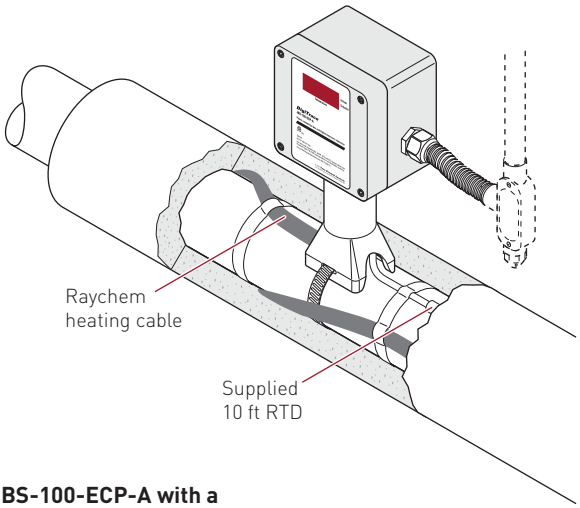
DigiTrace JBS-100-ECP-A

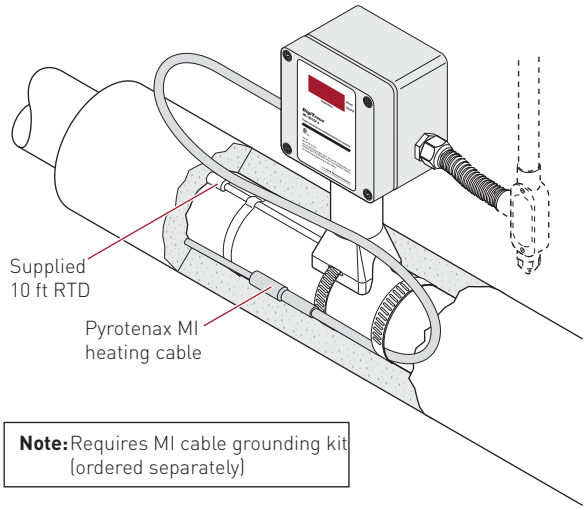
COMBINATION POWER CONNECTION BOX AND DIGITAL ELECTRONIC CONTROLLER

For nonhazardous locations

JBS-100-ECP-A with a Raychem heating cable



JBS-100-ECP-A with a Pyrotenax MI heating cable



Note: Requires MI cable grounding kit (ordered separately)

PRODUCT OVERVIEW

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** C US
Supply voltage	100–277 Vac ±10% 50–60 Hz Common supply for controller and heat-tracing circuit

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)

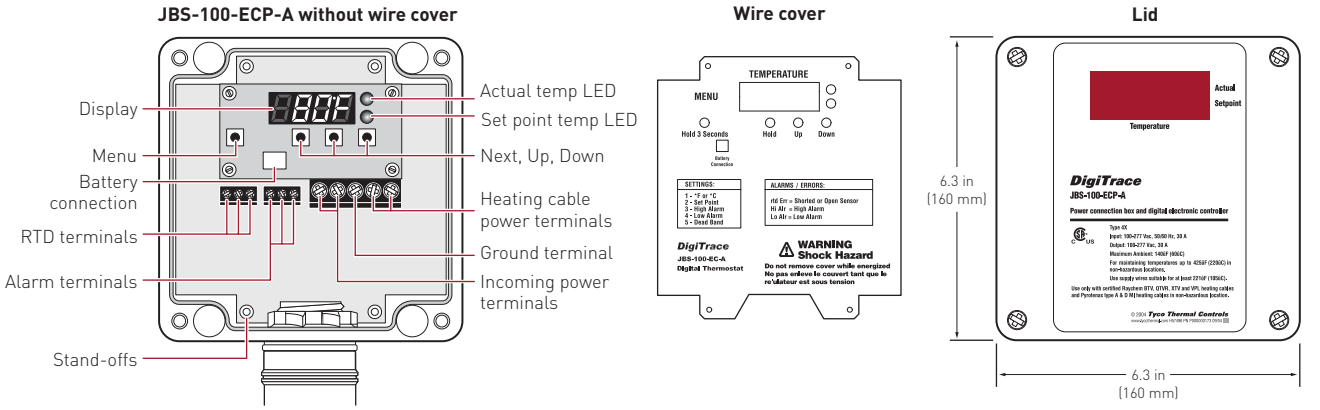
CONTROL

Relay type	Double-pole, mechanical
Control range	32°F to 425°F (0°C to 218°C)
Deadband	Adjustable 2°F to 10°F (2°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



MONITORING AND ALARM OUTPUT

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

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 α = 0.00385 ohms/ohm/°C
Leads	24 AWG stranded, Teflon PFA insulated

RTD TEMPERATURE SENSOR

Lead length	10 ft (3 m)
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

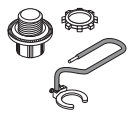
Method	Programmable at controller – Set/Up/Down push buttons on front panel
Units	°F or °C
Digital display	Four numeric display digits for parameter and error/alarm indication
LEDs	Indicate actual and set point from display
Memory	Nonvolatile, restored after power loss
Stored parameters	Parameters can 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

JBS-100-ECP-A

Description	Catalog number	Part number	Weight/lbs
Power connection kit with junction box and digital electronic controller	JBS-100-ECP-A	P000000180	5.0
Spare Parts and Accessories			
MI cable grounding kit (required if installing MI heating cable)	MI-GROUND-KIT	P000000279	0.2
			
Replacement controller unit	JBS-100-EC	P000000217	1.0
Replacement RTD and stand assembly	JBS-RTD-Replace	P000000314	0.8

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