

# BE1-47N Negative Sequence Voltage Relay



## Overview

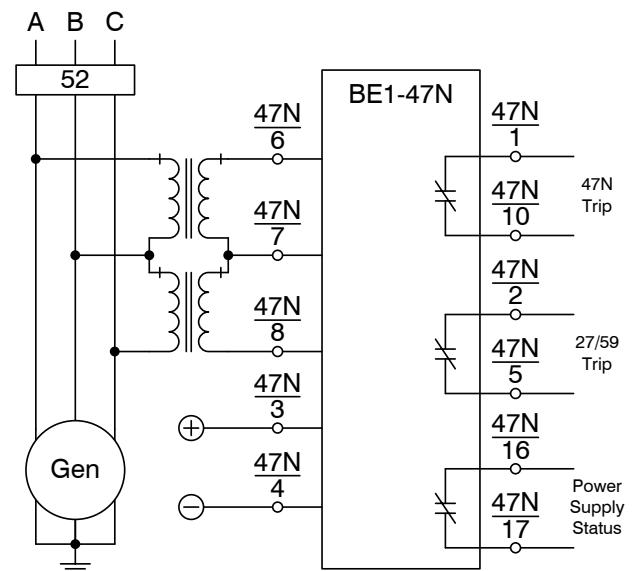
The BE1-47N protects rotating equipment from the damaging effects of excessive negative-sequence voltage resulting from phase failure, phase unbalance and reversed-phase sequence.

## Features

- Responds to true negative sequence voltage component.
- Unaffected by frequency variations of  $\pm 5$  Hz.
- Negative Sequence Voltage adjustment range of 2 - 32 percent.
- Optional Over and Undervoltage measuring elements.
- Low sensing and supply burdens.
- Instantaneous, Definite and Inverse time delay characteristics available for each measuring element.

## Benefits

- Responds to true negative sequence voltage for greater accuracy.
- Increased flexibility with wide settings range.
- Minimized potential transformer (PT) costs as a result of low sensing burden.
- Reduced battery load with low burden power supply.
- Accurate, repeatable, and reliable operation.
- Simple HMI provides clear and intuitive settings for easy configuration.
- LED targets provide clear annunciation of status.
- Easily perform in-case system and device tests using test paddles.



P0076-19  
07-01-14

Figure 1 - BE1-47N Connection Diagram for a Typical Application

## Specifications

### Power Supply (Nominal)

|                |                                 |
|----------------|---------------------------------|
| EXX-XXO-XXXXX: | 48 Vdc (4.6 W)                  |
| EXX-XXP-XXXXX: | 125 Vdc/120 Vac (4.6 W/17.5 VA) |
| EXX-XXR-XXXXX: | 24 Vdc (4.6 W)                  |
| EXX-XXS-XXXXX: | 48/125 Vdc (4.6 W/ 4.6 W)       |
| EXX-XXT-XXXXX: | 250 Vdc/240 Vac (4.6 W/24.4 VA) |

### Voltage Sensing

50 Hz Sensing: 100 or 173 Vac nominal  
 60 Hz Sensing: 120 or 208 Vac nominal  
 Max Continuous: 160% of nominal  
 Frequency: 50/60 Hz Nominal  
 45 to 55 Hz (50 Hz sensing)  
 55 to 65 Hz (60 Hz sensing)  
 Burden: ≤2 VA per phase

### Pickup

|                        |                               |
|------------------------|-------------------------------|
| Negative Sequence:     | 2 to 32% of nominal voltage   |
| Undervoltage:          | 2 to 32% below nominal        |
| Overvoltage:           | 2 to 32% above nominal        |
| Increment:             | 2%                            |
| Accuracy:              | ±1% of nominal voltage        |
| Dropout (% of pickup): | 98% over, 102% under          |
| Definite Time Delay:   | 0.1 to 9.9 seconds            |
| Accuracy:              | ±5% or ±50 ms of time setting |

|                           |   |
|---------------------------|---|
| Inverse Time Delay:       | 01 to 99                                  |
| Accuracy:                 | ±5% or ±50 ms of selected time dial curve |
| Instantaneous Time Delay: | <50 ms                                    |

### Outputs

|            |   |
|------------|---|
| Resistive: |   |
| 120 Vac:   | Make, break, and carry 7 Aac continuously.                                |
| 250 Vdc:   | Make and carry 30 Adc for 0.2 s, carry 7 Aac continuously, break 0.3 Adc. |
| 500 Vdc:   | Make and carry 15 Adc for 0.2 s, carry 7 Adc continuously, break 0.3 Adc. |

Inductive:  
 120 Vac, 125 Vdc, 250 Vdc: Break 0.3 A (L/R=0.04)

### Agency/Certifications

UL recognized

### Environmental

|                      |                                 |
|----------------------|---------------------------------|
| Operating Temp:      | -40°C to 70°C (-40°F to 158°F)  |
| Storage Temp:        | -65°C to 100°C (-85°F to 212°F) |
| Dielectric Strength: | IEC 255-5 and IEEE C37.90       |
| RFI:                 | Qualified to IEEE C37.90.2      |
| Surge Withstand:     | Qualified to IEEE C37.90.1      |
| Fast Transient:      | Qualified to IEEE C37.90.1      |

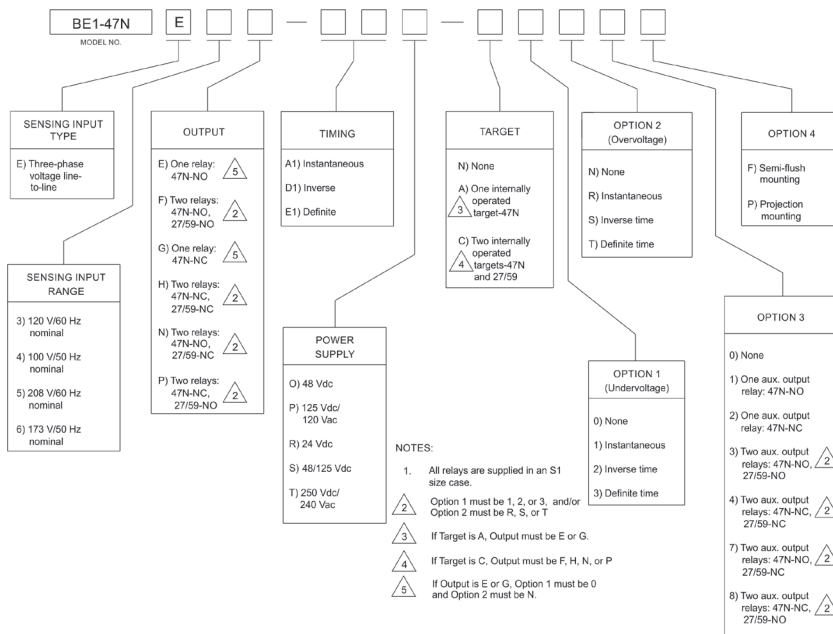
|            |   |
|------------|---|
| Impulse:   | Qualified to IEC 255-5  |
| Shock:     | 15 G in three perpendicular planes  |
| Vibration: | 2 G in each of three perpendicular planes, 10 to 500 Hz for six sweeps, 15 minutes each sweep |

### Physical

|                                 |  |
|---------------------------------|--|
| Weight:                         | 14 lb (6.35 kg)                                      |
| S1 Case Dimensions (WxHxD):     |  |
| Double Ended, Semi-Flush Mount: | 5.56 x 8.68 x 6.94 inches (141.2 x 220.5 x 176.3 mm) |
| Double Ended, Projection Mount: | 5.56 x 8.68 x 8.14 inches (141.2 x 220.5 x 206.8 mm) |

For complete specifications, download the instruction manual at [www.basler.com](http://www.basler.com).

## Style Chart



## Related Products

### BE1-FLEX Protection, Automation and Control System

Designed to be configurable for nearly any Power System Application.

### DECS-250 Digital Excitation Control System

Provides precise voltage, var and Power Factor regulation, exceptional system response, and generator protection.

### DECS-450 Digital Excitation Control System

A versatile digital excitation control system for synchronous generators and motors.

### DECS-2100 Digital Excitation Control System

An extremely powerful and flexible excitation system that precisely controls, protects, and monitors synchronous generators and motors.

## Accessories

### Cases, Covers, Connectors, Mounting, Batteries, and Miscellaneous

Designed for adaptive customization with your protective device.

### Test Plugs

To allow testing of the relay without removing system wiring, order two test plugs. Basler part number 10095.