

Integral Ground-fault Field Test Procedure (For Circuit Breakers with MICROLOGIC® Trip Systems)

TOOLS REQUIRED

Power Source, 120 Vac, 50/60 Hz, capable of supplying 0.5 amperes (60 VA)

NEC REQUIREMENTS

Paragraph 230-95(c) of the National Electrical Code (NEC) requires that all ground-fault protection systems be performance tested when first installed.

Paragraph 230-95(a) requires the maximum setting of the ground-fault protection to be 1200 amperes and the maximum time delay to be one second for a ground-fault current equal to or greater than 3000 amperes.

Refer to paragraph 700-7(d) and 700-26 for circuit breakers with ground-fault alarm option.

DESCRIPTION

The field test simulates a ground fault greater than 75% of the circuit breaker frame rating, causing the ground-fault system to function in less than one second.

Field testing determines that:

- Installation is correct.
- Ground-fault system is operational.
- System functions as required by the NEC.

Field testing does not check the calibration of any sensing relay. Should additional operational tests be necessary, use Square D test set, Cat. No. UTS3. Call Square D Field Services Division at 1-800-634-2003 for complete primary injection testing.

Before testing, review circuit breaker instruction manual included with circuit breaker.

INSPECT SYSTEM

DANGER

HAZARD OF ELECTRIC SHOCK, BURN OR EXPLOSION

- This equipment must be installed and serviced only by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

1. Turn off all power supplying this equipment before working on or inside equipment.
2. Remove neutral disconnect link on switchboard to isolate neutral of wiring system from both supply and ground.
3. With circuit breaker in OFF position, measure insulation resistance of neutral to ground to insure no ground connections exist downstream (load side).
4. For 3-phase 4-wire applications, visually inspect wiring. Confirm that grounding connection at service equipment is upstream (line side) of circuit breaker neutral current transformer (CT) and that a neutral connection exists from supply transformer to service equipment.
5. Check neutral CT to make sure connections are correct:

Primary:

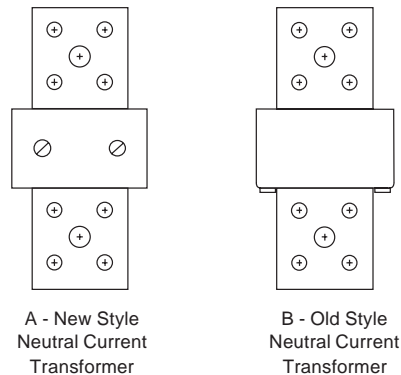
- A. If load is connected to OFF end of circuit breaker, load neutral must be connected to H1 terminal of neutral CT.
- B. If supply power is connected to OFF end of circuit breaker, supply neutral must be connected to H1 terminal of neutral CT.

Secondary:

Terminals X1 and X2 of neutral CT (A) must be connected to terminals 1 and 2 respectively of circuit breaker terminal block.

NOTE: If system has an old-style neutral CT (B), then terminals X1 and X2 of neutral CT are connected to terminals 2 and 1, respectively, of circuit breaker terminal block.

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6. Reconnect all neutral and ground connections.

TEST CIRCUIT BREAKER

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, BURN OR EXPLOSION

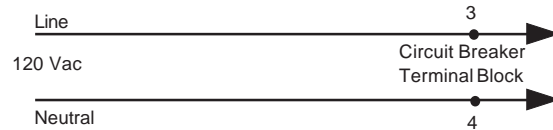
- Make sure circuit breaker and accessories are de-energized before connecting temporary power.
- Always perform ground-fault test with minimum possible load. Testing circuit breaker under load causes unnecessary wear and results in loss of electrical service to critical loads.

Failure to follow these instructions will result in death or serious injury.

1. De-energize circuit breaker and accessories.
2. Ground-fault test terminals 3 and 4 must be connected to a 120 Vac power source to use the push-to-test feature.

An existing system should already be connected to a 120 Vac source. Refer to circuit breaker instruction manual for permanent connection of temporary test power.

Other systems will need a temporary power source capable of supplying a minimum of 120 Vac, 0.5 amperes, to terminals 3 and 4 of the circuit breaker terminal block.



3. Turn on 120 Vac ground-fault test power.
 4. Depress PUSH-TO-TEST button on front of circuit breaker. The circuit breaker will trip in less than a second, and the trip indicator, if installed, will read "GROUND FAULT."
- NOTE: If circuit breaker is equipped with ground-fault alarm option, it will not trip or indicate a trip. The ammeter in the circuit breaker and the POWERLOGIC® system will indicate a ground-fault current value while push-to-test button is depressed.*
5. If circuit breaker trips, push reset button on trip indicator, if installed.
 6. If circuit breaker does not trip or indicate a ground-fault, contact Square D Field Services Division at 1-800-634-2003.
 7. Disconnect temporary 120 Vac power source, if installed. Replace terminal access cover.
 8. Close circuit breaker.
 9. Record results, test data and trip delay setting on both the log at the bottom of the label entitled "Installation Testing and Maintenance Instructions for Ground-fault System" and the log appearing on the 3 in. x 5 in. card provided. This 3 in. x 5 in. card is to be retained by those in charge of the building's electrical maintenance.

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