

July, 1991  
Supersedes Bulletin 7.2.2-1D,  
pages 1-2, dated June, 1989  
Mailed to: E, D, C/41-100B

Device Number: 50

CIRCUIT SHIELD<sup>®</sup>

## Type 50D, 50H High Dropout Overcurrent Relays

### Application

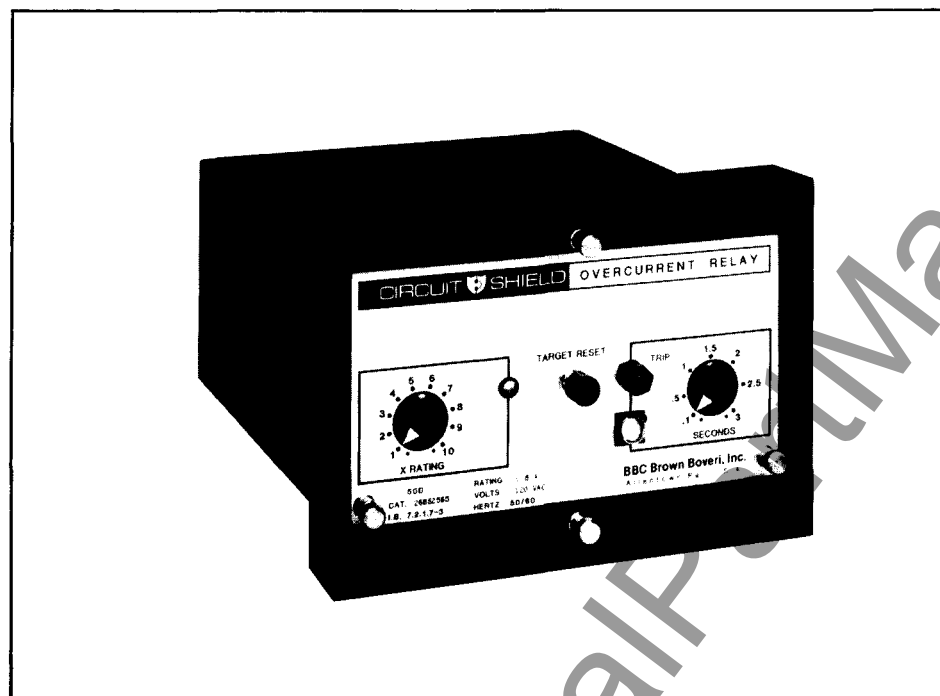
These overcurrent relays find application in backup protection, load alarm, and other schemes where the overcurrent relay must be self resetting and have a high dropout-to-pickup ratio.

The Type 50H is an instantaneous overcurrent relay designed with solid state measuring circuitry, but with an electromechanical output.

The Type 50D consists of the same instantaneous overcurrent circuitry, but also includes a built-in solid state timer.

Both types have a 98% dropout-to-pickup ratio and a 10 to 1 range of pickup adjustment. In addition, both types are available as single phase or three phase models.

"Torque control" is provided on both types as a standard feature. To torque control the relay, remove the link between terminals 9 and 10 (see Figure 1). Connect the controlling contact across terminals 9 and 10 in place of the link.



### Features

- 98% dropout-to-pickup ratio
- Narrow band
- Instantaneous or time delayed operation
- Built-in test
- Seismic capability to 6g ZPA
- Transient immunity
- 2 year warranty

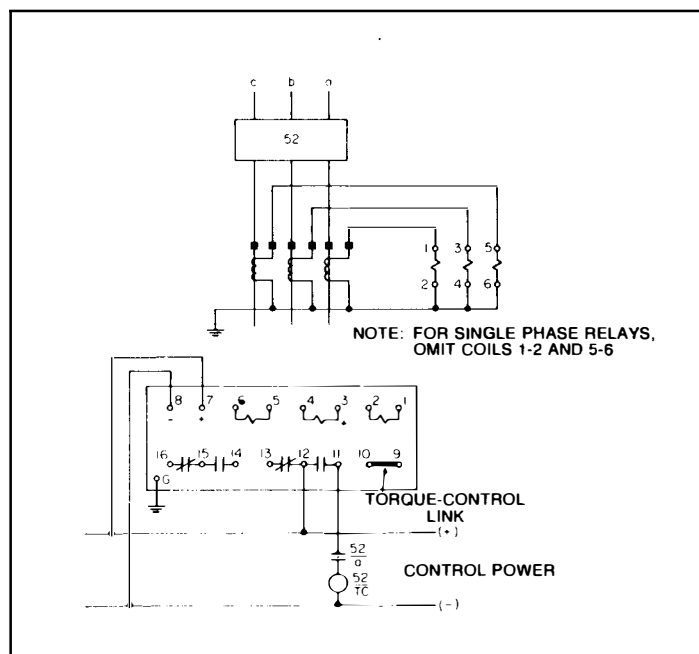


Figure 1. Typical Connections

## Specifications

<b>Pickup:</b>	Models available for 0.1-1A, 0.2-2A, 0.8-8A, 2-20A, 8-80A, 20-200A		
<b>Input Circuit Rating:</b>	200 amperes, one second 20 times nameplate rating or 20A, whichever is smaller, continuous		
<b>Burden:</b>	Less than 1 VA at 5 Amps (Any Model, Any Setting)		
<b>Control Power:</b>	Models available for: 48/125 Vdc at .05A; 120 Vac at .05A; 24/32 Vdc at .08A; 250 Vdc at .05A		
<b>Output Circuit:</b>	2 Form C Contacts		
<b>Output Circuit Rating:</b>	≤ 125 Vdc	≤ 120 Vac	≤ 250 Vdc
	30A	30A	30A
Tripping Duty	5A	5A	5A
Continuous	0.3A	2A	0.1A
Opening, Inductive			
<b>Temperature Range:</b>	Minus 20° to Plus 70°C		
<b>Seismic Capability:</b>	More than 6g ZPA either AXIS biaxial broadband multifrequency vibration without damage or malfunction ANSI/IEEE C37.98		
<b>Transient Immunity:</b>	More than 2500 V, 1MHz bursts at 400 Hz repetition rate, continuous (ANSI C37.90.1 SWC); Fast Transient Test; EMI Test.		
<b>Dielectric:</b>	2000 Vac RMS, 60 seconds all circuits to ground		
<b>Operating Time:</b>	See Figure 3		
Type 50H	Adjustable, models available for:		
Type 50D	0.01-0.3 seconds, 0.1-3 seconds 1-30 seconds, 10-300 seconds		

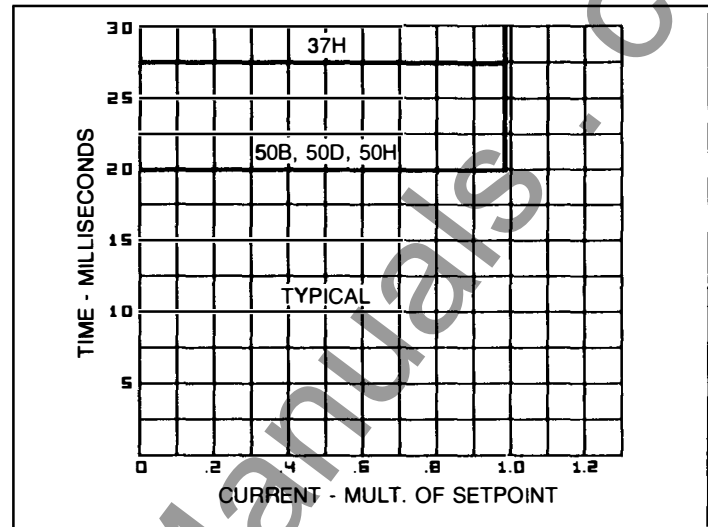


Figure 2. Reset Time for Type 50D, 50H

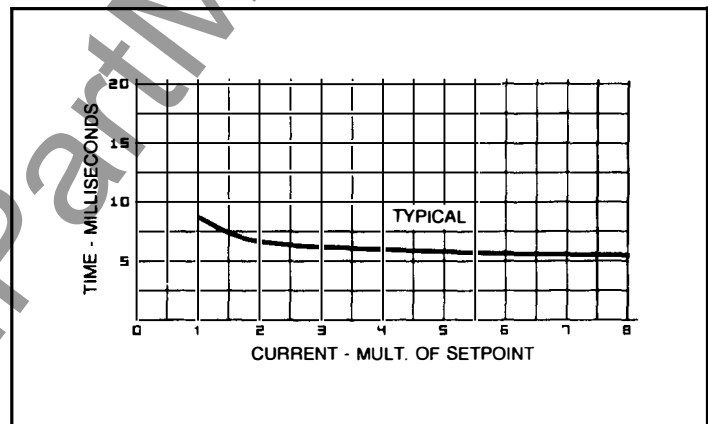


Figure 3. Pickup Time for Type 50H

## How To Specify

Relay shall be Asea Brown Boveri Type 50D or 50H or equal. Relay shall be capable of withstanding 6g ZPA seismic stress without malfunction. An operation indicator shall be provided. Built-in means shall be provided to allow operational tests without additional equipment.

## Further Information

List Prices: PL 41-020  
Technical Data: TD 41-025  
Instruction Book: IB 7.2.1.7-3①  
Type 50B Fault Current Detector: DB 41-111S  
Type 62B Breaker Failure Timing Relay:  
DB 41-527S  
Other Protective Relays:  
Application Selector Guide, TD 41-016

① Available upon request, only from Allentown Plant.

## How To Order

For a complete listing of available overcurrent relays, see TD 41-025.

To place an order, or for further information, contact the nearest District Office.



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Supersedes Descriptive Bulletin 41-112S,  
page 3, dated July 1991  
Mailed to: E, D, C/41-100B

**CIRCUIT SHIELD<sup>®</sup>**  
**Type 50D, 50H**  
**High Dropout**  
**Overcurrent Relays**

**High Dropout Overcurrent, Definite Time, Suitable for 50/60 Hertz (Device Number: 50)**

Type	Continuous Rating	Pickup Range	Timer Range	Output Contacts	Catalog Number <sup>①</sup>	
					Single Phase	Three Phase
50D	2A	0.1-1A	.01-.3 sec.	2 Form C (See Note 1)	468S13X5	468T13X5
			.1-3 sec.		468S23X5	468T23X5
			1-30 sec.		468S33X5	468T33X5
			10-300 sec.		468S43X5	468T43X5
	4A	0.2-2A	.01-.3 sec.		468S14X5	468T14X5
			.1-3 sec.		468S24X5	468T24X5
			1-30 sec.		468S34X5	468T34X5
			10-300 sec.		468S44X5	468T44X5
	8A	0.4-4A	.01-.3 sec.		468S12X5	468T12X5
			.1-3 sec.		468S22X5	468T22X5
			1-30 sec.		468S32X5	468T32X5
			10-300 sec.		468S42X5	468T42X5
	16A	0.8-8A	.01-.3 sec.		468S15X5	468T15X5
			.1-3 sec.		468S25X5	468T25X5
			1-30 sec.		468S35X5	468T35X5
			10-300 sec.		468S45X5	468T45X5
	20A	2-20A	.01-.3 sec.		468S16X5	468T16X5
			.1-3 sec.		468S26X5	468T26X5
			1-30 sec.		468S36X5	468T36X5
			10-300 sec.		468S46X5	468T46X5
		8-80A	.01-.3 sec.		468S17X5	468T17X5
			.1-3 sec.		468S28X5	468T28X5
			10-300 sec.		468S17X5	468T17X5
			.1-3 sec.		468S28X5	468T28X5

Internal Connections: 16D468A

**Instantaneous Overcurrent, High Dropout with Contact Output, Suitable for 50/60 Hertz (Device Number: 50)**

Type	Continuous Rating	Pickup Range	Output Contacts	Catalog Number <sup>①</sup>	
				Single Phase	Three Phase
50H	2A	0.1-1A	2 Form C	468S03X5	468T03X5
	4A	0.2-2A		468S04X5	468T04X5
	8A	0.4-4A		468S02X5	468T02X5
	16A	0.8-8A		468S05X5	468T05X5
	20A	2-20A		468S06X5	468T06X5
		8-80A		468S07X5	468T07X5
		20-200A		468S08X5	468T08X5

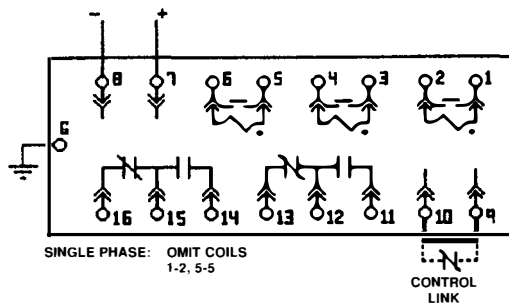
① Each of the listed catalog numbers contain an X for the control voltage designation. To complete the catalog number replace the X with the proper control voltage code digit:

48/110 Vdc .....	0
220 Vdc .....	2
250 Vdc .....	5
120 Vac .....	6
48/125 Vdc .....	7
24/32 Vdc .....	9

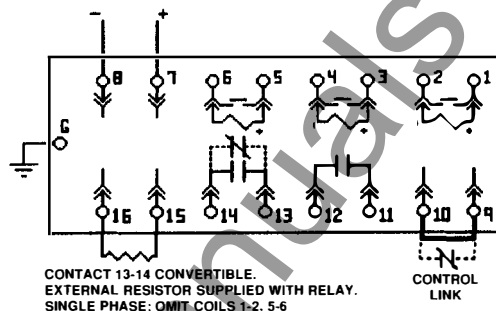
**Note 1.** 2 Form C contacts available on all models except 220 Vdc and 250 Vdc control. See Internal Connection Diagram on page 4.

# Internal Connection Diagrams

16D468A Type 50D, 50H  
High Dropout Overcurrent Relays  
Drawout Test Case



16D468D Type 50D, 50H  
High Dropout Overcurrent Relays  
Drawout Test Case  
220 and 250 Vdc



**Note:** Control Link must be in place for normal operation. Remove a link only when wiring an external contact to control the relay function. See the particular relay's instruction book for additional information on the use of the control links.

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