

INTRODUCTION

BE3 dc voltage sensing relays provide voltage monitoring and protection for any application where dc voltage levels are critical. Undervoltage, overvoltage, and combined under/overvoltage units are available. BE3 dc voltage sensing relays operate when the externally adjustable trip point is reached. On overvoltage units, the output relay energizes when the input signal exceeds the trip point. On undervoltage units, the output relay de-energizes when the input signal falls below the trip point. A red LED indicates the state of the relay. A green LED indicates the condition of the power supply.

SPECIFICATIONS

Operating Power

All units require external operating power.

Nominal Voltage: 120 Vac, 240 Vac, 380 Vac,
480 Vac, or 24 Vdc

Frequency: 45 to 65 Hz

Burden

Vac: 2 VA

Vdc: <3 W

Sensing Input

Nominal Voltage: 1.0 Vdc, 10 Vdc, 100 Vdc, or 1 to
300 Vdc (specify nominal range)

Burden: 10 k Ω /V

Overload: 1.25 times nominal continuously
or 2 times nominal for 3 s

Setpoint

Undervoltage Range: Adjustable 0 to 80% (\pm 3%) of
nominal

Overvoltage Range: Adjustable 40 to 120% (\pm 3%) of
nominal

Repeatability: Greater than 0.5% of full span

Differential: Fixed at 5% of nominal

Operating Time: 200 ms typical

Output

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)

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

Single Unit: 0.88 lb (0.4 kg)

Combined Unit: 1.32 lb (0.6 kg)

Size

Single Unit: 2.17" wide (55 mm)

Combined Unit: 3.93" 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

BE3-74VH and BE3-74VL dc voltage sensing relays have one user-adjustable control marked SET. The BE3-74VD has two controls: UNDER SET and OVER SET. The SET control adjusts the relay trip point. An overvoltage trip causes the relay output to energize when the voltage rises above the SET threshold. The overvoltage SET level is adjustable from 40 to 120% (\pm 3%) of nominal input (V_{nom}). An undervoltage trip causes the relay output to de-energize when the voltage decreases below the SET threshold. The undervoltage SET level is adjustable from 0 to 80% (\pm 3%) of nominal input.

Setting Example

A BE3-74VH relay with a nominal input rating of 100 Vdc has the following setting:

- SET - 80%

A trip occurs when the sensing voltage rises above 80 Vdc. Reset occurs when the voltage falls below 75 Vdc (5% of nominal below the setpoint).

INSTALLATION

BE3 dc voltage sensing 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 input connections for the BE3-74VL, BE3-74VH, and BE3-74VD relays.

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.
2. Apply the desired trip voltage to the relay.
3. Slowly adjust the SET control counterclockwise until the relay trips.

Undervoltage

1. Adjust the SET control fully counterclockwise.
2. Decrease the applied sensing voltage from the nominal value until the desired tripping voltage is reached.
3. Slowly adjust the SET control clockwise until the relay trips.

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 dc voltage sensing relay style number identification chart.

FIGURES

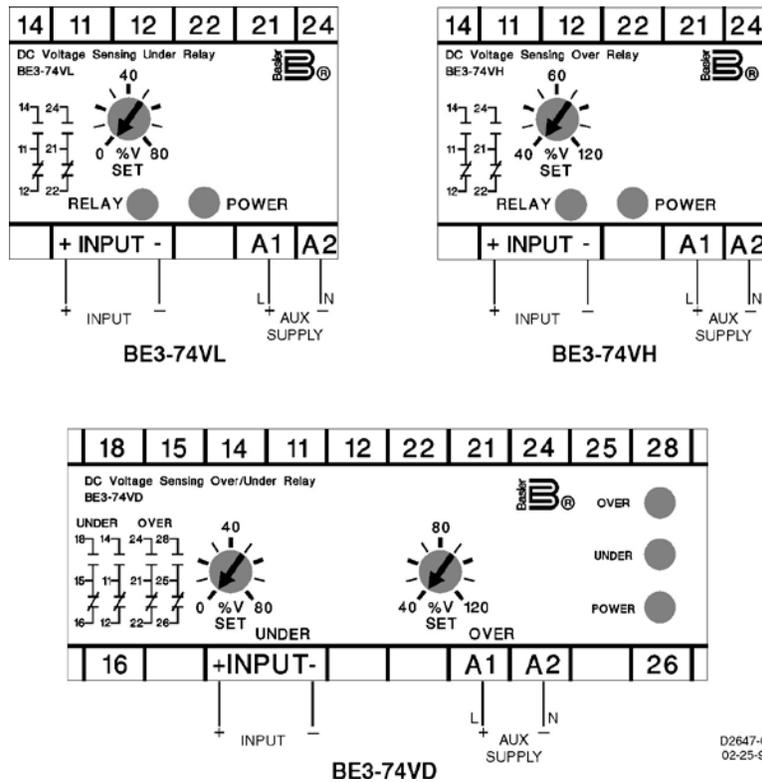


Figure 1. BE3-74VL, BE3-74VH, and BE3-74VD Input Connections

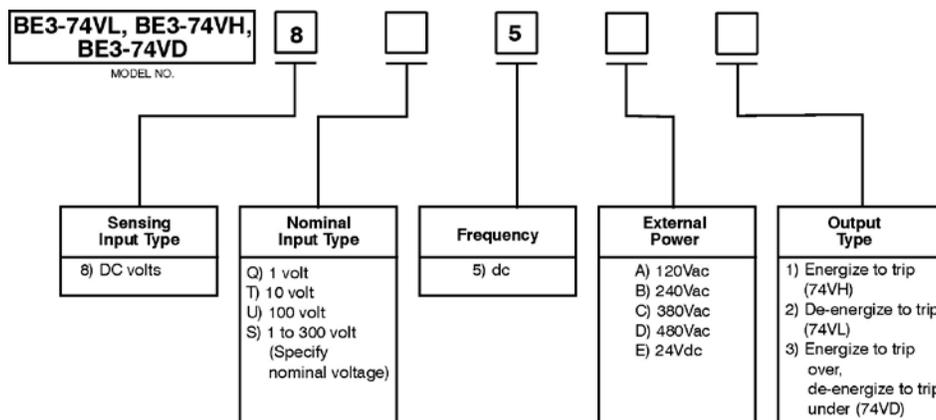


Figure 2. BE3-74VL, BE3-74VH, and BE3-74VD Style Number Identification Chart