The JBS-100-ECP-A is a power connection/electronic controller combination for Raychem® polymeric and Pyrotenax® MI cables. Utilizing the features of the Raychem JBS-100-A single-entry power connection with junction box, along with an indicating electronic controller, this assembly allows for local control of a heating circuit.

The assembly includes a window and a digital display that shows the monitored actual/set point temperatures and alarm conditions (RTD failure, high or low temperature) if detected. Alarm conditions can be remotely indicated via a form C dry contact. Status LEDs indicate whether the digital display is showing the set point or actual temperature.

Programming the set point temperature, deadband, and high and low alarm thresholds on the JBS-100-ECP-A is accomplished using the built-in digital display and push buttons.

The JBS-100-ECP-A is programmable to maintain temperatures of 425°F (218°C), can be used with voltages from 100 to 277 Vac, and is capable of switching current up to 30 Amps.

A 100-ohm platinum RTD provides feedback for either pipe maintenance or ambient sensing for freeze protection.

The power connection/electronic controller combination significantly reduces installation cost. Eliminating wiring and devices to connect separate power connections and thermostats/controllers not only reduces material cost, but also leads to significant labor savings when combined with the cold-applied core sealer and spring clamp terminals characteristic of the JBS-100 line of power connection kits.

The kit contains all the necessary materials for a complete installation except one pipe strap, which must be ordered separately. For connection to a Pyrotenax MI cable, a grounding kit is required (ordered separately).

General

| Heating cable compatibility | Raychem BTV-CR, XL-Trace, BTV-CT, QTVR-CT, XTV-CT, and VPL-CT Pyrotenax Design A & D MI cables (requires MI cable grounding kit – ordered separately) |
| Approvals | Nonhazardous locations |
| Supply voltage | 100–277 Vac ±10% 50–60 Hz Common supply for controller and heat-tracing circuit |
JBS-100-ECP-A

**Enclosure**

- **Protection**: NEMA 4X
- **Material**: Fiberglass reinforced polyester plastic
- **Entries**:
  - 1 x 3/4 in (19 mm) conduit entries for power
  - 1 x 1/2 in (13 mm) conduit entry (with plug) for MI cable entry or alarm wiring
- **Relative humidity**: 0% to 90%, noncondensing
- **Ambient installation and usage temperature**: –40°F to 140°F (–40°C to 60°C)
- **Maximum pipe temperature**: Intermittent 482°F (250°C), continuous 425°F (218°C)

**Control**

- **Relay type**: Double-pole, mechanical
- **Control range**: 32°F to 425°F (0°C to 218°C)
- **Deadband**: Adjustable 1°F to 10°F (1°C to 10°C)
- **Accuracy**: ±3°F (1.7°C) of set point

**Input Power**

- **Voltage**: 277 Vac nominal, 50/60 Hz maximum
- **Current**: 30 A maximum
- **Circuit breaker rating**: 40 A maximum

**Enclosure**

- **JBS-100-ECP-A without wire cover**
- **Display**
  - Actual temp LED
  - Set point temp LED
- **Menu**
- **Battery connection**
- **RTD terminals**
- **Alarm terminals**
- **Stand-offs**

- **Wire cover**
  - **Monitoring**
  - **Temperature**
    - Low alarm range: 20°F–420°F (–6°C–216°C) from set point, or OFF
    - High alarm range: 38°F–482°F (3°C–250°C) from set point, or OFF
  - **RTD failure**
    - Shorted or open RTD sensor
  - **Alarm relay**
    - Form C: 2 A at 277 Vac, 2 A at 48 Vdc
    - Normally energized; changes state upon an alarm
  - **Voltage**
    - Alarm relay changes state upon loss of voltage to the controller

- **Lid**

**RTD Temperature Sensor**

- **Sensor sheath**: 316 stainless-steel housing, 4 in (100 mm) length, 0.25 in (6 mm) outer diameter
- **Material**: Platinum 100 ohms at 0°C $\alpha = 0.00385$ ohms/ohm/°C
- **Leads**: 24 AWG stranded, Teflon PFA insulated
- **Lead length**: 10 ft (3 m)
RTD Temperature Sensor (Continued)

| Exposure temperature | Minimum: –40°F (–40°C)  
|                      | Maximum: Intermittent 482°F (250°C), continuous 425°F (218°C) |
| Accuracy             | ±1°F (0.5°C) at 32°F (0°C) |

Programming and Setting

| Method                  | Programmable at controller – Set/Up/Down push buttons on front panel |
| Units                   | °F or °C |
| Digital display         | Four numeric display digits for parameter and error/alarm indication |
| LEDs                    | Indicate actual and set point from display |
| Memory                  | Nonvolatile, restored after power loss |
| Stored parameters       | Parameters can be programmed without power supply (external battery) and parameters are stored in nonvolatile memory. |
| Alarm conditions        | Low/high temperature and RTD failure (open or shorted) |

Connection Terminals

| Power supply input      | Screw rising cage clamp, 18–6 AWG |
| Heating cable output    | Screw rising cage clamp, 18–6 AWG |
| Ground                  | Screw rising cage clamp, 18–6 AWG |
| RTD                     | Screw rising cage clamp, 22–14 AWG |
| Alarm                   | Screw rising cage clamp, 22–14 AWG |

Ordering Details

<table>
<thead>
<tr>
<th>JBS-100-ECP-A</th>
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<tbody>
<tr>
<td>Description</td>
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<tr>
<td>Power connection kit with junction box and digital electronic controller</td>
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<tr>
<td>Spare Parts &amp; Accessories</td>
</tr>
<tr>
<td>MI cable grounding kit (required if installing MI heating cable)</td>
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<tr>
<td>Replacement controller unit</td>
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<tr>
<td>Replacement RTD and stand assembly</td>
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