
SERVICE BULLETIN

Original Issue Date: 3/01

Model: 20-2000 kW

Market: Industrial Generator Sets

Subject: Circuit Breaker Instantaneous Overcurrent Trip Adjustment

Introduction

This bulletin describes the instantaneous overcurrent trip adjustment location and type of **Square D** and **Merlin Gerin** molded-case circuit breakers.

The determination of the circuit breaker adjustment trip point is the responsibility of the building electrical engineer or contractor. In some cases, the instantaneous overcurrent trip adjustment corrects nuisance tripping of the circuit breaker. Comply with all applicable national and local electrical codes when making changes to an electrical system.

Circuit breakers with the **slide bar type** adjustment have a single instantaneous overcurrent trip adjustment. The circuit breaker slide bar type adjustment is labeled Ii.

Circuit breakers with the **dial type** adjustments may include several dial adjustments depending upon the circuit breaker model. The circuit breaker dial type adjustment is labeled Im, magnetic trip adjustment, or instantaneous trip. This service bulletin uses the term *instantaneous overcurrent trip* for all applications.

See Figure 1 and Figure 2 for circuit breaker ampere ranges, model numbers, circuit breaker type, adjustment type, and illustration reference.

Figures 3-6 illustrate instantaneous overcurrent trip adjustment locations of some circuit breakers as examples. The specific location varies depending upon circuit breaker manufacturer, ampere rating, and other circuit breaker adjustment options such as ground fault interruption.

Circuit Breaker Ampere Range	Square D Model No.	Circuit Breaker Type	Adjustment Type	Illustration
0-100	FA	Thermal Magnetic	None	None
125-250	KA		Dial	Figure 3
300-400	LA		Slide Bar	Figure 4
450-1200	MA			Figure 5
1400-2000	PA			
2500	PC			
1600-2500	PX	Electronic	Dial	Not shown

Figure 1 Square D, UL Approved Circuit Breakers

Circuit Breaker Ampere Range	Merlin Gerin Model No.	Circuit Breaker Type	Adjustment Type	Illustration
0-250	NS100N NS160N NS250N	Thermal Magnetic	Dial	Figure 6
300-600	NS400N NS630N	Electronic		
700-1200	C801N C1001N C1251N			
1400-3200	CM			Figure 7

Figure 2 Merlin Gerin, IEC Approved Circuit Breakers

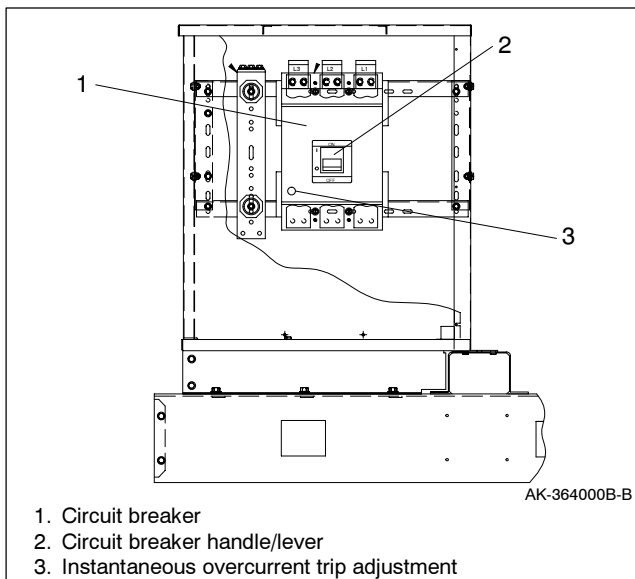


Figure 3 Square D Model KA Circuit Breaker

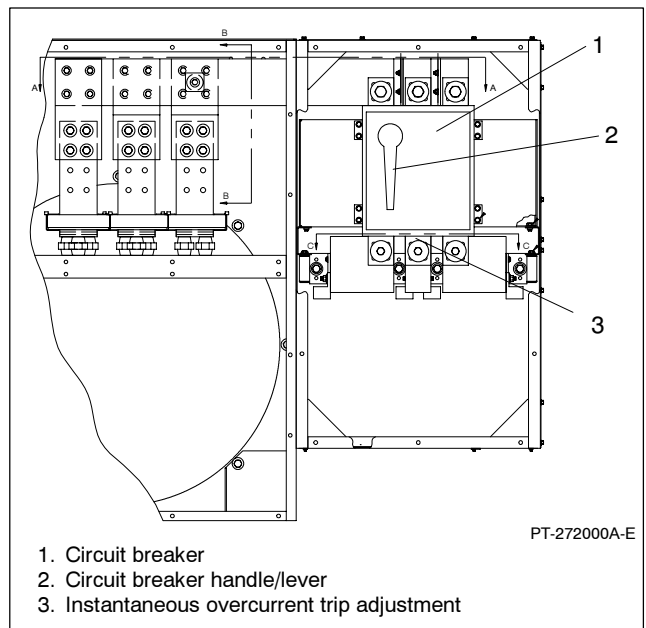


Figure 5 Square D Model PA Circuit Breaker

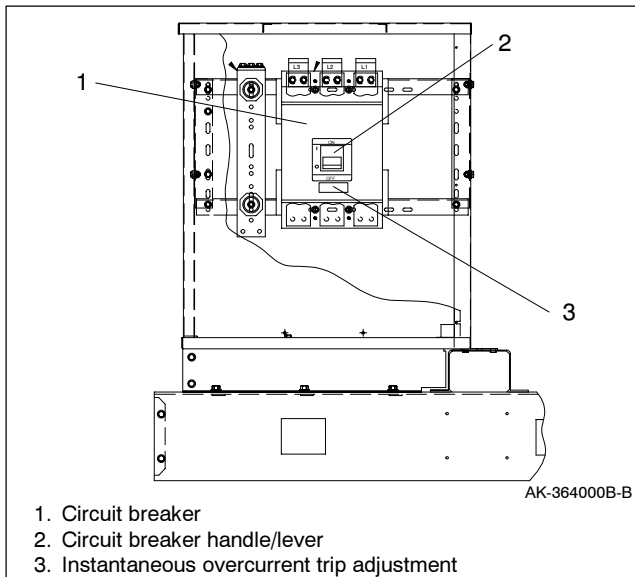


Figure 4 Square D Model MA Circuit Breaker Shown

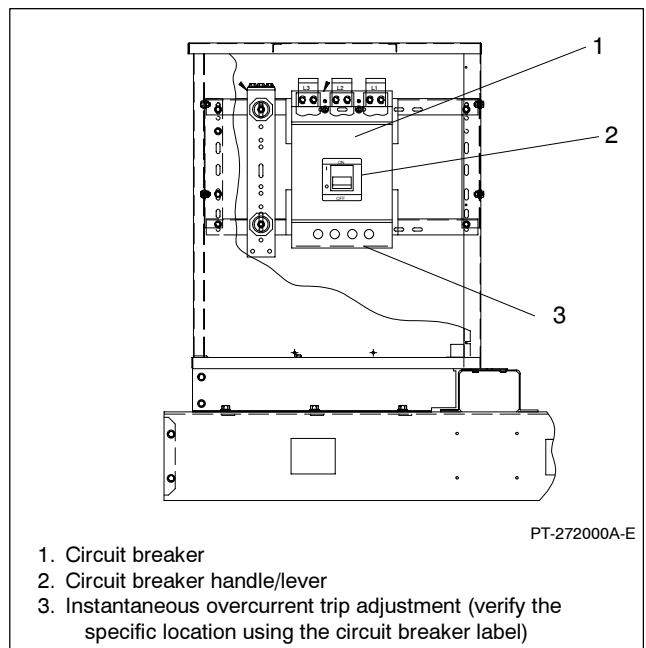


Figure 6 Merlin Gerin Model NS and CK Circuit Breaker

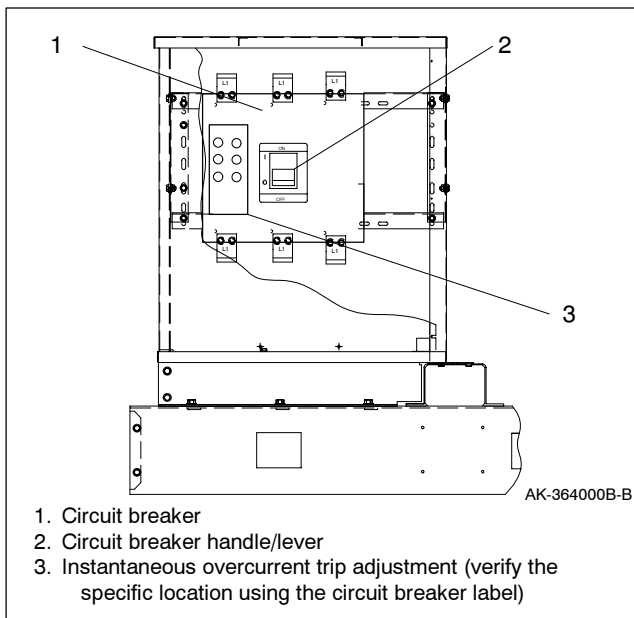


Figure 7 Merlin Gerin CM Circuit Breaker

Safety Precautions

Observe the following safety precautions while adjusting the circuit breaker.

⚠ WARNING

Accidental starting.
Can cause severe injury or death.

Disconnect the battery cables before working on the generator set.
Remove the negative (-) lead first when disconnecting the battery.
Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

⚠ WARNING

Hazardous voltage. Moving rotor.
Can cause severe injury or death.

Operate the generator set only when all guards and electrical enclosures are in place.

Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

Adjustment Procedure

1. Remove the Generator Set from Service

- 1.1 Place the generator set master switch in the OFF position.
- 1.2 Disconnect the power to the battery charger, if equipped.
- 1.3 Disconnect the generator set engine starting battery(ies), negative (-) lead first.

2. Adjust the Instantaneous Overcurrent Trip Point

- 2.1 Remove the junction box side cover or circuit breaker panel cover to access the instantaneous overcurrent trip adjustment.
- 2.2 Locate the instantaneous overcurrent trip adjustment. The adjustment appears as either a rectangular opening with a slide bar directly below the circuit breaker handle or a dial type adjustment located near the circuit breaker handle. See Figure 8 and Figure 9.

The trip point markings indicate a range of the nominal current rating as listed on the circuit breaker.

2.2.1 Slide bar type. Use a wide blade slotted screwdriver to move the slide bar to the right to increase the trip point or to the left to decrease the trip point. Marking values vary with each circuit breaker. Generally, the trip point range is a value of 1.5 up to 10 times the nominal circuit breaker ampere value. Refer to the circuit breaker manufacturer's data sheet for specific values.

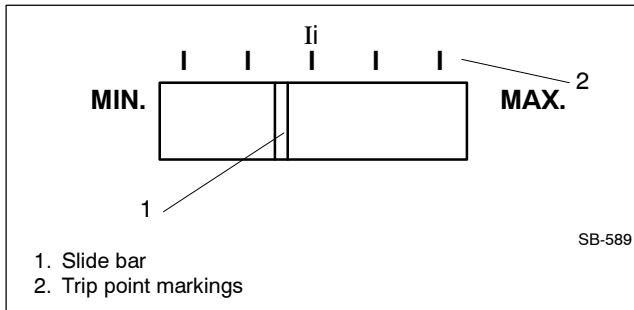


Figure 8 Slide Bar Type Circuit Breaker Instantaneous Overcurrent Trip Adjustment

2.2.2 Dial type. Use a slotted screwdriver and turn the dial type adjustment clockwise to increase the trip point or counterclockwise to decrease the trip point. The markings on the circuit breaker indicate the available values based on the nominal circuit breaker ampere value.

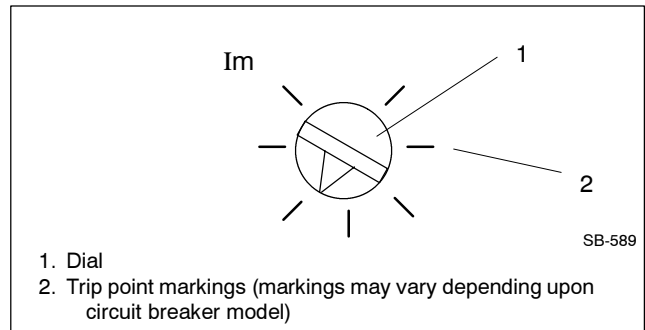


Figure 9 Dial Type Circuit Breaker Instantaneous Overcurrent Trip Adjustment

2.3 Replace the junction box side cover or circuit breaker panel cover.

3. Restore the Generator Set to Service

- 3.1** Check that the generator set master switch is in the OFF position.
- 3.2** Reconnect the generator set engine starting battery, negative (-) lead last.
- 3.3** Reconnect power to the battery charger, if equipped.