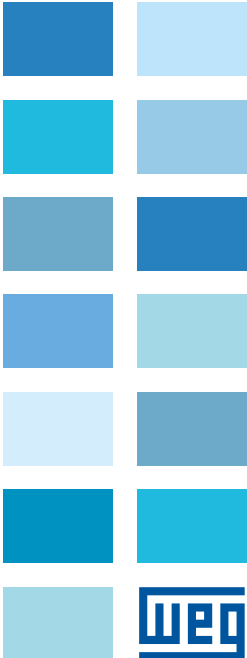
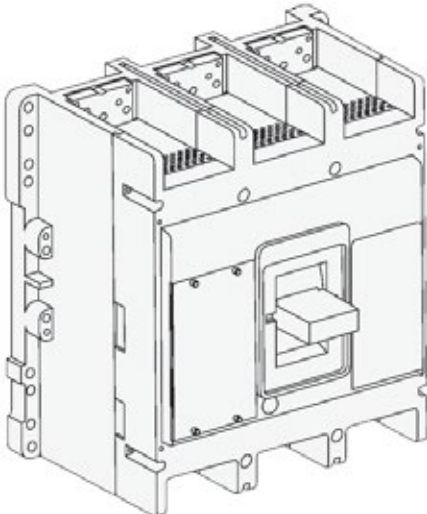


WEG Molded Case Circuit Breakers

UBW2500

User's Manual





WARNING

- 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 safety procedures.
- WEG is not liable for the misapplication 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 UBW2500 circuit breakers (Figure 1) have interchangeable electronic trip units rated 2500 A maximum. Refer to Table 1 for all available trip unit rating plug ratings. UBW2500 breakers are listed in accordance with Underwriters Laboratories, Inc. Standard UL 489 and satisfy the requirements of the International Electrotechnical Commission Recommendations No. IEC 60947-2.

This instruction leaflet (IL) gives procedures for installation and field testing of UBW2500 circuit breakers. For this publication, the term circuit breaker shall also include the molded case switch.

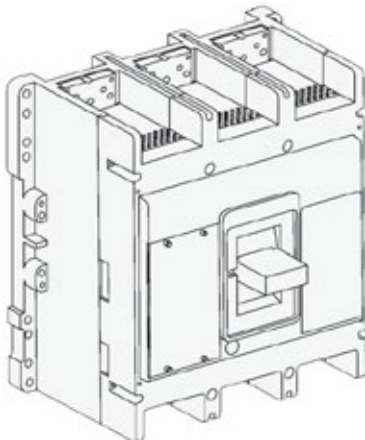


Figure 1: UBW2500 circuit breaker frame with digitrip RMS trip unit installed

| Digitrip RMS 310 trip units | | | | | |
|----------------------------------|---------------------------|--------------------------------|-------------------------------------|----------------------------------|--|
| Trip unit maximum rating Amperes | Fixed rating plug Amperes | Adjustable rating plug Amperes | AWG wire range | Adjustable short time delay | |
| | | | Pick-up setting range ¹⁾ | Time delay | |
| | | | | I ² t ramp (standard) | Independently adjustable setting time (optional) |
| 2500 | 1600 2000 2500 | 2000/2500 1600/2000/2500 | 2 to 6 | X | I (no intencional delay) 100/200/300 M. Sec. |

Table 1: available trip unit rating plug ratings and trip unit settings

Note: 1) The current pick-up setting is a multiple of the fixed rating plug value or setting of the adjustable rating plug.

2. INSTALLATION

The installation procedure consists of inspecting the circuit breaker and, as applicable, installing the trip unit and rating plug, accessories, and terminals; mounting the circuit breaker; connecting the line and load conductors; and torquing terminals. Circuit breakers, rating plugs, accessories, mounting hardware, and unmounted terminals may be supplied in separate packages. To install the circuit breaker, perform the following steps.

Note: 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.

1. Make sure that the circuit breaker is suitable for the intended installation by comparing nameplate data with existing equipment ratings and system requirements. Inspect the circuit breaker for completeness, and check for damage before mounting.
2. Remove cover screws and cover.

Notes: The breaker is equipped with a cover interlock feature, so that when the cover is removed, the breaker will trip and cannot be reset or operated until the cover is replaced and screwed down securely. Instructions for installing the trip unit rating plug and accessories in the UBW2500 circuit breaker are supplied with each item.

3. If not already installed, mount trip unit rating plug and accessories (if required) in circuit breaker frame.
4. Re-install cover and secure with pan-head screws provided. Torque cover screws to 24 in-lbs.
5. If not already installed, mount terminals as shown in Figure 2 or Figure 3. If warning label is supplied with the terminal, place on upper portion of circuit breaker cover.

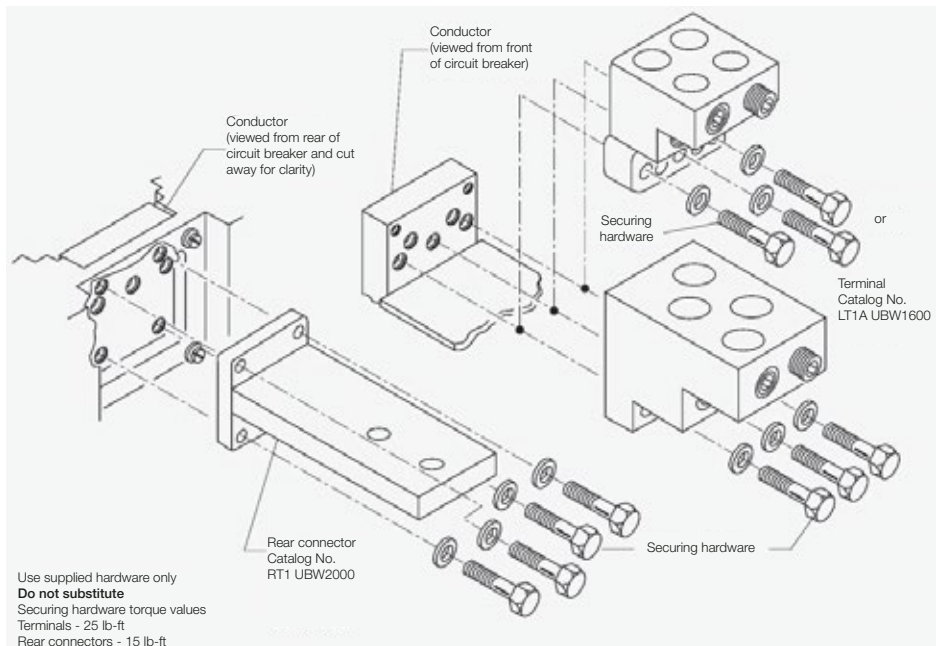
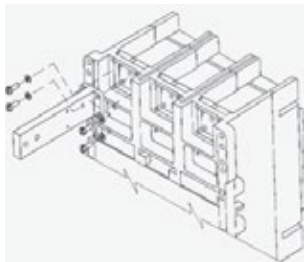
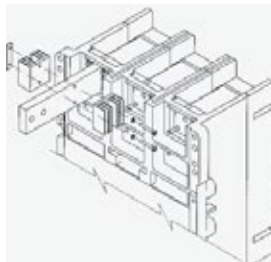


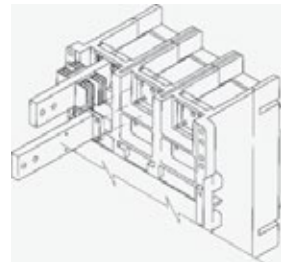
Figure 2: terminal installation



Step 1.
Install one rear connector



Step 2.
Install one set of heat sinks



Step 3.
Repeat steps one and two to adjacent poles

Figure 3: 2500 A rear connector instructions



WARNING

- 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 ensure novoltage is present.

6. To mount the circuit breaker, perform the following steps:
 - a. For individual surface mounting, drill mounting panel using the drilling plan shown in Figure 4. For dead-front cover applications, cut out cover to correct escutcheon dimensions, see Figure 5.
 - b. If circuit breaker includes factory or field installed internal accessories, make sure accessory wiring is accessible when the circuit breaker is mounted.

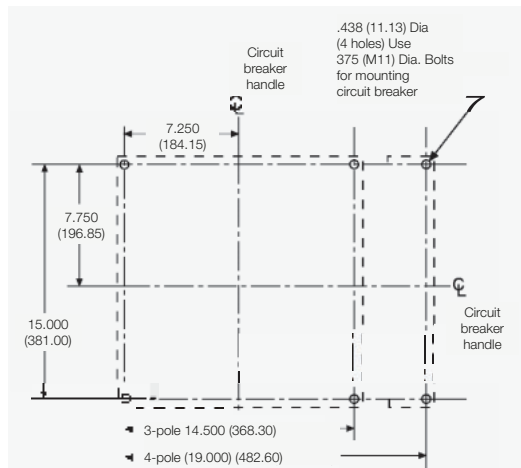


Figure 4: circuit breaker mounting bolt drilling plans

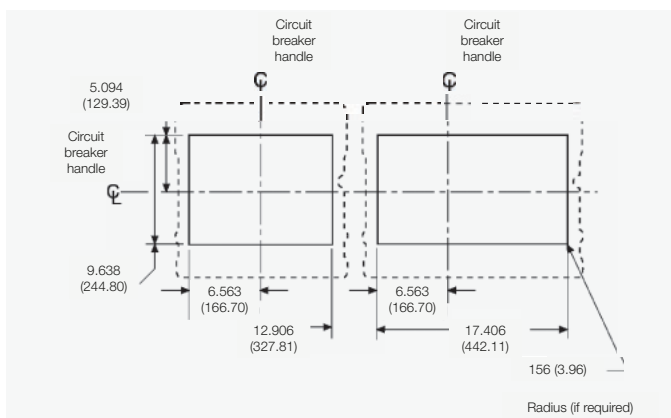


Figure 5: circuit breaker escutcheon dimensions for 4-pole circuit breakers

Note: Dimensions in inches (millimeters).

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 hardware not supplied).

**CAUTION**

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

7. Connect line and load conductors and accessory leads.

Note: the circuit breaker is suitable for reverse feed application. Observe warning label on cover before attempting to remove cover.

8. After the circuit breaker is installed, check all mounting hardware and terminal connecting hardware for correct torque loading. Torque values for line/load terminals are given in Table 2 and on the circuit breaker nameplates.

3. MANUAL OPERATION

Note: the trip unit and rating plug must be installed before attempting to close the circuit breaker.

Manual operation of the circuit breaker is controlled by the circuit breaker handle and the PUSH-TO-TRIP button. 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 handle, 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 (see Figure 6).

| | Catalog number | Maximum breaker Amps | Terminal body material | Hardware | AWG/MCM wire Range / No. conductors | Metric wire range mm ² | Wire type | Torque valves Lb-in (N.m) | |
|-----------------|---------------------------|----------------------|------------------------|----------|-------------------------------------|-----------------------------------|-----------|---------------------------|---------------|
| | | | | | | | | Wire lug | Mtg. hardware |
| Wire terminals | LT1A UBW1600 | 1600 | Aluminium | Metric | 500-1000 (4) | 300-500 | Cu/Al | 550 (62) | 300 (34) |
| | LT1C UBW1600 | 1600 | Copper | Metric | 1-600 (4) | 50-300 | Cu | 375 (42) | 300 (34) |
| Rear connectors | RT1 UBW2500 ²⁾ | 2500 | Copper | Metric | | | | | 180 (20) |

Table 2: terminal types

Note: 1) Required and shipped with 2500 Amp frames.

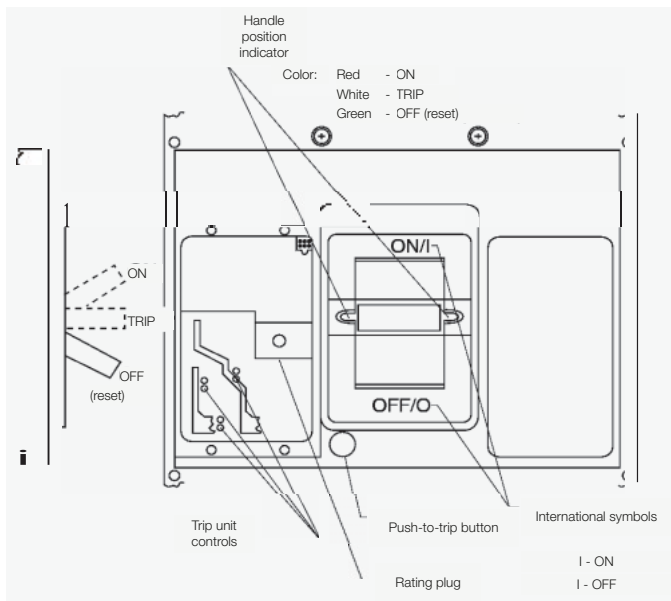


Figure 6: circuit breaker manual controls

3.1. 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.

Note: no circuit breaker should be reclosed until the cause of trip is known and the situation rectified.

3.2. PUSH-TO-TRIP BUTTON

The PUSH-TO-TRIP button checks the circuit breaker tripping function and may be used to periodically exercise the operating mechanism. The button is designed to be operated by finger pressure.

4. INSPECTION AND FIELD TESTING

UBW2500 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.

4.1. INSPECTION

Circuit breakers should be inspected periodically. This inspection can best be done during normal equipment maintenance periods when no voltage to the equipment is available. The inspection should include the following checks 1 through 9.



WARNING

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



CAUTION

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

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 re-energizing the circuit breaker, all terminations and cable should be refurbished to the condition when originally installed.
6. Check circuit breaker mounting hardware, and 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.

4.2. FIELD TESTING

Any field testing should be done in accordance with NEMA Standards Publication AB4-1990.

The instructions for installation, testing, maintenance, or repair herein are provided for the use of the product in general commercial applications and may not be appropriate for use in nuclear applications. Additional instructions may be available upon specific request to replace, amend, or supplement these instructions to qualify them for use with the product in safety-related applications in a nuclear facility.

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| Trip unit maximum rating Amperes | I _n settings | Adjustable long delay (standard) | | Adjustable short time delay | | |
|----------------------------------|-------------------------|--|--|--------------------------------------|----------------------------------|--|
| | | I _n Amperes @ | Time delay settings range (Sec.) | Pick-up settings range ¹⁾ | Time delay settings (Sec.) | |
| | | | | | I ² t ramp (standard) | Independently adjustable setting time (optional) |
| 1600 | A-H | 800 A / 900 A / 1000 A / 1100 A / 1200 A / 1400 A / 1500 A / 1600 A = I _n | 2 to 24 @ 6 x I _n rating | 2 to 8 | 0.05 - 0.603 | Inst/120/300 milsecs (MS) |
| 2000 | A-H | 1000 A / 1200 A / 1400 A / 1600 A / 1700 A / 1800 A / 1900 A / 2000 A = I _n | 2 to 24 @ 6 x I _n rating | 2 to 8 | 0.05 - 0.603 | Inst/120/300 milsecs (MS) |
| 2500 | A-H | 1600 A / 1700 A / 1800 A / 2000 A / 2100 A / 2200 A / 2400 A / 2500 A = I _n | 2 to 24 @ 6 x I _n rating | 2 to 6 | 0.05 - 0.603 | Inst/120/300 milsecs (MS) |

Table 3: the current pick-up setting is a multiple of the I_n setting

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