# DL

## Integrated Temperature Controls



- **Line or Ambient Sensing Thermostats**

- **Solid State and Electro-Mechanical Controls**

- **Rugged, Corrosion Resistant Construction**

- **NEMA 4X Design with Corrosion and Weather Resistant Ryton® Construction**

- **Ambient Sensing**
  - **120 - 480 Vac**
  - **0 - 225°F Temp. Rating**
  - **9/16" OD x 4" SS Probe**
  - **Ordinary & Hazardous Area (Div. 2) Approvals**

- **Bulb & Capillary**
  - **120 - 480 Vac**
  - **0 - 400°F Setpoint Range**
  - **1/4" OD x 7-1/4" SS Bulb and Capillary**
  - **Ordinary & Hazardous Area (Div. 2) Approvals**

- **Solid State**
  - **20 A @ 120 - 240 Vac**
  - **Setpoint Ratings:**

    **0 - 100°F**

    **50 - 250°F**

    **200 - 600°F**

  - **Ordinary Area Approvals**

## Description

The DL Series Single Point On/Off Temperature Controls from Chromalox represent the state of the art in heat tracing and are available in five models to handle a broad range of applications. Models include two ambient sensing thermostats, two line sensing thermostats and a line sensing solid state controller. These high-quality models combine temperature control and power connection in a convenient, easy to use and economical package.

## Applications

- Hydrocarbon and Chemical Product Piping
- Process Temperature Maintenance
- Fluid Flow and Viscosity Maintenance
- Freeze Protection

## Features

- Integrated Controls and Power Connections reduce installation hardware
- Molded of Durable Plastic Material (Ryton® PPS)[1]
- High Service Temperature
- Corrosion Resistant
- Thermal Stability
- Non-Flammability
- High Strength and Rigidity

- Stainless Steel Sensor Sheath
- Hermetically Sealed Switches on EP models permit control in Div. 2 hazardous areas
- Stainless Steel Hardware to ensure the integrity of the system
- Cable Terminations inside enclosure reduce installation time and cost
- Liquid Tight Design prevents moisture from reaching the electrical connections. All models are rated NEMA 4X.

## Approvals[2]

**UL, CSA, FM** is carried by most models, consult specific product information.

**UL** Listed for ordinary areas

**CSA** Certified for ordinary and:

- Class I, Div. 2, Groups A, B, C, D
- Class II, Div. 2, Groups F, G

**FM** Approved for ordinary and:

- Class I, Div. 2, Groups B, C, D
- Class II, Div. 2, Groups F, G
- Class III, Div. 2 Areas.

**Notes** —
1. Ryton®, is a registered trade name of Phillips Chemical Company.
2. Depends on specific model and cable applied.

**Accessories and Controls**

## Chromalox®

Represented By: Ross & Pethtel
Phone: 225-273-2202     Website

# DL
## Integrated Temperature Controls *(cont'd.)*

### RTAS & RTAS-EP Ambient Sensing

**RTAS** is an ambient-sensing thermostat which is generally used for freeze protection in ordinary (non-hazardous) areas. The thermostat is mounted through the end of the oblique sided enclosure lid. In fact, because there is so much room in this model, multiple heating cables can be terminated. The stainless steel sheathed, inverted bellows probe provides good sensitivity, resulting in more accurate control.

**RTAS-EP** is a modified version of the RTAS which utilizes a hermetically sealed switch. Since this switch has no arcing contacts, it can be used in Division 2 Hazardous Areas.

### Specifications

**Temp. Setpoint Range —** 0 to 225°F (-18 to 107°C) for RTAS/RTAS-EP

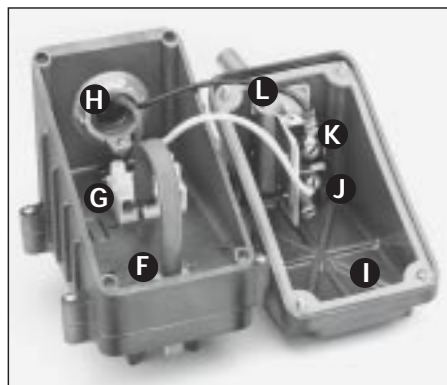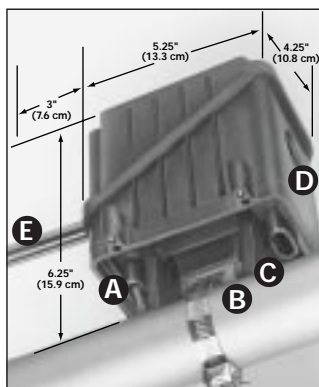**Microswitch® Rating —** 22 Amps SPDT for RTAS; 11 Amps, RTAS-EP

**Scale Division —** 10°F (5.6°C)

**Max. Sensor Exposure Temp. —** 250°F (121°C)

**Sensor Dimensions —** 9/16" Dia. x 3" Long

**Operating Ambient Temp. Range —** -40°F to 160°F (-40 to 71°C)

**Factory Preset and Calibrated —** 40°F

### Construction

**A** Strategically placed cable entries allow maximum flexibility for insulation (Heating cable cut away for clarity).

**B** Stainless steel tiedown support provides positive attachment to pipes.[1]

**C** Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.

**D** Opening for 3/4" (20 mm) conduit hub.[1]

**E** Stainless steel sheath temperature sensor.

**F** Cable grommets provide water-tight seal between base, box and cable. Order cable grommets separately.

**G** Three position terminal block for easy wiring.

**H** Power wiring entry. Conduit hub not included.[1]

**I** Gasket provides water-tight seal between box and lid. It is affixed to the lid and holds the mounting hardware during assembly.

**J** Thermostat switch.

**K** Setpoint adjustment knob.

**L** Setpoint indicator.

**Note 1** — Refer to DL & EL General Application Accessories at the end of this section.

### Ordering Information

| Model | PCN | Switch Rating (Amps/Volts) | Max. Continuous Exposure Temp. | | Max. Intermittent Exposure Temp. | | Wt. (Lbs.) |
|---|---|---|---|---|---|---|---|
| | | | °F | °C | °F | °C | |
| RTAS | 384833 | 22A @ 120 - 480 | 400 | 200 | 500 | 260 | 2 |
| RTAS-EP | 384825 | 11A @ 120 - 250 | 400 | 200 | 500 | 260 | 2 |

**Stock Status: S** = stock   **AS** = assembly stock   **NS** = non-stock
**To Order—**Specify model, PCN and quantity.

The appropriate grommet must be ordered separately to provide a water tight seal to the accessory. Select the appropriate grommet from table and order 1 grommet for every cable which must enter the accessory.

### GRS - GR8

### Grommets                    PCN

| | | |
|---|---|---|
| GRS | RTD/Capillary type | 383000 |
| GR0 | Blank | 385019 |
| GR1 | SRL-C | 385027 |
| GR2 | SRL-CR, CT | 385035 |
| GR3 | CWM-C | 385043 |
| GR4 | CWM-CT | 385051 |
| GR5 | SRL-MC | 385060 |
| GR6 | SRL-MCR, MCT | 385078 |
| GR7 | SRM/E-C | 385086 |
| GR8 | SRM/E-CT | 385094 |

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## Integrated Temperature Controls *(cont'd.)*

### RTBC & RTBC-EP Bulb & Capillary

**RTBC** is a line-sensing thermostat which is generally used for process temperature maintenance applications in ordinary (non-hazardous) areas. The thermostat is mounted within the enclosure and the capillary is brought out through one of the openings in the bottom of the box. This design provides extra protection for the capillary, especially when the control is mounted on a pipe, for heat tracing applications. The three foot long stainless steel capillary provides good flexibility in mounting locations.

**RTBC-EP** is a modified version of the RTBC which utilizes a hermetically sealed switch. Since this switch has no arcing contacts it can be used in Division 2 Hazardous Areas.

### Specifications

**Temp. Setpoint Range —** 0 to 400°F (-18 to 200°C) for RTBC, RTBC-EP

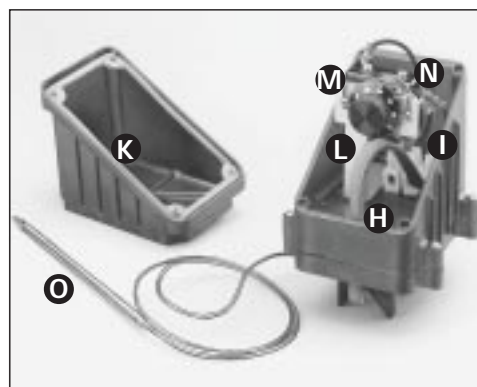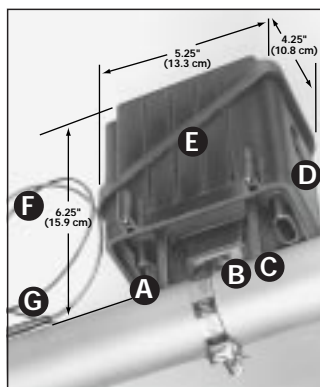**Microswitch® Rating —** 22 Amps SPDT for RTBC; 11 Amps, RTBC-EP

**Minor Scale Division —** 10°F (5.6°C)

**Max. Sensor Exposure Temp. —** 450°F (230°C)

**Sensor Dimensions —** 1/4" (6.4mm) OD x 7-1/4" (18.4cm) L Bulb, 3' (1m) Capillary

**Operating Ambient Temp. Range —** -40°F to 160°F (-40 to 71°C)

**Factory Preset and Calibrated —** 200°F (93°C) for RTBC, RTBC-EP

### Construction

**A** Strategically placed cable entries allow maximum flexibility for insulation (Heating cable cut away for clarity).

**B** Stainless steel tiedown support provides positive attachment to pipes.[1]

**C** Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.

**D** Opening for 3/4" (20 mm) conduit hub.[1]

**E** Oblique sided box and cover allow easy access for wiring.

**F** Stainless steel capillary (3 ft/1m long).

**G** Stainless steel sensing bulb.

**H** Cable grommets provide water-tight seal between base, box, cable and capillary. Order cable grommets separately.

**I** Three position terminal block for easy wiring.

**J** Power wiring entry. Conduit hub not included.[1]

**K** Gasket provides water-tight seal between box and lid. It is affixed to the lid and captures the mounting hardware.

**L** Thermostat mounting bracket.

**M** Setpoint adjustment knob.

**N** Thermostat switch.

**O** Stainless steel sensing bulb.

**Note 1** — Refer to DL & EL General Application Accessories at the end of this section.

### Ordering Information — RTBC

| Model | PCN | Switch Rating (Amps/Volts) | Max. Continuous Exposure Temp. | | Max. Intermittent Exposure Temp. | | Wt. (Lbs.) |
|---|---|---|---|---|---|---|---|
| | | | °F | °C | °F | °C | |
| RTBC | 384850 | 22A @ 120 - 480 | 400 | 200 | 500 | 260 | 2 |
| RTBC-EP | 384841 | 11A @ 120 - 250 | 400 | 200 | 500 | 260 | 2 |

**Stock Status:** **S** = stock   **AS** = assembly stock   **NS** = non-stock
**To Order—**Specify model, PCN and quantity.

The appropriate grommet must be ordered separately to provide a water tight seal to the accessory. Select the appropriate grommet from table and order 1 grommet for every cable which must enter the accessory.

### GRS - GR8

### Grommets

| | | PCN |
|---|---|---|
| GRS | RTD/Capillary type | 383000 |
| GR0 | Blank | 385019 |
| GR1 | SRL-C | 385027 |
| GR2 | SRL-CR, CT | 385035 |
| GR3 | CWM-C | 385043 |
| GR4 | CWM-CT | 385051 |
| GR5 | SRL-MC | 385060 |
| GR6 | SRL-MCR, MCT | 385078 |
| GR7 | SRM/E-C | 385086 |
| GR8 | SRM/E-CT | 385094 |

*Accessories and Controls*

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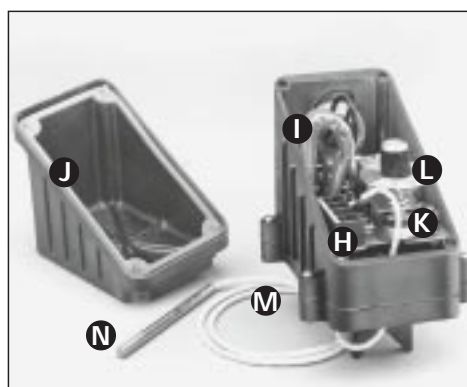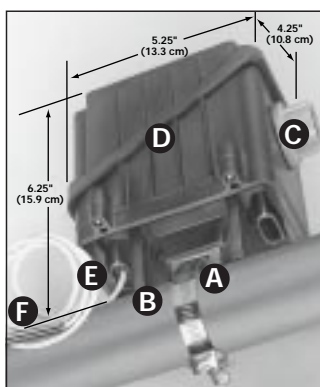## Integrated Temperature Controls *(cont'd.)*

### RTSS
### Solid State Line Sensing (RTD) Control

**RTSS** is a line-sensing solid state controller which is used for process temperature maintenance applications where more precise temperature control is required. This control is supplied with a specially designed RTD sensor. The sensor has a stainless steel sheath and waterproof insulated TFE lead wires. The controller provides excellent accuracy and high current switching ability in a small enclosure.

### Thermostat Specifications

Temperature Setpoint Range

**RTSS-A** = 0 - 100°F (-18 - 38°C)
**RTSS-B** = 50 - 250°F (10 - 121°C)
**RTSS-C** = 200 - 600°F (93 - 316°C)

### Construction

**A** Stainless steel tiedown support provides positive attachment to pipes.[1]

**B** Heavy duty support legs give stable pipe mounting and provide conduit clearance for applications with up to three inches of insulation.

**C** Opening for 3/4" (20 mm) conduit hub. Conduit hub not included.[1]

**D** Oblique sided box and cover allow easy access for wiring.

**E** Entry brings the RTD leads into the box through a special grommet.

**F** RTD and leadwire.

**G** Cable grommets provide water-tight seal between base and box (not visible). Order cable grommets separately.

**H** Built-in terminal blocks for easy wiring.

**I** Power wiring entry. Conduit hub not included.[1]

**J** Gasket provides water-tight seal between box and lid. It is affixed to the lid and captures the mounting hardware.

**K** Solid state controller.

**L** Setpoint adjustment knob.

**M** RTD leads with sealed TFE sheath.

**N** Stainless steel sensing bulb.

**Note 1** — Refer to DL & EL General Application Accessories at the end of this section.
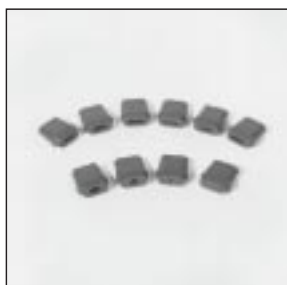
### Ordering Information — RTSS

| Model | PCN | Switch Rating (Amps/Volts) | Max. Continuous Exposure Temp. | | Max. Intermittent Exposure Temp. | | Wt. (Lbs.) |
|---|---|---|---|---|---|---|---|
| | | | °F | °C | °F | °C | |
| RTSS-A | 385908 | 20A @ 120 - 240 | 400 | 200 | 500 | 260 | 2 |
| RTSS-B | 385916 | 20A @ 120 - 240 | 400 | 200 | 500 | 260 | 2 |
| RTSS-C | 385924 | 20A @ 120 - 240 | 400 | 200 | 500 | 260 | 2 |

**Stock Status:** **S** = stock  **AS** = assembly stock  **NS** = non-stock
**To Order**—Specify model, PCN and quantity.

The appropriate grommet must be ordered separately to provide a water tight seal to the accessory. Select the appropriate grommet from table and order 1 grommet for every cable which must enter the accessory.

### GRS - GR8

| Grommets | | PCN |
|---|---|---|
| GRS | RTD/Capillary type | 383000 |
| GR0 | Blank | 385019 |
| GR1 | SRL-C | 385027 |
| GR2 | SRL-CR, CT | 385035 |
| GR3 | CWM-C | 385043 |
| GR4 | CWM-CT | 385051 |
| GR5 | SRL-MC | 385060 |
| GR6 | SRL-MCR, MCT | 385078 |
| GR7 | SRM/E-C | 385086 |
| GR8 | SRM/E-CT | 385094 |

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