

## Overview

Basler's BE1-50/51B Time Overcurrent Relay Retrofit Kits provide direct "plug and play" replacements for many obsolete electromechanical relay designs. Wiring changes may be required and an adapter plate may be needed.

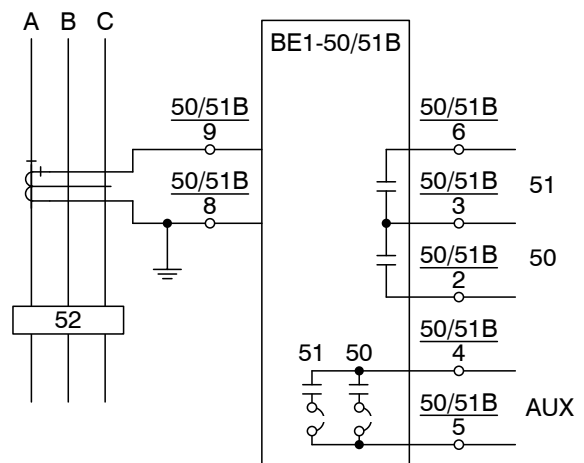


## Features

- Self powered from 50/60 Hz systems, available for 5-ampere or 1-ampere CT secondaries.
- Second independent instantaneous element available on some models can be applied to:
  - Reduce arc flash hazard
  - Annunciate an overload alarm in motor applications
- Wired specifically to replace existing electromechanicals.
- Patented integrating reset characteristic, even when current goes to zero. Replicates electromechanical reset for all applications.
- Fifteen field-selectable, inverse, fixed time and British Standard (BS142) time overcurrent curves on 200 series relays (10 on 100 series).
- Wide setting ranges:
  - Time Overcurrent:     0.5 to 15.9 (5-ampere Unit)  
                                  0.1 to 3.18 (1-ampere Unit)
  - Inst. Overcurrent:     1.0 to 99 (5-ampere Unit)  
                                  0.2 to 19.8 (1-ampere Unit)
  - Inst. Overcurrent B:   (on equipped models)  
                                  1.0 to 15.9 (5-ampere Unit)  
                                  0.2 to 3.18 (1-ampere Unit)
- Current pickup accuracy  $\pm 2\%$ .
- Timing accuracy  $\pm 2\%$ .
- Less than 10% transient overreach.
- 5 VA burden (at nominal) self powered from 50/60 Hz systems, utilizes standard 5-ampere or 1-ampere CT secondaries.

## Benefits

- "Plug and Play" retrofits minimize cost and out-of-service time with no case replacement or rewiring required.
- "Plug and Play" retrofits provide easy setup with operation and settings that mimic existing electromechanical relays.
- Achieve financial and labor savings with a replacement relay that fits directly into an existing case.
- Accurate, repeatable, and reliable operation.
- Instantaneous protection can be set lower to provide more complete protection with a design that minimizes transient overreach.
- Models available to replicate decaying reset of electromechanical relay disks when current drops to zero.
- Reduce CT costs with low sensing and supply burdens.
- Reduce maintenance labor by eliminating the need for recalibration.



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Figure 1 - BE1-50/51B Connection Diagram for a Typical Application

## Specifications

### Current Sensing

5-Amp Unit: 14 A continuous, 400 A 1-second  
 1-Amp Unit: 2.8 A continuous, 80 A 1-second

### Time Pickup Range

5-Amp Unit: 0.5 to 15.9 A in 0.1 A steps  
 1-Amp Unit: 0.1 to 3.18 A in 0.02 A steps

### Instantaneous Pickup Range

5-Amp Unit: 1.0 to 99 A in 1 A steps  
 1-Amp Unit: 0.2 to 19.8 A in 0.2 A steps

### Instantaneous B Pickup Range (on equipped models)\*

5-Amp Unit: 1.0 to 15.9 A in 0.1 A steps  
 1-Amp Unit: 0.2 to 3.18 A in 0.02 A steps

\* At least one instantaneous element must be set to 2A or higher (0.4A or higher for 1A styles).

### Outputs

Resistive:  
 120/240 Vac: Make and carry 30 A for 0.2 s, carry 7 A for 120 s, 3 A continuous, 5 A break  
 125/250 Vdc: Make and carry 30 A for 0.2 s, carry 7 A for 120 s, 3 A continuous, 0.3 A break  
 Inductive:  
 120/240 Vac, 125/250 Vdc: Make and carry 30 A for 0.2 s, carry 7 A for 120 s, 3 A continuous, 0.3 A break (L/R=0.04)

### Environmental

Operating Temp: -40°C to 70°C (-40°F to 158°F)  
 Storage Temp: -50°C to 70°C (-58°F to 158°F)  
 Isolation: IEC 255-5, IEEE C37.90.1  
 Surge Withstand: IEEE C37.90.1

Fast Transient: IEEE C37.90.1  
 Impulse: IEC 255-5  
 RFI: IEEE C37.90.2  
 Shock: 15 G in three perpendicular planes  
 Vibration: 2 G from 10-500 Hz, for a total of six, 15-minute sweeps in three perpendicular planes

### Agency/Certifications

-230, -234 only: UL (cURus) recognized for the USA and Canada

### Physical

Weight: 2.8 kg (6.1 lb)  
 -218, -228 only: 3.9 kg (8.6 lb)  
 -240 and -241 only: 2.0 kg (4.3 lb)  
 Case Size: S1 (-218 and -228 only)

## ORDERING

**How to Order:** Append the desired three-digit model number from the table below to "BE1-50/51B-".

	Retrofit Relay Packages	Model Number BE1-50/51B-
5 A System CT Secondaries	Complete CO replacement relay with same terminal connections as CO units. New case fits FT-11 size cutout.*	244(2)
	Retrofit kit for CO relays. Cradle plugs into existing case. New cover included.	219(1), 235(2), 254(1) §, 255(2) §, 258(1)
	Retrofit kit for CO relays (FT-21 case). Replacement glass for existing cover included. Cradle plugs into existing case.	240(1) ‡
	Complete IAC replacement relay with same terminal connections as IAC units. S1 style case.	218(1), 253(1) §, 257(2) §
	Complete IAC replacement relay with 50 and 51 on shared terminals. S1 style case.	232(1)
	Complete IAC66K replacement relay with same terminal connections as IAC66K units. S1 style case with cover.	239(2)
	Retrofit kit for IAC66K relays. Cradle plugs into existing case. Adapter plate, new cover, and connection plug included.	230(2)
	Retrofit kit for IAC relays. Cradle plugs into existing case. Adapter plate, new cover, and connection plug included.	214(1), 215(1), 223(1), 237(2), 252(1) §, 256(2) §
	Retrofit kit for IAC relays with 50 and 51 on shared terminals. Cradle plugs into existing case. Adapter plate, new cover, and connection plug included.	231(1)
	Retrofit kit for SFC relays. Cradle plugs into existing case. Adapter plate, new cover, and connection plug included.	229(1) †
1 A System CT Sec.	Retrofit kit for CO relays. Cradle plugs into existing case. New cover included.	226(1), 236(2)
	Complete IAC replacement relay with same terminal connections as IAC units. S1 style case.	228(1)
	Retrofit kit for IAC66K relays. Cradle plugs into existing case. Adapter plate, new cover, and connection plug included.	234(2)
	Retrofit kit for IAC relays. Cradle plugs into existing case. Adapter plate, new cover, and connection plug included.	225(1), 238(2)

### Notes

Numbers in parenthesis appearing after a 3-digit model number, indicate the number of instantaneous elements.  
 Existing case must have appropriate terminals for a multiple element relay.  
 \* Adapter plate 9252017005 allows the BE1-50/51B-244 to fit an FT-21 opening.  
 † SFC models that may be retrofitted with the BE1-50/51B-229: SFC151A\*A, SFC151B\*A, SFC153A\*A, SFC153B\*A, SFC177A\*A, SFC177B\*A  
 ‡ If replacing a CO relay (FT-21 case) manufactured prior to 1966, please contact Basler Electric to verify compatibility before ordering.  
 § With Hot Line Tag (HLT) feature and one time element for 125 V nominal tripping circuits.  
 || Selectable 0.0 or 0.05 second, fixed, instantaneous delay.

## Related Products

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

Designed to be configurable for nearly any Power System Application.

### BE1-50/51 Self-Powered Time Overcurrent Relay

A single-phase, self-powered, microprocessorbased time/instantaneous overcurrent relay that provides cost-saving overload and fault protection for generators, transformers, feeders, and motors.

### BE1-79A Reclosing Relay

An economical, microprocessor-based relay designed to replace out of date, aging electromechanical relays with models to replace existing GE and ABB relays, with no wiring changes.

## Accessories

### Test Plug

To allow testing of the relay without removing system wiring. Basler Electric/P/N 10095.