver Mirror | 1 Carton (10 pair per carton) |
| UL-SS-0200   | CoverGrip Drop Cloth, 8 oz wt.                 | 3.5' x 12' Runner | Beige               | 2 Cloths                      |
| UL-SS-0201   | CoverGrip Drop Cloth, 8 oz wt.                 | 5' x 8' Rectangle | Beige               | 2 Cloths                      |



UL-SS-0100



UL-SS-0102



UL-SS-0103



UL-SS-0104

## CONTRACTOR SLIP PROTECTION

### Slip Prevention

The Contractor Slip Protection products from Uni-Line® include disposable and reusable shoe covers.

### Features and Benefits

#### Grip-Max Disposable Shoe Covers

- Innovative coating provides maximum, non-slip traction on carpet, concrete, tile, synthetic and wood surfaces
- Seamless water-proof laminated exterior keeps footwear dry
- Fits easily over work shoes and boots
- Recommended for quick service and preventive maintenance calls
- Blue color. Available in sizes Large (Men's 8-12) and Extra-Large (Men's 13-15)
- Latex-free

#### Grip-Max Reusable Shoe Covers

- Reusable and machine washable
- Recommended for long-term projects and high-volume service techs and contractors
- Heavy-duty nylon upper with rugged double stitch reinforced skid resistant sole
- Hand-crafted in the USA
- Available in black, blue or red
- Available in Medium (Men's 7-10), Large (Men's 10.5-13), and Extra-Large (Men's 13.5-17)

## Specifications

| Part Numbers | Description                     | Size                                 | Color                                 | Minimum Purchase            |
|--------------|---------------------------------|--------------------------------------|---------------------------------------|-----------------------------|
| UL-SS-0100   | Grip-Max Disposable Shoe Covers | L<br>(Fits Men's Shoe Size 8-12)     | Blue                                  | 1 Carton<br>(3 Pkgs. of 50) |
| UL-SS-0101   | Grip-Max Disposable Shoe Covers | XL<br>(Fits Men's Shoe Size 13-15)   | Blue                                  | 1 Carton<br>(3 Pkgs. of 50) |
| UL-SS-0102   | Grip-Max Reusable Shoe Covers   | M<br>(Fits Men's Shoe Size 7-10)     | Black<br>(Red or Blue also available) | 6 Pairs                     |
| UL-SS-0103   | Grip-Max Reusable Shoe Covers   | L<br>(Fits Men's Shoe Size 10.5-13)  | Black<br>(Red or Blue also available) | 6 Pairs                     |
| UL-SS-0104   | Grip-Max Reusable Shoe Covers   | XL<br>(Fits Men's Shoe Size 13.5-17) | Black<br>(Red or Blue also available) | 6 Pairs                     |





## CONTRACTOR HAND PROTECTION

### Hand Protection Products

The Contractor Hand Protection products from Uni-Line® include two types of nitrile gloves.

### Features and Benefits

- Easy on and off
- Chemical resistant and latex-free/powder-free
- Available in sizes Medium, Large, and Extra-Large
- 9" length protects wrist

#### Contractor Grade Black Nitrile Gloves

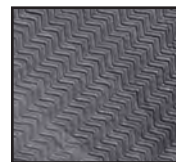
- Premium protection while maintaining excellent dexterity for handling parts, tools and equipment
- Ultra-stretch comfort formulation for superior dexterity
- 6 mil thickness - 50% stronger than standard nitrile gloves
- Micro-texture palm for added grip

#### Contractor Grade Tread Grip Nitrile Gloves

- Innovative tire-tread palm grip delivers unmatched gripping power in wet and dry conditions
- Extra thick 7 mil for maximum protection



UL-SS-0400



UL-SS-0403

## Specifications

| Part Numbers | Description   | Size | Color | Quantity            | Minimum Purchase |
|--------------|---|------|-------|---------------------|------------------|
| UL-SS-0400   | Contractor Grade Nitrile Gloves, 6 mil thickness    | M    | Black | 100 Gloves / Carton | 2 Cartons        |
| UL-SS-0401   |   | L    |       |                     |                  |
| UL-SS-0402   |   | XL   |       |                     |                  |
| UL-SS-0403   | Contractor Grade Tread Grip Gloves, 7 mil thickness | M    | Black | 100 Gloves / Carton | 2 Cartons        |
| UL-SS-0404   |   | L    |       |                     |                  |
| UL-SS-0405   |   | XL   |       |                     |                  |





UL-90150



UL-90100

## CONTRACTOR WIPES

### Wipe Series

The Grab N' Scrub Wipes™ distributed by Uni-Line® are ideal for cleaning up messy work areas, hands, and tools in an instant. Packed in convenient tubs, these wipes are premoistened with a citrus scented degreasing cleaner to cut through oil, lubricants, adhesives and much more. Grab N' Scrub wipes are perfect to keep on hand for on-the-go contractors and repair technicians.

### Features and Benefits

- A powerful hand and surface degreasing cleaner that's gentle on your skin
- Pre-moistened; no need for soap and water
- Infused with citrus scented degreasing cleaner
- Unique scratch resistant scrubbing texture
- Cut thru oil, tar, grease, paint, lubricants, ink, wax and adhesives with ease
- Water resistant packaging
- Made in the USA

### Specifications

| Part Numbers | Description         | Sheet Color | Sheet Size   | Quantity / Dispenser | Dispensers / Case |
|--------------|---------------------|-------------|--------------|----------------------|-------------------|
| UL-90150     | Grab N' Scrub Wipes | Red / White | 10" x 12.25" | 72                   | 6                 |
| UL-90100     | Grab N' Scrub Wipes | Red / White | 10" x 12.25" | 130                  | 4                 |



## CONTRACTOR WIPES

### Wipe Series

The Big Grip® Bucket of Red Rags™ distributed by Uni-Line® are heavy-duty wipes in an easy-to-handle bucket. These ultra-tough disposable rags are packaged in a versatile and refillable dispensing pail. The Bucket slides into a wall-mount bracket (included) to store in service trucks or work areas, and quickly slides out for on-the-go cleaning needs. Order UL-70150 for Red Rag Refills to reuse the Bucket.

### Features and Benefits

- Ideal for heavy-duty wiping applications
- Easy-to-handle Big Grip Bucket dispenses center-pull rags with ease
- Bucket slides into wall-mount bracket (included) for convenient storage on service trucks and workshops
- Durable water-resistant container keeps rags dry and ready to use
- Up to 400% more absorbent than red cloth rags
- UL-70140 – includes Big Grip Bucket, wipers, wall/truck mount bracket and hardware
- UL-70150 – refill rags slide into Big Grip Bucket for reuse
- Made in the USA



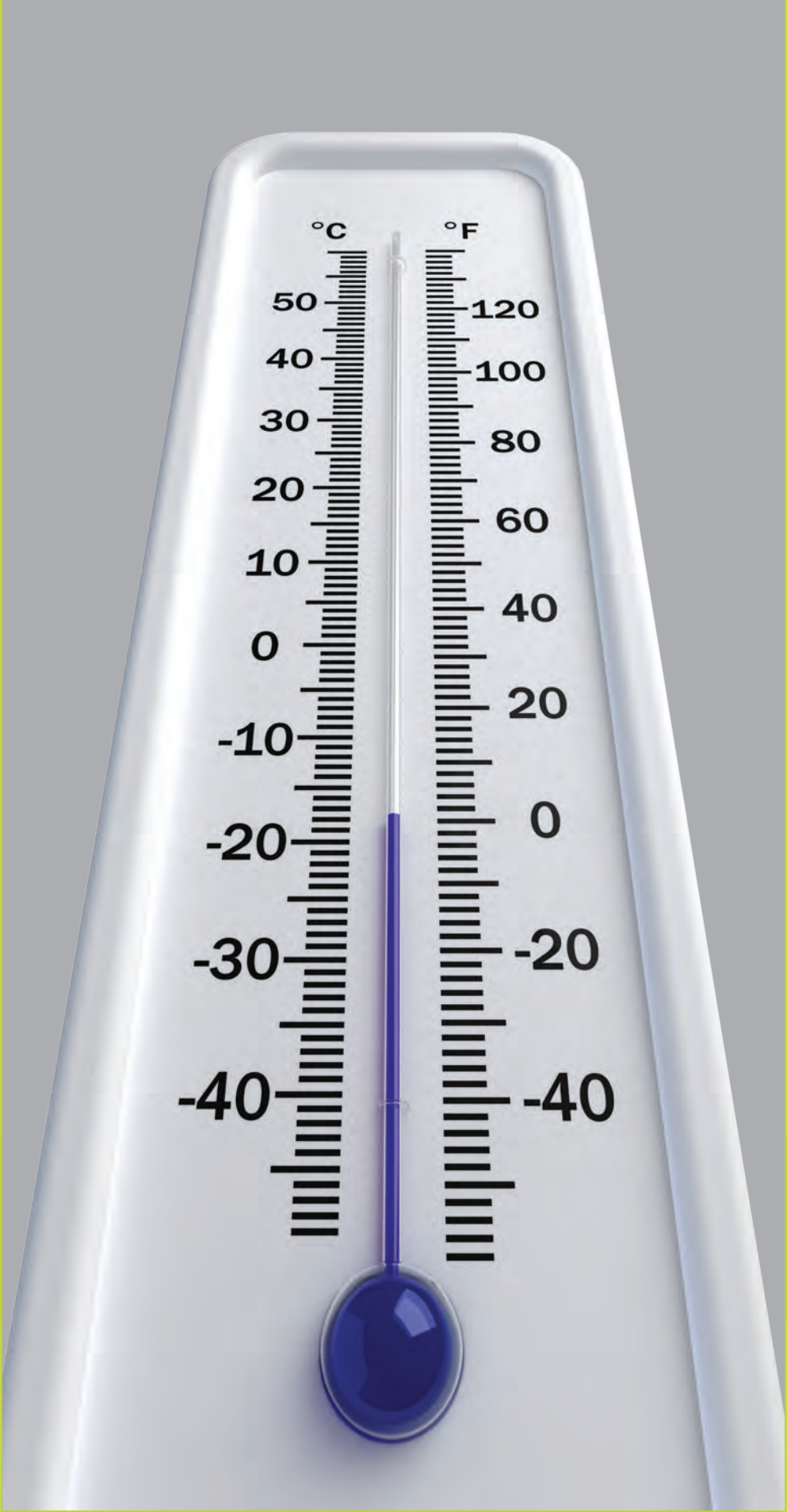
UL-70140



UL-70150

## Specifications

| Part Numbers | Description            | Sheet Color | Sheet Size | Quantity / Bucket | Buckets / Case |
|--------------|------------------------|-------------|------------|-------------------|----------------|
| UL-70140     | Big Grip Bucket Rags   | Red         | 10" x 12"  | 140               | 2              |
| UL-70150     | Big Grip Rags - Refill | Red         | 10" x 12"  | 140               | 6              |



Contractors appreciate smooth HVAC installations while consumers look for a fine balance between temperature comfort and energy savings.

The Braeburn® by Robertshaw® wall thermostats, zoning and accessories are The Brighter Choice® for flexible, easy to use and install, residential and commercial heating and air conditioning controls. Wall thermostats also deliver intuitive, feature-rich and efficient solutions for homeowners and commercial customers.

|   |     |
|---|-----|
| Smart Wi-Fi Thermostat Series.....                  | H2  |
| Deluxe Touchscreen Thermostat Series.....           | H6  |
| Premier Thermostat Series.....                      | H9  |
| Economy Thermostat Series.....                      | H15 |
| Builder Thermostat Series.....                      | H19 |
| Mechanical Thermostat Series.....                   | H28 |
| Construction Thermostat Series.....                 | H31 |
| Humidistats and Dehumidistats.....                  | H32 |
| Accessories - Wireless Sensors.....                 | H34 |
| Accessories - Sensors.....                          | H35 |
| Accessories - Universal Guards and Wall Plates..... | H36 |
| Zone Control Panel Series.....                      | H38 |
| Zoning System Accessories.....                      | H44 |
| Motorized Damper Series.....                        | H48 |
| Bypass Damper Series.....                           | H56 |



# WALL THERMOSTATS





# WALL THERMOSTATS

# Braeburn®



7500 Kit

## SMART WI-FI UNIVERSAL WIRELESS THERMOSTAT KIT

### 7500 Series

The Braeburn® BlueLink™ 7500 Wireless 7 Day, 5-2 Day or Non-Programmable Thermostat Kit includes thermostat, control module and plenum sensor for conventional or heat pump systems up to 3 stages of heat and 2 stages of cool with a 5 square inch display, auto changeover and wireless remote sensing.

### Thermostat Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Residential or commercial modes
- Battery operated for total installation flexibility
- SpeedBar® multi-function button
- Compatible with 2 or 3 wire hydronic zone systems
- Adjustable balance points
- Auxiliary heat fossil fuel option
- Programmable fan control
- R and C terminals for optional 24V operation
- Adjustable temperature units
- Multi-level keypad lockout
- Free color contractor branding on quick reference instruction card

### Control Module Features and Benefits

- Superior wireless range
- Battery life exceeds virtually all competitive models
- Includes return air sensor for default temperature control even if batteries are drained
- Connect to 4 optional wireless indoor sensors for remote temperature sensing\*
- Optional wireless outdoor sensing for outdoor temperature display or balance point control\*
- Optional wireless humidity plenum sensor for whole-house humidification control\*
- Affordable solution for most thermostat applications

\* Up to 4 wireless sensors can be connected

## Specifications

| Part Numbers | Description      | Application  | Electrical Rating  | Temperature Range                             | Terminations   | Size   | Backlight | Auto Changeover | Remote Sensor Capable | Comments                                     |
|--------------|------------------|--|--|---|--|--|-----------|-----------------|-----------------------|--|
| 7500         | Smart Thermostat | Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 5 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) +/- 1°F (+/- .5°C) | Control Module S1, S2, P1, P2, L, C, Y2, Y1, O/B/ V3, W2/AUX, W1/E, Rh, Rc, G<br><br>Thermostat R, C | 3.86" x 5.11" x 1.42" (9.8cm x 13cm x 3.6cm) | Blue      | Yes             | Yes                   | Complete kit to add or relocate a thermostat |



**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H2

# WALL THERMOSTATS



## SMART WI-FI TOUCHSCREEN UNIVERSAL THERMOSTATS

### 7320 Series

The Braeburn® BlueLink™ 7320 Smart Wi-Fi Touchscreen Thermostat is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems with up to 3 stages of heat and 2 stages of cool with a 6.5 square inch display, auto changeover and wireless remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Residential or commercial modes
- Auto or manual changeover
- Adjustable temperature limits
- Hardwire or battery powered
- SpeedBar® multi-function button
- Programmable and circulating fan modes
- Wired remote sensor capability
- Auxiliary heat fossil fuel option
- Heat pump balance points
- Auxiliary "A" terminal for economizer, fresh air or output control
- Wireless remote sensor capability - indoor, outdoor or humidity
- Humidification and dehumidification control with 7330 wireless sensor (sold separately)
- "C" common wire required for Wi-Fi operation
- Free color contractor branding on quick reference instruction card



Phone not included

7320

**Braeburn®**

## Specifications

| Part Numbers | Description                  | Application   | Electrical Rating  | Temperature Range          | Terminations   | Size  | Backlight | Auto Changeover | Remote Sensor Capable | Comments                                     |
|--------------|------------------------------|---|--|----------------------------|--|---|-----------|-----------------|-----------------------|--|
| 7320         | Smart Touchscreen Thermostat | Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool<br>Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 6 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) | Rh, Rc, C, W2/AUX, W1/E, L, A, O/B, G, Y2, Y1, K, S2, S1 | 3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm) | Blue      | Yes             | Yes                   | Remote access from Smartphone, tablet, or PC |



**ROHS**  
COMPLIANT

**5** Year Limited Warranty

H3





# WALL THERMOSTATS

# Braeburn®



7305

Phone not included



7205

## SMART WI-FI UNIVERSAL THERMOSTATS

### 7305 and 7205 Series

The Braeburn® BlueLink™ 7305 and 7205 Smart Wi-Fi Thermostat is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems with up to 3 stages of heat and 2 stages of cool. The 7305 has a 5 square inch display, auto changeover and wired remote sensing. The 7205 has a 3 square inch display and requires no C wire.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Residential or commercial modes
- Auto or manual changeover
- Adjustable temperature limits
- Hardwire or battery powered
- SpeedBar® multi-function button
- Programmable and circulating fan modes
- Wired remote sensor capability
- Auxiliary heat fossil fuel option
- Heat pump balance points
- Auxiliary "A" terminal for economizer, fresh air or output control
- Humidification and dehumidification control for the 7305 model with 7330 wireless sensor (sold separately)

## Specifications

| Part Numbers | Description      | Application  | Electrical Rating  | Temperature Range          | Terminations   | Size  | Backlight | Auto Changeover | Remote Sensor Capable | Comments   |
|--------------|------------------|--|--|----------------------------|--|---|-----------|-----------------|-----------------------|--|
| 7305         | Smart Thermostat | Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 6 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) | Rh, Rc, C, W2, W1/E/W3, L, A, O/B/V3, G, Y2, Y1, K, S2, S1 | 3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm) | Blue      | Yes             | Yes                   | Requires "C" common wire for WiFi Remote access from Smartphone, tablet, or PC |
| 7205         | Smart Thermostat | Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 6 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) | Rh, Rc, C, W2, W1/E/W3, L, A, O/B/V3, G, Y2, Y1, K, S2, S1 | 3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm) | Blue      | Yes             | Yes                   | Remote access from Smartphone, tablet, or PC                                   |



**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H4

# WALL THERMOSTATS



## SMART WI-FI UNIVERSAL THERMOSTATS

### 7300 Series

The Braeburn® BlueLink™ 7300 Smart Wi-Fi Thermostat is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 5 square inch display, auto changeover and wired remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Residential or commercial modes
- Auto or manual changeover
- Adjustable temperature limits
- Hardwire or battery powered
- SpeedBar® multi-function button
- Programmable and circulating fan modes
- Wired remote sensor capability
- "C" common wire required for Wi-Fi operation
- Free color contractor branding on quick reference instruction card



Phone not included

7300

**Braeburn®**

## Specifications

| Part Numbers | Description      | Application  | Electrical Rating  | Temperature Range          | Terminations                            | Size  | Backlight | Auto Changeover | Remote Sensor Capable | Comments                                     |
|--------------|------------------|--|--|----------------------------|---|---|-----------|-----------------|-----------------------|--|
| 7300         | Smart Thermostat | Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) | G, Rh, Rc, K, W1, O/B/V3, Y1, C, S1, S2 | 3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm) | Blue      | Yes             | Yes                   | Remote access from Smartphone, tablet, or PC |



**ROHS**  
COMPLIANT

**5** Year Limited Warranty





# WALL THERMOSTATS

# Braeburn®



6425

## DELUXE TOUCHSCREEN UNIVERSAL THERMOSTAT WITH HUMIDIFICATION CONTROL

### 6425 Series

The Braeburn® 6425 Deluxe Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat with humidification control for conventional or heat pump systems with up to 4 stages of heat and 2 stages of cool with a 12 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Residential or commercial modes
- Separate user and installer reset buttons
- Economizer control
- Auxiliary heat fossil fuel option
- Adjustable balance points
- Humidification and dehumidification control
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

### Specifications

| Part Numbers | Description                         | Application   | Electrical Rating  | Temperature Range                                 | Terminations  | Size  | Backlight | Auto Changeover | Remote Sensor Capable |
|--------------|-------------------------------------|---|--|---|---|---|-----------|-----------------|-----------------------|
| 6425         | Touchscreen Programmable Thermostat | Universal, Up to 4 Heat / 2 Cool Heat Pump, Up to 3 Heat / 2 Cool<br>Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 3 Amp maximum load per terminal, 7 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | A/D, H, G, Rc, Rh, W2/AUX2, W3/O/B, Y1, Y2, W1/E/AUX1, C, L, S1, S2 | 4.13" x 6.13" x 1.38" (10.5cm x 15.6cm x 3.5cm) | Blue      | Yes             | Yes                   |



**RHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H6

# WALL THERMOSTATS



## DELUXE TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

### 6300 Series

The Braeburn® 6300 Deluxe Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems with up to 4 stages of heat and 2 stages of cool with a 12 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential or commercial modes
- Economizer control
- Auxiliary heat fossil fuel option
- Adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



6300

**Braeburn®**

### Specifications

| Part Numbers | Description                         | Application  | Electrical Rating   | Temperature Range                                    | Terminations   | Size  | Backlight | Auto Changeover | Remote Sensor Capable |
|--------------|-------------------------------------|--|---|--|--|---|-----------|-----------------|-----------------------|
| 6300         | Touchscreen Programmable Thermostat | Universal, Up to 4 Heat / 2 Cool Heat Pump, Up to 3 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 3 Amps maximum load per terminal, 7 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F<br>(+/- 0.5°C) | A, G, Rc, Rh, W2/AUX2, W3/O/B, Y1, Y2, W1/E/AUX1, C, L, S1, S2 | 4.13" x 6.13" x 1.38" (10.5cm x 15.6cm x 3.5cm) | Blue      | Yes             | Yes                   |



**RUHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H7



# WALL THERMOSTATS

# Braeburn®



6100

## DELUXE TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

### 6100 Series

The Braeburn® 6100 Deluxe Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 12 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential or commercial modes
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

### Specifications

| Part Numbers | Description                         | Application  | Electrical Rating   | Temperature Range                              | Terminations                    | Size  | Backlight | Auto Changeover | Remote Sensor Capable |
|--------------|-------------------------------------|--|---|--|---------------------------------|---|-----------|-----------------|-----------------------|
| 6100         | Touchscreen Programmable Thermostat | Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 3 Amps maximum load per terminal, 7 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C) | Rc, Rh, O/B, Y, W, G, C, S1, S2 | 4.13" x 6.13" x 1.38" (10.5cm x 15.6cm x 3.5cm) | Blue      | Yes             | Yes                   |



**RHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H8

# WALL THERMOSTATS



## PREMIER TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

### 5320 Series

The Braeburn® 5320 Premier Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 4 stages of heat and 2 stages of cool with a 6.5 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Multi-level keypad lockout
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential and commercial modes
- Auxiliary heat fossil fuel option
- Adjustable balance points
- Economizer control
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



5320

**Braeburn®**

## Specifications

| Part Numbers | Description                         | Application  | Electrical Rating   | Temperature Range                                    | Terminations   | Size  | Backlight | Auto Changeover | Remote Sensor Capable |
|--------------|-------------------------------------|--|---|--|--|---|-----------|-----------------|-----------------------|
| 5320         | Touchscreen Programmable Thermostat | Universal, Up to 4 Heat / 2 Cool Heat Pump, Up to 3 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amps maximum load per terminal, 7 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F<br>(+/- 0.5°C) | A, G, Rc, Rh, W2/AUX2, W3/O/B, Y1, Y2, W1/E/AUX1, C, L, S1, S2 | 3.94" x 5.56" x 1.19" (10cm x 14.12cm x 3.02cm) | Blue      | Yes             | Yes                   |



**RUHS**  
COMPLIANT

**5** Year  
Limited  
Warranty



# WALL THERMOSTATS

# Braeburn®



5310

## PREMIER TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

### 5310 Series

The Braeburn® 5310 Premier Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 6.5 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Multi-level keypad lockout
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential and commercial modes
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

### Specifications

| Part Numbers | Description                         | Application  | Electrical Rating  | Temperature Range                                    | Terminations                      | Size  | Backlight | Auto Changeover | Remote Sensor Capable |
|--------------|-------------------------------------|--|--|--|-----------------------------------|---|-----------|-----------------|-----------------------|
| 5310         | Touchscreen Programmable Thermostat | Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F<br>(+/- 0.5°C) | Rc, Rh, O/B, Y1, W1, G, C, S1, S2 | 3.94" x 5.56" x 1.19" (10cm x 14.12cm x 3.02cm) | Blue      | Yes             | Yes                   |



**RVHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H10



# WALL THERMOSTATS



## PREMIER UNIVERSAL PROGRAMMABLE THERMOSTATS

### 5220 Series

The Braeburn® 5220 Premier Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 3 stages of heat and 2 stages of cool with a 5 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day of Non-Programmable
- Auto or manual changeover
- Speedbar® multi-function button
- Adjustable temperature limits
- Indoor or outdoor remote sensing
- SpeedSet® programming mode
- User selectable service monitors
- Hardwire or battery powered
- Multi-level keypad lockout
- Separate user and installer reset button
- Programmable and circulating fan modes
- Temporary override limits
- Residential and commercial modes
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging instructions
- Free color contractor branding on quick reference instruction card



5220

**Braeburn®**

## Specifications

| Part Numbers | Description             | Application  | Electrical Rating  | Temperature Range                                   | Terminations   | Size   | Backlight | Auto Changeover | Remote Sensor Capable | Comments   |
|--------------|-------------------------|--|--|---|--|--|-----------|-----------------|-----------------------|--|
| 5220         | Programmable Thermostat | Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 5 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F<br>(+/- .5°C) | G, Rc, Rh, W2, O/B/V3, Y1, Y2, W1/E/W3, C, L, S1, S2 | 3.86" x 5.11" x 1.42" (9.8cm x 12.97cm x 3.60cm) | Blue      | Yes             | Yes                   | Heat pump systems with up to two compressors and one auxiliary stage |



**ROHS**  
COMPLIANT

**5** Year Limited Warranty

H11



# WALL THERMOSTATS

# Braeburn®



5020

## PREMIER UNIVERSAL PROGRAMMABLE THERMOSTATS

### 5020 Series

The Braeburn® 5020 Premier Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heat and 1 stage cool with a 5 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Speedbar® multi-function button
- Adjustable temperature limits
- Indoor or outdoor remote sensing
- Speedset® programming mode
- Use selectable service monitors
- Hardwire or battery powered
- Multi-level keypad lockout
- Separate user and installer reset buttons
- Programmable and circulating fan modes
- Temporary override limits
- Residential and commercial modes
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

### Specifications

| Part Numbers | Description             | Application  | Electrical Rating  | Temperature Range                                 | Terminations                         | Size  | Backlight | Auto Changeover | Remote Sensor Capable |
|--------------|-------------------------|--|--|---|--------------------------------------|---|-----------|-----------------|-----------------------|
| 5020         | Programmable Thermostat | Universal, 2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | Rc, Rh, O/B/W3, Y1, W1, G, C, S1, S2 | 3.94" x 5.56" x 1.19" (10cm x 14.12cm x 3.02cm) | Blue      | Yes             | Yes                   |



**RVHS**  
COMPLIANT

**5** Year Limited Warranty

H12

# WALL THERMOSTATS



## PREMIER NON-PROGRAMMABLE THERMOSTATS

### 3220 Series

The Braeburn® 3220 Premier Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 3 stages of heat and 2 stages of cool with a 4 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- Auto or manual changeover
- Speedbar® multi-function button
- Indoor or outdoor remote sensing
- User selectable service monitors
- Separate user and installer reset buttons
- Multi-level keypad lockout
- Adjustable temperature limits
- Hardwire or battery powered
- Circulating fan mode
- Set point adjustment limits
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



3220

**Braeburn®**

## Specifications

| Part Numbers | Description                 | Application   | Electrical Rating  | Temperature Range                                 | Terminations   | Size   | Backlight | Auto Changeover | Remote Sensor Capable | Comments   |
|--------------|-----------------------------|---|--|---|--|--|-----------|-----------------|-----------------------|--|
| 3220         | Non-Programmable Thermostat | Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | G, Rc, Rh, W2, O/B/V3, Y1, Y2, W1/E/W3, C, L, S1, S2 | 3.86" x 5.11" x 1.42" (9.8cm x 12.97cm x 3.60cm) | Blue      | Yes             | Yes                   | Heat pump systems with up to 2 compressors and 1 auxiliary stage |

**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H13



# WALL THERMOSTATS

# Braeburn®



3020

## PREMIER NON-PROGRAMMABLE THERMOSTATS

### 3020 Series

The Braeburn® 3020 Premier Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 4 square inch display, auto changeover and optional remote sensing.

### Features and Benefits

- Auto or manual changeover
- Speedbar® multi-function button
- Indoor or outdoor remote sensing
- User selectable service monitors
- Separate use and installer reset buttons
- Multi-level keypad lockout
- Adjustable temperature limits
- Hardwire or battery powered
- Circulating fan mode
- Set point adjustment limits
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

## Specifications

| Part Numbers | Description                 | Application   | Electrical Rating  | Temperature Range                              | Terminations                          | Size   | Backlight | Auto Changeover | Remote Sensor Capable | Comments   |
|--------------|-----------------------------|---|--|--|---------------------------------------|--|-----------|-----------------|-----------------------|--|
| 3020         | Non-Programmable Thermostat | 2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C) | Rc, Rh, O/B/ V3, Y1, W1, G, C, S1, S2 | 3.86" x 5.11" x 1.42" (9.8cm x 12.97cm x 3.60cm) | Blue      | Yes             | Yes                   | Single stage conventional or single stage heat pumps with auxiliary heat |

**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H14

# WALL THERMOSTATS



## ECONOMY UNIVERSAL PROGRAMMABLE THERMOSTATS

### 2220 Series

The Braeburn® 2220 Economy Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 2 stages of cooling with a 3 square inch display and adjustable temperature limits.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adaptive Recovery Mode (ARM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Programmable extended hold mode
- Front access reset button
- F° / C° switch
- Auxiliary heat indicator
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



2220

**Braeburn®**

## Specifications

| Part Numbers | Description             | Application  | Electrical Rating  | Temperature Range                              | Terminations                         | Size  | Backlight | Comments                           |
|--------------|-------------------------|--|--|--|--------------------------------------|---|-----------|------------------------------------|
| 2220         | Programmable Thermostat | Universal, Up to 2 Heat / 1 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C) | Rh, Rc, Y1, Y2, G, W1/E, W2, O, B, C | 3.70" x 5.16" x 1.38" (9.39cm x 13.10cm x 3.50cm) | Blue      | Conventional systems up to 2H / 2C |



**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H15



# WALL THERMOSTATS

# Braeburn®



2020

## ECONOMY UNIVERSAL PROGRAMMABLE THERMOSTATS

### 2020 Series

The Braeburn® 2020 Economy Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 3 square inch display and adjustable temperature limits.

### Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adaptive Recovery Mode (ARM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Programmable extended hold mode
- Front access reset button
- F° / C° switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

### Specifications

| Part Numbers | Description             | Application  | Electrical Rating  | Temperature Range                                 | Terminations               | Size  | Backlight | Comments                                       |
|--------------|-------------------------|--|--|---|----------------------------|---|-----------|--|
| 2020         | Programmable Thermostat | Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | Rh, Rc, Y1, G, W1, O, B, C | 3.70" x 5.16" x 1.38" (9.39cm x 13.10cm x 3.50cm) | Blue      | Single stage conventional or heat pump systems |



**RHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H16

# WALL THERMOSTATS



## ECONOMY NON-PROGRAMMABLE THERMOSTATS

### 1220 Series

The Braeburn® 1220 Economy Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 2 stages of cooling with a 3 square inch display and adjustable temperature limits.

### Features and Benefits

- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differential
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° switch
- Gas / Electric fan switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



1220

**Braeburn®**

## Specifications

| Part Numbers | Description                 | Application   | Electrical Rating  | Temperature Range                                 | Terminations                         | Size   | Backlight |
|--------------|-----------------------------|---|--|---|--------------------------------------|--|-----------|
| 1220         | Non-Programmable Thermostat | Up to 2 Heat / 1 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | Rh, Rc, O, B, C, Y1, Y2, E/W1, G, W2 | 3.70" x 5.16" x 1.38"<br>(9.39cm x 13.10cm x 3.50cm) | Blue      |

**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H17





# WALL THERMOSTATS

# Braeburn®



1020

## ECONOMY NON-PROGRAMMABLE THERMOSTATS

### 1020 Series

The Braeburn® 1020 Economy Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 3 square inch display and adjustable temperature limits.

### Features and Benefits

- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differential
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

### Specifications

| Part Numbers | Description                 | Application   | Electrical Rating  | Temperature Range                              | Terminations               | Size  | Backlight | Comments                                       |
|--------------|-----------------------------|---|--|--|----------------------------|---|-----------|--|
| 1020         | Non-Programmable Thermostat | 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C) | Rh, Rc, Y1, G, W1, O, B, C | 3.70" x 5.16" x 1.38" (9.39cm x 13.10cm x 3.50cm) | Blue      | Single stage conventional or heat pump systems |

**RVHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H18

# WALL THERMOSTATS



## BUILDER PROGRAMMABLE THERMOSTATS

### 2220NC Series

The Braeburn® 2220NC Builder Series is a 5-2 Day Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 2 square inch display and adjustable temperature limits.

### Features and Benefits

- 5-2 Day Programming
- Adjustable temperature differential
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adaptive recovery mode (ARM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Programmable extended hold mode
- Front access reset button
- F° / C° switch
- Auxiliary heat indicator
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



2220NC

**Braeburn®**

### Specifications

| Part Numbers | Description             | Application  | Electrical Rating  | Temperature Range                              | Terminations                     | Size  | Backlight | Comments                                       |
|--------------|-------------------------|--|--|--|----------------------------------|---|-----------|--|
| 2220NC       | Programmable Thermostat | 2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic System | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C) | Rc, Rh, B, O, Y1, E/W1, G, C, W2 | 3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm) | Blue      | Single stage conventional or heat pump systems |



**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty





# WALL THERMOSTATS

# Braeburn®



2020NC

## BUILDER PROGRAMMABLE THERMOSTATS

### 2020NC Series

The Braeburn® 2020NC Builder Series is a 5-2 Day Programmable Thermostat for single stage conventional or heat pump systems with a 2 square inch display and adjustable temperature limits.

### Features and Benefits

- 5-2 Day Programming
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adjustable temperature differential
- Adaptive Recovery Mode (ATM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Front access reset button
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

## Specifications

| Part Numbers | Description             | Application   | Electrical Rating  | Temperature Range                                 | Terminations               | Size  | Backlight | Comments                                       |
|--------------|-------------------------|---|--|---|----------------------------|---|-----------|--|
| 2020NC       | Programmable Thermostat | 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | Rc, Rh, O, B, Y1, W1, G, C | 3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm) | Blue      | Single stage conventional or heat pump systems |



**ROHS**  
COMPLIANT

**5** Year Limited Warranty

H20

# WALL THERMOSTATS



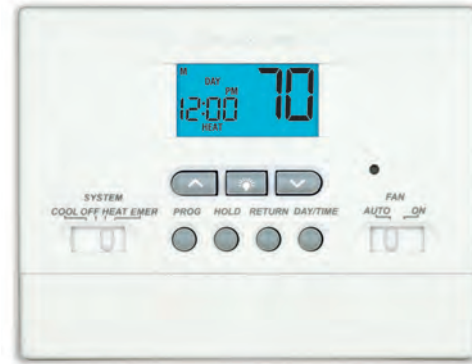
## BUILDER PROGRAMMABLE THERMOSTATS

### 2200NC Series

The Braeburn® 2200NC Builder Value Series is a 5-2 Day Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 1 square inch display and adjustable temperature limits.

### Features and Benefits

- 5-2 Day Programming
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differentials
- Programmable extended hold mode
- Adaptive recovery mode (ARM™)
- Separate O and B terminals
- Auxiliary heat status
- Front access reset button
- Filter check monitor
- Low battery indicator
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



2200NC

**Braeburn®**

## Specifications

| Part Numbers | Description             | Application   | Electrical Rating  | Temperature Range                                    | Terminations                | Size  | Backlight | Comments   |
|--------------|-------------------------|---|--|--|-----------------------------|---|-----------|--|
| 2200NC       | Programmable Thermostat | 2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F<br>(+/- 0.5°C) | R, O, B, C, Y1, E/W1, G, W2 | 3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm) | Blue      | Conventional or heat pump systems with a 1 square inch display and adjustable temperature limits |



**RHS**  
COMPLIANT

**2** Year  
Limited  
Warranty

H21



# WALL THERMOSTATS

# Braeburn®



2000NC

## BUILDER PROGRAMMABLE THERMOSTATS

### 2000NC Series

The Braeburn® 2000NC Builder Value Series is a 5-2 Day Programmable Thermostat for single stage conventional or heat pump systems with a 1 square inch display and adjustable temperature limits.

### Features and Benefits

- 5-2 Day Programming
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differential
- Programmable extended hold mode
- Adaptive recovery mode (ARM™)
- Separate O and B terminals
- Auxiliary heat status
- Front access reset button
- Filter check monitor
- Low battery indicator
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

## Specifications

| Part Numbers | Description             | Application   | Electrical Rating   | Temperature Range                                | Terminations             | Size  | Backlight |
|--------------|-------------------------|---|---|--|--------------------------|---|-----------|
| 2000NC       | Programmable Thermostat | 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp max load per terminal, 3 Amps max load (all terminals combined) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- .5°C) | Rc, Rh, B, O, Y, W, G, C | 3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm) | Blue      |



**RVHS**  
COMPLIANT

**2** Year  
Limited  
Warranty

H22

# WALL THERMOSTATS



## BUILDER NON-PROGRAMMABLE THERMOSTATS

### 1220NC Series

The Braeburn® 1220NC Economy Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 2 square inch display and adjustable temperature limits.

### Features and Benefits

- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Adjustable Temperature Differential
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



1220NC

**Braeburn®**

## Specifications

| Part Numbers | Description                 | Application   | Electrical Rating  | Temperature Range                                 | Terminations                    | Size  | Backlight | Comments  |
|--------------|-----------------------------|---|--|---|---------------------------------|---|-----------|---|
| 1220NC       | Non-Programmable Thermostat | 2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | Rh, Rc, O, B, Y, E/W1, G, C, W2 | 3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm) | Blue      | Conventional systems up to 2H / 1C with a 2 square inch display and adjustable temperature limits |

**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H23



# WALL THERMOSTATS

# Braeburn®



1025NC

## BUILDER NON-PROGRAMMABLE THERMOSTATS

### 1025NC Series

The Braeburn® 1025NC Builder Series is a Non-Programmable heat only thermostat with a 2 square inch display and adjustable temperature limits.

### Features and Benefits

- Hardwire or battery powered
- Permanent memory retains settings
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Adjustable Temperature Differential
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

## Specifications

| Part Numbers | Description                 | Application  | Electrical Rating  | Temperature Range                                 | Terminations    | Size  | Backlight | Comments  |
|--------------|-----------------------------|--|--|---|-----------------|---|-----------|---|
| 1025NC       | Non-Programmable Thermostat | 1 Heat Only Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F (+/- 0.5°C) | R, G, W1, V3, C | 3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm) | Blue      | Conventional heat only systems with a 2 square inch display and adjustable temperature limits |

**RVHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H24



# WALL THERMOSTATS



## BUILDER NON-PROGRAMMABLE THERMOSTATS

### 1020NC Series

The Braeburn® 1020NC Builder Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 2 square inch display and adjustable temperature limits.

### Features and Benefits

- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Adjustable Temperature Differential
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card



1020NC

**Braeburn®**

## Specifications

| Part Numbers | Description                 | Application   | Electrical Rating  | Temperature Range                              | Terminations               | Size  | Backlight | Comments  |
|--------------|-----------------------------|---|--|--|----------------------------|---|-----------|---|
| 1020NC       | Non-Programmable Thermostat | 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals) | 45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C) | Rc, Rh, B, O, Y1, W1, G, C | 3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm) | Blue      | Single stage conventional or heat pump systems with a 2 square inch display and adjustable temperature limits |

**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H25



# WALL THERMOSTATS

# Braeburn®



1200NC

## BUILDER NON-PROGRAMMABLE THERMOSTATS

### 1200NC Series

The Braeburn® 1200NC Builder Value Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 1 square inch display and adjustable temperature limits.

### Features and Benefits

- Blue backlight display
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Front access reset button
- Gas / Electric fan switch
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding

### Specifications

| Part Numbers | Description                 | Application   | Electrical Rating   | Temperature Range                                    | Terminations                | Size  | Backlight | Comments   |
|--------------|-----------------------------|---|---|--|-----------------------------|---|-----------|--|
| 1200NC       | Non-Programmable Thermostat | 2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp max load per terminal, 3 Amps max load (all terminals combined) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F<br>(+/- 0.5°C) | R, O, B, C, Y1, E/W1, G, W2 | 3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm) | Blue      | Heat pump systems with a single compressor and up to one auxiliary stage |

**RVHS**  
COMPLIANT

**2** Year  
Limited  
Warranty

H26

# WALL THERMOSTATS



## BUILDER NON-PROGRAMMABLE THERMOSTATS

### 1000NC Series

The Braeburn® 1000NC Builder Value Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 1 square inch display and adjustable temperature limits.

#### Features and Benefits

- Blue backlight display
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Front access reset button
- Gas / Electric fan switch
- Low battery indicator
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding



1000NC

**Braeburn®**

## Specifications

| Part Numbers | Description                 | Application   | Electrical Rating   | Temperature Range                                    | Terminations             | Size  | Backlight | Comments  |
|--------------|-----------------------------|---|---|--|--------------------------|---|-----------|---|
| 1000NC       | Non-Programmable Thermostat | 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC with battery back-up OR 3V DC battery powered, 1 Amp max load per terminal, 3 Amps max load (all terminals combined) | 45°F to 90°F (7°C to 32°C)<br>+/- 1°F<br>(+/- 0.5°C) | Rc, Rh, B, O, Y, W, G, C | 3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm) | Blue      | Single stage conventional or heat pump systems with a 1 square inch display and adjustable temperature limits |

**ROHS**  
COMPLIANT

**2** Year  
Limited  
Warranty

H27



# WALL THERMOSTATS

**Braeburn®**



505

## BUILDER MECHANICAL THERMOSTATS

### 505 Series

The Braeburn® 505 Series is a Mechanical Thermostat for heat only.

#### Features and Benefits

- Heavy-duty ball-type system and fan switches
- Environmentally safe - mercury free
- Front mounted wiring terminals
- Heavy-duty anticipator
- Integrated sub-base for easy installation
- Electro-plated wiring terminals
- No-leveling required during installation
- System Lever OFF/HEAT
- Free contractor branding

### Specifications

| Part Numbers | Description           | Application  | Electrical Rating   | Terminations | Dial Temperature            | Size   |
|--------------|-----------------------|--|---|--------------|-----------------------------|--|
| 505          | Mechanical Thermostat | 1 Heat Only Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC, or 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps maximum load (all terminals combined) | Rh, W        | 50°F to 90°F (10°C to 32°C) | 4.60" x 3.13" x 1.25" (11.7cm x 8cm x 3.2cm) |

**ROHS**  
COMPLIANT

**1** Year  
Limited  
Warranty

H28

# WALL THERMOSTATS



## BUILDER MECHANICAL THERMOSTATS

### 500 Series

The Braeburn® 500 Series is a Mechanical Thermostat for single stage conventional or heat pump systems.

#### Features and Benefits

- Heavy-duty ball-type system and fan switches
- Environmentally safe - mercury free
- Front mounted wiring terminals
- Heavy-duty anticipator
- Integrated sub-base for easy installation
- Electro-plated wiring terminals
- No-leveling required during installation
- System Lever COOL/OFF/HEAT
- Free contractor branding



500

**Braeburn®**

### Specifications

| Part Numbers | Description           | Application   | Electrical Rating  | Terminations          | Dial Temperature            | Size   |
|--------------|-----------------------|---|--|-----------------------|-----------------------------|--|
| 500          | Mechanical Thermostat | 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems | 24V AC, and 3 Amps maximum load (all terminals combined) | O, G, Rc, Rh, B, Y, W | 50°F to 90°F (10°C to 32°C) | 4.60" x 3.13" x 1.25" (11.7cm x 8cm x 3.2cm) |

**ROHS**  
COMPLIANT

**1** Year  
Limited  
Warranty

H29



# WALL THERMOSTATS

PERFECTSENSE™



PS801

## PERFECTSENSE MECHANICAL THERMOSTATS

### PS800 Series

The PerfectSense™ PS800 Series Line Voltage Thermostats offer performance and accuracy in an easy to install, low voltage control with models available for 120/208/240/277 Volts. The PS800 Series is J-Box compatible allowing it to be mounted directly to a 2" x 4" vertical electrical outlet box to speed up installation time. The simple modern design mounts flush to the wall, with a large knob for easy temperature adjustments. These universal replacements can be used to retrofit most existing electric heat thermostats. Models for heating include single-line break and double-line break as well as single-line break application.

### Features and Benefits

- Bimetal temperature sensing for improved thermal performance
- Both °F and °C control dials included
- Single or Double Pole Available
- J-Box compatible speeds up installation by mounting directly to an electrical outlet box
- Universal replacement to retrofit most existing electric heat thermostats

### Specifications

| Part Numbers | Description             | Application                 | Electrical Rating | Dial Temperature           | Accuracy     | Maximum Power   |
|--------------|-------------------------|-----------------------------|-------------------|----------------------------|--------------|---|
| PS801        | Line Voltage Thermostat | Heating, SPST Switch Action | 120-277V AC       | 41°F to 90°F (5°C to 32°C) | ±3°F (1.6°C) | 2640W @ 120V AC (22A) 4576W @ 208V AC (22A) 5280W @ 240V AC (22A) 4986W @ 277V AC (22A) |
| PS802        | Line Voltage Thermostat | Heating, DPST Switch Action | 120-277V AC       | 41°F to 90°F (5°C to 32°C) | ±3°F (1.6°C) | 2640W @ 120V AC (22A) 4576W @ 208V AC (22A) 5280W @ 240V AC (22A) 4986W @ 277V AC (22A) |

### Replacement Information

|                |  |
|----------------|--|
| Robertshaw*    | 801, 802   |
| White-Rodgers* | 1A65-641, 1A66-641   |
| Honeywell*     | T498A1810, T498A1778, T410A1013, T4398A1021, T498B1553, T498B1512, T410B1004, T4398B1029 |

\*Verify specific application requirements before substitution.

1 Year Limited Warranty

H30

# WALL THERMOSTATS



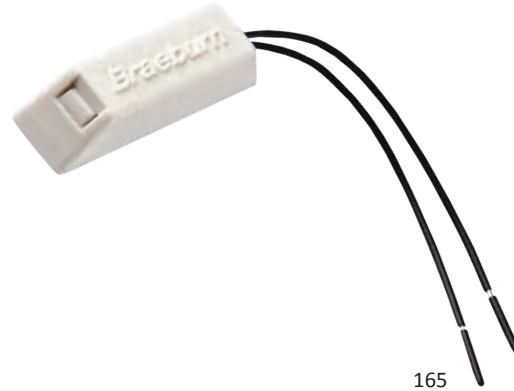
## CONSTRUCTION THERMOSTATS

### 165 Series

The Braeburn® 165 Construction Thermostat is a heat only thermostat that maintains a fixed temperature set point of 65°F (18.3°C).

#### Features and Benefits

- Install in place of standard 24V AC thermostat during construction
- Maintains fixed temperature set point of 65°F (18.3°C)
- Tamper-proof design prevents temperature adjustment
- Sturdy enclosure protects switch from drywall dust, paint and mudding



## Specifications

| Part Numbers | Description             | Application | Electrical Rating |
|--------------|-------------------------|-------------|-------------------|
| 165          | Construction Thermostat | Heat Only   | 24V AC            |

**Braeburn®**

**1** Year  
Limited  
Warranty

H31





# WALL THERMOSTATS

**RANCO**



J10-809W



J10-821

## HUMIDISTATS AND DEHUMIDISTATS

### J10 Series

The Ranco® J10 Series Humidistats and Dehumidistats are designed to regulate the relative humidity of confined spaces by cycling humidifying or dehumidifying equipment. Designed for central systems, the J10 controls are made from high impact plastic with a brushed finish dial plate. The J10's nylon sensing element provides long life and accurate humidity control. The J10-810 humidistat can be wall mounted or installed directly in a cold air return duct. The J10-809W dehumidistat is designed to be wall mounted and can be wired in series or parallel with a 24 volt nonelectric thermostat.

### Features and Benefits

- Strong plastic frame with integral switch eliminates the need to ground the control
- Improved woven nylon sensing elements provides a response time 12 times faster than nylon elements
- Greater stability in set points over dramatic changes in relative humidity
- Improved differential allowing 5% relative humidity

### Specifications

| Part Numbers | Description                          | Humidity Range | Electrical Rating | Temperature Range                       | Differential                |
|--------------|--------------------------------------|----------------|-------------------|---|-----------------------------|
| J10-808      | Humidistat – Wall or Duct Mount      | 10% to 60% RH  | 24V AC/60V AC     | Switch Head 32°F to 140°F (0°C to 60°C) | 5% or 15% Relative Humidity |
| J10-809W     | Dehumidistat – Wall Mount            | 20% to 80% RH  | 24V AC/60V AC     | Switch Head 32°F to 140°F (0°C to 60°C) | 5% or 15% Relative Humidity |
| J10-810      | Dehumidistat – Wall Mount (vertical) | 20% to 80% RH  | 24V AC/60V AC     | Switch Head 32°F to 140°F (0°C to 60°C) | 5% or 15% Relative Humidity |
| J10-821      | Humidistat – Wall Mount (horizontal) | 20% to 80% RH  | 24V AC/60V AC     | Switch Head 32°F to 140°F (0°C to 60°C) | 5% or 15% Relative Humidity |

**1** Year Limited Warranty

H32

# WALL THERMOSTATS



## DIGITAL HUMIDISTAT

### 229150 Series

The Braeburn® 229150 Automatic Digital Humidistat with large blue backlight display.

#### Features and Benefits

- Automatically adjusts humidity to outdoor air temperature
- Free outdoor sensor included
- Non-volatile memory retains user settings
- Built-in test mode
- Manual mode available
- Adjustable offset
- Wall mount or plenum mount with air stream sensing



229150

### Specifications

| Part Numbers | Description                  | Humidity Range | Electrical Rating          | Remote Sensor Capable                 | Temperature Range                                      | Terminations                             | Size  |
|--------------|------------------------------|----------------|----------------------------|---------------------------------------|--|--|---|
| 229150       | Automatic digital humidistat | 5% to 95% RH   | 24V AC<br>(18-30 Volts AC) | Yes, to distance of<br>200ft (60.96m) | 14°F to 140°F<br>(-10°C to 60°C)<br>+/- 1°F (+/- .5°C) | ACL, ACN, HYN2,<br>HUM1, SNSR2,<br>SNSR1 | 3" x 4.88" x 2"<br>(7.6cm x 12.4cm x 5.1cm) |

**Braeburn®**

**5** Year  
Limited  
Warranty

H33



# WALL THERMOSTATS

# Braeburn®



7390



7490



7330



7340

## ACCESSORIES - WIRELESS SENSORS

### Wireless Sensor Series

The Braeburn® Wireless Sensors offer many application options to suit a variety of installation needs. Remote sensors allow the thermostat to monitor temperature or humidity in more than one room of your home or business, or to monitor the outdoor temperature. Adding remote sensors provides a simple way to increase the efficiency of your heating and cooling system, as well as added comfort.

Remote Modules can provide more control of HVAC systems. The use of a Wi-Fi module through a smart phone or internet connection allows settings to be changed at anytime from any location.

### Features and Benefits

#### 7390 Wireless Remote Indoor Sensor

- Sense temperature at remote location or combine with thermostat
- Up to 4 wireless remote indoor sensors can be connected
- Front LED light shows sensor status
- Requires 2 "AA" alkaline batteries (included)

#### 7490 Wireless Remote Outdoor Sensor

- Display outdoor temperature
- Use for heat pump balance point control
- 1 wireless remote outdoor sensor can be connected (with a maximum of 4 wireless sensors can be connected)
- Requires 2 "AA" alkaline batteries (included)

#### 7330 Wireless Remote Humidity Sensor

- Controls humidifier or dehumidifier
- Mounts directly to return air plenum
- 1 wireless remote outdoor sensor can be connected (with a maximum of 4 wireless sensors can be connected)
- 24V AC powered

#### 7340 Share-a-Wire™ Module

- For use with BlueLink Smart Connect™ Wi-Fi Thermostats
- Provides a common "C" wire connection on a 4 wire system

## Specifications

| Part Numbers | Description                     | Size (LxWxH)                                | Compatible       |
|--------------|---------------------------------|---|------------------|
| 7330         | Wireless Humidity Plenum Sensor | 3" x 3.6" x 2.5" (7.6cm x 9.1cm x 6.35cm)   | 7320, 7500       |
| 7390         | Wireless Remote Indoor Sensor   | 3.4" x 3.2" x 1.5" (8.6cm x 8.1cm x 3.8cm)  | 7320, 7500       |
| 7490         | Wireless Remote Outdoor Sensor  | 5" x 4" x 1.5" (12.7cm x 10.2cm x 3.8cm)    | 7320, 7500       |
| 7340         | Share-A-Wire                    | 2.4" x 3.6" x 1.25" (6.1cm x 9.1cm x 3.2cm) | 7300, 7305, 7320 |

**5** Year Limited Warranty

H34

# WALL THERMOSTATS



## ACCESSORIES - SENSORS

### Sensor Series

The Braeburn® Sensors offer many application options to suit a variety of installation needs. Remote sensors allow the thermostat to monitor temperature or humidity in more than one room of your home or business, or to monitor the outdoor temperature. Adding remote sensors provides a simple way to increase the efficiency of your heating and cooling system, as well as added comfort.

### Features and Benefits

#### 5390 Remote Indoor Sensor

- Contemporary style for any decor
- For use with compatible Braeburn thermostats
- Sensing range of -40°F to 99°F (-40°C to 37.2°C)

#### 5490 Remote Outdoor Sensor

- Mounts outdoors up to 200 feet away
- Auto detected by Braeburn thermostats
- Enables outdoor control functions on compatible Braeburn thermostats
- Sensing range of -40°F to 120°F (-40°C to 48.8°C)



5390



5490

**Braeburn®**

## Specifications

| Part Numbers | Description           | Size (LxWxH)                               | Compatible   |
|--------------|-----------------------|--|--|
| 5390         | Remote Indoor Sensor  | 3.06" x 2.63" x 1" (7.8cm x 6.7cm x 2.5cm) | 2220NC, 3020, 3220, 5020, 5220, 5310, 5320, 6100, 6300, 6400, 7300, 7305, 7320 |
| 5490         | Remote Outdoor Sensor | 3.06" x 2.63" x 1" (7.8cm x 6.7cm x 2.5cm) | 2220NC, 3020, 3220, 5020, 5220, 5310, 5320, 6100, 6300, 6400, 7300, 7305, 7320 |

**5** Year Limited Warranty

H35



# WALL THERMOSTATS

**Braeburn®**

## ACCESSORIES - UNIVERSAL THERMOSTAT GUARD



5970

### 5970 Series

The Braeburn® 5970 Universal Thermostat Guard protects against tampering, damage and unauthorized adjustment of thermostat settings.

### Features and Benefits

- Universal - fits virtually all thermostats
- Replaces over 100 competitive models
- Tamper resistant design
- For new and existing thermostat applications
- Slim contemporary style
- Strong durable clear plastic
- Two keys included
- Fits thermostats 7.3" x 5.25" x 1.8" (18.5cm x 13.3cm x 4.6cm)

### Specifications

| Part Numbers | Description                | Size   |
|--------------|----------------------------|--|
| 5970         | Universal Thermostat Guard | 7.3" x 5.25" x 1.8"<br>(18.5cm x 13.3cm x 4.6cm) |

**1** Year Limited Warranty

H36

# WALL THERMOSTATS



## ACCESSORIES - THERMOSTAT WALL PLATES

### Wall Plates

The Braeburn® 2920 Vertical Wall Plate and the 2950 Universal Wall Plate are durable and make replacing an old thermostat easy.

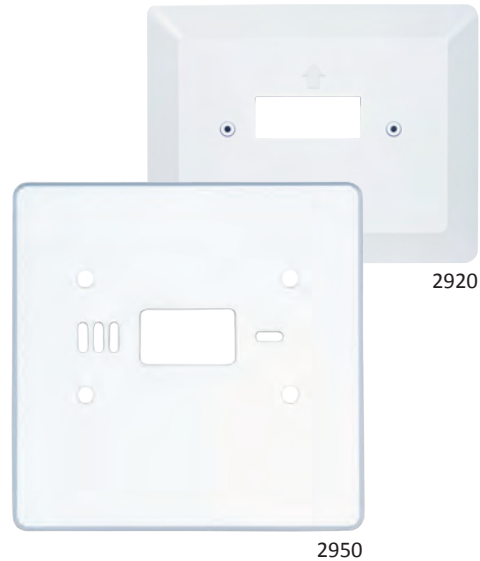
### Features and Benefits

#### 2920 Vertical Wall Plate

- Adapts vertical J Box to horizontal mount
- Sturdy two piece construction
- 6.5" x 5.125" (16.5cm x 13cm)

#### 2950 Universal Wall Plate

- Covers mounting marks from old thermostats
- Use with all Braeburn® digital thermostats
- 6.5" x 6.5" (16.5cm x 16.5cm)



### Specifications

| Part Numbers | Description          | Size                          |
|--------------|----------------------|-------------------------------|
| 2920         | Vertical Wall Plate  | 6.5" x 5.125" (16.5cm x 13cm) |
| 2950         | Universal Wall Plate | 6.5" x 6.5" (16.5cm x 16.5cm) |

## ACCESSORIES - THERMOSTAT WALL PLATES

### Thermostat Cover Plate

The Uni-Line® 10-531A Thermostat Cover Plate is ideal to mount to a 2" x 4" junction box or to mount directly to the drywall to cover marks left from an old thermostat, eliminating the need to repaint or apply new wallpaper. The durable plastic wall plate comes in white with mounting screws. The Uni-Line Thermostat Cover Plate can be used with many thermostat brands on the market.

### Features and Benefits

- Durable, sturdy white cover plate
- Kit includes mounting screws
- J-Box compatible



### Specifications

| Part Numbers | Description                  | Size       |
|--------------|------------------------------|------------|
| 10-531A      | White Thermostat Cover Plate | 7" x 5.25" |

**Braeburn®**

**UNI-LINE®**

**1** Year Limited Warranty

H37



# WALL THERMOSTATS

# Braeburn®



140202

## ZONE CONTROL PANELS

### 140202 Two Zone Control Panel Series

The Braeburn® Residential 2 Zone Control Panel 140202 - 2 Heat/1 Cool offers an economical zone control solution.

#### Features and Benefits

- Works with Conventional 4 or 5 Wire Thermostats
- Works with BlueLink™ Wireless Technology (requires Braeburn® 7500 Universal Wireless Thermostat Kit)
- Installs on Conventional, Heat Pump, Electric and Dual Fuel Systems
- Compact housing for stud or plenum mounting
- Multiple wire exit and wire knockouts
- Heavy-duty damper relays for long life
- Power and damper status LEDs for quick diagnosis
- Selectable priority for one zone or all zones
- Requires dedicated 40 VA, 24V AC transformer
- Can be used with virtually all low voltage dampers from other manufacturers
- 30 VA damper capacity

## Specifications

| Part Numbers | Description                      | Size                              | Configuration        | Power  | Mounting Type                   | Construction                    | Storage Temperature            | Operating Temperature          | Switch   | Terminals  |
|--------------|----------------------------------|-----------------------------------|----------------------|--------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|--|--|
| 140202       | Residential 2 Zone Control Panel | 6" x 6" (15.2cm x 15.2cm) housing | 2 Zone 2 Heat/1 Cool | 24V AC | Wall or Return Air Plenum Mount | PC Board in High Impact Housing | -40°F to 150°F (-40°C to 65°C) | -20°F to 125°F (-30°C to 50°C) | Non HP/HP, dual fuel, reversing valve B active/O active, fan control plenum/system, opposite mode call timer 20/15, 2nd stage lockout none/active, priority all/zone 1 | Rh, Rc, Y1, G, W1/E/ W3, W2/O-B, C, E-Heat; panel power (2) and R, Y, G, W, C, PO, C, PC for each zone |

**RUHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H38





## ZONE CONTROL PANELS

### 140221 Two Zone Control Panel Series

The Braeburn® Two Zone Control Panels feature a compact 8"W x 6"H housing and a large 3 sq. in. backlit display for set-up, checkout and operation.

Quick and Easy Installation features include push-in terminal blocks to lock in wires without a screwdriver. LEDs indicate equipment and zone calls while the display keeps you up to date with panel operation. Plus, wire guides and a small footprint allow for a quick and professional installation.

#### Features and Benefits

- Controls up to 2 heating and 1 cooling stage
- Compatible with electric, gas, oil and heat pump equipment—including dual fuel
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Large 3 sq. in. display shows system status
- Dual fuel operation with Braeburn outdoor sensor
- LEDs show all calls at a glance
- Push-in terminals for easy wiring – no screwdriver needed
- Flexible staging controlled by panel or thermostat
- Push button set-up without dip switches
- High/low limit protection with optional supply air sensor



140221

**Braeburn®**

## Specifications

| Part Numbers | Description                      | Size                              | Configuration   | Power  | Mounting Type                   | Construction                    | Storage Temperature            | Operating Temperature          | Terminals   |
|--------------|----------------------------------|-----------------------------------|---|--------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|---|
| 140221       | Residential 2 Zone Control Panel | 8" x 6" (20.3cm x 20.3cm) housing | Conventional and Heat Pump equipment Up to 2 Heat / 1Cool | 24V AC | Wall or Return Air Plenum Mount | PC Board in High Impact Housing | -40°F to 167°F (-40°C to 75°C) | -40°F to 167°F (-40°C to 75°C) | Equipment: Rh, Rc, Y, G, W1/E/AUX, W2/O/B, L, C Thermostats (2 each): R, Y, W1/E/AUX, W2/O/B, G, L, C |



# WALL THERMOSTATS

# Braeburn®



140303

## ZONE CONTROL PANELS

### 140303 Three Zone Control Panel Series

The Braeburn® Residential 3 Zone Control Panel 140303 - 3 Heat / 2 Cool offers an economical zone control solution.

#### Features and Benefits

- Works with Conventional 4 or 5 Wire Thermostats
- Works with BlueLink™ Wireless Technology (requires Braeburn® 7500 Universal Wireless Thermostat Kit)
- Installs on Conventional, Heat Pump, Electric and Dual Fuel Systems
- Compact housing for stud or plenum mounting
- Multiple wire exit and wire knockouts
- Heavy-duty damper relays for long life
- Power and damper status LEDs for quick diagnosis
- Selectable priority for one zone or all zones
- Requires dedicated 40 VA, 24V AC transformer
- Can be used with virtually all low voltage dampers from other manufacturers
- 30 VA damper capacity

## Specifications

| Part Numbers | Description                      | Size                              | Configuration          | Power  | Mounting Type                   | Construction                    | Storage Temperature            | Operating Temperature          | Switch   | Terminals  |
|--------------|----------------------------------|-----------------------------------|------------------------|--------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|--|--|
| 140303       | Residential 3 Zone Control Panel | 8" x 8" (20.3cm x 20.3cm) housing | 3 Zone 3 Heat / 2 Cool | 24V AC | Wall or Return Air Plenum Mount | PC Board in High Impact Housing | -40°F to 150°F (-40°C to 65°C) | -20°F to 125°F (-30°C to 50°C) | Non HP/HP, dual fuel no/yes, reversing valve B active/O active, fan control plenum/system, opposite mode call timer 20/15, 2nd stage lockout none/active, priority all/zone 1, second stage for 2 zones/2 stages | Rh, Rc, Y1, Y2, G, G2, W1/E/W3, W2/O-B, C, E-Heat, SA1, SA2 panel power (2) and R, Y, G, W, C, PO, C, PC for each zone |

**RHS**  
COMPLIANT

**5** Year Limited Warranty

H40

# WALL THERMOSTATS



## ZONE CONTROL PANELS

### 140332 Three Zone Control Panel Series

The Braeburn® Three Zone Control Panel feature a compact 8"W x 10"H housing and a large 5.5 sq. in. backlit display for set-up, checkout and operation.

Quick and Easy Installation features include push-in terminal blocks to lock in wires without a screwdriver. LEDs indicate equipment and zone calls while the display keeps you up to date with panel operation. Plus, wire guides and a small footprint allow for a quick and professional installation.

#### Features and Benefits

- Controls up to 3 heating and 2 cooling stages
- Compatible with electric, gas, oil and heat pump equipment including dual fuel
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Large 5.5 sq. in. display shows system status
- Dual fuel operation with Braeburn outdoor sensor
- LEDs show all calls at a glance
- Push-in terminals for easy wiring – no screwdriver needed
- Flexible staging controlled by panel or thermostat
- Push button set-up without dip switches
- High/Low Limit protection with optional supply air sensor



140332

**Braeburn®**

## Specifications

| Part Numbers | Description                      | Size                               | Configuration  | Power  | Mounting Type                   | Construction                    | Storage Temperature            | Operating Temperature          | Terminals  |
|--------------|----------------------------------|------------------------------------|--|--------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|--|
| 140332       | Residential 3 Zone Control Panel | 8" x 10" (20.3cm x 20.3cm) housing | Conventional and Heat Pump equipment Up to 3 Heat / 2 Cool | 24V AC | Wall or Return Air Plenum Mount | PC Board in High Impact Housing | -40°F to 167°F (-40°C to 75°C) | -40°F to 167°F (-40°C to 75°C) | Rh, Rc, Y1, Y2, G, G2, W1/E/AUX, W2/O/B, L, C Thermostats (3 each): R, Y1, Y2, W1/E/AUX, W2/O/B, G, L, C |



# WALL THERMOSTATS

# Braeburn®



140404

## ZONE CONTROL PANELS

### 140404 Four Zone Control Panel Series

The Braeburn® Expandable 4 Zone Control Panel 140404 - 4 Heat / 2 Cool is expandable up to 32 zones.

#### Features and Benefits

- Compatible with Electric, Gas, Oil and Heat Pump Equipment - including Dual Fuel
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Compatible with BlueLink™ Wireless Technology (requires Braeburn® 7500 Universal Wireless Thermostat Kit)
- Dual Fuel Operation with Braeburn® Outdoor Sensor
- Push-in terminals for easy wiring - no screwdriver needed
- LEDs show all calls and damper status at a glance
- Flexible staging controlled by panel or thermostat
- Large 5.5 square inch backlit display
- Plenum sensor included

## Specifications

| Part Numbers | Description                     | Size                               | Configuration          | Power  | Mounting Type                   | Construction                    | Storage Temperature            | Operating Temperature          | Sensor Type   | Terminals  |
|--------------|---------------------------------|------------------------------------|------------------------|--------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|---------------|--|
| 140404       | Expandable 4 Zone Control Panel | 8" x 10" (20.3cm x 15.4cm) housing | 4 Zone 4 Heat / 2 Cool | 24V AC | Wall or Return Air Plenum Mount | PC Board in High Impact Housing | -40°F to 167°F (-40°C to 75°C) | -22°F to 167°F (-30°C to 75°C) | Plenum Sensor | Panel Power: 24V AC; Equipment: Rh, Rc, Y1, Y2, G, G2, W1/E/AX1, W2/AX2, O/B/W3, L, C; Thermostats (4 each): R, Y1, Y2, W1/E/AX1, W2/AX2, O/B/W3, G, L, C; Dampers (4 each): PO, COMM, PC; Supply Air Inputs: SA1, SA2; Outdoor Air Inputs: ODT1, ODT2; Fire Alarm Inputs: FA1, FA2; Communication: (2 each) COM1, COM2, GND, COM3, COM4 |

**ROHS**  
COMPLIANT

**5** Year  
Limited  
Warranty

H42

# WALL THERMOSTATS



**Braeburn**<sup>®</sup>

## ZONE CONTROL PANELS

### 140424 Two Zone Expander Control Panel Series

The Braeburn® 2 Zone Expander Control Panel 140424 - 4 Heat / 2 Cool adds zones in affordable 2 zone increments. Use with 140404 Zone Panel.

#### Features and Benefits

- Compact 8" x 5" (20.3cm x 12.7cm) foot print stacks neatly with main panel
- Add up to 28 additional zones (32 total)
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Push-in terminals for easy wiring - no screwdriver needed
- Easy setup and configuration
- LEDs show all calls and damper status at a glance
- Installs up to 500 ft. (152.4m) from main panel



140424

## Specifications

| Part Numbers | Description                   | Size                              | Configuration                                    | Power  | Mounting Type                   | Construction                    | Storage Temperature            | Operating Temperature          | Sensor Type   | Terminals  |
|--------------|-------------------------------|-----------------------------------|--|--------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|---------------|--|
| 140424       | 2 Zone Expander Control Panel | 8" x 5" (20.3cm x 12.7cm) housing | 2 Zone Expander (for use with 140404 zone panel) | 24V AC | Wall or Return Air Plenum Mount | PC Board in High Impact Housing | -40°F to 167°F (-40°C to 75°C) | -22°F to 167°F (-30°C to 75°C) | Plenum Sensor | Panel Power: 24V AC; Thermostats (2 each): R, Y1, Y2, W1/E/AX1, W2/AX2, O/B/W3, G, L, C; Dampers: (2 each): PO, C, PC; Communication (2 each): COM1, COM2, GND, COM3, COM4 |



# WALL THERMOSTATS

**Braeburn®**



149020

## ZONING SYSTEM ACCESSORIES

### 149020 Static Pressure Control Series

The Braeburn® Static Pressure Control is designed to mount on vertical surfaces. Powered from the zone panel transformer, this unit automatically controls the plenum bypass damper by monitoring system pressure as zones close and open.

#### Features and Benefits

- Used to control plenum bypass air volume
- Reduces bypass problems in mismatched zones
- Includes relay and measuring pilot tube

### Specifications

| Part Numbers | Description             |
|--------------|-------------------------|
| 149020       | Static Pressure Control |

**1** Year  
Limited  
Warranty

H44



## ZONING SYSTEM ACCESSORIES

### 149040 Zoning System Transformer Series

The Braeburn® Zoning System Transformer has 120V AC input and 24V AC output. The transformer is UL listed and offers convenient mounting features for easy installation.

#### Features and Benefits

- 40 VA, 120V AC
- Includes mounting plate



149040

### Specifications

| Part Numbers | Description               |
|--------------|---------------------------|
| 149040       | Zoning System Transformer |

**Braeburn®**

**1** Year  
Limited  
Warranty

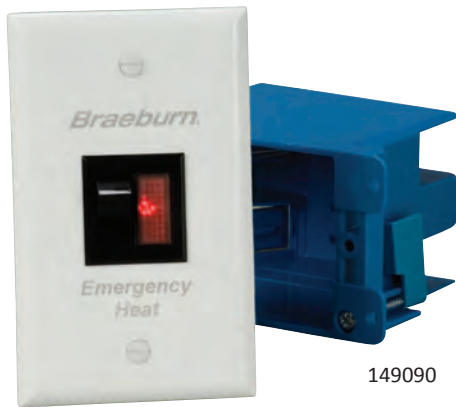
H45





# WALL THERMOSTATS

**Braeburn®**



149090

## ZONING SYSTEM ACCESSORIES

### 149090 Emergency Heat Switch Kit Series

The Braeburn® Emergency Heat Switch Kit is the finishing touch to any zoning system installation.

#### Features and Benefits

- More convenient than the remote switch on the zone panel, kit includes a laser engraved wall plate and handy box
- The 149090 is a commercial quality lighted rocker switch

### Specifications

| Part Numbers | Description   |
|--------------|---|
| 149090       | Emergency Heat Switch Kit with a commercial quality lighted rocker switch |

**1** Year Limited Warranty

# WALL THERMOSTATS



## ZONING SYSTEM ACCESSORIES

### 149091 Emergency Heat Switch Kit Series

The Braeburn® Emergency Heat Switch Kit is the finishing touch to any zoning system installation.

#### Features and Benefits

- More convenient than the remote switch on the zone panel, kit includes a laser engraved wall plate and handy box
- The 149091 is a standard switch



149091

## Specifications

| Part Numbers | Description                                      |
|--------------|--|
| 149091       | Emergency Heat Switch Kit with a standard switch |

**Braeburn®**

**1** Year  
Limited  
Warranty





# WALL THERMOSTATS

# Braeburn®



100808

## RECTANGULAR MOTORIZED DAMPERS

### Rectangular Zone Damper - Power Open / Power Close Series

The Braeburn® Rectangular Zone Damper - Power Open / Power Close Series with open and close LED indicators will control air distribution in zoned areas that use rectangular ducts. The dampers are made from precision formed aluminum to ensure quick installation. All dampers feature low friction bearings to ensure long life and quiet operation. Braeburn rectangular dampers come complete and ready for installation. All motors are mounted on the height dimension. For bottom mount application, choose a damper like 101014 that will fit in a 10 inch tall duct mounted between 16 inch center floor joists.

### Features and Benefits

- Solid precision cut aluminum frame
- Parallel blade design for quieter airflow
- Easy slip in design for quick installation
- Advance design with very low leakage
- Long life quiet bushings
- Excellent for use as a bypass damper with a static pressure control (Braeburn 149020)

### Specifications

| Part Numbers | Description                                 | Dimensions                    | Terminals                         | Electrical Rating               |
|--------------|---|-------------------------------|-----------------------------------|---------------------------------|
| 100808       | Power Open / Power Close Rectangular Damper | 8" x 8" (20,3cm x 20,3cm)     | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101008       | Power Open / Power Close Rectangular Damper | 10" x 8" (25,4cm x 20,3cm)    | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101010       | Power Open / Power Close Rectangular Damper | 10" x 10" (25,4cm x 25,4cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101012       | Power Open / Power Close Rectangular Damper | 10" x 12" (25,4cm x 30,48cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101014       | Power Open / Power Close Rectangular Damper | 10" x 14" (25,4cm x 35,56cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101208       | Power Open / Power Close Rectangular Damper | 12" x 8" (30,48cm x 20,3cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101210       | Power Open / Power Close Rectangular Damper | 12" x 10" (30,48cm x 25,4cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101212       | Power Open / Power Close Rectangular Damper | 12" x 12" (30,48cm x 30,48cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101214       | Power Open / Power Close Rectangular Damper | 12" x 14" (30,48cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101408       | Power Open / Power Close Rectangular Damper | 14" x 8" (35,56cm x 20,3cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101410       | Power Open / Power Close Rectangular Damper | 14" x 10" (35,56cm x 20,3cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101412       | Power Open / Power Close Rectangular Damper | 14" x 12" (35,56cm x 30,48cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101414       | Power Open / Power Close Rectangular Damper | 14" x 14" (35,56cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101608       | Power Open / Power Close Rectangular Damper | 16" x 8" (40,64cm x 20,3cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101610       | Power Open / Power Close Rectangular Damper | 16" x 10" (40,64cm x 25,4cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101612       | Power Open / Power Close Rectangular Damper | 16" x 12" (40,64cm x 30,48cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101614       | Power Open / Power Close Rectangular Damper | 16" x 14" (40,64cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101616       | Power Open / Power Close Rectangular Damper | 16" x 16" (40,64cm x 40,64cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101808       | Power Open / Power Close Rectangular Damper | 18" x 8" (60,96cm x 20,3cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |

# WALL THERMOSTATS



**Braeburn®**

| Part Numbers | Description                                 | Dimensions                    | Terminals                         | Electrical Rating               |
|--------------|---|-------------------------------|-----------------------------------|---------------------------------|
| 101810       | Power Open / Power Close Rectangular Damper | 18" x 10" (45,72cm x 25,4cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101812       | Power Open / Power Close Rectangular Damper | 18" x 12" (45,72cm x 25,4cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101814       | Power Open / Power Close Rectangular Damper | 18" x 14" (45,72cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 101816       | Power Open / Power Close Rectangular Damper | 18" x 16" (45,72cm x 40,64cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102008       | Power Open / Power Close Rectangular Damper | 20" x 8" (50,8cm x 20,3cm)    | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102010       | Power Open / Power Close Rectangular Damper | 20" x 10" (50,8cm x 25,4cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102012       | Power Open / Power Close Rectangular Damper | 20" x 12" (50,8cm x 30,48cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102014       | Power Open / Power Close Rectangular Damper | 20" x 14" (50,8cm x 35,56cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102016       | Power Open / Power Close Rectangular Damper | 20" x 16" (50,8cm x 40,64cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102208       | Power Open / Power Close Rectangular Damper | 22" x 8" (55,88cm x 20,3cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102210       | Power Open / Power Close Rectangular Damper | 22" x 10" (55,88cm x 25,4cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102212       | Power Open / Power Close Rectangular Damper | 22" x 12" (55,88cm x 30,48cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102214       | Power Open / Power Close Rectangular Damper | 22" x 14" (55,88cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102216       | Power Open / Power Close Rectangular Damper | 22" x 16" (55,88cm x 40,64cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102408       | Power Open / Power Close Rectangular Damper | 24" x 8" (60,96cm x 20,3cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102410       | Power Open / Power Close Rectangular Damper | 24" x 10" (60,96cm x 25,4cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102412       | Power Open / Power Close Rectangular Damper | 24" x 12" (60,96cm x 30,48cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102414       | Power Open / Power Close Rectangular Damper | 24" x 14" (60,96cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102416       | Power Open / Power Close Rectangular Damper | 24" x 16" (60,96cm x 40,64cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102608       | Power Open / Power Close Rectangular Damper | 26" x 8" (66,04cm x 20,3cm)   | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102610       | Power Open / Power Close Rectangular Damper | 26" x 10" (66,04cm x 25,4cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102612       | Power Open / Power Close Rectangular Damper | 26" x 12" (66,04cm x 30,48cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102614       | Power Open / Power Close Rectangular Damper | 26" x 14" (66,04cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102616       | Power Open / Power Close Rectangular Damper | 26" x 16" (66,04cm x 40,64cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102814       | Power Open / Power Close Rectangular Damper | 28" x 14" (71,12cm x 35,56cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 102816       | Power Open / Power Close Rectangular Damper | 28" x 16" (71,12cm x 40,64cm) | Three terminals, push button type | 24V AC 4 VA universal operation |
| 103014       | Power Open / Power Close Rectangular Damper | 30" x 14" (76,2cm x 35,56cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |
| 103016       | Power Open / Power Close Rectangular Damper | 30" x 16" (76,2cm x 40,64cm)  | Three terminals, push button type | 24V AC 4 VA universal operation |

## Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

**5** Year  
Limited  
Warranty

H49



# WALL THERMOSTATS

# Braeburn®



110808

## RECTANGULAR MOTORIZED DAMPERS

### Rectangular Zone Damper - Power Close / Spring Return Series

The Braeburn® Rectangular Zone Damper - Power Close / Spring Return Series is the solution to power close/spring return applications. With economical 2 wire installation, this damper will control air distribution in zone areas that use rectangular ducts. The dampers are made from precision formed aluminum to ensure quick installation. All dampers feature low friction bearings to provide long life and quiet operation. Braeburn® rectangular dampers come complete and ready for installation. All motors are mounted on the height dimension. For bottom mount applications, choose a damper like 111014 that will fit in a 10 inch tall duct mounted between 16 inch center floor joists.

### Features and Benefits

- Solid precision cut aluminum frame
- Parallel blade design for quieter air flow
- Easy slip-in design for quick installation
- Advance design with very low leakage
- Long life quiet bushings

## Specifications

| Part Numbers | Description                                    | Dimensions                    | Electrical Rating                                    |
|--------------|--|-------------------------------|--|
| 110808       | Power Close / Spring Return Rectangular Damper | 8" x 8" (20,3cm x 20,3cm)     | 24V AC 8 VA universal operation, 2 wire installation |
| 111008       | Power Close / Spring Return Rectangular Damper | 10" x 8" (25,4cm x 20,3cm)    | 24V AC 8 VA universal operation, 2 wire installation |
| 111010       | Power Close / Spring Return Rectangular Damper | 10" x 10" (25,4cm x 25,4cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 111012       | Power Close / Spring Return Rectangular Damper | 10" x 12" (25,4cm x 30,48cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 111014       | Power Close / Spring Return Rectangular Damper | 10" x 14" (25,4cm x 35,56cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 111208       | Power Close / Spring Return Rectangular Damper | 12" x 8" (30,48cm x 20,3cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 111210       | Power Close / Spring Return Rectangular Damper | 12" x 10" (30,48cm x 25,4cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 111212       | Power Close / Spring Return Rectangular Damper | 12" x 12" (30,48cm x 30,48cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111214       | Power Close / Spring Return Rectangular Damper | 12" x 14" (30,48cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111408       | Power Close / Spring Return Rectangular Damper | 14" x 8" (35,56cm x 20,3cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 111410       | Power Close / Spring Return Rectangular Damper | 14" x 10" (35,56cm x 25,4cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 111412       | Power Close / Spring Return Rectangular Damper | 14" x 12" (35,56cm x 30,48cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111414       | Power Close / Spring Return Rectangular Damper | 14" x 14" (35,56cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111608       | Power Close / Spring Return Rectangular Damper | 16" x 8" (40,64cm x 20,3cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 111610       | Power Close / Spring Return Rectangular Damper | 16" x 10" (40,64cm x 25,4cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 111612       | Power Close / Spring Return Rectangular Damper | 16" x 12" (40,64cm x 30,48cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111614       | Power Close / Spring Return Rectangular Damper | 16" x 14" (40,64cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111616       | Power Close / Spring Return Rectangular Damper | 16" x 16" (40,64cm x 40,64cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111808       | Power Close / Spring Return Rectangular Damper | 18" x 8" (45,7cm x 20,3cm)    | 24V AC 8 VA universal operation, 2 wire installation |

# WALL THERMOSTATS



**Braeburn®**

| Part Numbers | Description                                    | Dimensions                    | Electrical Rating                                    |
|--------------|--|-------------------------------|--|
| 111810       | Power Close / Spring Return Rectangular Damper | 18" x 10" (45,72cm x 25,4cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 111812       | Power Close / Spring Return Rectangular Damper | 18" x 12" (45,72cm x 30,48cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111814       | Power Close / Spring Return Rectangular Damper | 18" x 14" (45,72cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 111816       | Power Close / Spring Return Rectangular Damper | 18" x 16" (45,72cm x 40,64cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112008       | Power Close / Spring Return Rectangular Damper | 20" x 8" (50,8cm x 20,3cm)    | 24V AC 8 VA universal operation, 2 wire installation |
| 112010       | Power Close / Spring Return Rectangular Damper | 20" x 10" (50,8cm x 25,4cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 112012       | Power Close / Spring Return Rectangular Damper | 20" x 12" (50,8cm x 30,48cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 112014       | Power Close / Spring Return Rectangular Damper | 20" x 14" (50,8cm x 35,56cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 112016       | Power Close / Spring Return Rectangular Damper | 20" x 16" (50,8cm x 40,64cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 112208       | Power Close / Spring Return Rectangular Damper | 22" x 8" (55,88cm x 20,3cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 112210       | Power Close / Spring Return Rectangular Damper | 22" x 10" (55,88cm x 25,4cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 112212       | Power Close / Spring Return Rectangular Damper | 22" x 12" (55,88cm x 30,48cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112214       | Power Close / Spring Return Rectangular Damper | 22" x 14" (55,88cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112216       | Power Close / Spring Return Rectangular Damper | 22" x 16" (55,88cm x 40,64cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112408       | Power Close / Spring Return Rectangular Damper | 24" x 8" (60,96cm x 20,3cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 112410       | Power Close / Spring Return Rectangular Damper | 24" x 10" (60,96cm x 25,4cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 112412       | Power Close / Spring Return Rectangular Damper | 24" x 12" (60,96cm x 30,48cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112414       | Power Close / Spring Return Rectangular Damper | 24" x 14" (60,96cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112416       | Power Close / Spring Return Rectangular Damper | 24" x 16" (60,96cm x 40,64cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112608       | Power Close / Spring Return Rectangular Damper | 26" x 8" (66,04cm x 20,3cm)   | 24V AC 8 VA universal operation, 2 wire installation |
| 112610       | Power Close / Spring Return Rectangular Damper | 26" x 10" (66,04cm x 25,4cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 112612       | Power Close / Spring Return Rectangular Damper | 26" x 12" (66,04cm x 30,48cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112614       | Power Close / Spring Return Rectangular Damper | 26" x 14" (66,04cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112616       | Power Close / Spring Return Rectangular Damper | 26" x 16" (66,04cm x 40,64cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112814       | Power Close / Spring Return Rectangular Damper | 28" x 14" (71,12cm x 35,56cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 112816       | Power Close / Spring Return Rectangular Damper | 28" x 16" (71,12cm x 40,64cm) | 24V AC 8 VA universal operation, 2 wire installation |
| 113014       | Power Close / Spring Return Rectangular Damper | 30" x 14" (76,2cm x 35,56cm)  | 24V AC 8 VA universal operation, 2 wire installation |
| 113016       | Power Close / Spring Return Rectangular Damper | 30" x 16" (76,2cm x 40,64cm)  | 24V AC 8 VA universal operation, 2 wire installation |

## Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

**5** Year  
Limited  
Warranty

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# WALL THERMOSTATS

# Braeburn®



109005

## ROUND MOTORIZED DAMPERS

### Round Zone Damper - Power Open / Power Close Series

The Braeburn® Round Zone Dampers - Power Open / Power Close Series is used to control the volume of air that will be distributed to a zoned area. With three wire installation and a high torque motor, Braeburn zone dampers are designed and built to ensure easy installation and years of trouble free use.

#### Features and Benefits

- Each damper is formed from heavy-duty steel
- Dual LED indicators

### Specifications

| Part Numbers | Description                           | Diameter     | Length           | Electrical Rating                      |
|--------------|---------------------------------------|--------------|------------------|--|
| 109005       | Power Open / Power Close Round Damper | 5" (12,7cm)  | 11.25" (28,57cm) | 24V AC 4 VA 3-wire universal operation |
| 109006       | Power Open / Power Close Round Damper | 6" (15,2cm)  | 11.25" (28,57cm) | 24V AC 4 VA 3-wire universal operation |
| 109007       | Power Open / Power Close Round Damper | 7" (17,8cm)  | 11.25" (28,57cm) | 24V AC 4 VA 3-wire universal operation |
| 109008       | Power Open / Power Close Round Damper | 8" (20,3cm)  | 11.25" (28,57cm) | 24V AC 4 VA 3-wire universal operation |
| 109009       | Power Open / Power Close Round Damper | 9" (22,9cm)  | 11.25" (28,57cm) | 24V AC 4 VA 3-wire universal operation |
| 109010       | Power Open / Power Close Round Damper | 10" (25,4cm) | 11.25" (28,57cm) | 24V AC 4 VA 3-wire universal operation |
| 109012       | Power Open / Power Close Round Damper | 12" (30,5cm) | 11.75" (29,8cm)  | 24V AC 4 VA 3-wire universal operation |
| 109014       | Power Open / Power Close Round Damper | 14" (35,6cm) | 13.75" (34,9cm)  | 24V AC 4 VA 3-wire universal operation |
| 109016       | Power Open / Power Close Round Damper | 16" (40,6cm) | 15.75" (40cm)    | 24V AC 4 VA 3-wire universal operation |
| 109018       | Power Open / Power Close Round Damper | 18" (45,7cm) | 17.75" (45,1cm)  | 24V AC 4 VA 3-wire universal operation |
| 109020       | Power Open / Power Close Round Damper | 20" (50,8cm) | 19.75" (50,2cm)  | 24V AC 4 VA 3-wire universal operation |

### Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

**5** Year Limited Warranty

H52



# WALL THERMOSTATS



**Braeburn®**

## ROUND MOTORIZED DAMPERS

### Round Zone Damper - Power Close / Spring Return Series

The Braeburn® Round Zone Damper - Power Close / Spring Return Series is used to control the volume of air that will be distributed to a zoned area. With three wire installation and a high torque motor, Braeburn zone dampers are designed and built to ensure easy installation and years of trouble free use.

#### Features and Benefits

- Power close spring return with power fail open operation
- Long life full stall capable motor provides years of trouble free operation
- Virtually silent clock drive motor
- Heavy-duty galvanized construction with precision rolled stiffening ribs



119004

## Specifications

| Part Numbers | Description                              | Diameter     | Length          | Electrical Rating                      |
|--------------|--|--------------|-----------------|--|
| 119004       | Power Close / Spring Return Round Damper | 4" (10,2cm)  | 9.75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 119005       | Power Close / Spring Return Round Damper | 5" (12,7cm)  | 9.75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 119006       | Power Close / Spring Return Round Damper | 6" (15,2cm)  | 9.75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 119007       | Power Close / Spring Return Round Damper | 7" (17,8cm)  | 9.75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 119008       | Power Close / Spring Return Round Damper | 8" (20,3cm)  | 9.75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 119009       | Power Close / Spring Return Round Damper | 9" (22,9cm)  | 9.75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 119010       | Power Close / Spring Return Round Damper | 10" (25,4cm) | 9.75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 119012       | Power Close / Spring Return Round Damper | 12" (30,5cm) | 11.75" (29,8cm) | 24V AC 8 VA 2-wire universal operation |
| 119014       | Power Close / Spring Return Round Damper | 14" (35,6cm) | 13.75" (34,9cm) | 24V AC 8 VA 2-wire universal operation |
| 119016       | Power Close / Spring Return Round Damper | 16" (40,6cm) | 15.75" (40cm)   | 24V AC 8 VA 2-wire universal operation |
| 119018       | Power Close / Spring Return Round Damper | 18" (45,7cm) | 17.75" (45,1cm) | 24V AC 8 VA 2-wire universal operation |
| 119020       | Power Close / Spring Return Round Damper | 20" (50,8cm) | 19.75" (50,2cm) | 24V AC 8 VA 2-wire universal operation |

## Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

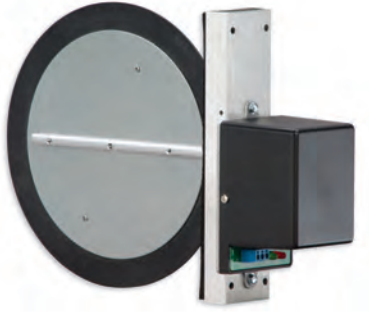
**5** Year Limited Warranty

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# WALL THERMOSTATS

# Braeburn®



128004

## ROUND MOTORIZED DAMPERS

### Round Zone Damper - Retrofit (Power Open / Power Close) Series

The Braeburn® Round Zone Dampers - Retrofit Power Open / Power Close Series is used to control the volume of air that will be distributed to a zoned area. With three wire installation and a high torque motor, Braeburn zone dampers are designed for quick and easy installation. Simply cut a one inch slot along the length of the duct, slide the damper in and secure with screws. Resilient gasket helps provide a positive seal.

### Features and Benefits

- Power open, power close operation
- Heavy-duty galvanized construction
- Dual LEDs for positive indication of open to close
- Slip-in design for quick installation

## Specifications

| Part Numbers | Description                                    | Diameter     | Electrical Rating                      |
|--------------|--|--------------|--|
| 128004       | Power Open / Power Close Round Retrofit Damper | 4" (10,2cm)  | 24V AC 4 VA 3-wire universal operation |
| 128005       | Power Open / Power Close Round Retrofit Damper | 5" (12,7cm)  | 24V AC 4 VA 3-wire universal operation |
| 128006       | Power Open / Power Close Round Retrofit Damper | 6" (15,2cm)  | 24V AC 4 VA 3-wire universal operation |
| 128007       | Power Open / Power Close Round Retrofit Damper | 7" (17,8cm)  | 24V AC 4 VA 3-wire universal operation |
| 128008       | Power Open / Power Close Round Retrofit Damper | 8" (20,3cm)  | 24V AC 4 VA 3-wire universal operation |
| 128010       | Power Open / Power Close Round Retrofit Damper | 10" (25,4cm) | 24V AC 4 VA 3-wire universal operation |

## Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

**5** Year Limited Warranty

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# WALL THERMOSTATS



## ROUND MOTORIZED DAMPERS

### Round Zone Damper - Power Open / Spring Return Series

The Braeburn® Round Zone Damper - Power Open / Spring Return Series is used to control the volume of air that will be distributed to a zone area. With easy two wire installation, a stall and backlash protected motor, the power open spring return dampers are designed and built to ensure years of trouble free use.

#### Features and Benefits

- Power open spring return with power fail open operation
- Long life full stall capable motor provides years of trouble free operation
- Virtually silent clock drive motor
- Heavy-duty galvanized construction with precision rolled stiffening ribs



129004

**Braeburn®**

### Specifications

| Part Numbers | Description                             | Diameter     | Length          | Electrical Rating                      |
|--------------|---|--------------|-----------------|--|
| 129004       | Power Open / Spring Return Round Damper | 4" (10,2cm)  | 9,75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 129005       | Power Open / Spring Return Round Damper | 5" (12,7cm)  | 9,75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 129006       | Power Open / Spring Return Round Damper | 6" (15,2cm)  | 9,75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 129007       | Power Open / Spring Return Round Damper | 7" (17,8cm)  | 9,75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 129008       | Power Open / Spring Return Round Damper | 8" (20,3cm)  | 9,75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 129009       | Power Open / Spring Return Round Damper | 9" (22,9cm)  | 9,75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 129010       | Power Open / Spring Return Round Damper | 10" (25,4cm) | 9,75" (24,8cm)  | 24V AC 8 VA 2-wire universal operation |
| 129012       | Power Open / Spring Return Round Damper | 12" (30,5cm) | 11,75" (29,8cm) | 24V AC 8 VA 2-wire universal operation |
| 129014       | Power Open / Spring Return Round Damper | 14" (35,6cm) | 13,75" (34,9cm) | 24V AC 8 VA 2-wire universal operation |
| 129016       | Power Open / Spring Return Round Damper | 16" (40,6cm) | 15,75" (40cm)   | 24V AC 8 VA 2-wire universal operation |
| 129018       | Power Open / Spring Return Round Damper | 18" (45,7cm) | 17,75" (45,1cm) | 24V AC 8 VA 2-wire universal operation |
| 129020       | Power Open / Spring Return Round Damper | 20" (50,8cm) | 19,75" (50,2cm) | 24V AC 8 VA 2-wire universal operation |

### Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

**5** Year Limited Warranty

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# WALL THERMOSTATS

# Braeburn®



119107

## ROUND BYPASS DAMPERS

### Round Zone Damper – Static Bypass Series

The Braeburn® Round Zone Damper - Static Bypass Series is used to maintain proper static pressure at the system plenum. When air flow conditions permit, the static damper is an economical alternative to an electrically controlled bypass damper. System pressure is controlled without the use of sensors or wiring by using a field adjusted sliding weight. Precision cut, heavy gauge steel is galvanized to help ensure long life.

### Features and Benefits

- Can be mounted vertically or horizontally
- Fully adjustable control allows for damper to be installed in many mounting positions
- Long life precision bushings
- Heavy-duty galvanized construction with precision rolled stiffening ribs
- No wiring or sensors required
- High visibility damper position indicator

## Specifications

| Part Numbers | Description                         | Diameter     | Length          | Electrical Rating |
|--------------|-------------------------------------|--------------|-----------------|-------------------|
| 119107       | Round Static Pressure Bypass Damper | 7" (17.8cm)  | 9.75" (24.8cm)  | No Power required |
| 119108       | Round Static Pressure Bypass Damper | 8" (20.3cm)  | 9.75" (24.8cm)  | No Power required |
| 119109       | Round Static Pressure Bypass Damper | 9" (22.9cm)  | 9.75" (24.8cm)  | No Power required |
| 119110       | Round Static Pressure Bypass Damper | 10" (25.4cm) | 9.75" (24.8cm)  | No Power required |
| 119112       | Round Static Pressure Bypass Damper | 12"(30.5cm)  | 11.75" (29.8cm) | No Power required |
| 119114       | Round Static Pressure Bypass Damper | 14" (35.6cm) | 13.75" (34.9cm) | No Power required |
| 119116       | Round Static Pressure Bypass Damper | 16" (40.6cm) | 15.75" (40cm)   | No Power required |
| 119118       | Round Static Pressure Bypass Damper | 18" (45.7cm) | 17.75" (45.1cm) | No Power required |
| 119120       | Round Static Pressure Bypass Damper | 20" (50.8cm) | 19.75" (50.2cm) | No Power required |

## Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

**5** Year Limited Warranty

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# WALL THERMOSTATS



## RECTANGULAR BYPASS DAMPERS

### Rectangular Zone Damper – Static Bypass Series

The Braeburn® Rectangular Zone Damper - Static Bypass Series is used to maintain proper static pressure at the system plenum. The static damper is an economical alternative to an electrically controlled bypass damper. System pressure is controlled without the use of wiring by using a field adjusted sliding weight. Precision cut, heavy gauge steel is galvanized to ensure long life.

#### Features and Benefits

- Fully adjustable control allows for precision adjustment of arm and weight position to help ensure proper balance and air flow
- Long life precision bushings
- No wiring or sensors required
- High visibility damper position indicator



131208

### Specifications

| Part Numbers | Description                               | Dimensions                  | Electrical Rating |
|--------------|---|-----------------------------|-------------------|
| 131208       | Rectangular Static Pressure Bypass Damper | 12" x 8" (30.5cm x 20.3cm)  | No Power required |
| 131210       | Rectangular Static Pressure Bypass Damper | 12" x 10" (30.5cm x 25.4cm) | No Power required |
| 131212       | Rectangular Static Pressure Bypass Damper | 12" x 12" (30.5cm x 30.5cm) | No Power required |
| 132008       | Rectangular Static Pressure Bypass Damper | 20" x 8" (50.8cm x 20.3cm)  | No Power required |
| 132010       | Rectangular Static Pressure Bypass Damper | 20" x 10" (50.8cm x 25.4cm) | No Power required |
| 132012       | Rectangular Static Pressure Bypass Damper | 20" x 12" (50.8cm x 30.5cm) | No Power required |

### Damper Replacement Parts

| Part Numbers | Description   |
|--------------|---|
| 149100       | Braeburn® Synchron Motor for Round Power Open / Spring Return Dampers               |
| 149125       | Braeburn® Synchron Motor for all Power Open / Power Close Dampers (except retrofit) |
| 149145       | Braeburn® Motor for all Power Open / Spring Return Dampers                          |
| 149156       | Braeburn® Supply Air Sensor   |
| 149160       | Braeburn® Barometric Bypass Damper Counterweight                                    |
| 149162       | Braeburn® Barometric Bypass Damper Arm Assembly                                     |

**Braeburn®**

**5** Year  
Limited  
Warranty





Water valves are critical to the efficient operation of a variety of residential and commercial appliances.

Robertshaw® water valves are the industry standard for all applications. Whether single, dual or general purpose water valves are needed for refrigeration, laundry, dishwashing or small appliances, Robertshaw produces the products trusted by the leading global appliance manufacturers.

|   |     |
|---|-----|
| Mixing Water Valves.....                  | 12  |
| Single Solenoid Water Valves .....        | 18  |
| Dual Water Valves .....                   | 114 |
| Direct Acting Solenoid Water Valves ..... | 118 |
| Gravity-Fed Dump Water Valves.....        | 120 |
| General Purpose Water Valves .....        | 122 |



# WATER VALVES







# WATER VALVES

Robertshaw®



CW-164

## MIXING WATER VALVES

### E-1, E-2 and E-2T Series

The Robertshaw® E-1, E-2 and E-2T Mixing Water Valve Series is designed for laundry clotheswasher applications. The E-1 models are non-regulated, the E-2 models have flow control in the outlet, and the E-2T models have an additional thermistor added for temperature monitoring.

### Features and Benefits

- Pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Compact design compared to predecessor valves to allow more flexibility for applications
- Flange mounting with screw boss is molded into the body for ease of installation
- Design uses a staked coil L frame with drawn pole sleeves to eliminate loose or missing pole pieces
- Improved coil bobbin design reduces problems
- Slow closing operators reduce water hammer and extend valve life
- Spin-weld assembly minimizes problems caused by loose or missing screws
- Suitable for applications using liquids up to 160°F (71°C)
- Quiet operation
- Stainless steel inlet screens with 60 x 60 mesh

### Replacement Information

| Part Numbers | Replaces   | Factory Number |
|--------------|--|----------------|
| CW-001       | GE 189D1664G001, Whirlpool 13X86, Whirlpool 13X10024, 175D2937P001 | K-76249        |
| CW-164       | Whirlpool 3952164  | K-69046        |
| CW-333       | Whirlpool 22004333   | K-76103        |
| CW-346       | Whirlpool 3979346  | K-75161        |
| CW-347       | Whirlpool 3979347  | K-75398        |
| CW-349       | Whirlpool W10337349  | K-77684-2      |
| CW-400       | Electrolux 134211400   | K-75712        |
| CW-402       | Alliance 201402  | K-72626        |
| CW-468       | Alliance 201468  | K-75933        |
| CW-471       | Whirlpool 461970229471, Whirlpool 8182862                          | K-76422        |
| CW-551       | Whirlpool 461970201551, Whirlpool 8181694                          | K-74969        |
| CW-600       | Electrolux 134890600   | K-76755        |
| CW-673       | Whirlpool 3955673  | K-75180        |
| CW-751       | Whirlpool 8540751  | K-75806        |
| CW-932       | Maytag 35-6693, Maytag 21001932                                    | K-76373        |
| CW-E2        | Whirlpool 3952163  | K-72633        |



# WATER VALVES



*Robertshaw*  
®

## Specifications

| Part Numbers | Description                                       | Flow Rate            | Inlet         | Outlet       | Operating Pressure  | Terminals | Body Material | Thermistor       | Electrical Rating | Power   |
|--------------|---|----------------------|---------------|--------------|---------------------|-----------|---------------|------------------|-------------------|---------|
| CW-001       | Residential Clotheswasher Mixing Water Valve E-1  | 4 GPM to 7.3 GPM     | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-164       | Residential Clotheswasher Mixing Water Valve E-1  | 1.0 GPM to 6.0 GPM   | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-333       | Residential Clotheswasher Mixing Water Valve E-2  | 2 GPM to 8.2 GPM     | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-346       | Residential Clotheswasher Mixing Water Valve E-2T | 2 GPM to 2.8 GPM     | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | 50K Ohms at 25°C | 120V AC 60 Hz     | 5 Watts |
| CW-347       | Residential Clotheswasher Mixing Water Valve E-2T | 1.0 GPM to 6.0 GPM   | 3/4" 11.5 NHT | 3/8" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | 50K Ohms at 25°C | 120V AC 60 Hz     | 5 Watts |
| CW-349       | Residential Clotheswasher Mixing Water Valve E-1  | 8 GPM                | 3/4" 11.5 NHT | 1/2" ID Hose | 21 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-400       | Residential Clotheswasher Mixing Water Valve E-1  | 1.8 GPM to 14.6 GPM  | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 50/60 Hz  | 5 Watts |
| CW-402       | Residential Clotheswasher Mixing Water Valve E-1  | 11 GPM               | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-468       | Residential Clotheswasher Mixing Water Valve E-1  | 2.4 GPM to 4.5 GPM   | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-471       | Residential Clotheswasher Mixing Water Valve E-2  | 1.69 GPM to 2.54 GPM | 3/4" 11.5 NHT | 3/8" ID Hose | 7.5 PSI to 147 PSI  | 1/4" Male | Polypro       | NA               | 120V AC 50/60 Hz  | 5 Watts |
| CW-551       | Residential Clotheswasher Mixing Water Valve E-2  | 1.69 GPM to 2.54 GPM | 3/4" 11.5 NHT | 3/8" ID Hose | 7.5 PSI to 147 PSI  | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-600       | Residential Clotheswasher Mixing Water Valve E-2T | 1.3 GPM to 14.6 GPM  | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | 50K Ohms at 25°C | 120V AC 60 Hz     | 5 Watts |
| CW-673       | Residential Clotheswasher Mixing Water Valve E-1  | 1.9 GPM to 3.5 GPM   | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-751       | Residential Clotheswasher Mixing Water Valve E-2  | 0.8 GPM to 2.2 GPM   | 3/4" 11.5 NHT | 1/2" ID Hose | 14.5 PSI to 145 PSI | RAST 2.5  | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-932       | Residential Clotheswasher Mixing Water Valve E-2  | 2.5 GPM to 3.8 GPM   | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| CW-E2        | Residential Clotheswasher Mixing Water Valve E-2  | 2.2 GPM              | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 120V AC 60 Hz     | 5 Watts |
| K-78280      | Residential ClothesWasher Mixing Valve E-1        | 4 GPM to 6.4 GPM     | 3/4" 11.5 NHT | 1/2" ID Hose | 20 PSI to 120 PSI   | 1/4" Male | Polypro       | NA               | 121V AC 50/60 Hz  | 7 Watts |

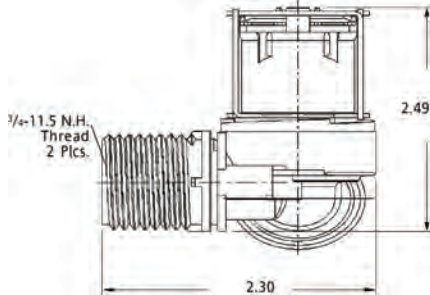
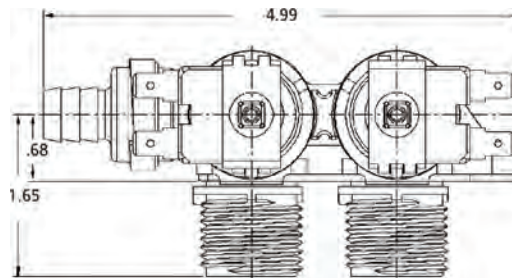
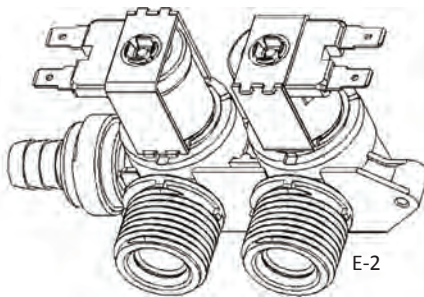
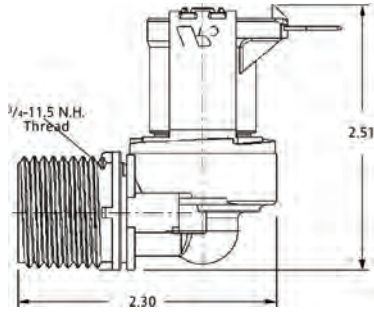
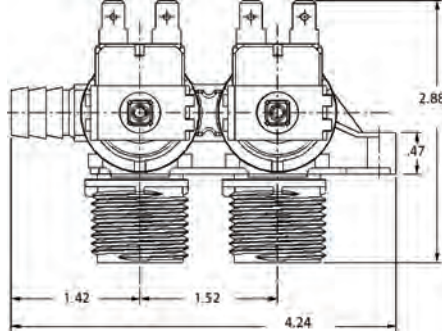
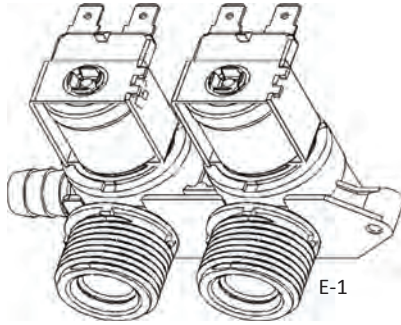




# WATER VALVES

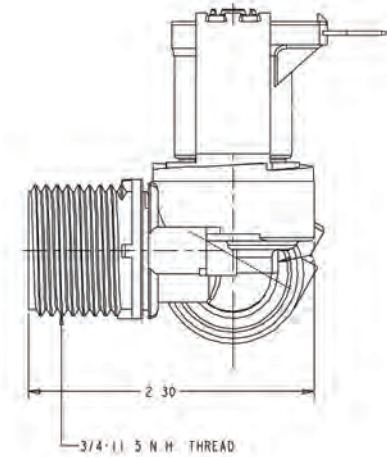
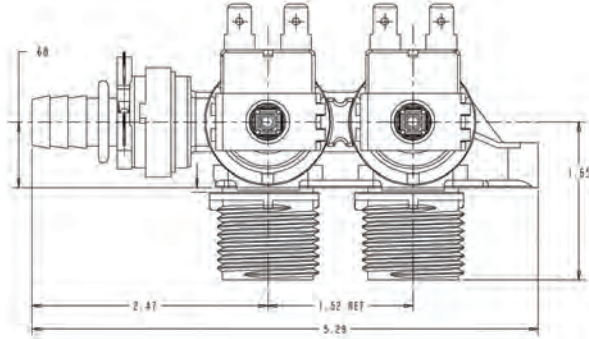
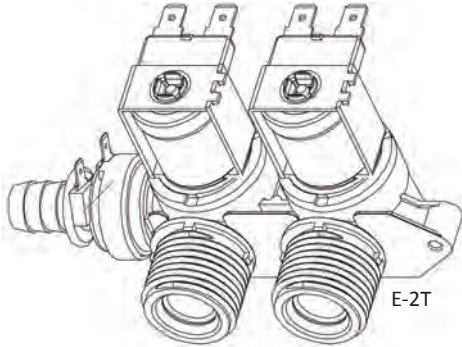
Robertshaw®

## Product Drawings





## Product Drawings



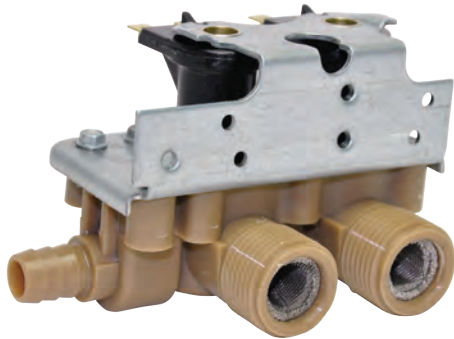
*Robertshaw*<sup>®</sup>





# WATER VALVES

Robertshaw®



CW-300

## MIXING WATER VALVES

### N-51 Series

The Robertshaw® N-51 Mixing Water Valve Series is designed for laundry clotheswasher applications where flow control is required.

### Features and Benefits

- Dual solenoid valve with a pilot-operated diaphragm that provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Unique diaphragm design reduces unwanted particles from entering the armature area
- Armature is designed with clearances to minimize jamming due to foreign materials
- Bodies are made of polypro which provides high resistance to corrosion and mineral deposits
- Suitable for applications using water at temperatures up to 160°F (71°C)
- Water hammer suppression
- Includes stainless steel inlet screens with 50 x 40 mesh

### Replacement Information

| Part Numbers | Replaces             | Factory Number |
|--------------|----------------------|----------------|
| CW-300       | Electrolux           | K-67914        |
| CW-531       | GE WH00X531          | K-66575        |
| CW-1300      | Electrolux 131461300 | K-62464        |

### Specifications

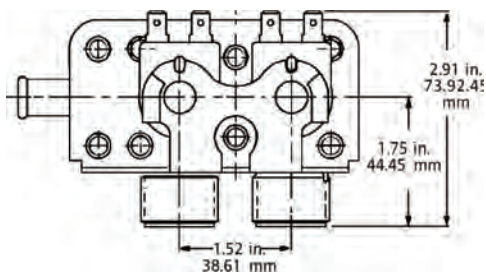
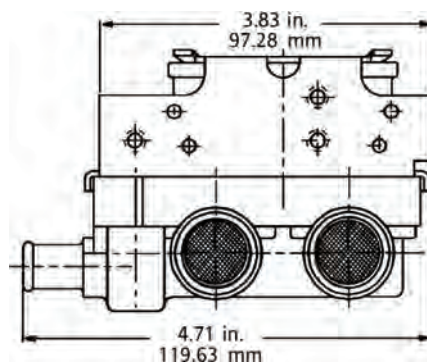
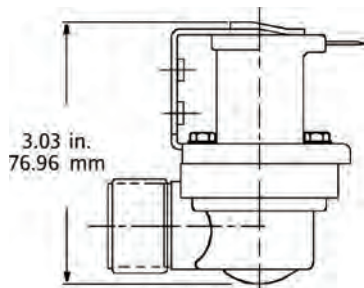
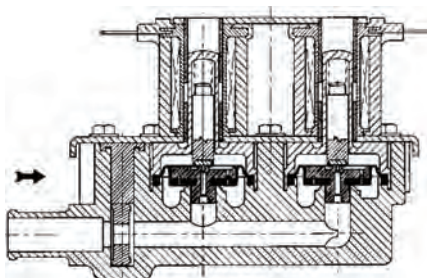
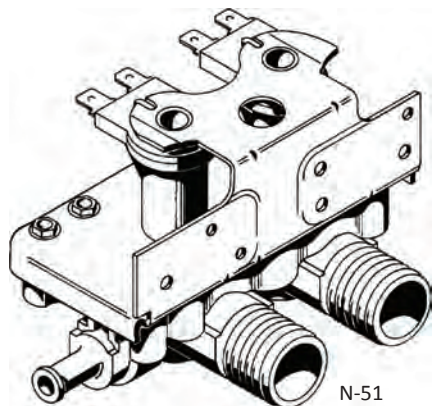
| Part Numbers | Description                                       | Flow Rate           | Inlet         | Outlet       | Operating Pressure | Terminals | Body Material | Electrical Rating | Power    |
|--------------|---|---------------------|---------------|--------------|--------------------|-----------|---------------|-------------------|----------|
| CW-300       | Residential Clotheswasher Mixing Water Valve N-51 | 3.0 GPM to 14.6 GPM | 3/4" 11 NHT   | 1/2" ID Hose | 30 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |
| CW-531       | Residential Clotheswasher Mixing Water Valve N-51 | 5 GPM to 7.5 GPM    | 3/4" 11.5 NHT | .375 ID Hose | 30 PSI to 175 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |
| CW-1300      | Residential Clotheswasher Mixing Water Valve N-51 | 4.5 GPM to 6.2 GPM  | 3/4" 11.5 NHT | 1/2" ID Hose | 30 PSI to 120 PSI  | 1/4" Male | Polypro       | 230V AC 50/60 Hz  | 7 Watts  |







## Product Drawings



*Robertshaw*<sup>®</sup>

**1** Year  
Limited  
Warranty



# WATER VALVES

Robertshaw®



IMV-1304

## SINGLE SOLENOID WATER VALVES

### S-30 Series

The Robertshaw® S-30 Water Valve Series is designed for low flow applications in residential refrigerator icemakers, commercial ice machines, dishwashers, energy-conserving plumbing and heating applications.

### Features and Benefits

- Single solenoid valve with a pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Unique diaphragm design reduces unwanted particles from entering the armature area
- Armature is designed with clearances which minimize the possibility of jamming due to foreign materials
- Bodies are made of polypro which provides high resistance to corrosion and mineral deposits
- Suitable for applications using water at temperatures up to 160°F (71°C)

### Replacement Information

| Part Numbers | Replaces                         | Factory Number |
|--------------|----------------------------------|----------------|
| CB-104       | Grindmaster 61104                | K-63310-28     |
| IMV-529      | Star - Wells Manufacturing 46529 | K-63315-18     |
| IMV-604      | Scotsman 12-1646-04              | K-63314-12     |
| IMV-605      | Scotsman 12-1646-05              | K-63314-13     |
| IMV-865      | Hoshizaki 4A086501               | K-63310-21     |
| IMV-1304     | Scotsman 12-2313-04              | K-63916-9      |
| IMV-3404     | Scotsman 12-1434-04              | K-63314-14     |

### Specifications

| Part Numbers | Description                             | Flow Rate | Inlet         | Outlet       | Operating Pressure | Terminals | Body Material | Electrical Rating | Power    |
|--------------|---|-----------|---------------|--------------|--------------------|-----------|---------------|-------------------|----------|
| CB-104       | Coffee Brewer Inlet Valve S-30          | 1 GPM     | 3/4" 11.5 NHT | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |
| IMV-529      | Commercial Ice Machine Water Valve S-30 | 0.75 GPM  | 1/4" 18 NPT   | 1/2" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 240V AC 50/60 Hz  | 10 Watts |
| IMV-604      | Commercial Ice Machine Water Valve S-30 | 1 GPM     | 1/4" 18 NPT   | 1/4" 18 NPT  | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 240V AC 60 Hz     | 10 Watts |
| IMV-605      | Commercial Ice Machine Water Valve S-30 | 1 GPM     | 1/4" 18 NPT   | 1/4" 18 NPT  | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |
| IMV-865      | Commercial Ice Machine Water Valve S-30 | 0.75 GPM  | 3/4" 11 NHT   | 1/2" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 24V AC 50/60 Hz   | 7 Watts  |
| IMV-1304     | Commercial Ice Machine Water Valve S-30 | 0.75 GPM  | 1/4" 18 NHT   | 1/2" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 50/60 Hz  | 10 Watts |
| IMV-3404     | Commercial Ice Machine Water Valve S-30 | .5 GPM    | 1/4" 18 NPT   | 1/4" 18 NPT  | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |

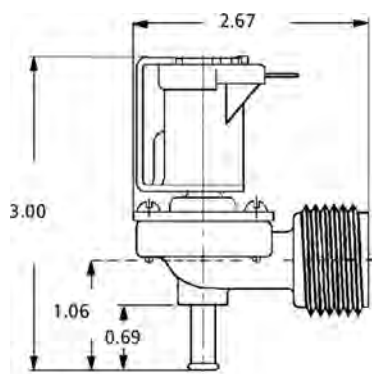
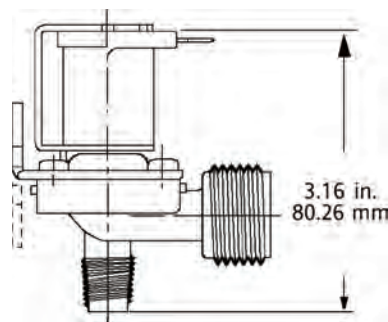
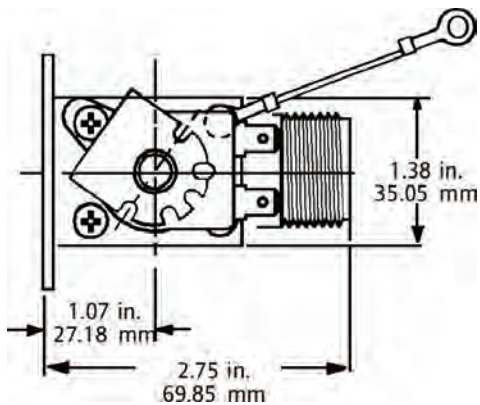
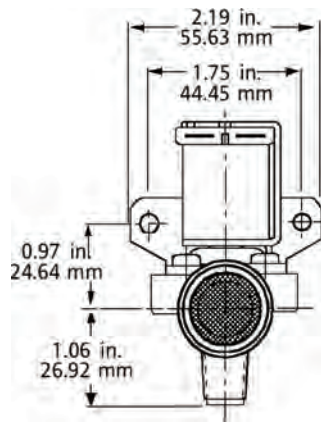
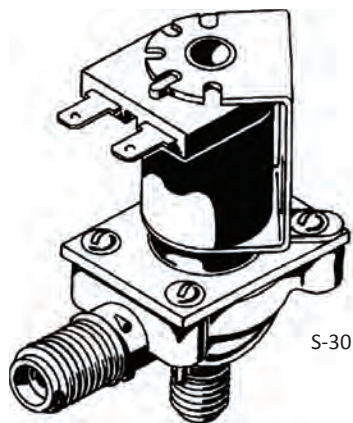






*Robertshaw*<sup>®</sup>

## Product Drawings



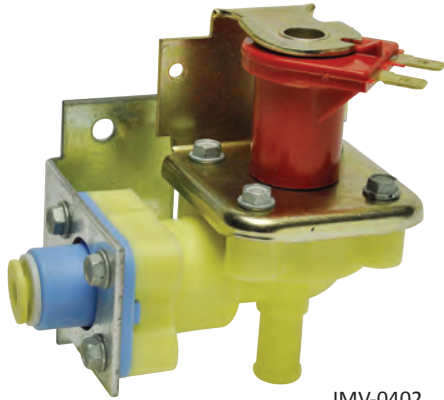
(120V Valve Shown)

**1** Year  
Limited  
Warranty



# WATER VALVES

Robertshaw®



IMV-0402

## SINGLE SOLENOID WATER VALVES

### S-53 Series

The Robertshaw® S-53 Water Valve Series is a single solenoid valve for dishwashing machines and commercial icemakers. The S-53 features the design combination of a brass inlet fitting or quick connect fitting and a mounting bracket, which allows direct connection to the supply plumbing without applying torque to the valve body.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Unique diaphragm design reduces unwanted particles from entering the armature area
- Armature is designed with clearances which minimize the possibility of jamming due to foreign materials
- Bodies are made of polypro to withstand a variety of harsh water conditions
- Suitable for applications using water at temperatures up to 160°F (71°C)

### Replacement Information

| Part Numbers | Replaces                        | Factory Number |
|--------------|---------------------------------|----------------|
| DW-721       | GE WD00X721                     | K-56869-8      |
| IMV-003      | Manitowoc 2400003               | K-74118-13     |
| IMV-0400     | Manitowoc 400                   | K-76167-8      |
| IMV-0402     | Manitowoc 000000402             | K-76167-10     |
| IMV-202      | Scotsman 12-2922-02             | K-74118-28     |
| IMV-373      | Manitowoc 373                   | K-76167-4      |
| IMV-399      | Manitowoc 399,<br>Manitowoc 375 | K-76167-7      |
| IMV-2201     | Scotsman 12-2922-01             | K-74118-27     |

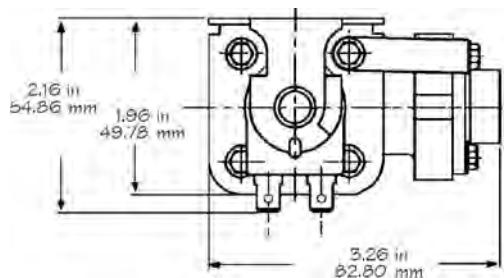
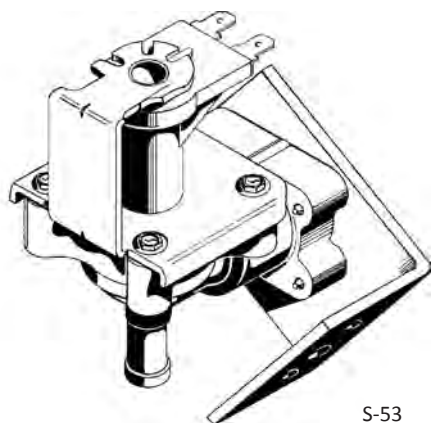
### Specification

| Part Numbers | Description                             | Flow Rate            | Inlet              | Outlet       | Operating Pressure | Terminals | Body Material | Electrical Rating | Power    |
|--------------|---|----------------------|--------------------|--------------|--------------------|-----------|---------------|-------------------|----------|
| DW-721       | Residential Dishwasher Water Valve S-53 | 1.55 GPM to 2.05 GPM | 3/8" 18 FNPT       | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |
| IMV-003      | Commercial Ice Machine Water Valve S-53 | 1.7 GPM              | 3/8" 18 FNPT       | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |
| IMV-0400     | Commercial Ice Machine Water Valve S-53 | 0.50 GPM             | 1/4" quick connect | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 240V AC 50/60 Hz  | 10 Watts |
| IMV-0402     | Commercial Ice Machine Water Valve S-53 | 0.75 GPM to 3.00 GPM | 1/4" quick connect | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 240V AC 50/60 Hz  | 10 Watts |
| IMV-202      | Commercial Ice Machine Water Valve S-53 | 1.25 GPM             | 3/8" 18 FNPT       | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 230V AC 50/60 Hz  | 10 Watts |
| IMV-373      | Commercial Ice Machine Water Valve S-53 | 1.7 GPM              | 1/4" quick connect | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 240V AC 50/60 Hz  | 10 Watts |
| IMV-399      | Commercial Ice Machine Water Valve S-53 | 0.50 GPM             | 1/4" quick connect | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 10 Watts |
| IMV-2201     | Commercial Ice Machine Water Valve S-53 | 1.25 GPM             | 3/8" 18 FNPT       | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 50/60 Hz  | 10 Watts |

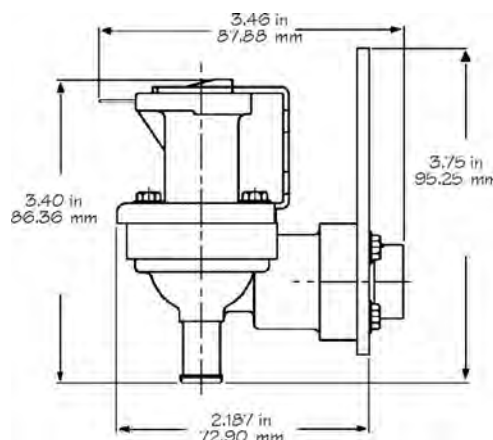
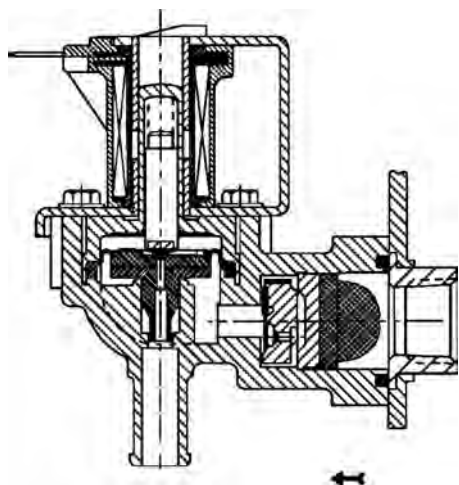




## Product Drawings



S-53



*Robertshaw*<sup>®</sup>

**1** Year  
Limited  
Warranty



# WATER VALVES

Robertshaw®



DW-003

## SINGLE SOLENOID WATER VALVES

### S-101 Series

The Robertshaw® S-101 Water Valve Series is a single solenoid valve for dishwashing machines, coffee brewers, cappuccino machine and tea brewers.

### Features and Benefits

- Pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Bodies are made of polypro to withstand a variety of harsh water conditions
- Suitable for applications using water at temperatures up to 160°F (71°C)

### Replacement Information

| Part Numbers | Replaces                          | Factory Number |
|--------------|-----------------------------------|----------------|
| CB-826       | Wilbur Curtis WC826L              | K-78117        |
| DW-003       | GE WD15X10003,<br>GE 165D5792G001 | K-78325        |
| DW-101       | Electrolux 154476101              | K-76076-1      |
| DW-249       | Maytag 6918249                    | K-75634        |
| DW-345       | Whirlpool 8283345                 | K-74396        |
| DW-534       | Whirlpool 6920534                 | K-76466        |

### Specifications

| Part Numbers | Description                                | Flow Rate            | Inlet        | Outlet       | Operating Pressure | Terminals | Body Material | Electrical Rating | Power   |
|--------------|--|----------------------|--------------|--------------|--------------------|-----------|---------------|-------------------|---------|
| CB-826       | Commercial Coffee Brewer Water Valve S-101 | 1.00 GPM to 1.30 GPM | 3/8" 18 NPT  | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 50/60 Hz  | 5 Watts |
| DW-003       | Residential Dishwasher Water Valve S-101   | 1.55 GPM to 2.05 GPM | 3/8" 18 NPT  | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 5 Watts |
| DW-101       | Residential Dishwasher Water Valve S-101   | 0.83 GPM             | 3/8" 18 NPT  | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 50/60 Hz  | 5 Watts |
| DW-249       | Residential Dishwasher Water Valve S-101   | 1.13 GPM             | 3/8" 18 FNPT | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 60 Hz     | 5 Watts |
| DW-345       | Residential Dishwasher Water Valve S-101   | 1.08 GPM             | 3/8" 18 NPT  | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 50/60 Hz  | 5 Watts |
| DW-534       | Residential Dishwasher Water Valve S-101   | 1.13 GPM             | 3/8" 18 NPT  | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Polypro       | 120V AC 50/60 Hz  | 5 Watts |

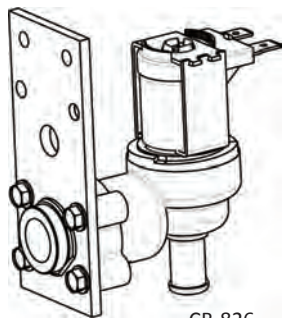
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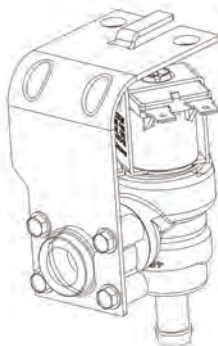
# WATER VALVES



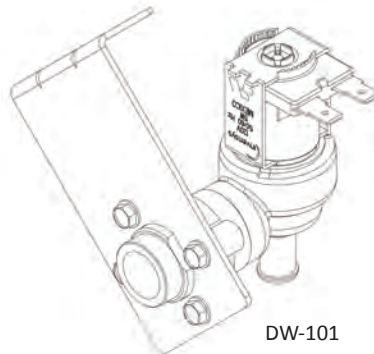
## Product Drawings



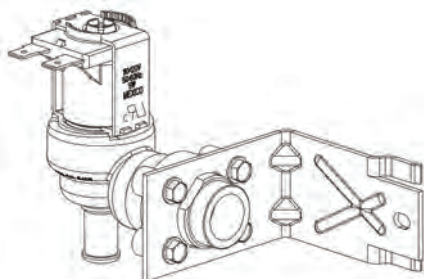
CB-826



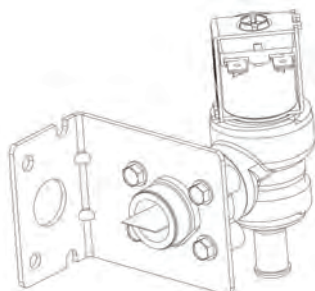
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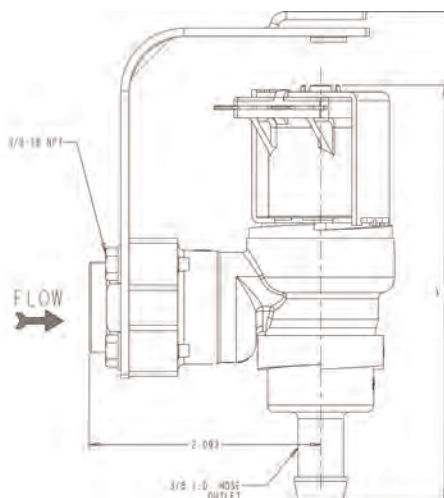
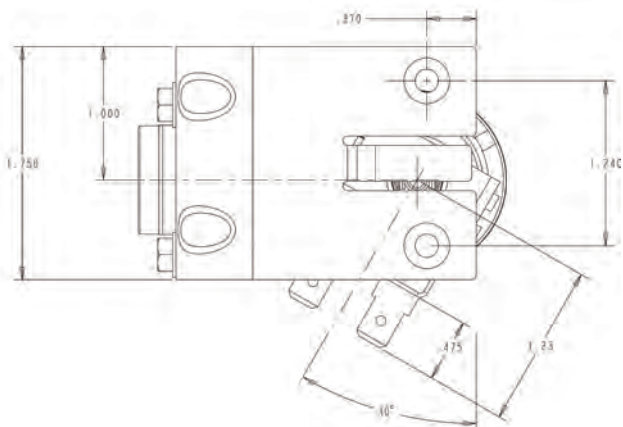
DW-101



DW-345



DW-534



**Robertshaw**<sup>®</sup>

**1** Year  
Limited  
Warranty



# WATER VALVES

Robertshaw®



IMV-576

## DUAL WATER VALVES

### S-86 and N-86 Series

The Robertshaw® S-86 Single and N-86 Dual Water Valve Series are automatic icemaker valves for residential refrigerator icemakers. The N-86 valve allows individual control of water flow through two outlets by using a single inlet for water to the door and for water to fill the icemaker.

### Features and Benefits

- Direct acting armature provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Unique armature and seat design reduce unwanted particles from entering the armature area
- Armature is designed with clearances which minimize the possibility of jamming due to foreign materials
- Bodies are made of polypro which provides high resistance to corrosion and mineral deposits
- Suitable for applications using water at temperatures up to 160°F (71°C)

## Replacement Information

| Part Numbers | Replaces  | Factory Number |
|--------------|---|----------------|
| IMV-114      | Whirlpool 12544114<br>Whirlpool 67005154                            | K-75985        |
| IMV-124      | Whirlpool 12544124  | K-77198        |
| IMV-201      | Electrolux 40493201   | K-74945        |
| IMV-322      | Whirlpool 12956102<br>Whirlpool 67006322                            | K-76376        |
| IMV-494      | Whirlpool 2210494   | K-75973        |
| IMV-542      | Whirlpool 2188542   | K-74982        |
| IMV-576      | Whirlpool 2315576<br>Whirlpool W10498974                            | K-78186        |
| IMV-696      | Whirlpool W10312696   | K-77623        |
| IMV-701      | Electrolux 218859701  | K-75425        |
| IMV-708      | Whirlpool 2188708   | K-75717        |
| IMV-716      | Whirlpool 10219716  | K-77205        |
| IMV-782      | Whirlpool 2188782   | K-75978        |
| IMV-990      | Whirlpool W10342318<br>Whirlpool 10498990                           | K-77999        |
| IMV-1101     | Electrolux 240531101<br>Electrolux 2403218A<br>Electrolux 241734301 | K-75206        |
| IMV-2401     | Electrolux 218832401  | K-75423        |
| IMV-8100     | Whirlpool 10238100  | K-77473        |





# WATER VALVES



*Robertshaw*  
®

## Specifications

| Part Numbers | Description                                      | Flow Rate  | Inlet                            | Outlet                                   | Operating Pressure | Terminals                | Body Material | Electrical Rating   | Power                  |
|--------------|--|--|----------------------------------|--|--------------------|--------------------------|---------------|---------------------|------------------------|
| IMV-114      | Residential Ice Machine Water Valve N-86 Dual    | 115-154 CC in 7.5 seconds, 40-80 CC per second     | 5/16" quick connect              | 1/4" quick connect, 5/16" quick connect  | 20 PSI to 120 PSI  | 1/4" Male<br>3/16" Male  | Polypro       | 120V AC<br>60 Hz    | 35 Watts<br>20 Watts   |
| IMV-124      | Residential Ice Machine Water Valve N-86 Dual    | 115-154 CC in 7.5 seconds, 40-80 cc per second     | 5/16" quick connect              | 1/4" quick connect, 5/16" quick connect" | 20 PSI to 120 PSI  | 1/4" Male<br>3/16" Male  | Polypro       | 120V AC<br>60 Hz    | 35 Watts<br>20 Watts   |
| IMV-201      | Residential Ice Machine Water Valve S-86         | 140 CC in 7.5 seconds                              | 7/16" 24 UNS                     | 7/16" 20 UNF                             | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 35 Watts               |
| IMV-322      | Residential Ice Machine Water Valve N-86 Dual    | 115-154 CC in 7.5 seconds, 40-80 CC per second     | 5/16" quick connect              | 1/4" quick connect, 5/16" quick connect  | 20 PSI to 120 PSI  | 1/4" Male<br>3/16" Male  | Polypro       | 120V AC<br>60 Hz    | 35 Watts<br>20 Watts   |
| IMV-494      | Residential Ice Machine Water Valve S-86         | 0.06 GPM to 0.60 GPM                               | 1/4" flare, loxit or compression | 7/16" 20 UNF                             | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 35 Watts               |
| IMV-542      | Residential Ice Machine Water Valve N-86 Dual    | 113-141 CC in 7.5 seconds, 24-58 CC per second     | 7/16" 20 UNF                     | 7/16" 20 UNF, 1/2" 20 UNF                | 20 PSI to 120 PSI  | 1/4" Male<br>3/16" Male  | Polypro       | 120V AC<br>60 Hz    | 35 Watts<br>20 Watts   |
| IMV-576      | Residential Ice Machine Water Valve S-86         | 0.06 GPM to 0.60 GPM                               | 1/4" flare, loxit or compression | 7/16" 20 UNF                             | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 35 Watts               |
| IMV-696      | Residential Ice Machine Water Valve N-86 Dual    | 70 CC in 7.5 seconds, 40-80 CC per second          | 5/16" quick connect              | 1/4" quick connect, 5/16" quick connect  | 20 PSI to 120 PSI  | 1/4" Male<br>3/16" Male  | Polypro       | 120V AC<br>60 Hz    | 35 Watts<br>20 Watts   |
| IMV-701      | Residential Ice Machine Water Valve S-86         | No flow control                                    | 7/16" 24 UNS                     | 7/16" 20 UNF                             | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 15 Watts               |
| IMV-708      | Residential Ice Machine Water Valve N-86 Dual    | 130 CC in 7.5 seconds, 22-38 CC per second         | 1/4" flare, loxit or compression | 7/16" 20 UNF, 1/2" 20 UNF                | 20 PSI to 120 PSI  | 1/4" Male,<br>3/16" Male | Polypro       | 120V AC<br>50/60 Hz | 35 Watts<br>20 Watts   |
| IMV-716      | Residential Ice Machine Water Valve S-86         | 140 CC in 7.5 seconds                              | 7/16" 24 UNS                     | 1/4" quick connect                       | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 35 Watts               |
| IMV-782      | Residential Ice Machine Water Valve S-86         | 140 CC in 7.5 seconds                              | 7/16" 24 UNS                     | 7/16" 20 UNF                             | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 35 Watts               |
| IMV-990      | Residential Ice Machine Water Valve S-86         | 180-600 CC in 7.5 seconds                          | 7/16" 24 UNS                     | 5/16" quick connect                      | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 20 Watts               |
| IMV-1101     | Residential Ice Machine Water Valve Triple NS-86 | 140 CC in 7.5 seconds<br>180-600 CC in 7.5 seconds | 7/16" 20 UNS                     | 7/16" 20 UNF, 1/2" 20 UNF                | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 15 Watts ,<br>35 Watts |
| IMV-2401     | Residential Ice Machine Water Valve N-86 Dual    | 116 CC in 7.5 seconds                              | 7/16" 20 UNF                     | 7/16" 20 UNF                             | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 35 Watts<br>15 Watts   |
| IMV-8100     | Residential Ice Machine Water Valve S-86         | 180-600 CC in 7.5 seconds                          | 7/16" 24 UNS                     | 5/16" quick connect                      | 20 PSI to 120 PSI  | 1/4" Male                | Polypro       | 120V AC<br>60 Hz    | 20 Watts               |
| K-77148      | Residential Ice Machine Water Valve N-86 Dual    | 70 CC in 7.5 seconds, 237 CC in 7.5 seconds        | 1/4" Quick Connect               | 5/16" Quick Connect, 1/4" Quick Connect  | 20 PSI to 120 PSI  | 1/4" Male,<br>3/16" Male | Polypro       | 120V AC<br>50/60 Hz | 35 Watts<br>20 Watts   |



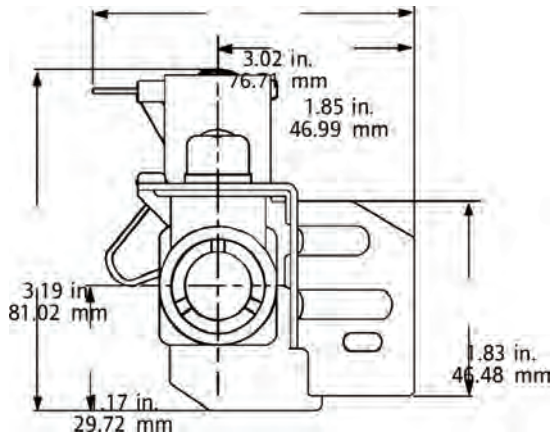
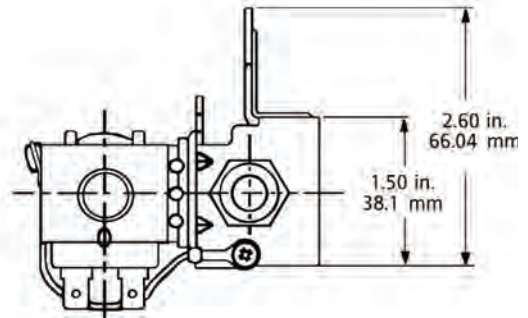
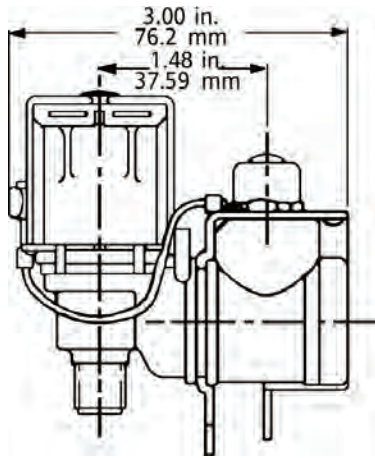
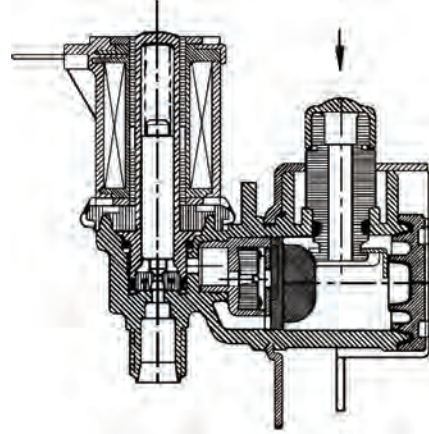
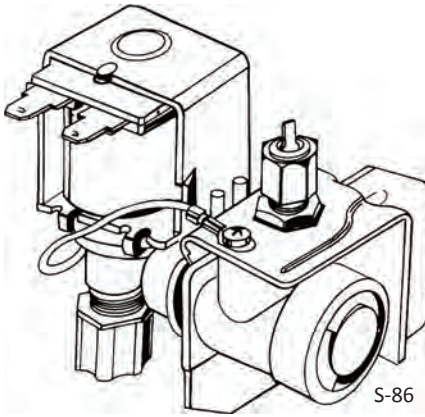




# WATER VALVES

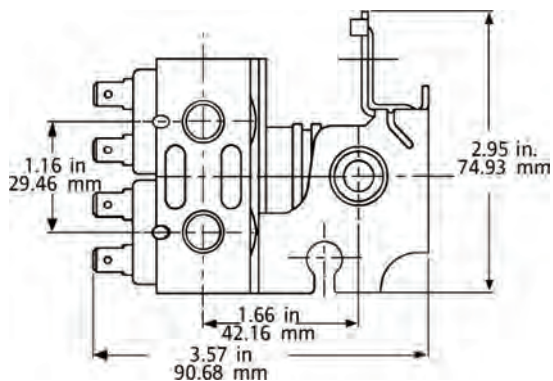
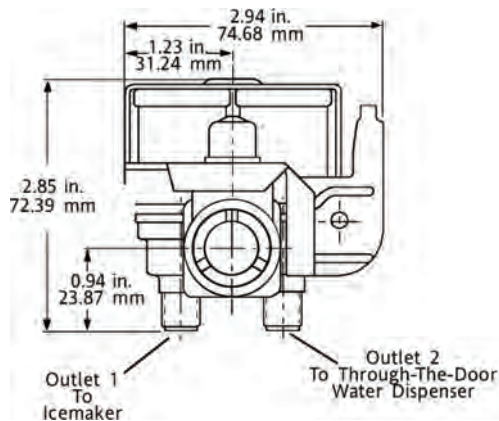
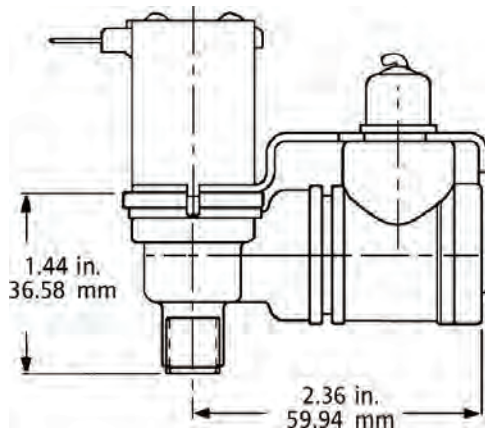
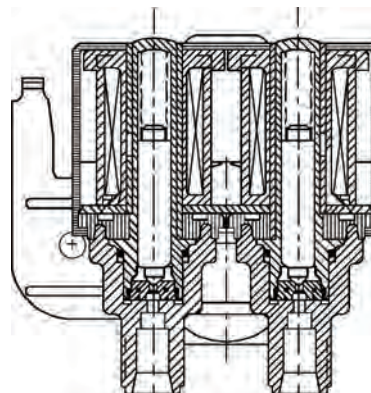
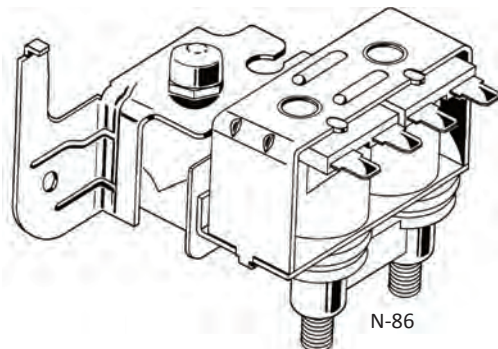
Robertshaw®

## Product Drawings





## Product Drawings





# WATER VALVES

Robertshaw®



IMV-1401

## DIRECT ACTING SOLENOID WATER VALVES

### S-55 Series

The Robertshaw® S-55 Water Valve Series is designed to prevent foreign material from interfering with the drain function in automatic dishwashers and commercial icemakers.

### Features and Benefits

- Direct acting solenoid valves provide high flow at low head pressure
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Bodies are made of polypro to withstand a variety of harsh water conditions
- Suitable for applications using water at temperatures up to 160°F (71°C)

### Replacement Information

| Part Numbers | Replaces            | Factory Number |
|--------------|---------------------|----------------|
| IMV-1401     | Scotsman 11-0514-01 | K-55017-9      |
| IMV-1402     | Scotsman 11-0514-02 | K-55017-11     |

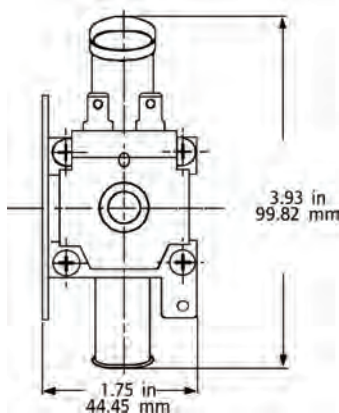
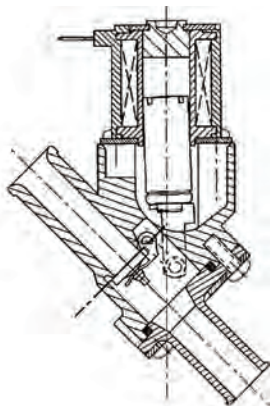
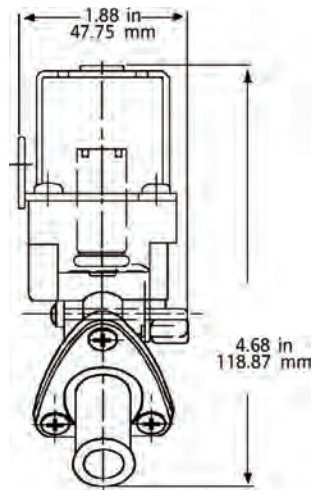
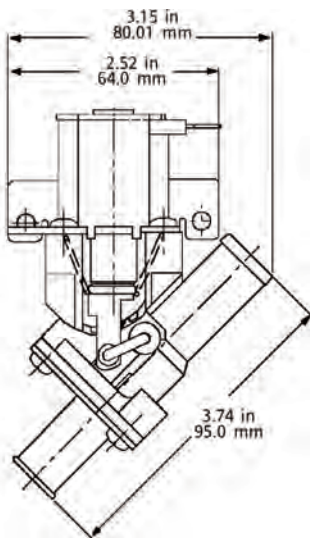
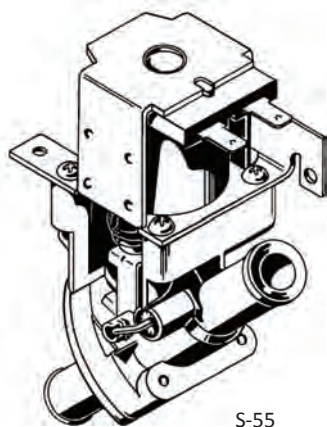
### Specifications

| Part Numbers | Description                             | Flow Rate | Inlet           | Outlet       | Operating Pressure | Terminals | Body Material | Electrical Rating    | Power    |
|--------------|---|-----------|-----------------|--------------|--------------------|-----------|---------------|----------------------|----------|
| IMV-1401     | Commercial Ice Machine Water Valve S-55 | NA        | 1 1/16" ID Hose | 5/8" ID Hose | 0 PSI to 7 PSI     | 1/4" Male | Polypro       | 208/230V AC<br>60 Hz | 38 Watts |
| IMV-1402     | Commercial Ice Machine Water Valve S-55 | NA        | 1 1/16" ID Hose | 5/8" ID Hose | 0 PSI to 7 PSI     | 1/4" Male | Polypro       | 120V AC<br>60 Hz     | 28 Watts |





## Product Drawings



**Robertshaw**<sup>®</sup>

**1** Year  
Limited  
Warranty



# WATER VALVES

Robertshaw®



CB-116

## GRAVITY-FED DUMP WATER VALVES

### GS-56 Series

The Robertshaw® GS-56 Water Valve Series is designed to dispense water in coffee and other hot beverage vending machines. This direct acting, gravity-fed dump valve is capable of providing low volume liquid flow at a minimum head pressure and a water temperature of 200°F (93°C).

### Features and Benefits

- Vent tube
- External flow adjustment screw slotted or hex
- Polysulfone body material for good chemical resistance and high temperature stability
- Maximum water temperature is 200°F (93°C)

## Replacement Information

| Part Numbers | Replaces              | Factory Number |
|--------------|-----------------------|----------------|
| CB-102       | Grindmaster 61102     | K-56778-41     |
| CB-116       | Bunn-O-Matic 26116002 | K-56778-51     |
| CB-880       | Wilbur Curtis WC880E  | K-56778-35     |

## Specifications

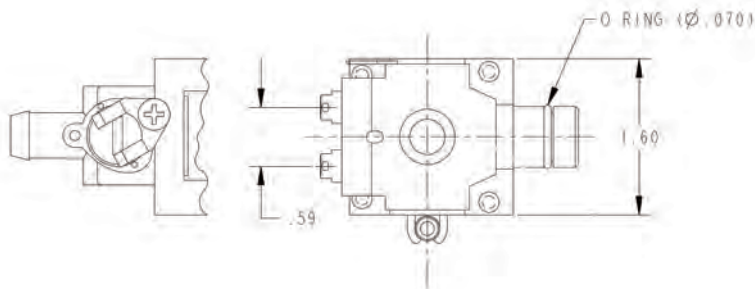
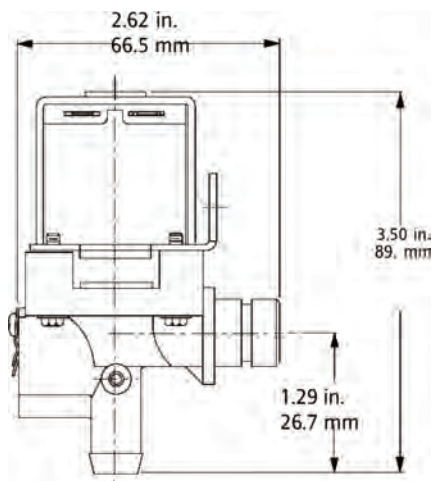
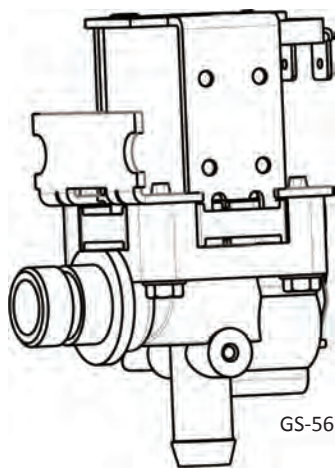
| Part Numbers | Description   | Flow Rate | Inlet                      | Outlet       | Operating Pressure | Terminals                | Body Material | Electrical Rating | Power    |
|--------------|---|-----------|----------------------------|--------------|--------------------|--------------------------|---------------|-------------------|----------|
| CB-102       | Commercial Coffee Brewer Water Valve GS-56 with Venting Elbow | 1.43 GPM  | 5/8" OD with O ring groove | 1/2" ID Hose | 20" Head           | 1/4" Male                | Polysulfone   | 120V AC 50/60 Hz  | 12 Watts |
| CB-116       | Commercial Coffee Brewer Water Valve GS-56                    | 1.43 GPM  | 5/8" OD with O ring groove | 1/2" ID Hose | 20" Head           | 1/4" Male, Bent Down 90° | Polysulfone   | 120V AC 50/60 Hz  | 12 Watts |
| CB-880       | Commercial Coffee Brewer Water Valve GS-56                    | 1.43 GPM  | 5/8" OD with O ring groove | 1/2" ID Hose | 20" Head           | 1/4" Male                | Polysulfone   | 120V AC 50/60 Hz  | 12 Watts |







## Product Drawings



**Robertshaw**<sup>®</sup>

**1** Year  
Limited  
Warranty





# WATER VALVES

Robertshaw®



DW-952

## GENERAL PURPOSE WATER VALVES

### S-45 Series

The Robertshaw® S-45 Water Valve Series is designed as a general purpose valve for energy conserving plumbing and heating applications.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### Features and Benefits

- Pilot-operated design provides flow capacity with minimum power requirements
- Serviceable strainer incorporated for the protection of both the valve and the appliance
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- UL requirements met for intermittent duty operation
- Suitable for applications using water at temperatures up to 160°F (71°C)

### Replacement Information

| Part Numbers | Replaces            | Factory Number |
|--------------|---------------------|----------------|
| DW-952       | Moyer Diebel 504952 | K-62687-44     |
| IMV-001      | Scotsman 12-2990-01 | K-62687-128    |
| PL-849       | Sloan Valve 0305849 | K-77634        |

### Specifications

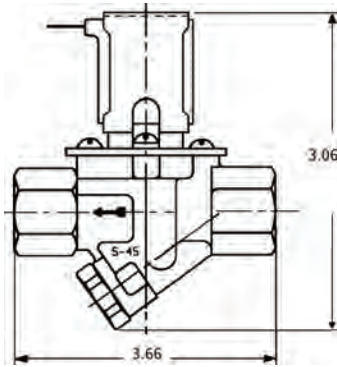
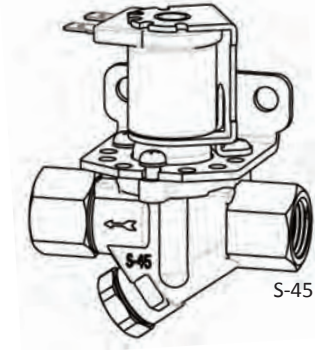
| Part Numbers | Description                            | Flow Rate   | Inlet        | Outlet       | Operating Pressure | Terminals | Body Material     | Electrical Rating   | Power       |
|--------------|--|-------------|--------------|--------------|--------------------|-----------|-------------------|---------------------|-------------|
| DW-952       | Commercial Dishwasher Water Valve S-45 | Up to 5 GPM | 3/8" 18 FNPT | 3/8" 18 FNPT | 20 PSI to 120 PSI  | 1/4" Male | Brass             | 120V AC<br>50/60 Hz | 10<br>Watts |
| IMV-001      | Commercial Ice Maker Water Valve S-45  | 0.19 GPM    | 3/8" 18 FNPT | 3/8" ID Hose | 20 PSI to 120 PSI  | 1/4" Male | Brass             | 120V AC<br>60 Hz    | 15<br>Watts |
| PL-849       | Commercial Plumbing Water Valve S-45   | NA          | 3/8" 18 FNPT | 3/8" 18 FNPT | 20 PSI to 120 PSI  | 1/4" Male | Low Lead<br>Brass | 24V AC<br>50/60 Hz  | 7<br>Watts  |



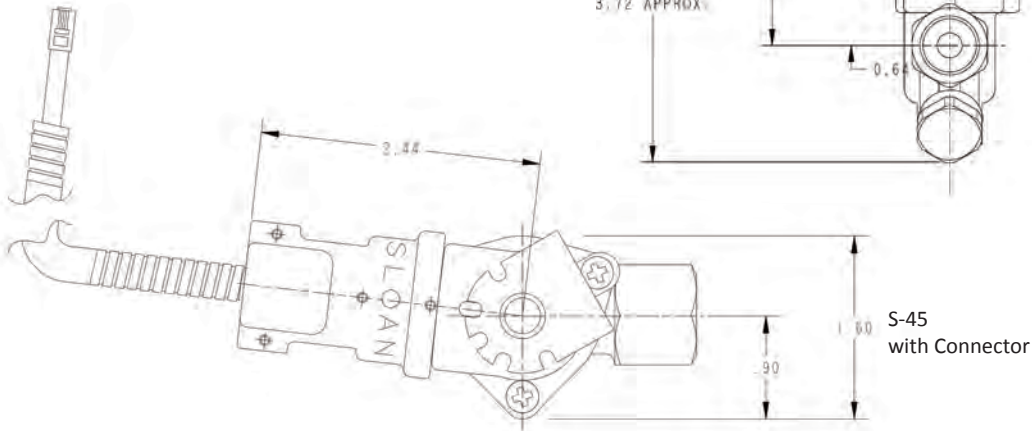
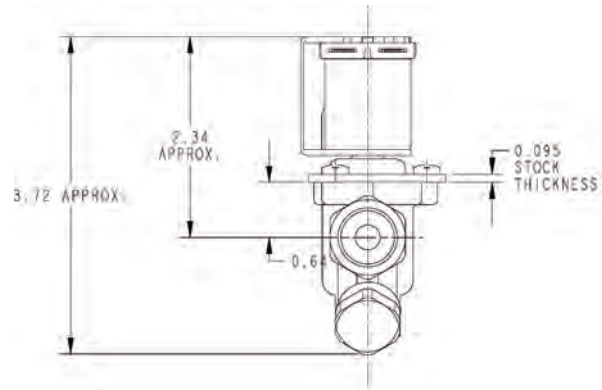




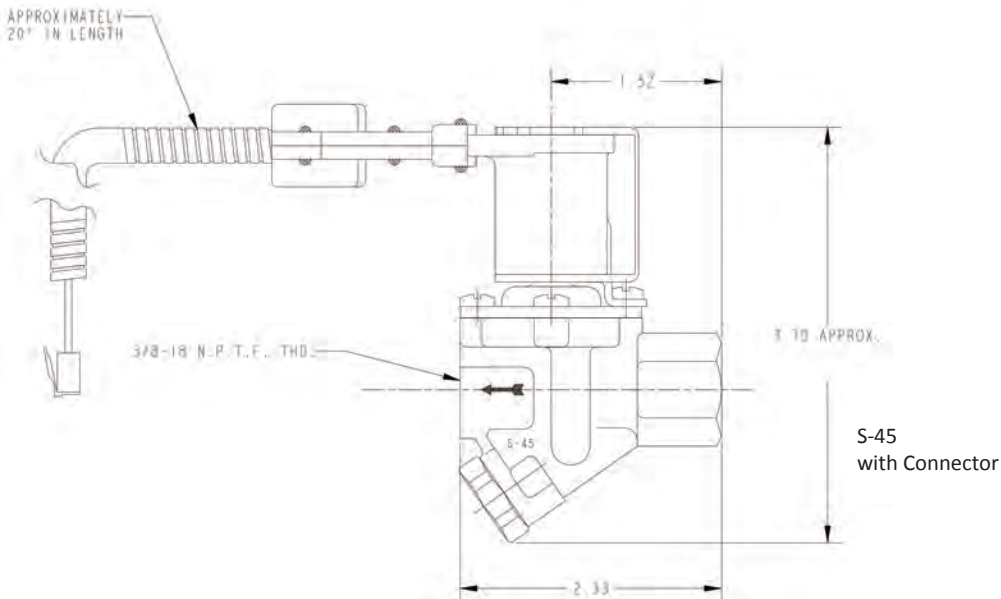
## Product Drawings



S-45  
with Connector



S-45  
with Connector



S-45  
with Connector

**1** Year  
Limited  
Warranty



# WATER VALVES

Robertshaw®



12604060



12602630



1261950

## GENERAL PURPOSE WATER VALVES

### V Series

The Robertshaw® Water Valve V Series is designed for use in clotheswashers, dishwashers, showers, air conditioning systems and other domestic or commercial applications.

Flexible and designed and produced to meet the stringent requirements of the markets of today and the future.

### Features and Benefits

- Easy to rotate, coil to match OEM application
- Flexible mounting with four different positions
- Hose connection
- Conversion kit with bracket, screen, popular flow controls, and terminals
- Body material: Polyamide
- Insulation: Class II to water. No grounding required
- Coil insulation: Class F (140°C wire operating temperature)
- Ambient Temperature: 85°C maximum according to water temperature and duty cycle
- Water Temperature: 90°C maximum according to water temperature and duty cycle
- Internal leakage: Maximum 1 drop/min. on pressure 0.2 to 10 bar
- IEC certified
- Made in EU

## Specifications - Water Valve Kits

| Part Numbers  | Description  | Flow Regulator                | Inlet                  | Outlet | Operating Pressure | Terminals   | Type   | Outlet Orientation | Electrical Rating         |
|---------------|--|-------------------------------|------------------------|--------|--------------------|-------------|--------|--------------------|---------------------------|
| 12604060 (EU) | Clotheswasher and Dishwasher inlet water valve kit V18 model       | 2.5L/min, 8.0L/min, 10.0L/min | Thread ISO 228 G 3/4 B | 10mm   | 0.2 to 10 bar      | 6.35mm Male | Single | 180°               | 230V AC 50/60 Hz, 6 Watts |
| 12604050 (EU) | Clotheswasher and Dishwasher inlet water valve kit V19 model       | 2.5L/min, 8.0L/min, 10.0L/min | Thread ISO 228 G 3/4 B | 10mm   | 0.2 to 10 bar      | 6.35mm Male | Single | 90°                | 230V AC 50/60 Hz, 6 Watts |
| 12701090 (EU) | Clotheswasher and Dishwasher inlet water valve, dual kit V28 model | 2.5L/min, 8.0L/min, 10.0L/min | Thread ISO 228 G 3/4 B | 10mm   | 0.2 to 10 bar      | 6.35mm Male | Double | 180°               | 230V AC 50/60 Hz, 6 Watts |
| 12701100 (EU) | Clotheswasher and Dishwasher inlet water valve, dual kit V29 model | 2.5L/min, 8.0L/min, 10.0L/min | Thread ISO 228 G 3/4 B | 10mm   | 0.2 to 10 bar      | 6.35mm Male | Double | 90°                | 230V AC 50/60 Hz, 6 Watts |



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## Specifications - Water Valves

| Part Numbers | Description                          | Flow Regulator | Inlet                  | Outlet      | Type   | Operating Pressure | Outlet Orientation | Coil Type | Electrical Rating      |
|--------------|--------------------------------------|----------------|------------------------|-------------|--------|--------------------|--------------------|-----------|------------------------|
| 1273321      | Clotheswasher Water Valve            | 10L/min        | Thread ISO 228 G 3/4 B | 10mm        | Double | 0.2 to 10 bar      | 180°               | FASTON    | 230V AC 50 Hz, 6 Watts |
| 1273640      | Clotheswasher Water Valve            | 10L/min        | Thread ISO 228 G 3/4 B | 10mm        | Double | 0.2 to 10 bar      | 180°               | FASTON    | 230V AC 50 Hz, 6 Watts |
| 1273451      | Clotheswasher Water Valve            | 10L/min        | Thread ISO 228 G 3/4 B | 10mm custom | Double | 0.2 to 10 bar      | 90°                | FASTON    | 230V AC 50 Hz, 6 Watts |
| 12602630     | Dishwasher Water Valve               | 2.5L/min       | Thread ISO 228 G 3/4 B | 10mm        | Single | 0.2 to 10 bar      | 90°                | RAST 2.5  | 230V AC 50 Hz, 6 Watts |
| 1273890      | Clotheswasher Water Valve            | 6L/min         | Thread ISO 228 G 3/4 B | 10mm        | Double | 0.2 to 10 bar      | 180°               | RAST 5    | 230V AC 50 Hz, 6 Watts |
| 1275140      | Clotheswasher Cold Inlet Water Valve | 6L/min         | Thread ISO 228 G 3/4 B | 10mm        | Double | 0.2 to 10 bar      | 180°               | RAST 2.5  | 230V AC 50 Hz, 6 Watts |
| 1263660      | Clotheswasher Inlet Water Valve      | 6L/min         | Thread ISO 228 G 3/4 B | 10mm        | Single | 0.2 to 10 bar      | 180°               | RAST 5    | 230V AC 50 Hz, 6 Watts |
| 1268690      | Clotheswasher, Hot Inlet Water Valve | 6L/min         | Thread ISO 228 G 3/4 B | 10mm        | Single | 0.2 to 10 bar      | 180°               | RAST 2.5  | 230V AC 50 Hz, 6 Watts |
| 1268400      | Clotheswasher Water Valve            | 5.5L/min       | Thread ISO 228 G 3/4 B | 10mm thread | Single | 0.2 to 10 bar      | 90°                | RAST 5    | 230V AC 50 Hz, 6 Watts |
| 1266010      | Dishwasher Water Valve               | 4L/min         | Thread ISO 228 G 3/4 B | 10mm thread | Single | 0.2 to 10 bar      | 180°               | RAST 5    | 230V AC 50 Hz, 6 Watts |
| 1261950      | Clotheswasher Water Valve            | 8L/min         | Thread ISO 228 G 3/4 B | 10mm        | Single | 0.2 to 10 bar      | 180°               | FASTON    | 230V AC 50 Hz, 6 Watts |
| 1263880      | Water, Inlet Valve                   | 8L/min         | Thread ISO 228 G 3/4 B | 10mm        | Single | 0.2 to 10 bar      | 180°               | RAST 2.5  | 230V AC 50 Hz, 6 Watts |

## Replacement Information

| Part Numbers | OEM Application           | Equivalent OEM Part / Service Code                             |
|--------------|---------------------------|--|
| 1273321      | BSH EUROWASHER            | 9000047096 / 9000533540 / 9000047098 / 9000544930 / 5500001761 |
| 1273640      | BSH AK SLIM LINE          | 9000047121 / 9000047121 / 9000554967 5550000160                |
| 1273451      | BSH TOP LOADER            | 9000047123 / 5550006024  |
| 12602630     | BSH STR INLET VALVE       | 9000805871 / 9001155850  |
| 1273890      | Indesit V D VERROUILLAGE  | 1617202802 / 16172028 / D389001 / D389000                      |
| 1275140      | Indesit V D VERROUILLABLE | 16001754900  |
| 1263660      | Indesit V S VERROUILLAGE  | 1617201502   |
| 1268690      | Indesit V S VERROUILLABLE | 16001755000  |
| 1268400      | Electrolux V19STRZ        | 146203011  |
| 1266010      | Electrolux V18STRZ        | 111532001 / 1115320010   |
| 1261950      | Fagor Brandt V180         | XMSR00068 / XMSR00068  |
| 1263880      | Gorenje V180              | 269222 / 8083315   |

**1** Year Limited Warranty

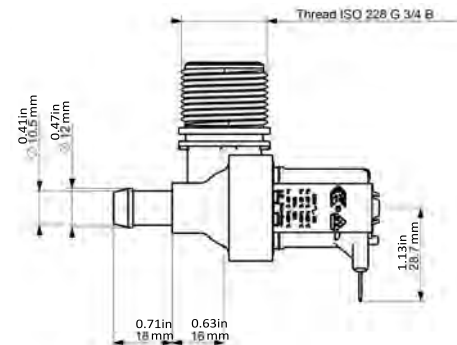
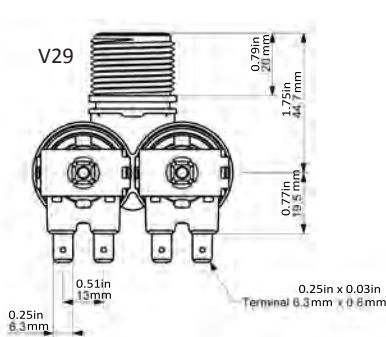
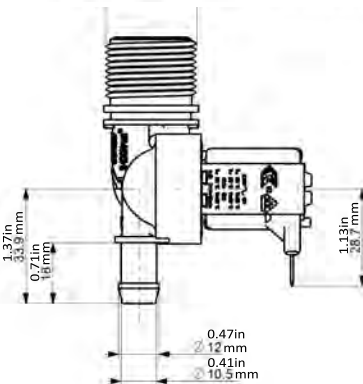
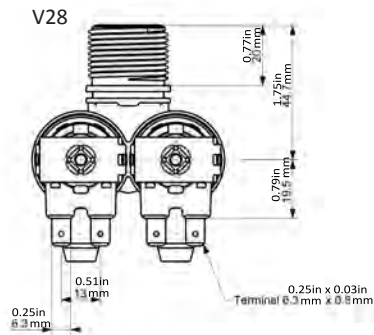
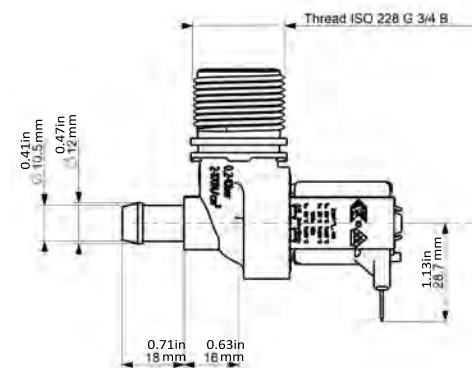
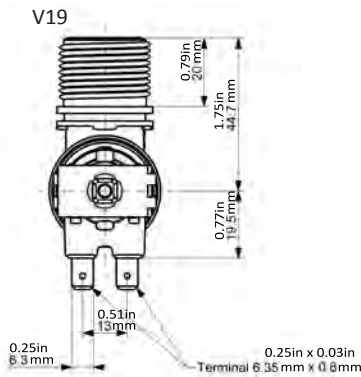
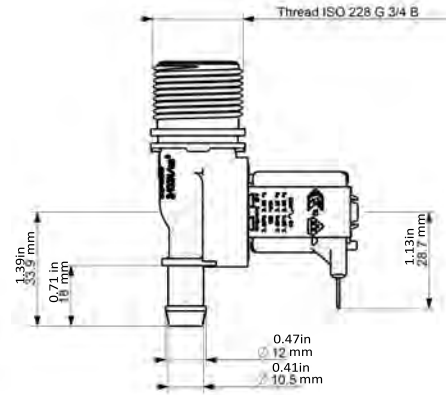
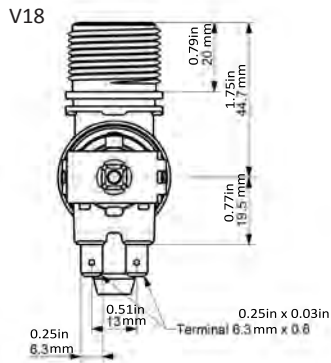




# WATER VALVES

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| TSV9003-09P .....    | F29 | VP228E-15LN-L10-U301 .....  | D46 |                    |     |
| TSV9004-09P .....    | F29 | VP228E-15S-L15-S101 .....   | D46 |                    |     |
| TSV9011-09P .....    | F29 | VP228E-15S-L20-S101 .....   | D46 |                    |     |
| TSV9012-09P .....    | F29 | VP228E-15SN-L15-S101.....   | D46 |                    |     |
| TSV9013-22 .....     | F29 | VP228E-15SN-L20-S101.....   | D46 |                    |     |
| TU40 .....           | C8  | VP228E-15SN-L20-U301 .....  | D47 |                    |     |
| TX2001-00 .....      | F17 | VP228E-20S-L40-S101 .....   | D46 |                    |     |
| TX2001-20 .....      | F17 | VP228E-20S-L40-U201.....    | D46 |                    |     |
| <b>U</b>             |     | VP229E-15HN-L25-S101 .....  | D46 |                    |     |
| U-67204-7.....       | B39 | VP229E-15HN-L35-LA301 ..... | D46 |                    |     |
| UBV03221-01 .....    | A7  | VP229E-25S-L75-S101 .....   | D46 |                    |     |
| UBV03221-01-NA ..... | A7  | VP229E-32S-014-S101 .....   | D46 |                    |     |
| UL-70140 .....       | G23 | VP229E-32S-014-U201 .....   | D47 |                    |     |
| UL-70150 .....       | G23 | VR6 .....                   | F30 |                    |     |
| UL-90100 .....       | G22 | VR106 .....                 | F30 |                    |     |
| UL-90150 .....       | G22 | VS5 .....                   | F30 |                    |     |
| UL-SS-0100 .....     | G20 | VS105 .....                 | F30 |                    |     |
| UL-SS-0101 .....     | G20 | VT9 .....                   | F30 |                    |     |
| UL-SS-0102 .....     | G20 | VT9E .....                  | F30 |                    |     |
| UL-SS-0103 .....     | G20 | VT9R .....                  | F31 |                    |     |
| UL-SS-0104 .....     | G20 | VT72 .....                  | F30 |                    |     |
| UL-SS-0200 .....     | G19 | VT92 .....                  | F30 |                    |     |
| UL-SS-0201 .....     | G19 | VT93 .....                  | F30 |                    |     |
| UL-SS-0300 .....     | G19 | VT2323 .....                | D49 |                    |     |
| UL-SS-0301 .....     | G19 | VT2343 .....                | D49 |                    |     |
| UL-SS-0302 .....     | G19 | VT2427 .....                | D49 |                    |     |
| UL-SS-0400 .....     | G21 | VT3343 .....                | D49 |                    |     |
| UL-SS-0401 .....     | G21 | VTD9.....                   | F30 |                    |     |

## TIPS ON SELECTING A REPLACEMENT GAS VALVE

**Safety Warning:** Any work on gas valves or equipment should be performed by a qualified service technician only. Please do not attempt any repairs or replacement if you are not qualified. Serious injury can occur from improper installation or usage.

**Disclaimer:** The cross references provided in this catalog are intended to be functional equivalents and not exact matches of products listed. Robertshaw assumes no liability in connection with the information contained herein and makes no representations regarding the accuracy of any such information. Final selection of a replacement product is the sole responsibility of the buyer.

### GAS VALVE SELECTION CHECKLIST GUIDELINES

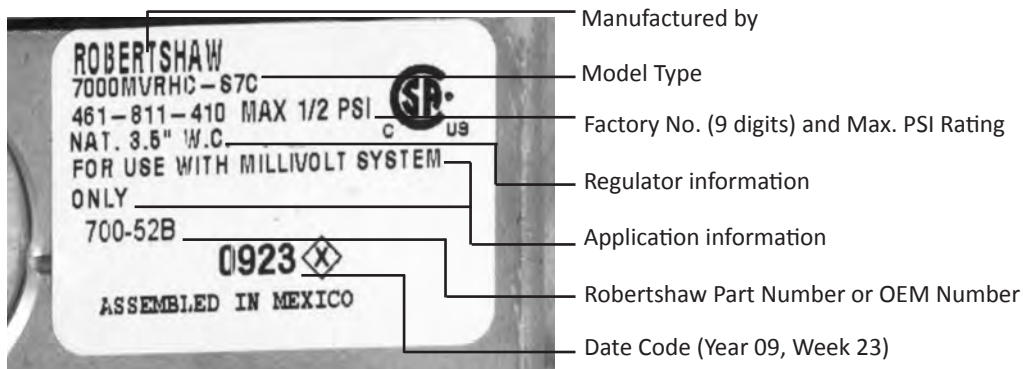
Always check the following with any gas valve retrofit application:

1. Check capacity
2. Check inlet and outlet sizes
3. Determine if the valve is non-regulated
  - a. Check if the pressure regulator requires adjusting
4. Determine if the replacement requires straight-thru
5. Determine if the application is LP or Natural Gas
  - a. For LP gas, a separate pressure regulator may be required
6. Determine if the pilot needs to be plugged
7. Determine if the valve is slow opening
8. Determine if a transformer is required
9. Determine if the replacement shaft and hub will require assembly
10. Check OEM and replacement manuals for proper installation instructions

### HOW TO READ AND INTERPRET A GAS VALVE LABEL

To identify your valve type, locate the red or white factory label on the valve body.

**Note:** It is essential to write down the nine digit factory number correctly.



An OEM valve may have an OEM part number instead of the Robertshaw part number. The cross reference on the following pages will cross most nine digit factory numbers or OEM part numbers to the Robertshaw numbers.

Gas valves with white labels are usually manufactured to be used on natural gas applications. Red labels indicate the valves are usually manufactured to be used on LP gas applications.

Any additional characters after the nine digit factory number are used for shipping purposes and should be ignored when cross referencing.

## FACTORY MODEL CODE IDENTIFICATION

| Factory Model Number |        |        | DESCRIPTION  |
|----------------------|--------|--------|--|
| 7000                 | 7000LC | 7000HC |  |
| •                    |        |        | A Unitrol® 7000 Body with small diameter valve seat. 100,000 BTU   |
| •                    |        |        | B Unitrol 7000 Body with large diameter valve seat. 240,000 or 300,000 BTU   |
| •                    |        |        | BB Unitrol 7000 Body with medium diameter valve seat - Inherently "non-hunting"  |
| •                    | •      | •      | 7010 Unitrol 7000 Body without a gas cock  |
| •                    |        |        | CSTR Convertible Hydraulic Actuator - From natural to LP gas   |
| •                    |        | •      | D Solenoid Valve - Pilot Gas - Single coil operated on AC  |
| •                    | •      | •      | E Electric Actuator - 24V AC   |
| •                    | •      | •      | E12 Electric Actuator - 12V DC   |
| •                    | •      | •      | E120 Electric Actuator - 120V AC   |
| •                    | •      | •      | E240 Electric Actuator - 240V AC   |
| •                    | •      | •      | F Factory Fixed (not adjustable regulator setting 3.0" to 7.0" W.C.)   |
| •                    |        | •      | GO Bleed Gas Operated Actuator   |
| •                    | •      | •      | GS Gas Cock Safety - with gas cock and safety valve - no main valve  |
| •                    | •      | •      | GV Gas Valve without a safety valve - No Safety Magnet   |
| •                    |        |        | -1H Remote dual hydraulic type - dual bellows  |
| •                    | •      |        | HC High Capacity Body  |
|                      |        | •      | HHC High Capacity Body CSA rated for limited horizontal or vertical mounting. Can be replaced by HC model  |
| •                    |        | •      | IPER Intermittent Pilot Ignition Gas Valve - regulated   |
| •                    |        | •      | L Relight Interlock type. A European requirement   |
| •                    | •      |        | LC Low Capacity Body - 710 Series  |
| •                    | •      | •      | LP For Liquefied Petroleum Gases   |
| •                    | •      | •      | M Manual Actuator  |
| •                    |        | •      | MS Millivolt Safety Magnet - uses thermopile type safety   |
| •                    | •      | •      | MV Millivolt Actuator  |
| •                    |        | •      | P Regulator Pressure Range (1.4" to 3.6" W.C.)   |
| •                    | •      | •      | R Regulator Type   |
| •                    |        | •      | RB Adjustable (High - Low) pressure regulator adjusts percentage of output.<br>-4 = 60% of full flow<br>-5 = 70% of full flow<br>-6 = 80% of full flow |

| Factory Model Number |        |        | DESCRIPTION   |
|----------------------|--------|--------|---|
| 7000                 | 7000LC | 7000HC |   |
| •                    | •      | •      | RC Convertible regulator from Natural Gas to LP and back  |
|                      |        | •      | RN Negative Pressure Regulator  |
| •                    |        |        | R1 Class I and II Natural Gas Pressure Regulator  |
| •                    | •      | •      | R2 Two-Stage pressure regulator valve opens to percentage of full flow as indicated by the number<br>-1 = 30% of full flow<br>-2 = 40% of full flow<br>-3 = 50% of full flow<br>-4 = 60% of full flow<br>-5 = 70% of full flow<br>-6 = 80% of full flow   |
| •                    | •      | •      | S Hydraulic Snap-Acting Actuator - non regulated  |
| •                    |        |        | SR Hydraulic Snap-Acting Actuator - Regulated   |
| •                    |        | •      | ST Hydraulic Snap - Throttle Actuator, but set-up for use on a specific gas; Natural Gas only or LP gas only. Non-regulated number indicates percentage of By-Pass flow.<br>-1 = 30% of full flow<br>-2 = 40% of full flow<br>-3 = 50% of full flow<br>-4 = 60% of full flow<br>-5 = 70% of full flow |
| •                    |        | •      | STR Hydraulic Snap-Throttle Actuator, regulator number indicates percentage of By-Pass flow.<br>-1 = 30% of full flow<br>-2 = 40% of full flow<br>-3 = 50% of full flow<br>-4 = 60% of full flow<br>-5 = 70% of full flow   |
| •                    |        | •      | S7 Slow Opening devices with either a plastic body or a metal body Orifice Valve Assembly<br>A = 0 to 5 seconds to full flow<br>B = 5 to 10 seconds to full flow<br>C = 10 to 30 seconds to full flow   |



## GAS VALVE CROSS REFERENCE FOR UNI-LINE® PARTS

| Factory Number     | Uni-Line Number | Factory Number    | Uni-Line Number | Factory Number | Uni-Line Number |
|--------------------|-----------------|-------------------|-----------------|----------------|-----------------|
| 220RLPTS8P         | 110-285         | 7000BMVR-S7C      | 700-507         | R103RVTSLPPA   | 110-508         |
| 220RLPTS8P         | 110-280         | 7000DEHC-S7C      | 700-058         | R110RCTS-PC    | 110-203         |
| 220RLPTSP          | 110-262         | 7000DER2-HC-4-S7C | 700-064         | R110RCTS-PC    | 110-204         |
| 220RLPTSP          | 110-265         | 7000DERHC         | 700-057         | R110RTS        | 110-326         |
| 220RTSP            | 110-202         | 7000DERHC-S7C     | 700-059         | R110RTS8P      | 110-353         |
| 7000AERB-3-LP-S7C  | 700-435         | 7000EHC-120-S7C   | 700-455         | R110RTSP       | 110-206         |
| 7000AERB-5-S7C     | 700-434         | 7000EHC-S7C       | 700-441         |                |                 |
| 7000AM             | 700-101         | 7000ERHC-120-S7C  | 700-456         |                |                 |
| 7000AMSGO          | 700-881         | 7000ERHC-S7C      | 700-442         |                |                 |
| 7000AMSGOR-LP      | 700-888         | 7000ERLC          | 710-402         |                |                 |
| 7000AMV            | 700-501         | 7000GORHC-S7B     | 700-824         |                |                 |
| 7000AMVR           | 700-502         | 7000MLC           | 710-101         |                |                 |
| 7000AS             | 700-201         | 7000MRHC-S7C      | 700-114         |                |                 |
| 7000ASR            | 700-202         | 7000MRLC          | 710-102         |                |                 |
| 7000AST-3          | 700-203         | 7000MVL           | 710-501         |                |                 |
| 7000AST-LP-3       | 700-204         | 7000MVRB-5-LC     | 710-503         |                |                 |
| 7000ASTR-3         | 700-205         | 7000MVRB-5-LC     | 710-511         |                |                 |
| 7000ASTR-4         | 700-213         | 7000MVRHC-S7C     | 700-522         |                |                 |
| 7000BDER2-3-LP-S7C | 700-051         | 7000MVRLC         | 710-508         |                |                 |
| 7000BDER2-4-S7A    | 700-053         | 7000MVRLC         | 710-502         |                |                 |
| 7000BDER-LP-S7A    | 700-055         | 7000SLC           | 710-201         |                |                 |
| 7000BDER-S7A       | 700-056         | 7000SLC           | 710-218         |                |                 |
| 7000BE             | 700-401         | 7000SLC           | 710-203         |                |                 |
| 7000BE-120         | 700-453         | 7000SRLC          | 710-205         |                |                 |
| 7000BER            | 700-402         | 7010BGVMV         | 700-514         |                |                 |
| 7000BER            | 700-400         | 7010BGVMV         | 700-513         |                |                 |
| 7000BER            | 700-406         | 7010BGVMV         | 700-513         |                |                 |
| 7000BER-120        | 700-454         | 7200DER           | 720-051         |                |                 |
| 7000BER-120        | 700-452         | 7200DERCS-1       | 720-055         |                |                 |
| 7000BER-240        | 700-464         | 7200DER-S7C       | 720-050         |                |                 |
| 7000BER-S7A        | 700-426         | 7200DER-SO-3      | 720-054         |                |                 |
| 7000BER-S7C        | 700-428         | 7200ER            | 720-402         |                |                 |
| 7000BGOR-S7B       | 700-804         | 7200ER            | 720-400         |                |                 |
| 7000BGO-S7B        | 700-803         | 7200ER            | 720-406         |                |                 |
| 7000BGVE           | 700-417         | 7200ER            | 720-404         |                |                 |
| 7000BGVER          | 700-422         | 7200ERC           | 720-007         |                |                 |
| 7000BGVER          | 700-424         | 7200ERCS-2        | 720-472         |                |                 |
| 7000BGVER2-4       | 700-413         | 7200ERCS-2        | 720-474         |                |                 |
| 7000BGVER-S36      | 700-416         | 7200ER-S7C        | 720-403         |                |                 |
| 7000BM             | 700-105         | 7200IPER          | 720-079         |                |                 |
| 7000BMR            | 700-106         | 7200IPER2-4       | 720-082         |                |                 |
| 7000BMSER          | 700-409         | 7200IPER-S7C      | 720-072         |                |                 |
| 7000BMSER-120      | 700-470         | 7200IPER-S7C      | 720-070         |                |                 |
| 7000BMSGOR         | 700-886         | 7200IPER-SO-4     | 720-081         |                |                 |
| 7000BMSGOR         | 700-887         | 7222DER           | 722-051         |                |                 |
| 7000BMV            | 700-503         | 7222DERC          | 722-053         |                |                 |
| 7000BMV            | 700-505         | 7222IPER          | 722-079         |                |                 |
| 7000BMVR           | 700-504         | R103RCTSLPPA      | 110-503         |                |                 |
| 7000BMVR           | 700-508         | R103RVTSLP        | 110-507         |                |                 |
| 7000BMVR           | 700-506         | R103RVTSLP        | 110-509         |                |                 |
| 7000BMVR-LP        | 700-515         | R103RVTSLPPA      | 110-501         |                |                 |
| 7000BMVR-S7C       | 700-511         | R103RVTSLPPA      | 110-504         |                |                 |



# COMMERCIAL COOKING CROSS REFERENCE FOR UNI-LINE® PARTS

| Factory Number  | Uni-Line Number | Factory Number    | Uni-Line Number | Factory Number | Uni-Line Number |
|-----------------|-----------------|-------------------|-----------------|----------------|-----------------|
| 401XM           | 41-224          | INF-120-1152      | 5500-134M       | SA-382-36      | 5300-017        |
| 501A            | 41-204          | INF-120-1152      | 5500-135M       | SJ-157-36      | 5300-146        |
| 501A            | 41-205          | INF-240-1153      | 5500-234M       | SJ-328-36      | 5300-146        |
| 501A            | 41-209          | INF-240-1153      | 5500-235M       | SM2            | 41-521          |
| 7000BGOR-S7B    | 700-804         | INF-240-597       | 5500-202M       | SP-184-60      | 5300-612        |
| 7000BMSGOR      | 700-886         | INF-240P-1047     | 5500-287M       | SP-186-60      | 5300-614        |
| 7000BMSGOR      | 700-887         | INF-240P-1148     | 5500-212M       | SP-191-60      | 5300-618        |
| BJWA25PB-02-48  | 4350-015        | INF-240PX-803     | 5500-200M       | SP-192-36      | 5300-641        |
| BJWA25PC-09-36  | 4350-028        | KA-601-36         | 5300-015        | SP-197-60      | 5300-651        |
| BJWA25PD-10-48  | 4350-040        | KA-601-72         | 5300-088        | SP-200-60      | 5300-671        |
| BJWA25PM-02-48  | 4350-127        | KA-604-48         | 5300-027        | SP-390-36      | 5300-219        |
| BJWA25PM-03-48  | 4350-128        | KNP-6-36          | 5300-502        | TS11J-1211-1-0 | 1720-008        |
| BJWA25PM-11-48  | 4350-027        | KX-161-24         | 5300-766        | TS11J-1311-1-0 | 1720-005        |
| BJWA44TC-12-36  | 4350-029        | KX-299            | 5300-401        | TS11J-3211-1-0 | 1720-004        |
| D1-32-060-59-00 | 5000-851        | KX-396            | 5300-402        | TS11J-4211-1-0 | 1720-007        |
| D1-C5-060-59-00 | 5000-811        | KX-87-36          | 5300-711        | Z871470042     | 5210-125        |
| EA3-44-36       | 5300-100        | KXP-149-60        | 5300-735        | Z950641100     | 1720-801        |
| FDH-1-06-48     | 4200-508        | LCC-36-060-00-00  | 5225-010        | Z950644100     | 1720-802        |
| FDO-1-04-48     | 4200-007        | LCH-37-030-00-00  | 5225-009        | MPA-V112-1-UXM | 5500-102M       |
| FDO-1-07-48     | 4200-005        | LCH-68-024-00-00  | 5225-047        | MPA-V114-1-UNM | 5500-134M       |
| FDO-3-05-54     | 4200-025        | LCH-J6-024-00-00  | 5225-054        | MPA-W108-UXM   | 5500-200M       |
| FDTH-1-05-48    | 4200-505        | LCHM-05-030-00-00 | 5225-112        | MPA-V116-UXM   | 5500-202M       |
| FDTH-1-06-48    | 4200-503        | BJWA25PC-01-48    | 4350-027        | MPA-V119-UNM   | 5500-234M       |
| FDTH-3-06-54    | 4200-026        | RX-1-36           | 5300-401        | MPA-W123-UNM   | 5500-287M       |
| FDTO-1-05-48    | 4200-011        | RX-2-24           | 5300-402        | MPA-V135-1-UNN | 5502-303M       |
| FJT-102-1040    | 4075-029        | RX-6-36           | 5300-406        | MPA-V441-UNM   | 5502-350M       |
| FJTDO-13        | 4075-200        | S-234-36          | 5300-175        | MPA-V162-UNM   | 5502-448M       |
| GS-A6-030-18-00 | 4290-006        | S-23-48           | 5300-041        | MPA-V154-UNM   | 5502-468M       |
| GS-C8-060-00-00 | 4290-008        | S-384-36          | 5300-114        | MPA-V152-1-UNM | 5502-915M       |
| GS-J1-036-00-00 | 4290-020        | SA-245            | 5300-017        |                |                 |

## RC THERMOSTAT CODES

Example: Code RC13600-2P  
 Example: Code RCR2000-2P

| RC   | 1  | 36                               | 00  | 2             | P                        |
|--|--|----------------------------------|---|---------------|--------------------------|
| RCR  | 20   | 00                               | 00  | 2             | P                        |
| Model / Model and Switch   | 0 – Semiautomatic defrosting refrigerator (Push Button)                        | Capillary length in inches ( " ) | Product Manufacturer Code (00 = Standard) | Serial Number | (P) Individual packaging |
| RCR – Heating and Cooling Air Conditioner (Reverse cycle)            | 1 – Residential and commercial refrigerators (Constant differential)           |                                  |   |               |                          |
| RCV – Cooling Air Conditioner with fan switch                        | 2 – Duplex/Biplex x Always On Refrigerators (2 terminals)                      |                                  |   |               |                          |
| PAR – Heating and Cooling Air Conditioner (cross-environment – bulb) | 3 – Air Conditioner (cooling only)   |                                  |   |               |                          |
| RFR – Double Action Freezer (Freezer and Cooler)                     | 4 – Drinking fountains and Coolers   |                                  |   |               |                          |
| RH – Duplex/Biplex Refrig. (Thermostat with in-built resistance)     | 5 – Freezers and cooling displays  |                                  |   |               |                          |
| RCE – Twin Refrigerator (Thermostat with special switch)             | 6 – Absorption Refrigerators   |                                  |   |               |                          |
| RCA – Refrigerator with auxiliary switch                             | 7 – Any temperature range with a fixed position (Pole-free thermostat)         |                                  |   |               |                          |
|  | 8 – Cooling Air Conditioner (Cross-environment – bulb)                         |                                  |   |               |                          |
|  | 9 – Duplex/Biplex x Always On Refrigerator with auxiliary switch (3 terminals) |                                  |   |               |                          |

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EFFECTIVE NOVEMBER 3, 2014

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- A. Recognition as a non-exclusive Company distributor is based upon market coverage, product knowledge, and general effectiveness in representing specific Products supplied by Company. Distributor acknowledges that Company may sell directly or to any third party that Company selects as and when Company so desires in its sole and absolute discretion. Distributor represents to Company that Distributor is engaged in business solely as a stocking distributor and its primary customers for Company's Products are HVACR contractors and others who directly engage in the installation and servicing of environmental controls, heating, ventilation and air conditioning controls and equipment. Distributor acknowledges that Company's Products are designed for specific applications and Distributor agrees it shall not market, resell, distribute, or recommend the use of any of Company's Products in any application where the use of the Product is not as intended or designed by Company or does not conform to Company's specifications for use, and shall indemnify Company, its officers, directors, shareholders, employees, agents and representatives for all such unauthorized use. Company shall have no responsibility, and/or liability and the Product Warranty set forth herein shall be void, if Distributor uses or recommends the use of any Product for any application for which it is not intended or designed.
- B. Distributor agrees that Company's arrangement with Distributor can be terminated by Company with or without cause, upon fourteen (14) days notice unless otherwise agreed in writing by Company and Distributor. In the event of termination, all of the goodwill and other proprietary and intellectual rights in and to Company's Products shall remain the sole property of Company. Distributor will not be entitled to any compensation or payments including, but not limited to, expenses, lost profits, sales or revenue, loss of goodwill or otherwise, as a result of Company's termination.
- C. Distributor agrees to provide a credit application and Tax Resale Certificate, if applicable, to Company's Credit Department to obtain credit approval in order to set up Distributor's account. Distributor also agrees to periodically furnish Company, at Company's request, updated financial information. Recognized distributors must maintain minimum annual net purchases of \$5,000 USD or CND, respectively.

## II. ORDERING INFORMATION

- A. Company will only accept orders from its recognized Distributors, or the Distributor's recognized branches. Possession of Company's product catalog or Price Schedule does not constitute authority or right to purchase items directly from Company.
- B. To submit orders, please fax order to:

|                |              |
|----------------|--------------|
| USA and Canada | 800.426.0804 |
| International  | 951.737.8261 |
- C. Orders must state Distributor's account number, ship to address, catalog part number, item description, quantity ordered and unit price. Orders will not be processed without this information confirmed in writing by Distributor.
- D. Order changes by Distributor must be made in writing, or verified in writing, before Company can complete processing of the order, and shall be subject to the terms of Section V below.
- E. All Products may be combined in a single order for best pricing and freight terms.
- F. Products carrying the footnote "@" are only available in the multiples shown. Some items are also noted with a required minimum purchase quantity that must be followed. Company reserves the right to increase the order quantity in compliance to item minimums and multiples without authorization by Distributor or to refuse to accept the order.
- G. A minimum net billing of \$100 USD or CND, respectively, per order, per branch drop shipment applies (excluding freight and/or applicable taxes).
- H. Orders will only be accepted for shipment to one destination. Portions of orders for shipment to other addresses will be considered separately for pricing, freight, and item minimum and multiple requirements.
- I. Drop shipments to destinations other than a recognized Distributor's address, or its recognized branch address, will require approval based solely at the discretion of Company. If approved, additional charges may apply. Standard order terms and requirements will apply.
- J. Nothing in these Terms and Conditions of Sale requires or is intended to require Company to accept any purchase order from Distributor, and Company shall have no liability to Distributor or to any third party in the event Company decides not to accept any order.
- K. All orders are final once shipped to Distributor.

# TERMS AND CONDITIONS OF SALE - NA, SA, ANZ

## III. PRICING

- A. PRICES ON ALL ORDERS ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE AT ANY TIME. Written notification of pending price increases will be made in advance of the effective date of the price change, whenever practicable. Except where prices are specifically designated in Company's quotation as "Firm" for a specified period of time, all Products shipped on or after the effective date of a price change will be invoiced at the new price level. Company reserves the right to make price changes during the term of an existing Agreement (unless expressly agreed otherwise in such Agreement) or any blanket orders. Company's Policy and Distributor Price Schedule may be electronically downloaded in their current versions through Company's online literature service at [www.Robertshaw.com](http://www.Robertshaw.com). International Distributors should contact their customer service representative for current Price Schedules.
- B. Prices do not include any applicable taxes, excises, duties, quotation fees or other government charges or surcharges that Company may be required to pay or collect under any existing or future law. Distributor agrees to pay or reimburse Company for any applicable taxes, charges or surcharges that Company or Company's agents or suppliers are required to pay. Prices may also be adjusted at any time, with or without notice, for changes in exchange rates.
- C. In the event any order submitted by Distributor to Company contains pricing not in accordance with the then-current Price Schedule, or its special quoted pricing, Company will notify Distributor of the discrepancy in price and Distributor shall correct the pricing in writing by either acknowledging the correction on a revised order confirmation, a pricing approval form, or by submitting a new order to Company. All orders shall be placed on hold until Distributor provides written acknowledgment of correct pricing.

## IV. PAYMENT TERMS

- A. Subject to Company's Credit Department approval, standard invoice payment terms are Net 30 days from date of shipment.
- B. Payments can be made either via check, certified check, money order, wire transfer, or irrevocable and confirmed letter of credit, paid to the order of the remittance name specified on the respective invoice. All billings and payments shall be in United States Dollars (USD) or CAD, respectively. International Distributor's billings and payments shall be in the agreed currency. Company may require check in advance, cash in advance, or a Letter of Credit (LOC) on international accounts, which Distributor shall furnish upon request.
- C. If Distributor's order requires check in advance, supplies and raw materials may not be purchased and Product may not be produced or shipped until payment is received and funds are cleared from the bank upon which they are drawn. In the event standard or non-standard Product is produced and funds do not clear Distributor's bank, Distributor is liable to Company for all associated costs and damages thereof including, but not limited to, price of Products already shipped (plus freight charges); finished goods; costs of work-in-progress, vendor items, raw materials and parts Company cannot return, vendor cancellation charges, if any and other costs related to the order or incurred therewith. Applicable Product lead-times will begin once funds clear.
- D. Invoices are due and payable in one installment and any portion of the price which is not paid on time shall be subject to a service charge at the lesser of one and one half percent (1-1/2%) per month (18% per annum), or the maximum rate permitted by law, from the due date until the amount is paid in full. Company shall be entitled to recover from Distributor all costs for collection, including reasonable attorneys fees and court costs, incurred by Company in connection with any amount due Company from Distributor. Company reserves the right to withhold shipments or require Distributor to provide prepayment or a check in advance if, in Company's judgment, Distributor presents a credit risk.
- E. Deductions are not allowed without prior written authorization from Company. Any invoice corrections or money owed Distributor will be issued in the form of a credit from Company to Distributor's account.

## V. FREIGHT AND DELIVERY TERMS

- A. Unless otherwise agreed by Company in writing, the delivery terms for all orders are Ex works (Company's shipping point) (EXW, Incoterms 2010).
- B. For US and Canada Distributors, regular ground freight will be prepaid by Company via carrier of Company's choice on individual orders with a minimum net value of \$2,500.00 USD or CAD, respectively, before applicable taxes, and shipping at one time to any recognized Distributor or its branch. Orders less than \$2,500.00 USD or CAD, respectively, will be prepaid by Company but will be at Distributor's expense and freight charges will be added to Distributor's invoice.
- C. Unless otherwise agreed by Company in writing, international Distributor's freight will be prepaid by Company via carrier of Company's choice and freight charges will be added to Distributor's invoice.
- D. If Distributor requests and Company agrees, in its sole discretion, to arrange for shipment of Products as an accommodation to Distributor, Distributor must furnish Company with Distributor's carrier account number and carrier information. All freight, storage, insurance or other costs of shipment shall be paid by Distributor and, if advanced by Company, shall be added to Distributor's invoice.
- E. Distributor may request to pick up Product at Company's distribution facility site and Company may honor such request, in its sole discretion, provided Distributor notifies Company's Customer Service Department at least forty-eight (48) hours in advance of the pick-up date and Company confirms such request in writing within twenty-four (24) hours of Distributor's notice. In no event may Distributor pick up Product unless Distributor has received written confirmation from Company allowing such pick up.
- F. Company agrees to use commercially-reasonable efforts to meet delivery schedules requested by Distributor, but shall have no liability for failure to do so for any reason.
- G. Company reserves the right to select the manner in which the Product is packaged. Quoted prices include regular packing. Special requirements for packing will be subject to extra charges, unless otherwise agreed by Company in writing.
- H. Orders acknowledged by Company may not be canceled or amended, or deliveries deferred by Distributor, except with Company's prior written consent, and then only upon such terms as shall be acceptable to Company. In the event of order cancellation, in whole or in part, Distributor shall be liable to Company for all costs and damages arising from or related to such cancellation including, but not limited to, price of Products already shipped (plus freight charges finished goods; costs of work-in-progress, including vendor items, raw materials and parts Company cannot return, vendor cancellation charges, if any and other documented costs related to the order.
- I. Title and risk of loss to all Products shall pass to Distributor upon delivery by Company to a carrier at Company's shipping point.
- J. Export/Import and Code of Conduct Compliance. If Distributor distributes Company's Product outside the United States, Distributor shall be responsible for compliance with all applicable export, re-export and import control laws and regulations imposed on the Product; any related technical information by the United States government or by any foreign country; trade sanctions and embargo laws, regulations, rules, licenses, orders and requirements including, but not limited to, the U.S. Export Administration Regulations, rules and regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control, EU Regulation No. 428/2009, any regulations in force within any relevant territory, and any orders issued under the foregoing in force from time to time. Distributor shall obtain all validated governmental authorizations or licenses, as required. Upon Company's request, Distributor shall furnish statements certifying such compliance either annually or on a per-order basis and shall cooperate in any audit or inspection related to applicable export or import control

# TERMS AND CONDITIONS OF SALE - NA, SA, ANZ

laws or regulations. Distributor shall comply with the Robertshaw Supplier Code of Conduct and the Robertshaw Code of Conduct, including their Anti-Bribery provisions, copies of both of which are available upon request to Company. Distributor shall indemnify and hold Company and its directors, officers, shareholders, employees, agents and representatives harmless for any and all liability including, but not limited to, any and all fines, penalties, losses, costs, damages or expenses (including attorneys', expert and witness fees) incurred by Company as a result of, or relating to, Distributor's noncompliance with the terms herein.

- K. Harmonized Tariff Schedule (HTS) and export classification numbers such as Schedule B, ECCN, and the like, if provided by Company, represent solely an opinion of Company. Under no circumstances shall Company be liable whatsoever for the validity or any inaccuracies therein. Distributor shall be solely responsible for ensuring the proper classifications are declared on the shipment documents and to the relevant authorities. Company urges Distributor to consult with a subject matter expert, such as an attorney or a licensed Freight Forwarder, to review and determine the correct classification for the imported/exported Products.

## VI. INSPECTION AND ACCEPTANCE

- A. Distributor shall inspect all deliveries within two (2) business days of receipt. In the event there is damage to Product or shortage of Product, Distributor shall notify the carrier and Company within the two (2) business-day period and provide a copy of the signed packing list noting the damage or shortage thereon. All other Products shall be deemed to have been finally inspected and accepted by Distributor within ten (10) days after date of invoice, unless a written notice of claim is given by Distributor to Company within the 10-day period. This ten (10) day period applies to all other discrepancies, including discrepancies in invoicing, shortage or damage, and excludes shortage in shipment caused by carrier or damaged shipment caused by carrier, as provided above, which requires two (2) business days notice. No Product subject to a claim may be returned without the prior authorization of Company. Authorized return shipments must be sent to Company accompanied by a packing slip, and include Company's Return Materials Authorization (RMA) Number, purchase order number, Company's invoice number, the number of cartons and items received, condition of cartons and any other relevant facts that would be helpful in tracing the cause of the discrepancy, and must have transportation charges prepaid.
- B. Company will verify all reports of shipping discrepancies and, where applicable, will issue a credit invoice. No prior debits will be accepted.

## VII. WARRANTY

### A. Warranty

1. Company warrants its standard Products listed in the then-current Distributor Price Schedule to be free from defects in workmanship and material under normal use and service and to perform substantially in accordance with published Company specifications (subject to reasonable tolerances) in effect at the time of acceptance of Distributor's order, for a period of twelve (12) months from the date the Product is placed in use (proof of installation is required), or eighteen (18) months from the date of manufacture, whichever occurs first (the "Warranty Period").

2. Exceptions from the Warranty stated above:

Some Products may contain extended warranties. Please refer to the Product's documentation for specific warranty coverage, if applicable.

- Plastic items are not warranted for failure after installation in a machine or assembly.
- Product subjected to abuse or damage is not warranted. Abuse or damage may be indicated by, but not limited to, one or more of the following:

|                      |                                      |
|----------------------|--------------------------------------|
| Burned contacts      | Abuse or tampering                   |
| Stripped threads     | Missing parts                        |
| Water or fire damage | Improper installation or application |
| Split castings       |                                      |

3. Products that fail during the Warranty Period and otherwise qualify under the terms of Company's Warranty will, in Company's sole discretion, be (i) credited to Distributor's account at Distributor's lowest net invoice amount, (ii) repaired, or (iii) replaced provided that the Products are returned to Distributor pursuant to Section VIII(B) below. Payment deductions for warranty returns are not allowed. In no event shall the warranty claim exceed the Product price allocated to the Distributor's lowest net invoice price over either the previous twelve (12) months, or since inception of an Agreement between Company and Distributor, if any, whichever is less. If a returned Product is determined by the Company, in its sole discretion, to fall under the Warranty above, and if Distributor has requested on the packing list that a replacement Product be sent to Distributor, then Company will issue a replacement Product in lieu of issuing a credit to Distributor. Company reserves the right to supply suitable substitutes for Warranty Products that are not currently in production or otherwise available. Costs of Product removal or reinstallation, including labor, are not the responsibility of Company and not included in the Warranty.

4. THIS EXPRESS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER EXPRESS OR IMPLIED WARRANTIES, GUARANTEES, OR REPRESENTATIONS, BY OPERATION OF LAW OR OTHERWISE INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, AND FITNESS FOR A PARTICULAR PURPOSE. COMPANY SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT OR PUNITIVE DAMAGES OF ANY NATURE WHATSOEVER INCLUDING, BUT NOT LIMITED TO, LOST SALES, LOST REVENUES OR PROFITS, LOSS OF USE, OR GOODWILL ARISING OUT OF OR RESULTING FROM THE USE OR INABILITY TO USE COMPANY'S PRODUCTS. ANY STATEMENTS OR REPRESENTATIONS MADE BY OTHER PERSONS, ENTITIES, OR ANY THIRD PARTIES ARE SPECIFICALLY DISCLAIMED AND SHALL BE NULL AND VOID.

5. THE FOREGOING REMEDY SHALL BE THE DISTRIBUTOR'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S SOLE OBLIGATION FOR FAILURE OF PRODUCT TO CONFORM TO THE WARRANTY.

### B. Return for Warranty Consideration

1. All Products to be considered for warranty must be returned to Company with freight and transportation charges prepaid.
2. Product returned to Company must be packaged in such a manner that will prevent any further damage to the Product during transit. The Warranty terms above shall not apply to any items damaged in transit.
3. An itemized packing slip, including Distributor's name and address, is required for each shipment to Company of Product(s) to be considered for warranty. The packing slip must contain a reference number, items and their quantities being returned, reason for warranty return, date of installation, date of failure, and a contact name at the Distributor in case further information is required.
4. For Distributors within North America (USA and Canada), all cartons must be clearly identified as WARRANTY PRODUCT and returned to:

|                       |                              |
|-----------------------|------------------------------|
| USA Distributors:     | Canada Distributors:         |
| Warranty Department   | Warranty Department          |
| Robertshaw            | Robertshaw                   |
| 1921 Anei Circle      | 4060 Ridgeway Drive, Unit 14 |
| Brownsville, TX 78521 | Mississauga, ON L5L5X9       |

# TERMS AND CONDITIONS OF SALE - NA, SA, ANZ

For International Distributors, please contact your customer service representative for return authorization and procedures.

## C. Inspection of Product

1. Company will inspect each item to confirm that the returned Product qualifies for the Warranty in Section VII. If the inspection by Company does not disclose any defect covered by the Warranty, then Company shall notify Distributor accordingly and the Distributor has the option to request Company to scrap the Product or return it at Distributor's expense. AT COMPANY'S OPTION, COMPANY MAY SCRAP THE PRODUCT WITH NO FURTHER LIABILITY TO DISTRIBUTOR, UNLESS DISTRIBUTOR NOTIFIES COMPANY OTHERWISE WITHIN ONE (1) WEEK OF COMPANY'S NOTIFICATION.
2. In the event Distributor sends Company goods that were not manufactured and/or distributed by Company, Company will notify Distributor. Distributor has the option to request Company to scrap the product or return it at Distributor's expense. AT COMPANY'S OPTION, COMPANY MAY SCRAP THE PRODUCT WITH NO FURTHER LIABILITY TO DISTRIBUTOR, UNLESS DISTRIBUTOR NOTIFIES COMPANY OTHERWISE WITHIN ONE (1) WEEK OF COMPANY'S NOTIFICATION.

## D. Final disposition of any warranty claim shall be determined solely by Company and shall be final and binding.

## VIII. RETURN MATERIAL AUTHORIZATION (FOR NEW AND UNUSED PRODUCT RETURNS)

- A. Returns will not be accepted, nor credits given, without a factory authorized Return Materials Authorization (hereinafter "RMA"). RMAs are only issued to the original point of purchase location for current manufactured and/or distributed items that fall within the Warranty terms and have been purchased within the previous twelve months. Returns will not be accepted for special order or non-stock items (as indicated in the Price Schedule).
- B. In order to request an RMA number, Distributors must provide the invoice number, sales order number (or customer's purchase order number), the item numbers and quantities of Products they wish to return, and the reason for return to their Sales or Customer Service Representative.
- C. RMA Processing
  1. The RMA number is valid only if the Product it refers to is received at the address specified on the RMA form, freight and transportation charges prepaid, within fourteen (14) days from the date of Company's-issued authorization. Company may reject the request if Product is received after fourteen (14) days from the date of Company's-issued authorization.
  2. The Product must be received in its original saleable condition (including all accessories and inserts), in its original packaging, and undamaged. Damaged Product will not be accepted for return or replacement, even if a RMA number has been issued.
  3. Credit for the return will be based on the lowest net invoice amount for the Distributor over the last 12 months, or per the Agreement between Company and Distributor, if any, unless proof of purchase for the actual shipped Product is provided.
  4. All returns are subject to a minimum fifteen percent (15%) restock charge or \$15.00 USD, whichever is greater. Company will not accept returns that do not have a proper RMA or are sent to Company in error.

## IX. DISCONTINUED PRODUCTS

- A. Company reserves the right to discontinue distribution of any Product without notice, or substitute material or complete devices, when items ordered are not currently in production or otherwise available.

## X. PERMISSIBLE VARIATIONS

- A. Company may, prior to the delivery of Product to Distributor, make changes in the Product including, but not limited to, changes to the model, design, component parts or dimensions. In addition, Company may make any change or variation in the Product that is within industry, government or professional organization standards or specifications applicable at the time of manufacture, without notice to Distributor. Distributor hereby agrees to accept any Product that may incorporate any such changes or variations, and any increase in price resulting from such changes or variations will be for the account of Distributor.

## XI. FORCE MAJEURE

- A. Company shall not be liable for any delay or failure in performance, or for any damages suffered by the Distributor by reason of such delay, if caused or arising directly or indirectly from any act beyond Company's reasonable control including, but not limited to, acts of God; vandalism; sabotage; accidents; fires; floods; strikes or other labor disputes; mechanical breakdowns; shortages or delays in obtaining suitable parts, equipment, material, labor, power or transportation; acts of suppliers; interruption of utility services; acts of terrorism, or acts of any unit or agency of government. Any delays so occasioned shall affect a corresponding extension of Company's performance dates that are, in any event, understood to be approximate.

## XII. LIMITATION OF LIABILITY

Notwithstanding any other provision in these Terms and Conditions, Company's liability shall be limited as follows:

- A. IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL OR PUNITIVE DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF SALES, PROFITS OR REVENUE, LOSS OF USE, LOSS OF GOODWILL OR INCREASE IN OPERATING COSTS.
- B. IN NO EVENT SHALL COMPANY'S LIABILITY EXCEED THE AMOUNT PAID TO COMPANY FOR THE PRODUCT FOR THE QUANTITIES OF COMPANY'S PRODUCTS GIVING RISE TO ANY SUCH LIABILITY, EXCEPT WITH RESPECT TO THIRD-PARTY CLAIMS FOR PERSONAL INJURY, WHICH SHALL BE LIMITED TO COMPENSATION FOR SUCH PERSONAL INJURY.
- C. COMPANY SHALL NOT BE LIABLE TO DISTRIBUTOR FOR ANY CLAIMS, DAMAGES, EXPENSES, FEES, COSTS, LOSSES, CAUSES OF ACTION, OR SUITS WHICH ARISE OUT OF OR RELATE TO THE SALE OF PRODUCT DUE TO THE DIRECTION, NEGLIGENCE, ACT, OMISSION, OR USE OF THE PRODUCT IN A MANNER NOT SPECIFICALLY AUTHORIZED, INTENDED OR DESIGNED BY COMPANY, WILLFUL MISCONDUCT, OR OTHER FAULT OF ANY NATURE WHATSOEVER OF DISTRIBUTOR, ITS EMPLOYEES, AGENTS, SERVANTS, CUSTOMERS, OR END USERS.
- D. THE ABOVE LIMITATIONS OF LIABILITY SHALL APPLY EVEN IF COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND REGARDLESS WHETHER THE CLAIM FOR RECOVERY IS BASED ON BREACH OF WARRANTY OR CONTRACT, NEGLIGENCE, INFRINGEMENT, STRICT LIABILITY OR OTHER TORT.
- E. THE RIGHT TO RECOVER DAMAGES WITHIN THE LIMITATIONS SPECIFIED ABOVE IS THE DISTRIBUTOR'S EXCLUSIVE ALTERNATIVE REMEDY IN THE EVENT THAT ANY OTHER CONTRACTUAL REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

## XIII. CONFIDENTIALITY

- A. Company's Price Schedules, quotes and any discounts contained herein are considered confidential and/or proprietary information of Company and Distributor shall in no instance share any Price Schedules or discounts, business discussions, financial information, or other confidential and/or proprietary information of Company with any other person, group, entity, or third party.

# TERMS AND CONDITIONS OF SALE - NA, SA, ANZ

## XIV. GENERAL

- A. This document shall be governed by and interpreted in accordance with the laws of the State of Illinois, USA, regardless of the laws that might otherwise govern under Illinois principles of conflicts of laws and without regard to the United Nations Convention on Contracts for the International Sale of Goods. Venue for any dispute shall be exclusively in the Circuit Court of DuPage County, the Circuit Court of Cook County, or the US District Court for the Northern District of Illinois, Eastern Division.
- B. Company and Distributor expressly agree that all terms and conditions, quotations, purchase orders and any related documents and correspondence be drafted and interpreted in the English language.
- C. In the event that any of the provisions hereof shall be held invalid, illegal, void or unenforceable, the remaining provisions shall remain in full force and effect as written.
- D. As used herein, the terms Distributor and Company include their respective heirs, executors, personal representatives, successors and assigns, including their corporate successors by purchase, merger and acquisition.
- E. Distributor may not assign its rights or obligations, or any portion thereof, without the advance written consent of Company.
- F. Paragraph headings are inserted for convenience of reference only and shall not be used in the construction or interpretation hereof.
- G. Company's failure to assert any of its rights under these Terms and Conditions of Sale shall not be deemed a waiver of such rights and shall not extend to or affect any other right Company may possess or to any subsequent or dissimilar event.
- H. These Terms and Conditions of Sale supersede any and all previously published versions issued by Company. Except where there exists a fully executed agreement between Distributor and Company, these Terms and Conditions of Sale constitute the entire agreement between Distributor and Company and supersede all previous and/or contemporaneous understandings and agreements, whether verbal or written, express or implied, relating to the subject matter herein. Any changes to these Terms and Conditions of Sale must be in writing and signed by an authorized representative of Company.



The following are the Terms and Conditions of Sale of Robertshaw s.r.o., a Czech Republic company (the "Company"), for those of its products it may agree to sell for distribution ("Products").

THESE TERMS AND CONDITIONS ARE COMPANY'S EXCLUSIVE TERMS AND CONDITIONS OF SALE BETWEEN COMPANY AND DISTRIBUTOR, AND SHALL APPLY TO ALL PRODUCTS ILLUSTRATED HEREIN AND SUPERSEDE ANY INCONSISTENT, ADDITIONAL, PREPRINTED OR OTHER TERMS AND CONDITIONS CONTAINED IN DISTRIBUTOR'S PURCHASE ORDER OR ANY OTHER DISTRIBUTOR DOCUMENT OR ANY DOCUMENTS DERIVED FROM THE DISTRIBUTOR'S CUSTOMERS AND COMPANY DOES NOT AGREE TO ANY ADDITION, MODIFICATION OR DELETION OF THESE TERMS AND CONDITIONS. ANY OTHER TERMS AND CONDITIONS ARE HEREBY REJECTED AND CONSIDERED NULL AND VOID. THESE TERMS AND CONDITIONS CAN BE VARIED ONLY BY A WRITTEN DOCUMENT SIGNED BY COMPANY. COMPANY RESERVES THE RIGHT TO MODIFY THESE TERMS AND CONDITIONS OF SALE AT ANY TIME WITHOUT PRIOR NOTICE TO DISTRIBUTOR. ANY REVISED TERMS AND CONDITIONS, HOWEVER, WILL ONLY AFFECT THOSE ORDERS RECEIVED BY COMPANY AFTER THE EFFECTIVE DATE OF THE REVISION.

Distributor will ensure by its contract with the end user or ultimate owner or its buyer of the Products, that Company is given the benefit of these Terms and Conditions of Sale, including the exclusions and limitations of liability set forth herein, or as hereafter modified by Company, by all such users, owners and buyers and Distributor will indemnify Company, its officers, directors, shareholders, employees, agents and representatives against any actions, claims, demands, liabilities, damages, losses, costs and expenses including, but not limited to, legal and expert witness fees, to the extent that Company would not be liable to Distributor under these Terms and Conditions of Sale if the claim had been made by Distributor. Accordingly, except as to those terms in Sections I, Distributor Recognition; II, Ordering Information; III, Pricing; IV, Payment Terms; V, Freight and Delivery Terms; VI, Inspection and Acceptance; and VIII, Return Material Authorization, which are exclusive to Distributor, any reference to "Distributor" in these Terms and Conditions shall also include Distributor's customers, transferee's, assigns, affiliates, or whoever else takes control or possession of the Product.

#### **I. DISTRIBUTOR RECOGNITION**

- A. Recognition as a non-exclusive Company distributor is based upon market coverage, product knowledge, and general effectiveness in representing specific products supplied by Company. Distributor acknowledges that Company may sell directly or to any third party that Company selects as and when Company so desires, at Company's sole and absolute discretion. Distributor represents to Company that Distributor is engaged in business solely as a stocking distributor and its primary customers for Company's Products are "HVACR" contractors and others who directly engage in the installation and servicing of environmental controls, heating, ventilation and air conditioning controls and equipment. Distributor acknowledges that Company's Products are designed for specific applications and Distributor agrees it shall not market, resell, distribute, or recommend the use of any of Company's Products in any application where the use of the Product is not as intended or designed by Company or does not conform to Company's specifications for use, and shall indemnify Company, its officers, directors, shareholders, employees, agents and representatives for all such unauthorized use.  
Company shall have no responsibility and/or liability and the Product Warranty set forth herein shall be void, if Distributor uses or recommends the use of any Product for any application for which it is not intended or designed.
- B. Distributor agrees that Company's arrangement with Distributor can be terminated by Company with or without cause, upon fourteen (14) days' notice unless otherwise agreed in writing by Company and Distributor. In the event of termination, all of the goodwill and other proprietary and intellectual rights in and to Company's Products shall remain the sole property of Company. Distributor will not be entitled to any compensation or payments including, but not limited to, expenses, lost profits, sales or revenue, loss of (or Company's gain of) goodwill or otherwise, as a result of Company's termination.
- C. Distributor agrees to provide a credit application to Company's Credit Department to obtain credit approval in order to set up Distributor's account. Distributor also agrees to periodically furnish Company, at Company's request, updated financial information. Recognized distributors must maintain minimum annual net purchases of €5,000.

#### **II. ORDERING INFORMATION**

- A. Company will only accept orders from its recognized Distributors, or the Distributor's recognized branches. Possession of Company's product catalog or Price Schedule does not constitute authority or right to purchase items directly from Company.
- B. To submit orders, please fax order to: +420 587 805 241
- C. Orders must state Distributor's account number, ship to address, catalogue part number, item description, quantity ordered and unit price. Orders will not be processed without this information confirmed in writing by Distributor.
- D. Order changes by Distributor must be made in writing, or verified in writing, before Company can complete processing of the order, and shall be subject to the terms of Section V below.
- E. All Products may be combined in a single order for best pricing and freight terms.
- F. Products carrying the footnote "@" are only available in the multiples shown. Some items are also noted with a required minimum purchase quantity that must be followed. Company reserves the right to increase the order quantity in compliance to item minimums and multiples without authorization by Distributor, or to refuse to accept the order.
- G. A minimum net billing of €100 per order, per branch drop shipment applies (excluding freight and/or applicable taxes).
- H. Orders will only be accepted for shipment to one destination. Portions of orders for shipment to other addresses will be considered separately for pricing, freight, and item minimum and multiple requirements.
- I. Drop shipments to destinations other than a recognized Distributor's address, or its recognized branch address, will require approval based solely at the discretion of Company. If approved, additional charges may apply. Standard order terms and requirements will apply.
- J. Nothing in these Terms and Conditions of Sale requires or is intended to require or shall be construed by Distributor as requiring Company to accept any purchase order from Distributor, and Company shall have no liability to Distributor or to any third party in the event Company decides not to accept any order.
- K. All orders are final once shipped to Distributor.

#### **III. PRICING**

- A. PRODUCT PRICES ON ALL ORDERS ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE AT ANY TIME. Company reserves the right to make price changes during the term of any blanket orders unless prices are specifically designated in Company's quotation as "firm" for a specified period of time. Company's Policy and Distributor Price Schedule may be electronically downloaded in their current versions through Company's online literature service at [www.Robertshaw.com](http://www.Robertshaw.com). International Distributors should contact their customer service representative for current Price Schedules.



# TERMS AND CONDITIONS OF SALE - EUROPE

- B. Prices do not include any applicable taxes, excises, duties, quotation fees or other government charges or surcharges that Company may be required to pay or collect under any existing or future law. Distributor agrees to pay or reimburse Company for any applicable taxes, charges or surcharges that Company or Company's agents or suppliers are required to pay.
- C. In the event any order submitted by Distributor to Company contains pricing not in accordance with Company's then-current Price Schedule, or its special quoted pricing, Company will notify Distributor of the discrepancy in price and Distributor shall correct the pricing in writing by either acknowledging the correction on a revised order confirmation, a pricing approval form, or by submitting a new order to Company. All orders shall be placed on hold until Distributor provides written acknowledgment of correct pricing.

## IV. PAYMENT TERMS

- A. Subject to Company's Credit Department approval, standard invoice payment terms are Net 30 days from date of shipment.
- B. Payments can be made either via money order, wire transfer, or irrevocable and confirmed letter of credit, paid to the order of the remittance name specified on the respective invoice. All billings and payments shall be in Euros (EUR) or such other currency as Company's Sales Order Acknowledgment may provide for. Company may require cash in advance or an irrevocable letter of credit, which Distributor shall furnish upon request.
- C. Distributor's order requires payment in advance, supplies and raw materials may not be purchased and Product may not be produced or shipped until payment is received and funds are cleared from the bank upon which they are drawn. In the event standard or non-standard Product is produced and funds do not clear Distributor's bank, Distributor is liable to Company for all associated costs and damages thereof including, but not limited to: price of Products already shipped (plus freight charges); finished goods; costs of work-in-progress, vendor items, raw materials and parts Company cannot return, vendor cancellation charges (if any) and other costs related to the order or incurred therewith. Applicable Product lead-times will begin once funds clear.
- D. Invoices are due and payable in one installment and any portion of the price which is not paid on time shall be subject to a service charge equal to 2% above the EURIBOR rate from time to time in force, from the due date until the amount is paid in full (before and after judgment). Company shall be entitled to recover from Distributor all costs for collection, including reasonable legal fees and court costs incurred by Company in connection with any amount due to the Company from Distributor. Company reserves the right to withhold shipments or require Distributor to provide payment in advance if, in Company's judgment, Distributor presents a credit risk.
- E. Deductions are not allowed without prior written authorization from Company. Any invoice corrections or money owed Distributor will be issued in the form of a credit from Company to Distributor's account.

## V. FREIGHT AND DELIVERY TERMS

- A. Unless otherwise agreed by Company in writing, the shipment terms for all orders are Ex works (Company's premises) (EXW, Incoterms 2010).
- B. All freight, storage, insurance or other costs of shipment arising outside of an EXW arrangement shall be paid by Distributor and, if advanced by Company, shall be added to Distributor's invoice.
- C. Company agrees to use commercially-reasonable efforts to meet delivery schedules requested by Distributor and agreed to in Company's Sales Order Acknowledgment, but shall have no liability for failure to do so for any reason and time for delivery shall not be of the essence.
- D. Company reserves the right to select the manner in which the Product is packaged. Quoted prices include regular packing. Special requirements for packing will be subject to extra charges, unless otherwise agreed by Company in writing.
- E. Orders acknowledged by Company may not be canceled or amended, or deliveries deferred by Distributor, except with Company's prior written consent, and then only upon such terms as shall be acceptable to Company. In the event of order cancellation, in whole or in part, Distributor shall be liable to Company for all costs and damages arising from or related to such cancellation including, but not limited to: price of Products already shipped (plus freight charges for finished goods); costs of work-in-progress, including vendor items, raw materials and parts Company cannot return; vendor cancellation charges (if any) and other documented costs related to the order.
- F. Title and risk of loss to all Products shall pass to Distributor upon delivery.
- G. Code of Conduct Compliance. Distributor shall comply with the Robertshaw Supplier Code of Conduct and the Robertshaw Code of Conduct, including their Anti-Bribery provisions, copies of both of which are available upon request to Company. Distributor shall indemnify and hold Company and its directors, officers, shareholders, employees, agents and representatives harmless for any and all liability including, but not limited to, any and all fines, penalties, losses, costs, damages or expenses (including legal, expert and witness fees) incurred by Company as a result of, or relating to, Distributor's non-compliance with the terms therein.
- H. Harmonized Commodity Descriptions and Codes and export classification numbers if provided by Company, represent solely an opinion of Company. Under no circumstances shall Company be liable whatsoever for the validity or any inaccuracies therein. Distributor shall be solely responsible for ensuring the proper classifications are declared on the shipment documents and to the relevant authorities. It is incumbent on Distributor to consult with a trade compliance expert to review and determine the correct classification for the imported/exported Products.

## VI. INSPECTION AND ACCEPTANCE

- A. Distributor shall inspect all deliveries within two (2) business days of receipt. In the event there is damage to Product or shortage of Product, Distributor shall notify any carrier and Company within the two (2) business-day period and provide a copy of the signed packing list noting the damage or shortage thereon. Products shall be deemed to have been finally inspected and accepted by Distributor within ten (10) days after date of invoice, unless a written notice of claim is given by Distributor to Company within the 10-day period. This ten (10) day period applies to all other discrepancies, including discrepancies in invoicing, shortage or damage, and excludes shortage in shipment caused by carrier or damaged shipment caused by carrier, as provided above, which requires two (2) business days' notice. No Product subject to a claim may be returned without the prior authorization of Company. Authorized return shipments must be sent to Company accompanied by a packing slip, and include Company's Return Materials Authorization (RMA) Number, purchase order number, Company's invoice number, the number of cartons and items received, condition of cartons and any other relevant facts that would be helpful in tracing the cause of the discrepancy, and must have transportation charges prepaid.
- B. Company will verify all reports of shipping discrepancies and, where applicable, will issue a credit invoice. No prior debits will be accepted.

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## VII. WARRANTY

### A. Warranty

1. Company warrants its standard Products listed in the then-current Distributor Price Schedule to be free from defects in workmanship and material under normal use and service and to perform substantially in accordance with published Company specifications (subject to reasonable tolerances) in effect at the time of acceptance of Distributor's order, for a period of twenty-four (24) months from the date the Product is manufactured (the "Warranty Period").
2. Exceptions from the warranty stated above: Some Products may contain extended warranties. Please refer to the Product's documentation for specific warranty coverage, if applicable.
  - Plastic items are not warranted for failure after installation in a machine or assembly.
  - Product subjected to abuse or damage is not warranted. Abuse or damage may be indicated by, but not limited to, one or more of the following:

|                      |                                      |
|----------------------|--------------------------------------|
| Burned contacts      | Abuse or tampering                   |
| Stripped threads     | Missing parts                        |
| Water or fire damage | Improper installation or application |
| Split castings       |                                      |
3. Products that fail during the Warranty Period and otherwise qualify under the terms of Company's Warranty will, in Company's sole discretion, be (i) credited to Distributor's account at Distributor's lowest net invoice amount, (ii) repaired, or (iii) replaced provided that the Products are returned to Distributor pursuant to Section VIII (B) below. Payment deductions for warranty returns are not allowed. In no event shall the warranty claim exceed the Product price allocated to the Distributor's lowest net invoice price over either the previous twelve (12) months, or since inception of an Agreement between Company and Distributor, if any, whichever is less. If a returned Product is determined by the Company, in its sole discretion, to fall under the Warranty above, and if Distributor has requested on the packing list that a replacement Product be sent to Distributor, then Company will issue a replacement Product in lieu of issuing a credit to Distributor. Company reserves the right to supply suitable substitutes for Warranty Products that are not currently in production or otherwise available. Costs of Product removal or re-installation, including labor, are not the responsibility of Company and not included in the Warranty.
4. THIS EXPRESS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER EXPRESS OR IMPLIED WARRANTIES, GUARANTEES, OR REPRESENTATIONS, BY OPERATION OF LAW OR OTHERWISE INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, AND FITNESS FOR A PARTICULAR PURPOSE. COMPANY SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT OR PUNITIVE DAMAGES OF ANY NATURE WHATSOEVER INCLUDING, BUT NOT LIMITED TO, LOST SALES, LOST REVENUES OR PROFITS, LOSS OF USE, OR GOODWILL ARISING OUT OF OR RESULTING FROM THE USE OR INABILITY TO USE COMPANY'S PRODUCTS. ANY STATEMENTS OR REPRESENTATIONS MADE BY OTHER PERSONS, ENTITIES, OR ANY THIRD PARTIES ARE SPECIFICALLY DISCLAIMED AND SHALL BE NULL AND VOID.
5. THE FOREGOING REMEDY SHALL BE THE DISTRIBUTOR'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S SOLE OBLIGATION FOR FAILURE OF PRODUCT TO CONFORM TO THE WARRANTY.

### B. Return for Warranty Consideration

1. All Products to be considered for warranty must be returned to Company with freight and transportation charges prepaid.
2. Product returned to Company must be packaged in such a manner that will prevent any further damage to the Product during transit. The Warranty terms above shall not apply to any items damaged in transit.
3. An itemized packing slip, including Distributor's name and address, is required for each shipment to Company of Product(s) to be considered for warranty. The packing slip must contain a reference number, items and their quantities being returned, reason for warranty return, date of installation, date of failure, and a contact name at the Distributor in case further information is required.
4. All cartons must be clearly identified as WARRANTY PRODUCT and returned to:

Warranty Department  
Robertshaw  
Dlouhá 4  
785 01 Sternberk, Czech Republic

### C. Inspection of Product

1. Company will inspect each item to confirm that the returned Product qualifies for the Warranty in Section VII. If the inspection by Company does not disclose any defect covered by the Warranty, then Company shall notify Distributor accordingly and the Distributor has the option to request Company to scrap the Product or return it at Distributor's expense. AT COMPANY'S OPTION, COMPANY MAY SCRAP THE PRODUCT WITH NO FURTHER LIABILITY TO DISTRIBUTOR, UNLESS DISTRIBUTOR NOTIFIES COMPANY OTHERWISE WITHIN ONE (1) WEEK OF COMPANY'S NOTIFICATION.
2. In the event Distributor sends Company products that were not manufactured and/or distributed by Company, Company will notify Distributor. Distributor has the option to request Company to scrap the product or return it at Distributor's expense. AT COMPANY'S OPTION, COMPANY MAY SCRAP THE PRODUCT WITH NO FURTHER LIABILITY TO DISTRIBUTOR, UNLESS DISTRIBUTOR NOTIFIES COMPANY OTHERWISE WITHIN ONE (1) WEEK OF COMPANY'S NOTIFICATION.

D. Final disposition of any warranty claim shall be determined solely by Company and shall be final and binding.

## VIII. RETURN MATERIAL AUTHORIZATION (FOR NEW AND UNUSED PRODUCT RETURNS)

- A. Returns will not be accepted, nor credits given, without a factory authorized Return Materials Authorization (hereinafter "RMA"). RMAs are only issued to the original point of purchase location for current manufactured and/or distributed Products that fall within the Warranty terms and have been purchased within the previous twelve months. Returns will not be accepted for special order or non-stock items (as indicated in the Price Schedule).
- B. In order to request an RMA number, Distributors must provide the invoice number, sales order number (or customer's purchase order number), the item numbers and quantities of Products they wish to return, and the reason for return to their Sales or Customer Service Representative.
- C. RMA Processing

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1. The RMA number is valid only if the Product it refers to is received at the address specified on the RMA form, freight and transportation charges prepaid, within fourteen (14) days from the date of Company's issued authorization. Company may reject the request if Product is received after fourteen (14) days from the date of Company's issued authorization.
2. The Product must be received in its original saleable condition (including all accessories and inserts), in its original packaging, and undamaged. Damaged Product will not be accepted for return or replacement, even if a RMA number has been issued.
3. Credit for the return will be based on the lowest net invoice amount for the Distributor over the last 12 months unless proof of purchase for the actual shipped Product is provided.
4. All returns are subject to a minimum fifteen percent (15%) restock charge or €15.00, whichever is greater. Company will not accept returns that do not have a proper RMA or are sent to Company in error.

## IX. DISCONTINUED PRODUCTS

- A. Company reserves the right to discontinue distribution of any Product without notice, or substitute material or complete devices, when items ordered are not currently in production or otherwise available.

## X. PERMISSIBLE VARIATIONS

- A. Company may, prior to the delivery of Product to Distributor, make changes in the Product including, but not limited to, changes to the model, design, component parts or dimensions. In addition, Company may make any change or variation in the Product that is within industry, government or professional organization standards or specifications applicable at the time of manufacture, without notice to Distributor. Distributor hereby agrees to accept any Product that may incorporate any such changes or variations, and any increase in price resulting from such changes or variations will be for the account of Distributor.

## XI. FORCE MAJEURE

- A. Company shall not be liable for any delay or failure in performance, or for any damages suffered by the Distributor by reason of such delay or failure, if caused or arising directly or indirectly from any act beyond Company's reasonable control including, but not limited to: acts of God; vandalism; sabotage; accidents; fires; floods; strikes or other labor disputes; mechanical breakdowns; shortages or delays in obtaining suitable parts, equipment, material, labor, power or transportation; acts of suppliers; interruption of utility services; acts of terrorism, or acts of any unit or agency of government. Any delays so occasioned shall affect a corresponding extension of Company's performance dates that are, in any event, understood to be approximate.

## XII. LIMITATION OF LIABILITY

- A. Subject to clause XII (C), Company shall not in any circumstances be liable for any loss of use, production, profit, business, contracts, revenues or anticipated savings, any increase in operating costs, any product recall or corrective action costs or any other financial or economic loss or any indirect or consequential loss or damage whatsoever whether suffered by Distributor or by any third party.

## EMEA

### CUSTOMER SERVICE - EMEA

Robertshaw, Dlouha 4, 785 01 Sternberk, Czech Republic  
Customer Service Telephone: +420.587.805.191  
Customer Service Facsimile: +420.587.805.244  
CustomerService.STB@robertshaw.com

### TECHNICAL SERVICE - EMEA

Robertshaw, Dlouha 4, 785 01 Sternberk, Czech Republic  
Technical Service Telephone: +420.587.805.177  
Jan Hub – Manufacturing Engineering  
jan.hub@robertshaw.com

## NORTH AMERICA

### CUSTOMER SERVICE – NORTH AMERICA

Robertshaw, 1751 Third Street, Suite 102, Norco, CA 92860, USA  
Customer Service Telephone: +1.800.304.6563  
Customer Service Facsimile: +1.800.426.0804  
HVACCustomerService@robertshaw.com

### TECHNICAL SERVICE – NORTH AMERICA

Robertshaw, 1222 Hamilton Parkway, Itasca, IL 60143, USA  
Technical Service Telephone: +1.800.445.8299  
International Technical Service Telephone: +1.630.260.3400 x7344  
TechnicalService@robertshaw.com

## SOUTH AMERICA

### CUSTOMER SERVICE – SOUTH AMERICA

Robertshaw, Robertshaw, 1751 Third Street, Suite 102, Norco, CA 92860, USA  
Customer Service Telephone: +1.800.304.6563  
Customer Service Facsimile: +1.800.426.0804  
HVACCustomerService@robertshaw.com

### TECHNICAL SERVICE – SOUTH AMERICA

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Technical Service Telephone: +1.800.445.8299  
International Technical Service Telephone: +1.630.260.3400 x7344  
TechnicalService@robertshaw.com



## **AUSTRALIA AND NEW ZEALAND CUSTOMER SERVICE - AUSTRALIA**

Robertshaw, 3B Lenton Place, North Rocks, NSW Australia 2151  
Customer Service Telephone +61.296.317999  
Customer Service Facsimile +61.298.963595  
sales.au@robertshaw.com

## **TECHNICAL SERVICE - AUSTRALIA**

Robertshaw, 3B Lenton Place, North Rocks, NSW Australia 2151  
Technical Service Telephone: +61.296.317999  
Technical Service Facsimile: +61.298.963595  
sales.au@robertshaw.com

## **INDIA**

### **CUSTOMER SERVICE – INDIA**

Robertshaw Controls Pvt. Ltd  
Survey No. 197 (Part), Viman Nagar, Nagar Road, Pune, Maharashtra 411 014 IN  
Customer Service Telephone: +91.20.4912.3300  
customer.services@robertshaw.com



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