INTRODUCTION

The BE3-59T-V ac voltage relay provides voltage monitoring and protection in three-phase systems. The BE3-59T-V operates when the adjustable voltage trip point is reached. A time delay control is provided with an adjustment of 0 to 10 seconds (relay operating time is typically 200 milliseconds). This time delay may be used to prevent false tripping when there are slight variations in the voltage supply. The output relay energizes when the input signal exceeds the trip point for the duration of the time delay. A red LED indicates the state of the output relay. A green LED indicates the condition of the power supply.

SPECIFICATIONS

Inputs

All units obtain operating power from the voltage sensing input.

Nominal Voltage:	100 to 120 Vac
Overload Withstand:	1.25 times nominal continuously. 2 times nominal for 3 s.
Frequency:	50, 60, or 400 Hz
Burden:	<2.5 VA per phase on single units

Setpoints

Overvoltage Range:	Adjustable 110 to 150 Vac
Repeatability:	Better than 0.5% of full span
Time Delay:	Adjustable 0 to 10 seconds
Operating Time:	200 ms typical
Differential:	Fixed 1% of nominal

Outputs

Relay Type:	D.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)
Storage Temperature:	–40°C (–40°F) to 70°C (158°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:	14 oz (400 g)
Size:	2.17” wide (55 mm)

AGENCY COMPLIANCE

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

BE3-59T-V ac voltage relays have two user-adjustable controls labeled SET and DELAY. The SET control adjusts the relay trip point. The DELAY control adjusts the length of time required to operate the output relay after the trip point is exceeded. When the monitored voltage exceeds the SET control setting (adjustable from 110 to 150 Vac), the time delay (established by the DELAY control and adjustable from 0 to 10 seconds) begins timing down. If the overvoltage condition persists for the duration of the time delay, the output relay operates.

Setting Example: a BE3-59T-V relay with a nominal input rating of 130 Vac has the following settings:

- SET - 130 Vac
- DELAY - 4 seconds

A trip occurs when the sensing voltage rises above 130 Vac and 4 seconds elapses. Reset occurs when the voltage decreases below 1% of nominal below setpoint.

INSTALLATION

BE3 ac voltage 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. Figures 1, 2, and 3 show the connection terminals for the BE3-59T-V relay.

CALIBRATION

The calibration marks on the faceplate have a maximum error of 10% and are provided only as guides. Proper calibration requires using an accurate voltmeter in parallel with the input signal. Use the following procedure to calibrate your relay.

Overvoltage

1. Adjust the SET control fully clockwise (CW) and the DELAY control fully counterclockwise (CCW).
2. Apply the desired trip voltage to the relay.
3. Slowly (allow for the 200 ms operating time) adjust the SET control CCW until the relay trips.
4. Reduce the trip voltage from the relay and set the DELAY control to the desired time delay.
5. Apply the trip voltage to the relay and measure the time to trip.
6. Adjust the DELAY and repeat Steps 4 and 5 until you have the desired time delay.

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 4 shows the BE3 style number identification chart.

FIGURES

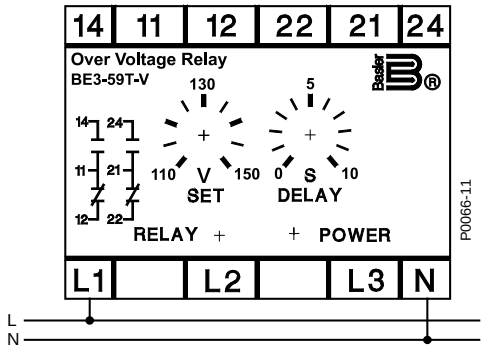

Figure 1. BE3-59T-V Connection Terminals (Single Phase)

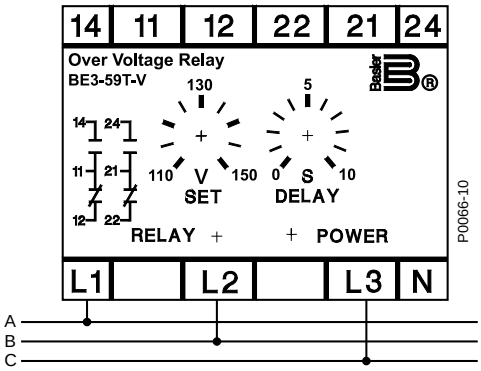

Figure 2. BE3-59T-V Connection Terminals (3-Phase/3-Wire)

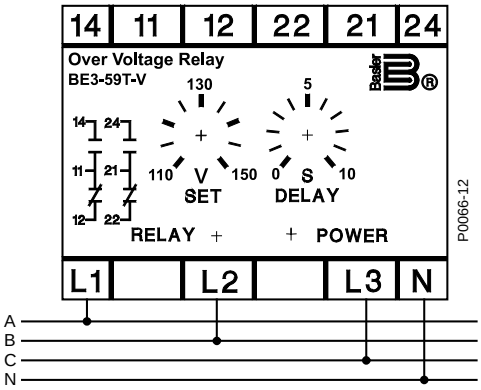

Figure 3. BE3-59T-V Connection Terminals (3-Phase/4-Wire)

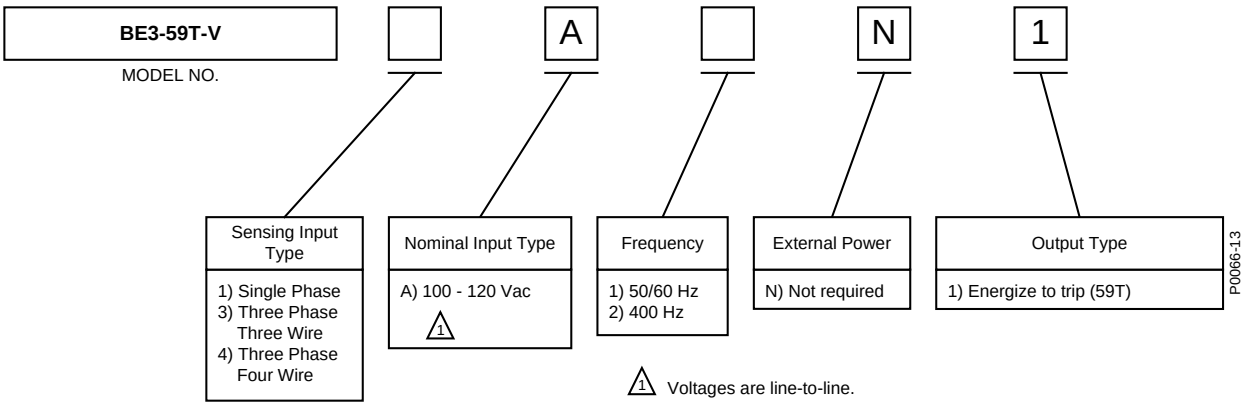

Figure 4. BE3-59T-V Style Number Identification Chart