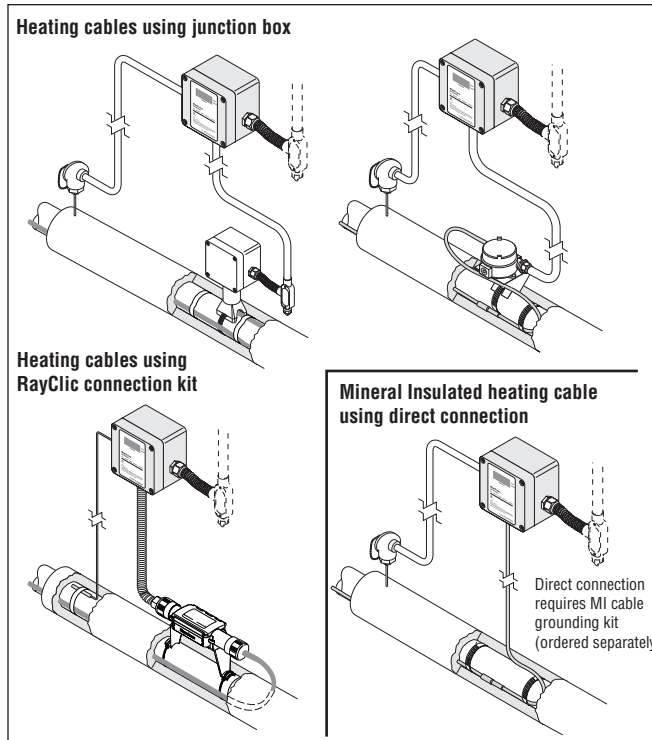


Installation Instructions



Description

The DigiTrace JBS-100-ECW-A is an electric heat-tracing power connection / electronic controller combination housed in a NEMA 4X rated enclosure.

These kits may be installed at temperatures as low as -40°F (-40°C). For easier installation store above freezing until just before installation.

The controller can be programmed to maintain temperatures of 425°F (220°C). It operates at voltages from 100 to 277 Vac and can switch current up to 30 Amps.

For technical support call Tyco Thermal Controls at (800) 545-6258.

Tools Required

- Large slotted screwdriver
- Small slotted screwdriver
- Needle nose pliers

Additional Materials Required

- 3 wire 100 ohm platinum RTD
- Appropriate mounting fasteners
- MI cable grounding kit (for direct connection to ECW)
Catalog No: MI-GROUND-KIT

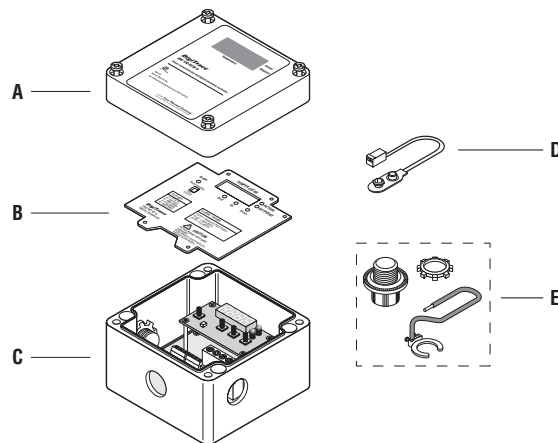
Approvals

Nonhazardous locations



Kit Contents

| Item | Qty | Description |
|------|-----|--|
| A | 1 | Lid |
| B | 1 | Wire cover |
| C | 1 | Box with electronics |
| D | 1 | Battery connector |
| E | 1 | MI cable grounding kit (ordered separately; P00000279) |



WARNING:

This component is an electrical device that must be installed correctly to ensure proper operation and to prevent shock or fire. Read these important warnings and carefully follow all of the installation instructions.

- To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Tyco Thermal Controls, agency certifications, and the National Electrical Code, ground-fault equipment protection must be used. Arcing may not be stopped by conventional circuit breakers.

- Component approvals and performance are based on the use of Tyco Thermal Controls-specified parts only. Do not use substitute parts or vinyl electrical tape.
- The black heating cable core and fibers are conductive and can short. They must be properly insulated and kept dry.
- Damaged bus wires can overheat or short. Do not break bus wire strands when scoring the jacket or core.
- Keep components and heating cable ends dry before and during installation.
- Use only fire resistant insulation materials, such as fiberglass wrap or flame-retardant foam.

CAUTION:

Health Hazard: Prolonged or repeated contact with the sealant in the core sealer may cause skin irritation. Wash hands thoroughly. Overheating or burning the sealant will produce fumes that may cause polymer fume fever. Avoid contamination of cigarettes or tobacco. Consult MSDS RAY5510 for further information.

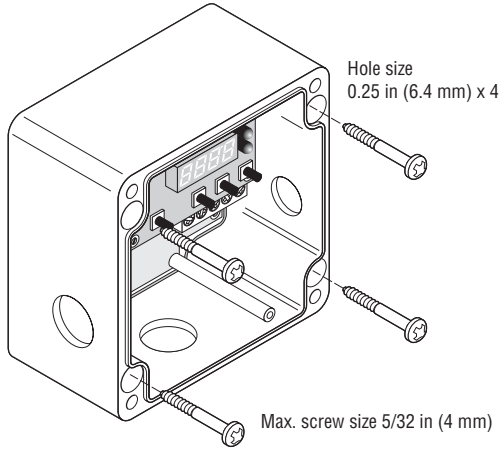
CHEMTREC 24-hour emergency telephone:
(800) 424-9300.

Non-emergency health and safety information:
(800) 545-6258.

JBS-100-ECW-A Installation Instructions

1

- Attach box to wall using the appropriate mounting fasteners.

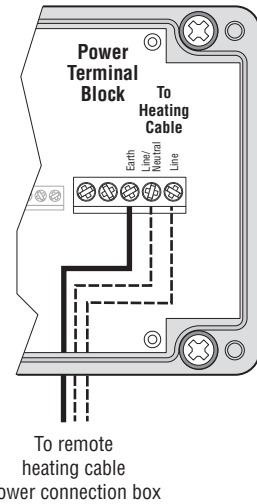
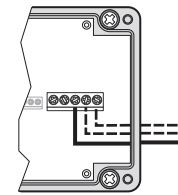


2A Heating Cable using a Junction Box

Connecting Heating Cable

- Insert the two heating cable power wires from the heating cable's junction box into the terminal block marked "To Heating Cable" and the ground (braid) marked "Earth" and tighten terminals. Confirm connection by pulling on the wires.

Optional Side Entry

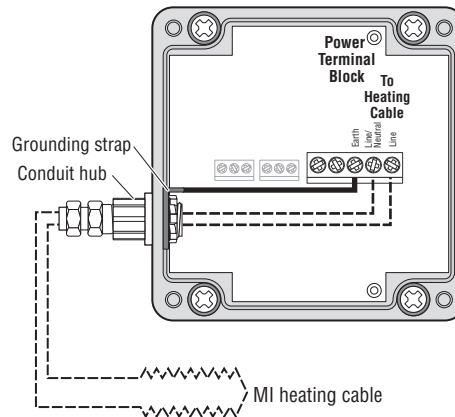


2B Mineral Insulated Heating Cable using a Direct Connection without a Separate Junction Box

Note: To ensure the MI heating cable is properly grounded, all MI cables must be installed with a grounding kit, which is ordered separately (P00000279). Failure to use the grounding kit will void the warranty and can be a safety hazard by preventing normal operation of the ground fault circuit breaker.

- Use the MI cable grounding kit (ordered separately).
- Insert the cold leads through the conduit hub and secure.
- Connect the grounding strap to the conduit hub and secure it with the 1/2" lock nut.

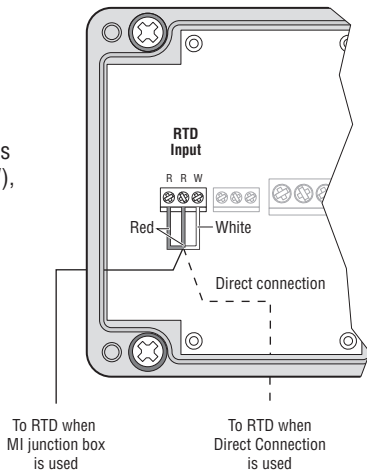
MI heating cable using direct connection



3

Connecting RTD

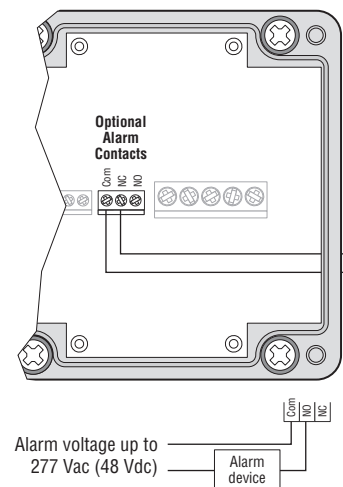
- Insert the three RTD wires into the terminal block marked "RTD Input." Match the colors (Reds to R, White to W), and tighten terminals. Confirm connection by pulling on the wires.



4

Connecting Alarm

- The controller has a form C contact for remote annunciation of RTD failure and low/high temperature alarms. If an external alarm is required, then alarm wiring can exit the enclosure via the 3/4" power conduit hole as long as the insulation rating of the alarm wire is equal to the power wire.

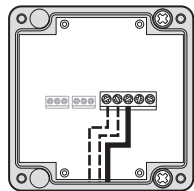
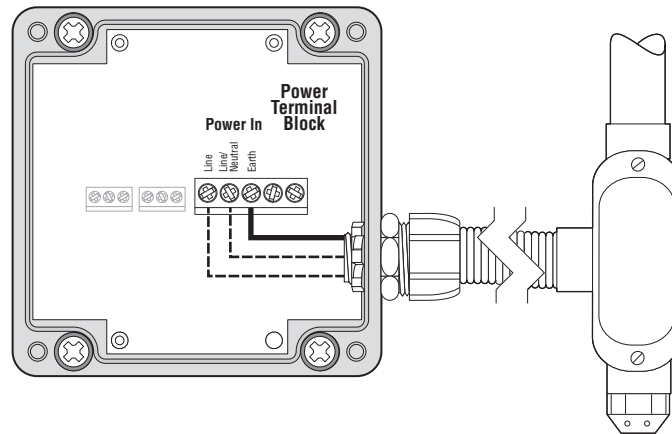


Normally energized; changes state upon an alarm.

5

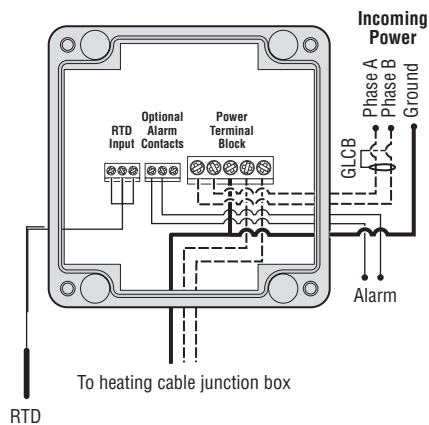
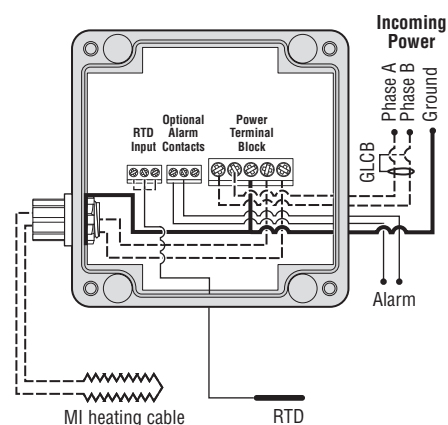
Connecting Incoming Power

- Install conduit and fittings as shown. To minimize loosening due to pipe vibration, use flexible conduit.
- Pull in power and ground wires, strip off 1/2" (13 mm) of insulation and terminate.
- Confirm by pulling on the wires.

Optional
Bottom Entry

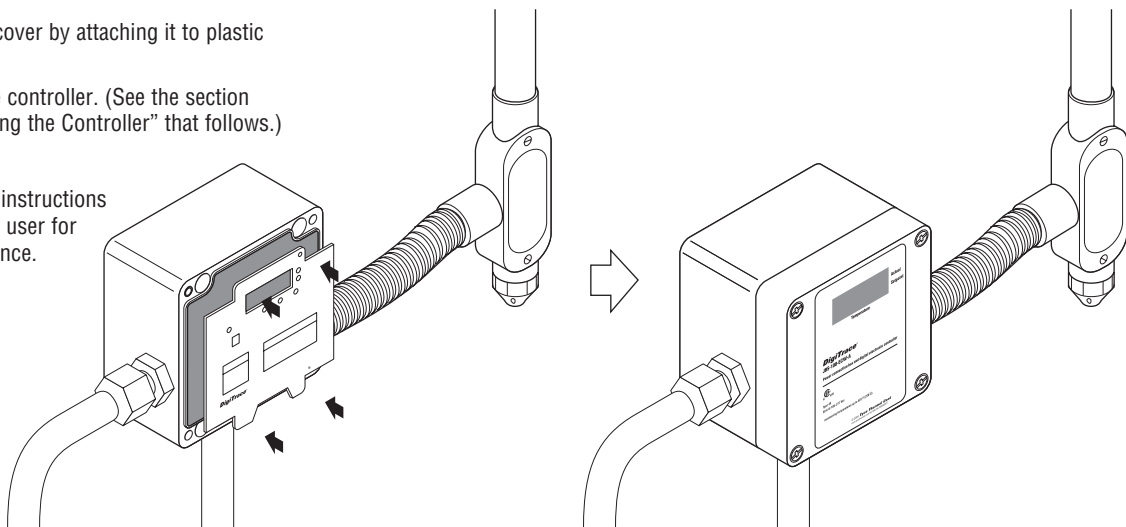
Tyco Thermal Controls recommends the use of a conduit drain to prevent water condensation build-up

6

Finished Wiring Diagram**Heating cable using a junction box****MI heating cable using direct connection**

7

- Install wire cover by attaching it to plastic stand-offs.
- Program the controller. (See the section "Programming the Controller" that follows.)
- Install lid.
- Leave these instructions with the end user for future reference.



JBS-100-ECW-A Installation Instructions

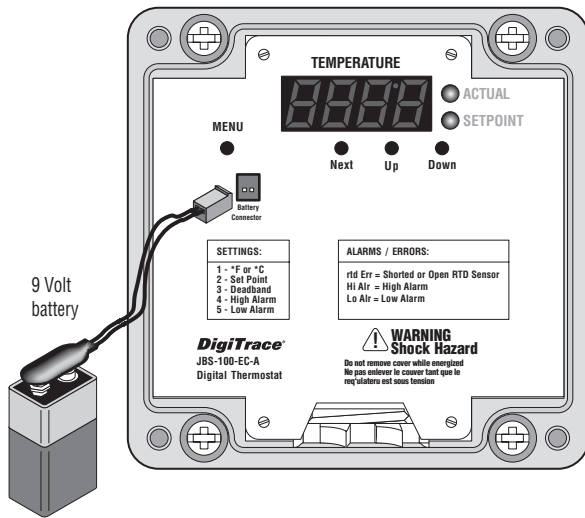
Programming the Controller

To program the controller, supply voltage to the controller in either of the following ways.

1A

Powering Controller via Battery

- Connect 9 VDC battery (not provided) to the supplied battery connector.
- Plug the battery connector onto the two pins on the controller marked “Battery Connector.”



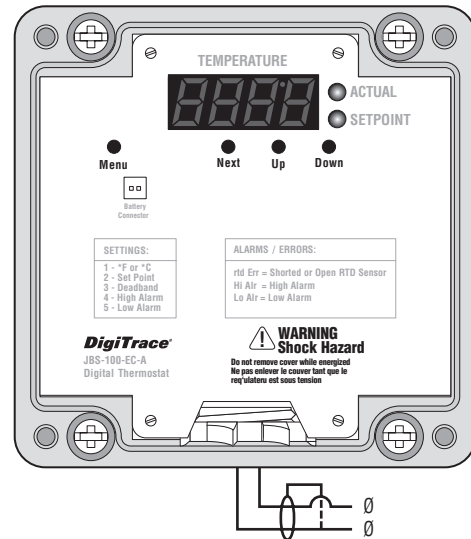
1B

Powering Controller via Line Power

⚠ WARNING: Shock Hazard.

Secure the wire cover in place with the four screws before proceeding.

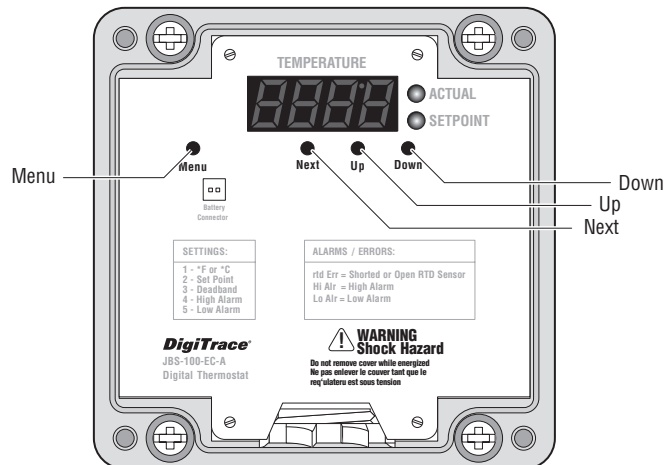
- Turn on branch circuit breaker that supplies power to the controller and heating cable.



2

Activating and Navigating the Menu in Set-up Mode

- To activate set-up mode, press **Menu** button for approximately 5 seconds.
- The display will change to the default mode for units.
- Use the **Up** and **Down** buttons to change values. Use the **Next** button to change to next display code/parameter.
- When completed, secure the enclosure cover.



Parameters

The first parameter displayed during set-up mode is units (°F or °C). Other parameters, their default values, and minimum and maximum values are shown in the following table.

| Display Code | Parameter | Default | Min. | Max. |
|--------------|-------------------------|---------|-------------|---------------|
| 1 | Units °F or °C | °F | – | – |
| 2 | Maintain set point | 40°F | 32°F (0°C) | 425°F (218°C) |
| 3 | Deadband | 5°F | 2°F (2°C) | 10°F (10°C) |
| 4 | High Alarm ¹ | Off | 38°F (3°C) | 482°F (250°C) |
| 5 | Low Alarm ² | Off | 20°F (–6°C) | 420°F (216°C) |

Note:

1. The minimum high temperature alarm set point must always be larger than the maintain set point plus the deadband plus 5°F (3°C).
2. The maximum low temperature alarm set point must always be smaller than the maintain set point minus the deadband.

Alarms

The following table lists the error or alarm codes and their respective faults:

Alarm Relay

Form C: 2 A at 277 Vac, 2 A at 48 Vdc

Normally energized; changes state upon an alarm.

| Alarm / Error Codes | Fault |
|---------------------|----------------------------|
| rtd Err | Shorted or open RTD sensor |
| Hi Alr | High Temperature Alarm |
| Lo Alr | Low Temperature Alarm |

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