INSTRUCTIONS
FOR
TEMPERATURE RELAYS
BE3-49R – 3 INPUTS

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INTRODUCTION

Three-input BE3 temperature relays use resistance temperature detectors (RTDs) to monitor remote temperatures. When any of three monitored temperatures exceeds a preset limit, the corresponding relay output operates. A dc metering output indicates the highest temperature of the three RTDs. BE3 temperature relays are available for use with 10 ohm copper RTDs or 100 ohm platinum RTDs.

ELECTRICAL SPECIFICATIONS

U.L. Listed, CSA Certified, C.E. Compliant

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 ohm copper or 100 ohm platinum RTDs.

Style	RTD
5H5X1	10 Ω copper
5I5X1	100 Ω platinum

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

Metering Output

Range	0 to 1 mA, dc
Burden	5 kΩ, maximum

EXTERNAL OPERATING POWER

All units require external operating power.

AC Operating Power

Nominal voltages	120 Vac or 240 Vac
Frequency	45 to 65 hertz
Burden	2 VA, maximum

SETPOINTS

Adjustment Range	50% to 100% of input temperature range
Repeatability	Better 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 watts
Mechanical Life	5 million operations

PHYSICAL SPECIFICATIONS

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 (200 ppm/°C)
Relative Humidity	95% non-condensing
Mounting	DIN rail 1.38" by 0.29" (35 mm by 7.5 mm)
Case	Complies with IEC 529, DIN 40050, BS 5490
Weight	1.32 lbs. (0.6 kg)
Size	3.94" wide (100 mm)
Case Material	Complies with UL 94VO

OPERATION

Three temperatures are monitored through RTDs connected at the nine-position front panel connector. RTD connections are labeled A, B, and C. Three user adjustable controls are located on the front panel: SET 1, SET 2, and SET 3. Each setpoint is adjustable from 50 to 100 percent of the RTD temperature range. When a setpoint is exceeded, the corresponding trip LED lights and relay output energizes. Trip LEDs are labeled 1, 2, and 3. Outputs are labeled RELAY 1, RELAY 2, and RELAY 3. LED 1 lights and RELAY 1 energizes for a SET 1 trip, LED 2 lights and RELAY 2 energizes for a SET 2 trip, and LED 3 lights and RELAY 3 energizes for a SET 3 trip. A transducer output for temperature metering is provided. This output supplies a zero to one milliampere signal that is proportional to the temperature of the warmest RTD. LEDs labeled A, B, and C indicate which RTD is at the highest temperature and which RTD initiated a trip (if any). A green LED labeled AUX indicates the power supply status.

INSTALLATION

BE3 temperature relays are designed for mounting on standard DIN rails that comply to 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 shows the location of the front panel controls, indicators, and terminals. Figure 2 illustrates the auxiliary power, metering output, and output contact connections.

CALIBRATION

Proper calibration requires a precision decade resistance box with one percent accuracy or better. 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 1, SET 2, and SET 3 controls fully counterclockwise.
2. Connect the decade resistance box to RTD input A and short circuit the remaining two RTD inputs. 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 1 control clockwise until LED 1 lights and RELAY 1 trips.
5. Repeat Steps 2 through 4 for SET 2 and SET 3.
6. If required, repeat steps 4 and 5 for RTD input A and RTD input B.

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.

BE3-49R RELAYS

Figure 3 shows the BE3 temperature relay style identification chart.

BE3-49R	Temperature (3 Inputs)

Publication:	Rev		First Printing 03/99	Copyright
9 3205 00 990	None	Basler Electric	Revised	1999

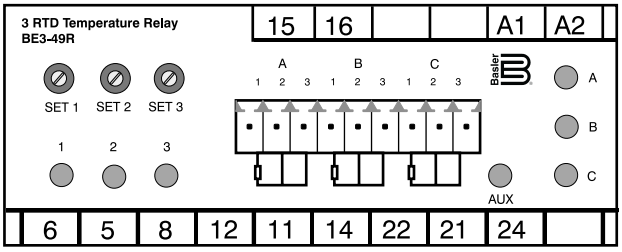

Figure 1. BE3-49R Controls, Indicators, and Terminals

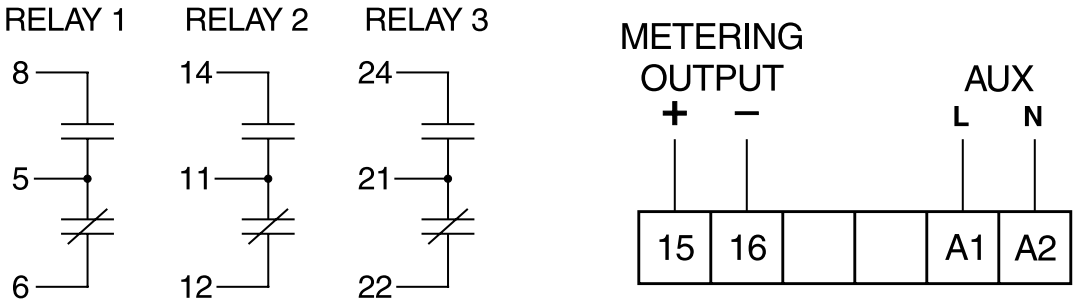

Figure 2. BE3-49R Auxiliary Power, Metering Output, and Output Contact Connections

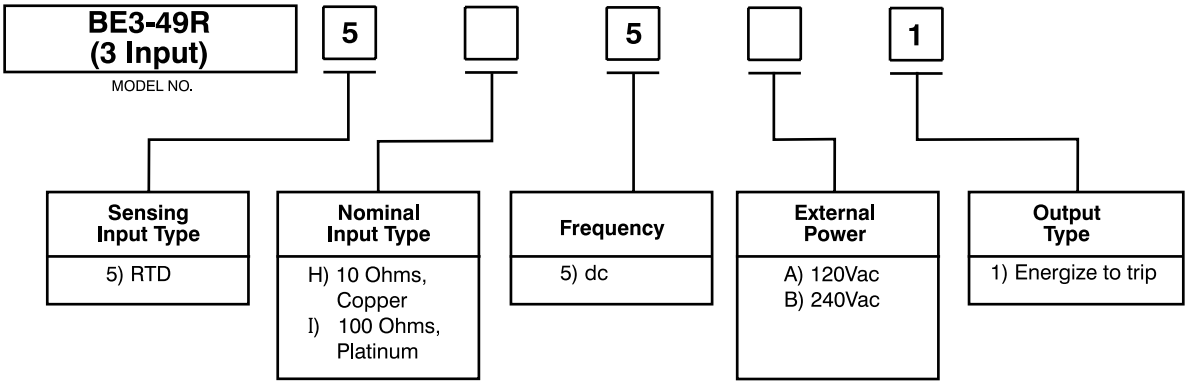

Figure 2. BE3-49R Style Number Identification Chart