

## INTRODUCTION

Six-input BE3 temperature relays use resistance temperature detectors (RTDs) to monitor remote temperatures. When any of six monitored temperatures exceeds a preset limit, the corresponding LED indicator lights, the TRIP LED lights, and the relay output operates. BE3 temperature relays are available for use with 10  $\Omega$  copper or 100  $\Omega$  platinum RTDs.

## SPECIFICATIONS

### Operating Power

All units require external operating power.

Nominal Voltage: 120 Vac,  $\pm 25\%$ , 45 to 65 Hz, 2 VA  
240 Vac,  $\pm 25\%$ , 45 to 65 Hz, 2 VA  
24 Vdc,  $\pm 20\%$ , galvanically isolated,  $< 3$  W

### RTD Inputs

The RTD inputs accommodate two- or three-wire RTDs. Depending on the style number of the relay, the RTD inputs accept either 10  $\Omega$  copper or 100  $\Omega$  platinum RTDs.

Style 5J5X1: 10  $\Omega$  copper RTDs

Style 5K5X1: 100  $\Omega$  platinum RTDs

The temperature measurement range of each input is 0 to 200°C.

### Metering Output

Range: 0 to 1 mA<sub>dc</sub>

Burden: 5 k $\Omega$  maximum

### Setpoints

Range: 50 to 100% ( $\pm 3\%$ ) of input temperature range

Repeatability: Greater than 0.5% of full span

Differential: Fixed at 2%

### Outputs

Relay Type: S.P.D.T.

AC Rating: 250 V, 5 A, non-resistive, 1200 VA

DC Rating: 125 V, 1 A, resistive, 120 W

Mechanical Life: 5 million operations

### Temperature

Operating Temperature: 0°C (32°F) to 60°C (140°F)

Functional Temperature: -25°C (-13°F) to 70°C (158°F)

Storage Temperature: -40°C (-40°F) to 85°C (185°F)

Temperature Coefficient: 0.03% per °C (300 ppm/°C)

### Humidity

Relative Humidity: 95% non-condensing

## Physical

Mounting: DIN rail 1.38" by 0.29" (35 mm by 7.5 mm)

Case: Complies with IEC 529, DIN 40050, BS 5490

Case Material: Complies with UL 94VO

Weight: 1.32 lb (0.59 kg)

Size: 3.94" wide (100 mm)

## Agency

cULus listed to UL 508 and CSA C22.2 No. 14

CE compliant

GOST-R certified per the relevant standards of Gosstandart of Russia

## OPERATION

Six temperatures are monitored through RTDs connected to the BE3 temperature relay. RTD connections are labeled A, B, C, D, E, and F. One front-panel control labeled SET is used to adjust the trip level for all six RTDs. The setpoint is adjustable from 50 to 100% ( $\pm 3\%$ ) of the RTD temperature range. When any RTD temperature exceeds the setpoint, the TRIP LED lights, and the relay output energizes. Each RTD has a corresponding LED to identify which RTD has exceeded the temperature setpoint. For example, if the temperature of RTDs B and C exceeds the trip level, the B, C, and TRIP LEDs light and the relay output energizes. A green LED labeled AUX indicates the power supply status.

## INSTALLATION

BE3 temperature relays are designed for mounting on standard DIN rails that comply with DIN-EN 50022.

Mounting involves hooking the top edge of the cutout on the base of the case over one edge of the DIN rail. The opposite side of the cutout containing the release clip is then pushed over the opposite side of the DIN rail. To remove or reposition the relay, lever the release clip and move the relay as required. BE3 relays should be installed in a dry, vibration-free location where the ambient temperature does not exceed the operating temperature range. Connections to the relay should be made using wire that meets applicable codes and is properly sized for the application. Figure 1 illustrates the terminal connections for the BE3-49R temperature relay.

A burden resistor must be installed across all unused RTD inputs that are not connected to an actual RTD. For units with style number 5JXXX, it is suggested that a 10  $\Omega$  resistor be connected across any unused RTD inputs. For units with style number 5KXXX, it is suggested that a 100  $\Omega$  resistor be connected across any unused RTD inputs. The minimum power rating for the burden resistors is  $\frac{1}{4}$  W.

## CALIBRATION

Proper calibration requires a precision decade resistance box with 1% accuracy or better. While calibrating the relay, burden resistors must be connected across the remaining, open RTD inputs. A temperature and resistance cross-reference table for your RTDs is also needed. Use the following procedure to calibrate your relay.

1. Adjust the SET control fully counterclockwise.
2. Connect the decade resistance box to RTD input A and connect a 10  $\Omega$  (style 5JXXX) or 100  $\Omega$  (style 5KXXX) burden resistor across the remaining RTD inputs. The burden resistor power rating should be  $\frac{1}{4}$  W or greater. Apply nominal external operating power to the relay.

3. Set the decade resistance box at the value that corresponds to the desired temperature setpoint.
4. Slowly adjust the SET control clockwise until the A and TRIP LEDs light and the output relay energizes.

## MAINTENANCE

BE3 relays are solid-state devices that require no maintenance. In the event that your relay requires repair, contact Basler Electric, Highland, IL, USA for return authorization.

## ORDERING INFORMATION

Figure 2 shows the BE3 temperature relay style chart.

## FIGURES

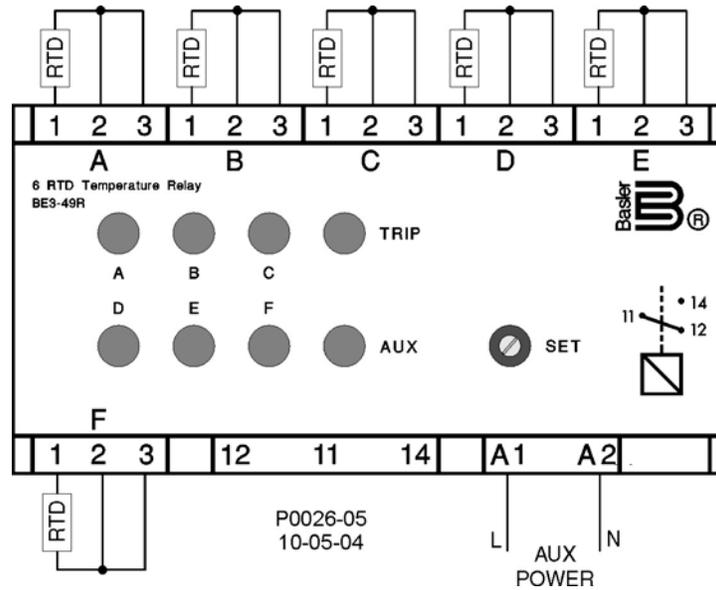


Figure 1. BE3-49R - 6 Input Connections

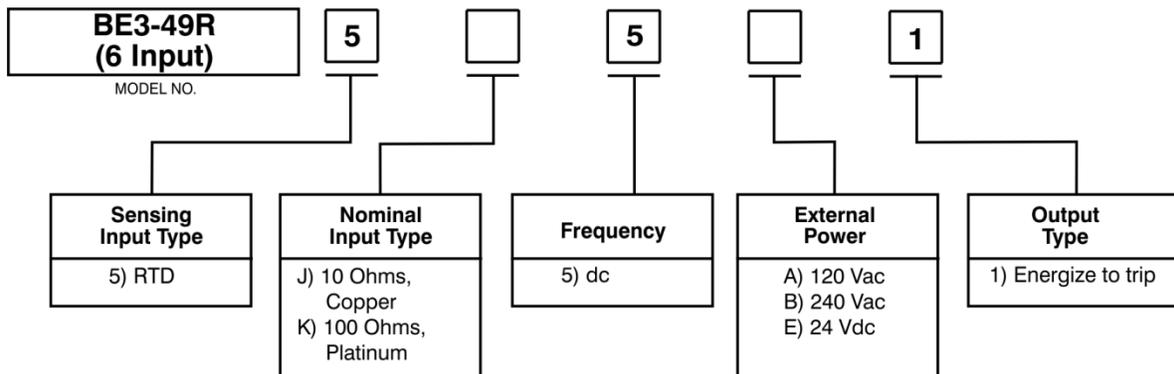


Figure 2. BE3-49R - 6 Input Style Number Identification Chart