

INSTRUCTIONS

FOR

DC VOLTAGE SENSING RELAYS BE3-74VL, BE3-74VH, and BE3-74VD

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INTRODUCTION

BE3 dc voltage sensing relays provide voltage monitoring and protection for any application where dc voltage levels are critical. Undervoltage, overvoltage and combined over/undervoltage units are available. BE3 dc 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 goes below the trip point. A red LED indicates the state of the relay. A green LED indicates the condition of the power supply.

ELECTRICAL SPECIFICATIONS

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

INPUT

Nominal sensing input voltages are 1.0 Vdc, 10 Vdc, 100 Vdc, and 1 to 300 Vdc (specify nominal range). All units require external operating power. Nominal external operating power 45 to 65 hertz - 120 Vac, 240 Vac, 380 Vac, 480 Vac, ($\pm 25\%$) and 24 Vdc ($\pm 20\%$, galvanically isolated).

Burden

Current input burden is 10 k Ω /volt. Voltage input burden is 2 VA for relays with ac external power and less than 3 W for relays with 24 Vdc external power.

Overload

1.5 times nominal continuously. 2 times nominal for 3 seconds.

SETPOINT

Range Undervoltage	Adjustable 0% to 80% of nominal
Range Overvoltage	Adjustable 40% to 120% of nominal
Repeatability	Better than 0.5% of full span
Differential	Fixed 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

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 +70° C (+158° F)
Temperature Coefficient	0.03% per °C (200 ppm/°C)
Relative Humidity	95% noncondensing
Mounting	DIN rail 1.38" by 0.29" (35 mm by 7.5 mm)
Case	Complies with IEC 529, DIN 40050, BS 5490
Weight	
Single Unit	0.88 lbs. (0.4 kg)
Combined Unit	1.32 lbs. (0.6 kg)
Size	
Single Unit	2.17" wide (55 mm)
Combined Unit	3.93" wide (100 mm)
Case Material	Complies with UL 94VO

OPERATION

BE3-74VH and BE3-74VL dc voltage sensing relays have one external, 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% 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 100% of nominal input.

Setting Example

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

A trip occurs when the sensing voltage rises above 100 Vdc. Reset occurs when the voltage decreases below 95 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 terminal connections for the BE3-74VL, BE3-74VH, and BE3-74VD relays.

CALIBRATION

The calibration marks on the face plate 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).
2. Apply the desired trip voltage to the relay.
3. Slowly adjust the SET control counter-clockwise (CCW) until the relay trips.

UNDERVOLTAGE

1. Adjust the SET control fully CCW.
2. Decrease the applied sensing voltage from the nominal value until the desired tripping voltage is reached.
3. Slowly adjust the SET control CW until 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.

BE3 DC VOLTAGE RELAYS

Figure 2 shows the BE3 style numbers.

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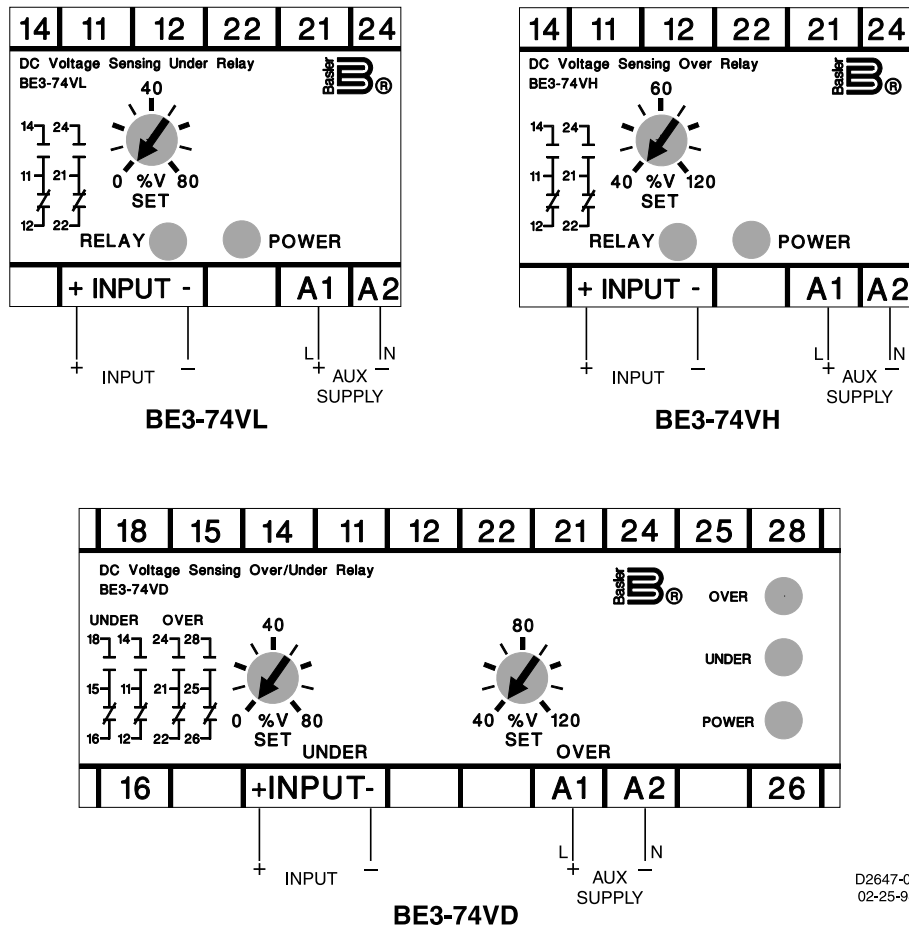


Figure 1. BE3-74VL, BE3-74VH, And BE3-74VD AC Voltage Connections

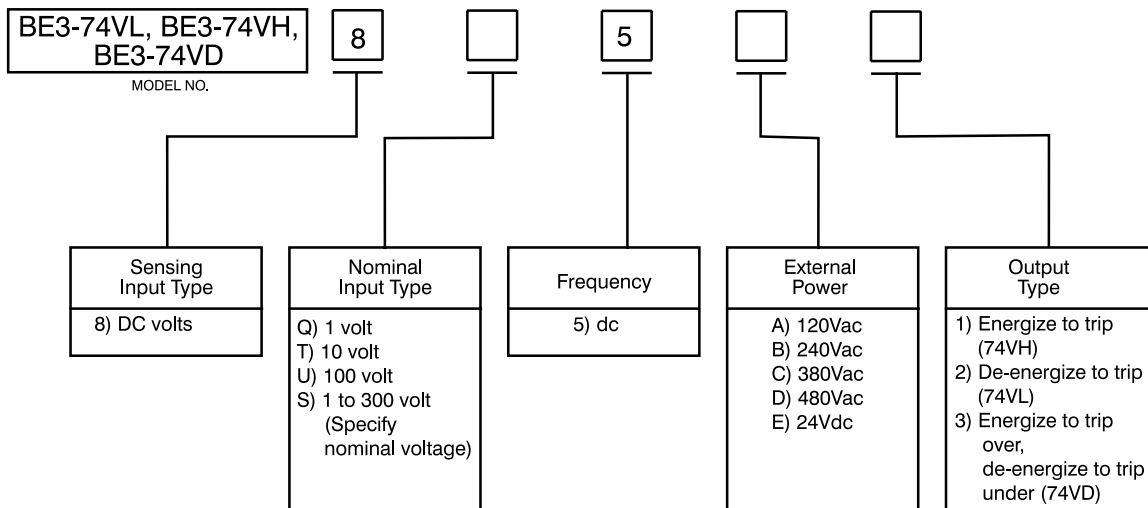


Figure 2. BE3-74VL, BE3-74VH, And BE3-74VD Style Number Identification Chart