



Powering Business Worldwide™

Installing and Testing a Switch/GFCI Receptacle

Please read this leaflet completely before getting started.

www.eaton.com
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EIS-0019-E (REV. A)

CAUTION

- To prevent severe shock or electrocution, always turn the power OFF at the service panel before working with wiring.
- Use this GFCI receptacle with copper or copper-clad wire. Do not use it with aluminum wire.
- Do not install this GFCI receptacle on a circuit that powers life support equipment because if the GFCI trips it will shut down the equipment.
- For installation in wet locations, protect the GFCI receptacle with a weatherproof cover that will keep both the receptacle and any plugs dry.
- Must be installed in accordance with national and local electrical codes.

1. What is a GFCI?

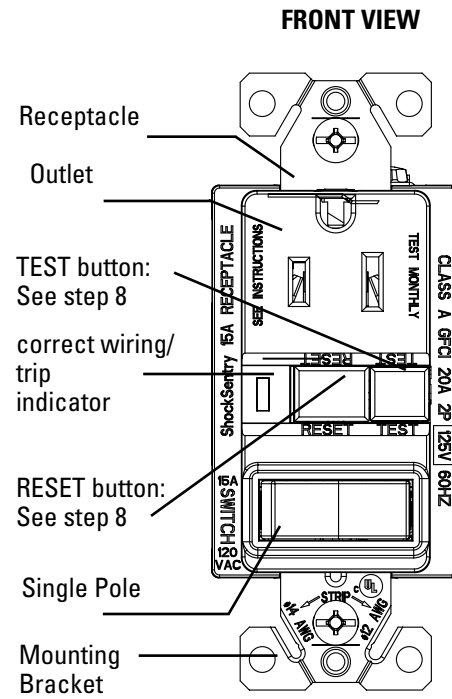
A GFCI receptacle is different from conventional receptacles. In the event of a ground fault, a GFCI will trip and quickly stop the flow of electricity to prevent serious injury.

Definition of a ground fault:

Instead of following its normal safe path, electricity passes through a person's body to reach the ground. For example, a defective appliance can cause a ground fault.

A GFCI receptacle does not protect against circuit overloads, short circuits, or shocks. For example, you can still be shocked if you touch bare wires while standing on a non-conducting surface, such as a wood floor.

2. The combination Switch/GFCI's features



Grounding Terminal (Green): Connection for bare copper or green wire

LINE White terminal (Silver): Connection for the LINE cable's white wire

LOAD White terminal (Silver): Connection for the LOAD cable's white wire

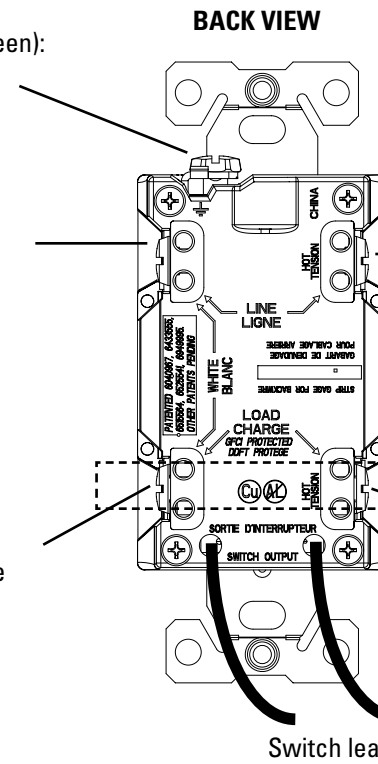
BACK VIEW

Screw (terminal) colors:
Green = grounding terminal
Silver = white terminals
Brass = hot terminals

LINE Hot terminal (Brass): Connection for the LINE cable's black wire

A yellow sticker covers the LOAD terminals. Do not remove the sticker at this time

LOAD Hot terminal (Brass): Connection for the LOAD cable's black wire



3. Should you install it?

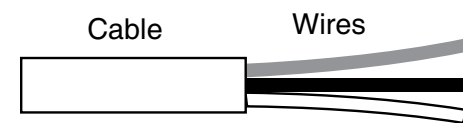
Installing a GFCI receptacle can be more complicated than installing a conventional receptacle.

Make sure that you:

- Understand basic wiring principles and techniques
- Can interpret wiring diagrams
- Have circuit wiring experience
- Are prepared to take a few minutes to test your work, making sure that you have wired the GFCI receptacle correctly

4. LINE vs. LOAD

A cable consists of 2 or 3 wires.



LINE cable:

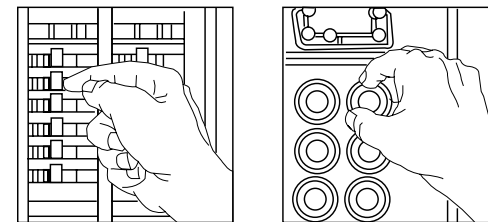
Delivers power from the service panel (breaker panel or fuse box) to the GFCI. If there is only one cable entering the electrical box, it is the LINE cable. This cable should be connected to the GFCI's LINE terminals only.

LOAD cable:

Delivers power from the GFCI to another receptacle in the circuit. This cable should be connected to the GFCI's LOAD terminals only. The LOAD terminals are under the yellow sticker. Do not remove the sticker at this time.

5. Turn the power OFF

Plug an electrical device, such as a lamp or radio, into the receptacle on which you are working. Turn the lamp or radio on. Then, go to the service panel. Find the breaker or fuse that protects that receptacle. Place the breaker in the OFF position or completely remove the fuse. The lamp or radio must turn OFF.



Next, plug in and turn ON the lamp or radio at the receptacle's other outlet to make sure the power is OFF at both outlets. If the power is not OFF, stop work and call an electrician to complete the installation.

6. Identify cables/wires

Important:

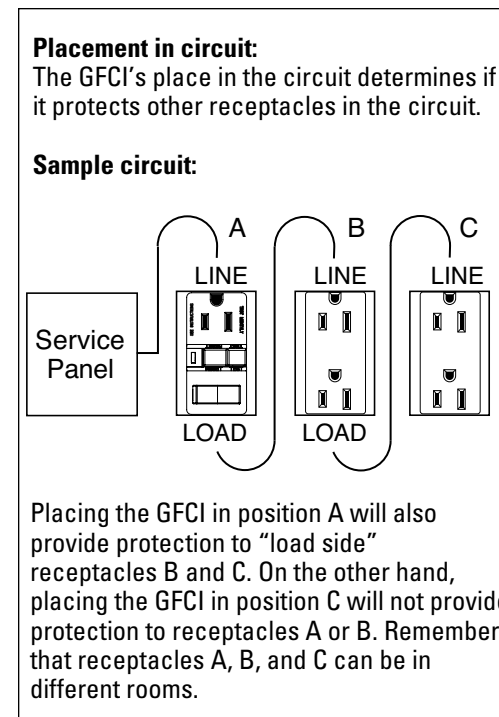
Do not install the GFCI receptacle in an electrical box containing (a) more than 4 wires (not including the grounding wires) or (b) cables with more than two wires (not including the grounding wire). Contact a qualified electrician if either (a) or (b) is true.

If you are replacing an old receptacle, pull it out of the electrical box without disconnecting the wires.

- If you see one cable (2-3 wires), it is the LINE cable. The receptacle is probably in position C (see diagram to the right). Remove the receptacle and go to step 7A.
- If you see two cables (4-6 wires), follow the procedure to the right. The receptacle is probably in position A or B (see diagram to the right).

Procedure: box with two cables (4-6 wires)

- Detach one cable's white and hot wires from the receptacle and cap each one separately with a wire connector. Make sure that they are from the same cable.
- Re-install the receptacle in the electrical box, attach the faceplate, then turn the power ON at the service panel.
- Determine if power is flowing to the receptacle. If so, the capped wires are the LOAD wires. If not, the capped wires are the LINE wires.
- Turn the power OFF at the service panel, label the LINE and LOAD wires, then remove the receptacle.
- Go to step 7B.



Placement in circuit:
The GFCI's place in the circuit determines if it protects other receptacles in the circuit.

Sample circuit:

Placing the GFCI in position A will also provide protection to "load side" receptacles B and C. On the other hand, placing the GFCI in position C will not provide protection to receptacles A or B. Remember that receptacles A, B, and C can be in different rooms.

EATON warrants its Ground Fault Circuit Interrupter (GFCI) to be free of defects in materials and workmanship in normal use and service for a period of two years from date of original purchase. THIS TWO (2) YEAR LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS, OR LIABILITIES, EXPRESSED OR IMPLIED (INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE THAT IS IN DURATION IN EXCESS OF TWO YEARS FROM THE DATE OF ORIGINAL CONSUMER PURCHASE). NO AGENT, REPRESENTATIVE, OR EMPLOYEE OF EATON HAS AUTHORITY TO INCREASE OR ALTER THE OBLIGATIONS OF EATON UNDER THIS WARRANTY. To obtain warranty service for any properly installed EATON GFCI that proves defective in normal use send the defective GFCI prepaid and insured to Quality Control Dept. EATON, 203 Cooper Circle, Peachtree City, GA 30269.

EATON will repair or replace the defective unit, at its option. EATON will not be responsible under this warranty if examination shows that the defective condition of the unit was caused by misuse, abuse, improper installation, alteration, improper maintenance or repair of damage in shipment to EATON.

EATON SHALL HAVE NO RESPONSIBILITY FOR INSTALLATION OF THE GFCI, OR FOR ANY PERSONAL INJURY, PROPERTY DAMAGE, OR ANY SPECIAL, INCIDENTAL, CONTINGENT, OR CONSEQUENTIAL DAMAGES OF ANY KIND, RESULTING FROM DEFECTS IN THE GFCI OR THE FAILURE OF THE PRODUCT TO FUNCTION IN THE EVENT OF A GROUND FAULT ON ITS PROTECTED CIRCUIT, OR FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT.

THE EXCLUSIVE REMEDY FOR BREACH OF THE LIMITED WARRANTY CONTAINED HEREIN IS THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT AT EATON OPTION. IMPLIED WARRANTIES (IF ANY) INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, ARE LIMITED IN DURATION TO A PERIOD ENDING TWO YEARS FROM THE DATE OF ORIGINAL CONSUMER PURCHASE. IN NO CASE SHALL EATON LIABILITY UNDER ANY OTHER REMEDY PRESCRIBED BY LAW EXCEED THE PURCHASE PRICE. Some states do not allow the exclusion or limitation of incidental or consequential damages or allow disclaimers or modifications of or limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. Read enclosed instructions carefully.

8. Test your work

Why perform this test?

If you miswire the GFCI, it may not prevent personal injury or death due to a ground fault (electric shock).

Upon initial installation, if you mistakenly connect the LINE wires to the LOAD terminals, this Eaton GFCI will not be able to be reset, and will therefore not provide power to its receptacle face or load terminals.

Procedure:

(a) Turn the power ON at the service panel. Press the RESET button fully. Plug a lamp or radio into the GFCI (and leave it plugged-in) to verify that the power is ON. If there is no power, go to Troubleshooting.

(b) Press the TEST button in order to trip the device. This should stop the flow of electricity, making the radio or lamp shut OFF and the yellow Correct Wiring/Trip Indicator come on. To restore power, press the RESET button.

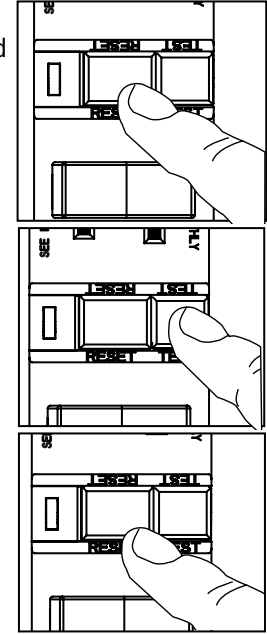
(c) If you installed your GFCI using step 7B, now plug a lamp or radio into surrounding receptacles to see which one(s), in addition to the GFCI, lost power when you press the TEST button. Do not plug life saving devices into any receptacles that lost power. Place a "GFCI Protected" sticker on every receptacle that lost power.

(d) Press the TEST button (then RESET button) every month to assure proper operation.

(e) Note that this Eaton GFCI is shipped in the Tripped state and cannot be Reset until it is wired correctly and powered from its Line terminals.

(f) Note that the RESET button will pop-out. If the power goes OFF and the correct wiring/trip indicator stays on, you have installed the GFCI receptacle correctly.

(g) LINE/LOAD reversal will be indicated by the reset button not staying in after being pressed. Such LINE/LOAD reversal will also be indicated by failure of the Correct Wiring/Trip Indicator to be on while the GFCI is tripped.



TROUBLESHOOTING

Turn the power OFF and check the wire connections against the appropriate wiring diagram in step 7A or 7B. Make sure that there are no loose wires or loose connections. Also, it is possible that you reversed the LINE and LOAD connections. Reverse the LINE and LOAD connections if necessary. Start the test from the beginning of step 8 if you rewired any connections to the GFCI.

NOTE: If this EATON GFCI has tripped and no longer can be reset, it has reached its "End of Life" and will no longer provide power. Replace with the same model EATON GFCI to continue to provide ground fault protection.

General Information

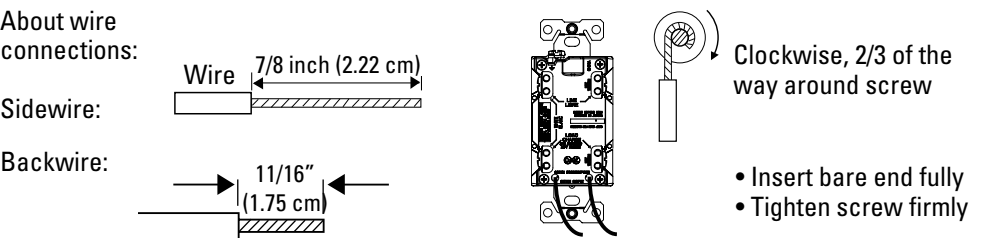
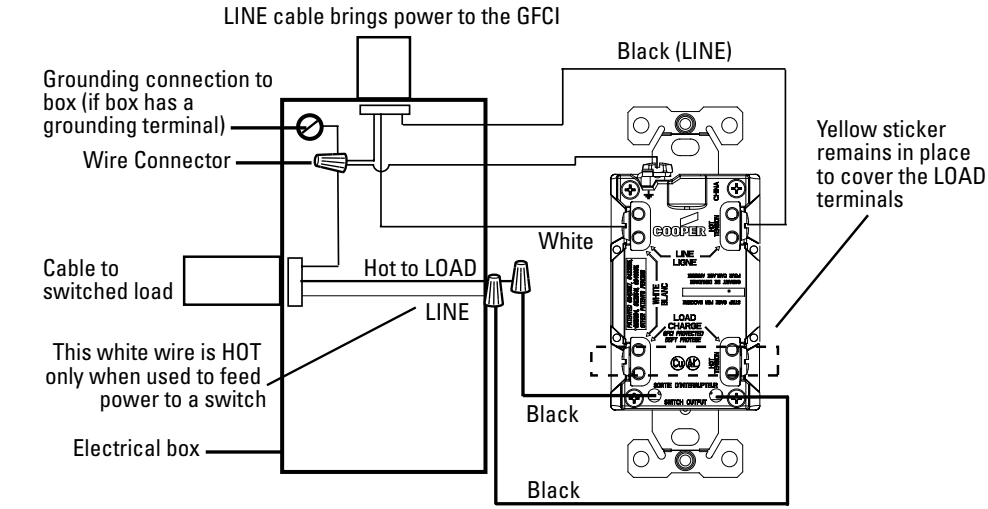
GFCI ratings:
15A-125V AC GFCI Receptacle
20A feed-through
125V Class A

Switch ratings:
15A max.-120V/AC
1/2 Hp @ 120V, for motor loads of 12 FLA max. and not to exceed 1/2 Hp.

7. Connect the wires (choose A or B) ... only after reading other side completely

A: One cable (2 or 3 wires) entering the box

OR B: Two cables (4 or 6 wires) entering the box



Connect the LINE cable wires to the LINE terminals:

- The white wire connects to the White terminal (Silver)
- The black wire connects to the Hot terminal (Brass)

Connect the switch leads to the switch controlled LOAD (not GFCI protected, shown in diagram) using supplied wire connectors:

- One black switch lead connects to the line side black wire.
- The other black lead connects to the Hot side of the LOAD.
- The LOAD must be properly connected to Neutral and grounded.

NOTE: Wiring for switched LOAD shown here is only one of several options. If you are unsure about any part of these instructions, consult a qualified electrician.

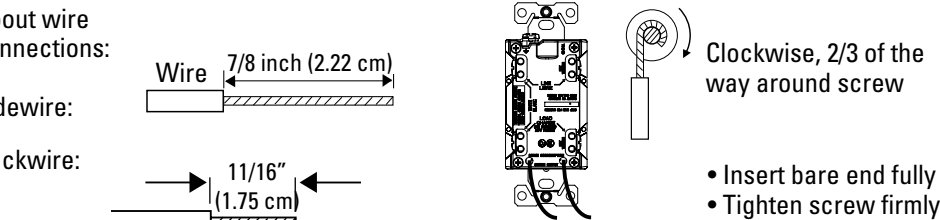
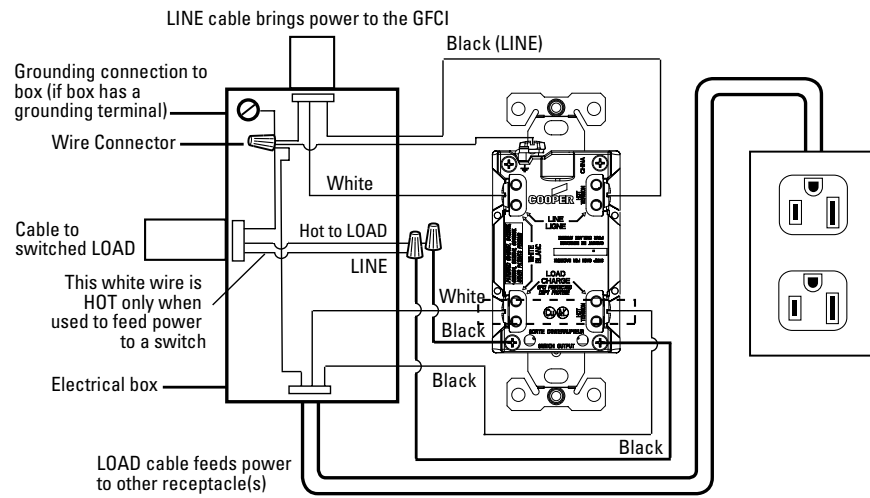
2 #14	2 to 5 #18	1 #14 with 1 or 2 #16	1 #14 with 1 to 3 #18
2 or 3 #16	3 #16 with 1 #18	2 #16 with 1 or 2 #18	

Wire connectors to be used with the following wire combinations (strip wires 3/8" (9.5mm)). Connect the grounding wire (only if there is a grounding wire):

- For a box with no grounding terminal (diagram not shown): Connect the LINE cable's bare copper (or green) wire directly to the grounding terminal on the GFCI receptacle.
- For a box with a grounding terminal (diagram shown above): Connect a 6-inch bare copper (or green) 12 or 14 AWG wire to the grounding terminal on the GFCI. Also connect a similar wire to the grounding terminal on the box. Connect the ends of these wires to the LINE cable's bare copper (or green) wire using a wire connector. If these wires are already in place, check the connections.

Complete the installation:

- Fold the wires into the box, keeping the grounding wire away from the White and Hot terminals. Screw the receptacle to the box and attach the faceplate.
- Go to step 8.



Connect the LINE cable wires to the LINE terminals:

- The white wire connects to the White terminal (Silver)
- The black wire connects to the Hot terminal (Brass)

Connect the LOAD cable wires to the LOAD terminals:

- Remove the yellow sticker to reveal the LOAD terminals
- The white wire connects to the White terminal (Silver)
- The black wire connects to the Hot terminal (Brass)

Connect the switch leads to the switch controlled LOAD (not GFCI protected, shown in diagram) using supplied wire connectors:

- One black switch lead connects to the line side black wire.
- The other black lead connects to the Hot side of the LOAD.
- The LOAD must be properly connected to Neutral and grounded.

NOTE: Wiring for switched LOAD shown here is only one of several options. If you are unsure about any part of these instructions, consult a qualified electrician.

Wire connectors to be used with the following wire combinations (strip wires 3/8" (9.5mm)).

2 #14	2 to 5 #18	1 #14 with 1 or 2 #16	1 #14 with 1 to 3 #18
2 or 3 #16	3 #16 with 1 #18	2 #16 with 1 or 2 #18	

Connect the grounding wires (only if there is a grounding wire):

- Connect a 6-inch bare copper (or green) 12 or 14 AWG wire to the grounding terminal on the GFCI. If the box has a grounding terminal, also connect a similar wire to the grounding terminal on the box. Connect the ends of these wires to the LINE and LOAD cable's bare copper (or green) wire using a wire connector. If these wires are already in place, check the connections.

Complete the installation:

- Fold the wires into the box, keeping the grounding wire away from the White and Hot terminals. Screw the receptacle to the box and attach the faceplate.
- Go to step 8.