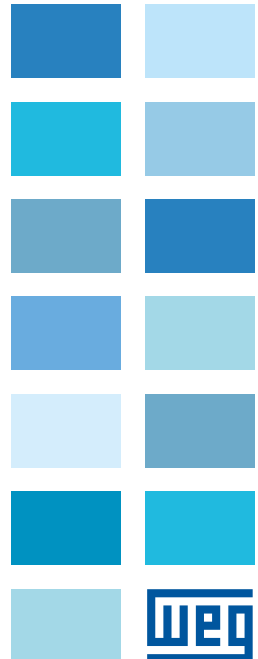
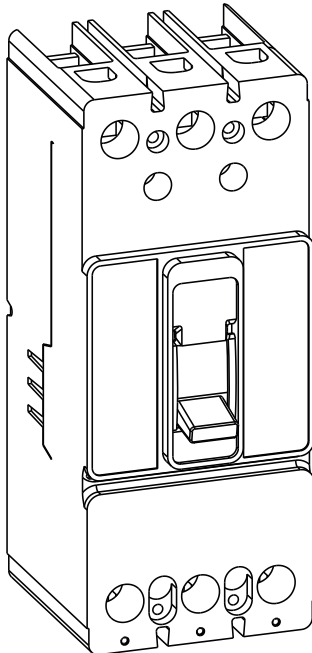


WEG Molded Case Circuit Breakers

UBW250

User's Manual



**WARNING**

- Do not attempt to install or perform maintenance on equipment while it is energized. Death, severe personal injury or substantial property damage can result from contact with energized equipment. Always verify that no voltage is present before proceeding with the task, and always follow generally accepted safe ty procedures.
- WEG is not liable for the misap plication or misinstallation of its products.

The user is cautioned to observe all recommendations, warnings and cautions relating to the safety of personnel and equipment as well as all general and local health and safety laws, codes and procedures.

The recommendations and information contained herein are based on WEG experience and judgment, but should not be considered to be all-inclusive or covering every application or circumstance which may arise. If any questions arise, contact WEG for further information or instructions.

1. INTRODUCTION

1.1. GENERAL INFORMATION

The UBW250 circuit breaker (Figure 1) types UBW250 are 600 V ac maximum rated devices with inter changeable thermal-magnetic trip units rated 250 A maximum continuous current. Refer to Table 1 for all available trip unit ratings. UBW250 circuit breakers are listed in accordance with Underwriters' Laboratories, Inc. Standard UL 489 and satisfy the (P1) requirements of the International Electrotechnical Commission Recommendations No. IEC 157-1 Model W circuit breakers satisfy the requirements of IEC 947-2. Molded case switches are listed in accordance with UL 489.

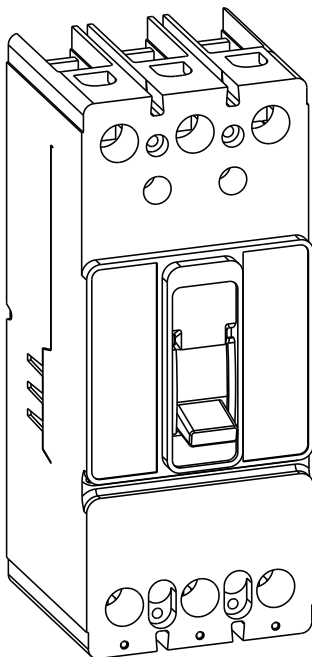


Figure 1: UBW250 circuit breaker

| Circuit breaker types | Trip unit types thermal-magnetic Amperes I_n | | |
|-----------------------|--|----------------------------------|--|
| | Fixed thermal | Adjustable thermal ¹⁾ | Adjustable magnetic of I_n ²⁾ |
| UBW250 | 250 | 200-250 | 5 to 10 |

Table 1: available trip unit ratings

Notes: 1) Not UL listed.

2) For adjustable thermal trip units, the magnetic setting is a multiple of the maximum thermal setting.

This instruction leaflet (IL) gives procedures for installation and field testing of UBW250 circuit breakers.

2. INSTALLATION

The installation procedure consists of inspecting the circuit breaker and, as applicable, installing the trip unit, accessories, interphase barriers and terminals; mounting the circuit breaker; connecting the line and load conductors; torquing terminals and attaching terminal shields. Circuit breaker frames, trip units, accessories, mounting hardware, and unmounted terminals may be supplied in separate packages. To install the circuit breaker, perform the following steps.

NOTICE

- UBW250 circuit breakers are factory sealed for reverse feed applications under UL 489. UL requires that internal accessories be installed at the factory in this type of circuit breaker.

For hardware conversion kits and handle mechanisms required to replace existing WEG circuit breakers.

If required, internal accessory installation in any type of circuit breaker should be done before the circuit breaker is mounted and connected. Refer to individual accessory instruction leaflets.

Circuit breaker mounting hardware is supplied separately.

1. Make sure that the circuit breaker frame is suitable for the intended installation by comparing nameplate data with existing ratings and system requirements. Inspect the circuit breaker for completeness, and check for damage before mounting. Uninstalled cover mounting hardware is supplied in a plastic bag with the circuit breaker frame (see Figure 2).

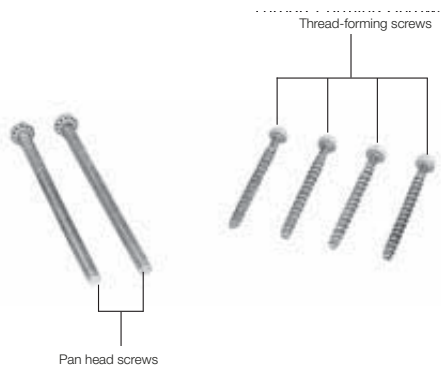


Figure 2: cover mounting hardware

- Remove installed cover screws and cover.

NOTICE

- The circuit breaker handle must be in the tripped or OFF position to remove the cover. Instructions for installing the trip unit accessories are supplied with the devices.

- If not already installed, mount trip unit and accessories (if required) in circuit breaker frame.



CAUTION

- When removed and reinstalled, thread forming screws will try to reform the threads in the base. Care should be taken every time a thread-forming screw is used to ensure the screw starts in the original threads. Damaged threads can result in improper circuit breaker cover retention.

- Install cover, and secure with pan-head screws followed by thread-forming screws, as shown in Figure 3. Torque cover screws to 18-23 LB-in (2-2.6 N.m).

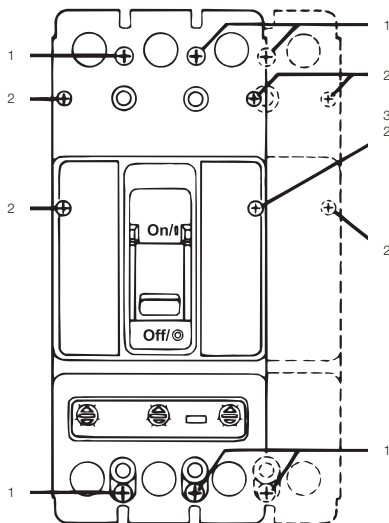


Figure 3: cover screw installation positions

- Screw, .190-32 x 3.13 Inch, Pan Head, Cross-Recessed.
- Screw, No. 8 x 1.88 Inch, Pan Head, Cross-Recessed, thread forming.
- Screw, No. 6 x 1.50 Inch, Pan Head, Cross-Recessed, Thread Forming (used with 4 pole only).

Note: hatched linea show additional pole and screws for 4-pole circuit breaker.

5. If not already installed, mount terminals as shown in Figure 4. When using terminal (Catalog No.LTI UBW250), secure the terminal to the circuit breaker using a 1/8-inch socket wrench and torque to 6-8 lb.-ft (8-11 N.m). After mounting the circuit breaker and before installation of the conductors, the terminal mounting screw can be checked or retightened through the terminal when the conductor screw is removed. When using terminal (Catalog No. LTI UBW250), secure the terminal to the circuit breaker using screw and nut. Torque to 7-9 lb.-in (0.8-1.0 N.m).

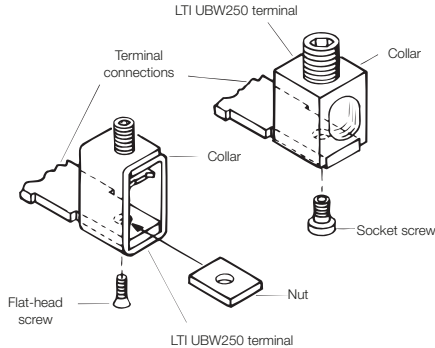


Figure 4: terminal installation



WARNING

- ▀ The voltages in energized equipment can cause death or severe personal injury. Before mounting the circuit breaker in an electrical system, make sure there is no voltage present where work is to be performed. Special attention should be paid to reverse feed applications to ensure no voltage is present.

NOTICE

- ▀ Depending on the equipment configuration, the circuit breaker can be mounted using different styles of hardware. The following steps describe how to mount the circuit breaker using standard hardware. When special hardware is needed (for example, with the electrical operator), the instruction leaflet describing the accessory also describes the special mounting arrangements.

6. To mount the circuit breaker, perform the following steps:
- For individual surface mounting, drill mounting panel using the drilling plan shown in Figure 5. For panelboard mounting, only load end support mounting holes are required. For deadfront cover applications, cut out cover to correct escutcheon dimensions (see Figure 6).

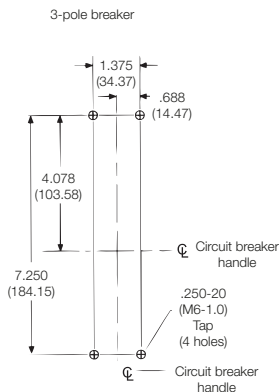


Figure 5: circuit breaker mounting bolt drilling plans

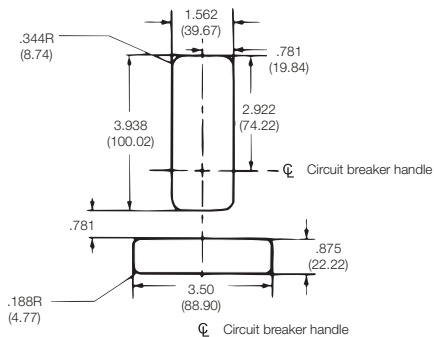


Figure 6: circuit breaker escutcheon dimensions

- b. If circuit breaker includes factory-or field-installed internal accessories, make sure that accessory wiring can be reached when the circuit breaker is mounted.

NOTICE

- Labels with accessory connection schematic diagrams are provided on the side of the circuit breaker.
- A note should be made of the diagrams if the labels cannot be seen when the circuit breaker is mounted.

- c. Position circuit breaker on mounting surface.
- d. Install circuit breaker mounting screws and washers. Tighten screws firmly, but do not exceed 28 pound inches (3 N.m).

**CAUTION**

- When aluminum conductors are used, the application of a suitable joint compound is recommended to reduce the possibility of terminal overheating. Overheating can cause nuisance tripping and damage to the circuit breaker.

7. Connect line and load conductors and accessory leads.
8. If required, install terminal shield on circuit breaker cover with mounting screws provided.
9. After the circuit breaker is installed, check all mounting hardware and terminal connecting hardware or correct torque loading. Torque values for line/load terminals are given in Table 2 and on the circuit breaker nameplate.

| Terminal catalog number | Terminal material body | Screw head type | AWG wire range | Metric wire range | Wire type | Torque value, Lb. in. (N.m) |
|-------------------------|------------------------|-----------------|----------------|-------------------|-----------|-----------------------------|
| LT1 UBW250 | Stainless steel | Socket | 4-350 MCM | 25-185 | Cu only | 180 (20) |
| | Aluminum | Socket | 4-350 MCM | 25-185 | Cu/Al | 275 (31) |

Table 2

3. MANUAL OPERATION, AND THERMAL MAGNETIC ADJUSTMENT

3.1. MANUAL OPERATION

Manual operation of the circuit breaker is controlled by the circuit breaker handle and the PUSH-TO-TRIP button in the trip unit. The circuit breaker handle has three positions, two of which are shown on the cover with raised lettering to indicate ON and OFF. On the sliding handle barrier, ON, OFF, and trip are also shown by a color-coded strip for each circuit breaker handle position: red for ON, white for tripped, and green for OFF. ON/OFF is also shown with the international symbols 1/0 (see Figure 7).

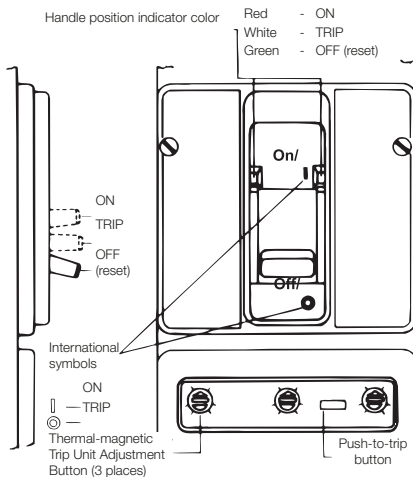


Figure 7: circuit breaker manual controls

3.2. CIRCUIT BREAKER RESET

After an automatic or accessory initiated trip, or a manual Push-to-Trip operation, the circuit breaker is reset by moving the circuit breaker handle to the extreme OFF position.

NOTICE

- In the event of a thermal trip in a thermal magnetic type trip unit, the circuit breaker cannot be reset until the thermal element in the trip unit cools.
- No circuit breaker should be reclosed until the cause of trip is known and the situation rectified.

3.3. PUSH-TO-TRIP BUTTON

The PUSH-TO-TRIP button checks the circuit breaker tripping function and is used to periodically exercise the operating mechanism in thermal-magnetic trip units. The button is designed to be operated by a small screwdriver.

3.4. THERMAL-MAGNETIC TRIP UNIT ADJUSTMENT

The magnetic element of each pole of the trip unit can be adjusted by rotating the adjustment buttons on the front face of the trip unit with a screwdriver. The buttons have several settings, as indicated on the nameplate, with values in multiples of the trip unit ampere rating (I_n) (see Figure 8) To adjust the setting, rotate each button clockwise until arrow on button points to desired setting.

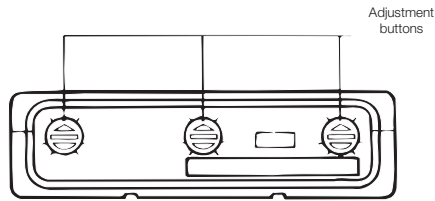


Figure 8: trip unit magnetic trip adjustment buttons

3.5. INSPECTION AND FIELD TESTING

UBW250 molded case circuit breakers are designed to provide years of almost maintenance-free operation.

The following procedure describes how to inspect and test a circuit breaker in service.

3.6. INSPECTION

Circuit breakers in service should be inspected periodically. The inspection should include the following checks (4-1 through 4-8):



WARNING

- The voltages in energized equipment can cause death or severe personal injury. Before inspecting the circuit breaker in an electrical system, make sure there is no voltage present where work is to be performed. Special attention should be paid to reverse feed applications to ensure no voltage is present.



CAUTION

- Make sure that cleaning agents or solvents used to clean the circuit breaker are suitable for the job. Some commercial cleaning agents will damage the nameplates or molded parts.

1. Remove dust, dirt, soot, grease, or moisture from the surface of the circuit breaker using a lint-free dry cloth, brush, or vacuum cleaner. Do not blow debris into circuit breaker. If contamination is found, look for the source and eliminate the problem.
2. Switch circuit breaker to ON and OFF several times to be sure that the mechanical linkages are free and do not bind. If mechanical linkages are not free, replace circuit breaker.
3. With the circuit breaker in the ON position, press the PUSH TO-TRIP button to mechanically trip the circuit breaker. Trip, reset, and switch circuit breaker ON several times. If mechanism does not reset each time the circuit breaker is tripped, replace the circuit breaker.

4. Check base, cover, and operating handle for cracks, chipping, and discoloration. Circuit breakers should be replaced if cracks or severe discoloration is found.
5. Check terminals and connectors for looseness or signs of overheating. Overheating will show as discoloration, melting, or blistering of conductor insulation, or as pitting or melting of conductor surfaces due to arcing. If there is no evidence of overheating or looseness, do not disturb or tighten the connections. If there is evidence of overheating, terminations should be cleaned or replaced. Before reenergizing the circuit breaker, all terminations and cable should be refurbished to the condition when originally installed.
6. Check circuit breaker mounting hardware, Tighten if necessary.
7. Check area where circuit breaker is installed for any safety hazards, including personal safety and fire hazards. Exposure to certain types of chemicals can cause deterioration of electrical connections.
8. The operation of circuit breakers with electronic trip units can be field-tested periodically using the Seltronic test kit.

3.7. FIELD TESTING

Any field testing should be done in accordance with applicable NEMA Standard.

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