

## Instructions

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**IMPORTANT**

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**48-HASA3M**

Solid-State Overload Relay with Phase Loss Protection for Three Phase Motors Class 48

(For Separate Mounting or Replacement for Magnetic Starters)



### DESCRIPTION:

Class 48 self-powered solid-state overload relays generate their own running power and do not need a separate source of 120V to power the circuit board. The overload also provides phase loss protection for the motor by tripping within three seconds when there is a complete loss of one phase of the three phase motor branch circuit (*Trip curves for Class 10, 20, and 30 overloads are shown in Fig.1*). Each overload has a current adjustment range with the adjustment dial reading out in motor full load amps (FLA). In addition to the markings on the dial, there are audible clicks which allow for extremely fine tuning. Note that while thermal overloads require a heater selection based on a relatively wide range, these overloads have many clicks covering the same ampere range Fig 2.

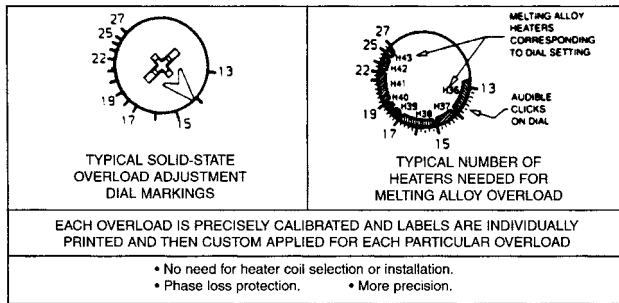
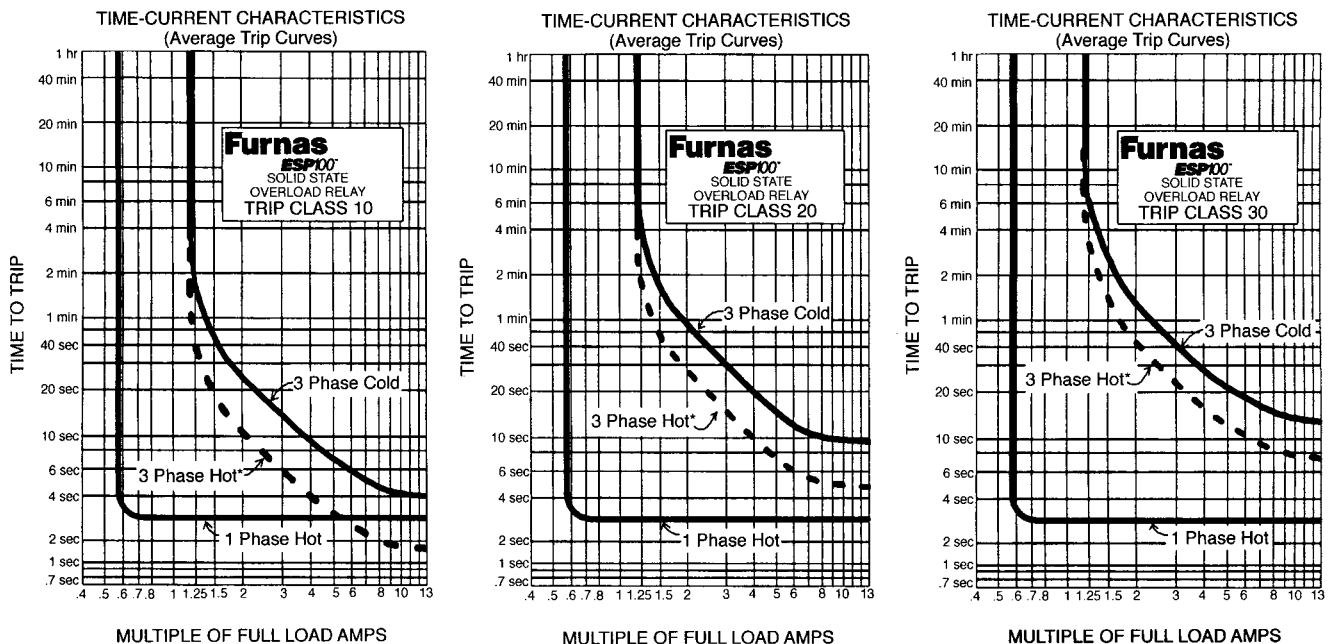


Figure 2

Class 20 Catalog Number	Single Phase CT Range	3 Phase CT Range	Replacement for Starter Sizes
48ASA3M20	–	0.25–1	0,1
48ASB3M20	–	0.75–3	0,1
48ASD3M20	–	2.5–10	0,1
48ASE3M20	–	9–18	0,1
48ASF3M20	–	13–27	1,1¼
48ASG3M20	–	20–40	1¾
48ASA1M20	0.25 – 1	–	0,1
48ASB1M20	0.75 – 3	–	0,1
48ASD1M20	2.5 – 10	–	0,1
48ASE1M20	5 – 16	–	0,1

**Note:**


1. For Class 10 overload protection, change last two digits of catalog number from "20" to "10" (i.e. 48ASB3M**10**).
2. For Class 30 overload protection, change last two digits of catalog number from "20" to "30" (i.e. 48ASB3M**30**).



\* Hot trip times will vary depending on previous running condition, duty cycle, and length of "OFF" time.

Figure 1

(For Engineering Reference Only - Rev. E)

	<h2>WARNING</h2>
	<p><b>Hazardous voltage. Can cause death, serious injury, or property damage.</b></p> <p><b>Disconnect power before working on this equipment.</b></p>

**INSTALLATION:**

There are mounting hole locations in the housing of the overload so that it may be directly attached to a mounting panel or overload backplate (when replacing an existing unit on a starter). Use all of the mounting locations to prevent vibration and/or breakage of the housing during use.

**48AS (A, B, D) Three Phase Models:**

**48AS (A, B, D, E) Single Phase Models:**

**(To use as a separately mounted overload)**

Proper installation requires that the line side motor leads be connected to the terminal block mounted on the top of the overload. Load side motor leads should then be connected to the terminals at the bottom of the overload. Torque all connections to 20 lbs.-in. maximum. A typical control wiring diagram is shown in Fig. 5 and a typical power wiring diagram is shown in Fig. 3 & 4.

**(To use as a replacement overload or on a starter kit)**

To use as a replacement overload for a motor starter or for installation on a starter kit, the terminal block must be removed from the top of the overload. Loosen the line side terminal screws and then the two small mounting screws until the block can be pulled from the overload. There should be three exposed line side terminals (see Fig. 4). These terminals are to be inserted under the contactor load side terminal screws. Torque connections to 20 lbs.-in. maximum. Mount the overload to the starter backplate, using all mounting locations. Torque mounting screws 15 lbs.-in. to 20 lbs.-in.

**Adjustment Cap Removal (Optional):**

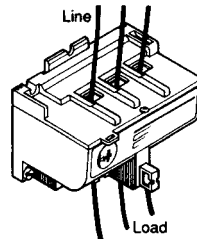
After the FLA has been selected, remove the gray adjustment cap to deter unwanted tampering with the setting. Pull the adjustment cap tab (with pliers) directly away from the face of the overload as seen in Fig. 6. To reinstall the cap later, line up the arrow on the cap with the setting mark on the red disc and push into place. The setting can now be changed.

**48AS (E, F, G) Three Phase Models:**

These overloads can be used as a separately mounted overload or as a replacement overload. These overloads are not connected to the motor branch circuits in any way. Proper installation simply requires that the motor leads be passed through the "windows" in the overload relay (Fig. 3), and the normally closed contact be wired in to the control circuit. A typical wiring diagram is shown in Fig. 5.

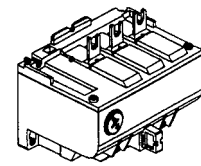
**APPLICATIONS:**

Class 48 overload relays are suitable for use with 50 or 60 Hz three phase motors and have an operating range from -22° F to +159° F (-30° C to +70° C). The motor voltage can exceed 600V, but the control circuit contact is rated NEMA A600 and NEMA P600 (10A continuous, 600VAC maximum and 5A continuous, 600 VDC maximum).



48AS (E, F, G) Three Phase Models

Figure 3



48AS (A, B, D) Three Phase Models  
48AS (A, B, D, E) Single Phase Models

Figure 4

**TYPICAL WIRING DIAGRAM**

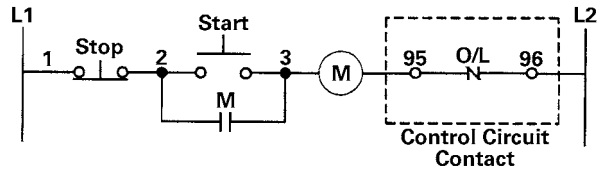


Figure 5

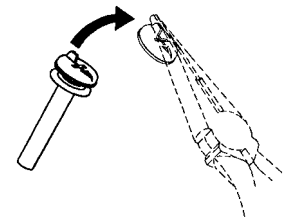
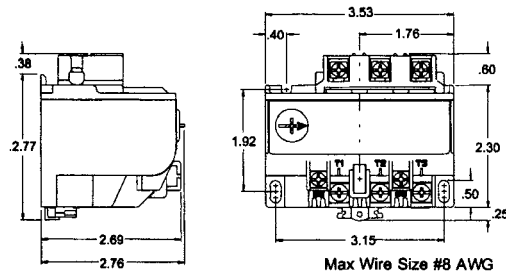


Figure 6

**DIMENSIONS (Solid-State Overload)**

**48AS (A, B, D) Three Phase & (A, B, D, E) Single Phase**



**48AS (E, F, G) Three Phase**

