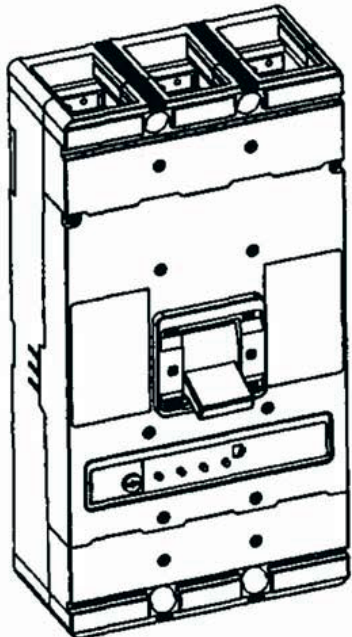


# WEG Molded Case Circuit Breakers

## UBW800

### User's Manual





**WARNING**

- Contact with energized equipment can result in death, severed personal injury, or substantial property damage. Do not attempt to install or perform maintenance on equipment while it is energized. 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 AND GENERAL INFORMATION

The UBW800 circuit breaker (Figure 1) are 600 V ac maximum rated devices with interchangeable thermal-magnetic trip units rated up to 800 Amps continuous current. Refer to Table 1 for all available trip unit ratings. These circuit breakers are listed in accordance with Underwriters Laboratories, Inc.

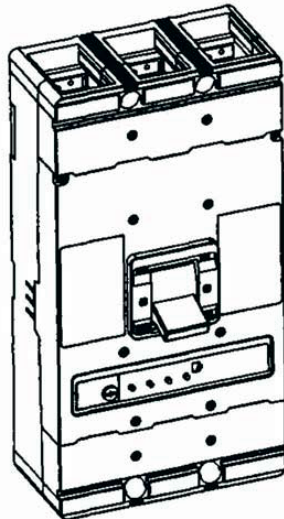


Figure 1: UBW800

Circuit breaker types	Trip unit types					
	Thermal-magnetic in (Amperes)		LSI, LSG, LSIG	Digitrip RMS (electronic)		
	Fixed thermal	Magnetic adjustable	Trip unit rating	Fixed rating plug	Adjustable rating plug	Adjustable short time
UBW800S UBW800H	800	4 to $8 \times I_n$	800	800	600/800	4 to $8 \times I_n$

**Table 1:** available trip unit ratings

Type UBW800 circuit breakers are factory sealed breakers with non-interchangeable trip units. Factory sealed breakers may be installed with reverse feed.

### 1.1. 100 PERCENT RATED UBW800 CIRCUIT BREAKERS

This instruction leaflet (IL) gives procedures for installation and field testing of UBW800 circuit breakers.

Internal accessories are available which are field installable in nonfactory sealed breakers. They are factory installed in sealed breakers.

## 2. INSTALLATION

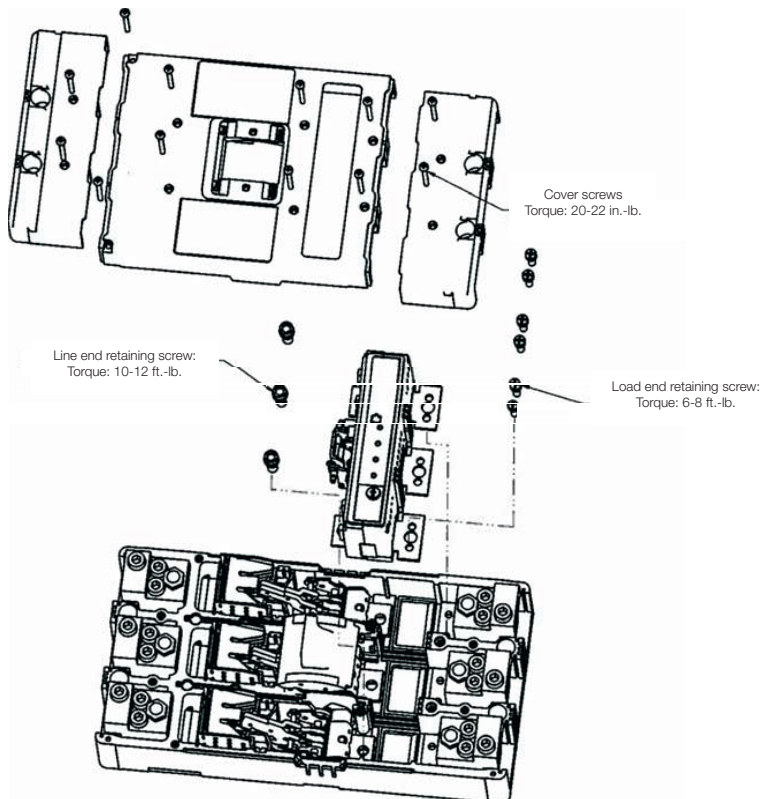
The installation procedure consists of inspecting the circuit breaker and, as applicable, installing the trip unit, accessories, and terminals; mounting the circuit breaker; connecting the line and load conductors; torquing terminals; and attaching terminal shields. Circuit breaker frames, trip units,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

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 for specific installation instruction on field installable accessories.

1. Compare nameplate data with existing equipment ratings and system requirements to make sure that the circuit breaker is suitable for the intended installation. Prior to mounting, confirm that the circuit breaker has not been damaged during transit or initial handling.
2. To install trip unit and any internal accessories, remove installed cover screws and cover.

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

3. If not already installed, mount the trip unit and accessories (if required) in circuit breaker frame. See Figure 2. Rating plug must be installed in electronic trip units.



**Figure 2:** trip unit and covers installation

*Note: When required to be removed or replaced, stationary interphase barriers can only be installed or removed with the circuit breaker in the tripped or open position.*

4. After the trip unit and any internal accessories are installed, and with the circuit breaker in the tripped position, make sure that stationary interphase barriers are properly installed in the base. Install main cover and secure with supplied pan head screws. Eight screws are provided for the main cover, torque to 20-22 lb.-in (2.26-2.49 N .m).
5. If not already installed, mount wire connecting terminals as shown in Figure 3. Secure the terminals to the circuit breaker using the provided 1/2 in bolts and lock washers. Torque to 30 to 35 lb.-ft. (40.68 to 47.46 N.m). With the circuit breaker

mounted and before the conductors are installed and conductor clamping screws inserted, the terminal mounting screws may be checked for the correct torque.

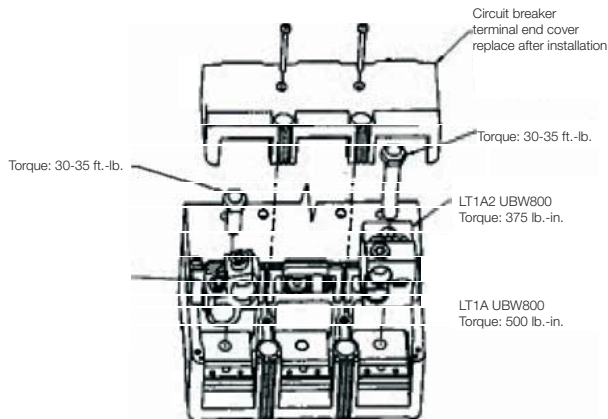


Figure 3: terminal installation



**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.

*Note: 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 motor operator), the Instruction Leaflet describing the accessory also describes the special mounting arrangements.*

6. To mount the circuit breaker, perform the following steps:
  - a. For individual surface mounting, drill the mounting panel using the drilling plan shown in Figure 4. For panelboard mounting, only load end support mounting holes are required. For Deadfront cover applications, cut out cover to correct escutcheon dimensions, see Figure 5.

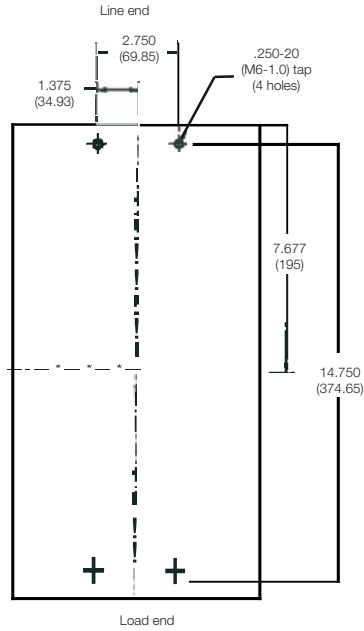


Figure 4: 3-pole mounting bolt drilling plan

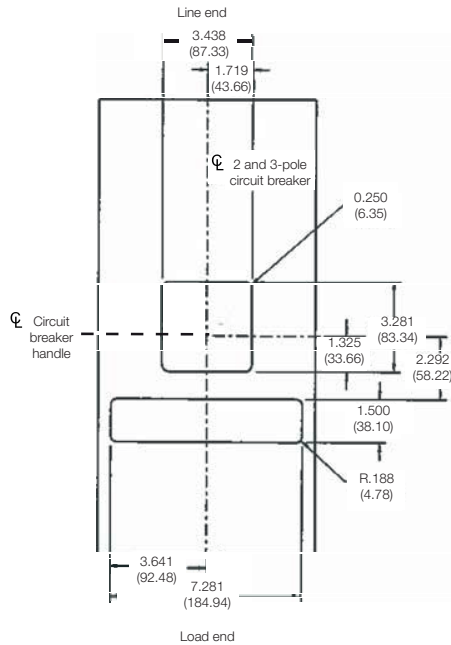


Figure 5: 3-pole cutout dimensions

- b. If the circuit breaker includes factory or field installed internal accessories, make sure accessory wire is accessible when the circuit breaker is mounted.

*Note: labels with accessory connection schematic diagrams are provided on the side of the circuit breaker.*

- c. Position the circuit breaker on the mounting surface.
- d. Install circuit breaker mounting screws and washers. Tighten screws firmly, but do not exceed 28 lb.-in (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. Over heating can caused nuisance tripping and damaged to the circuit breaker.

- 7. Connect line and load conductors and accessory leads.
- 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 nameplate.
- 9. Install both the line and load terminal covers on the circuit breaker cover with mounting screws provided. Torque to 20-22 lb.in (2.26-2.49 N.m).

Terminal catalog No.	Terminal body material	Screw head type	Wire cable range	Wire type	Torque value (lb.-in)
LT1A1 UBW700	Aluminum	Socket	2 #1 - 500 MCM	Al/Cu	375
LT1A UBW800	Aluminum	Socket	2 500 - 750 MCM	Al/Cu	500

**Table 2: terminal types<sup>1)2)</sup>**

*Notes: 1) The maximum width non-standard wire connector (tang-type) or bus bar connector that can be used without reducing electrical clearance and creepage distances between phases is 1.690 inches.*

*2) No hardware or connector should be installed in a manner to reduce the electrical clearance between the underneath side of the phase termination (line or load) and ground without the addition of supplementary insulation.*



**WARNING**

- Hazardous voltage conditions can cause death or severe personal injury. Maintain original electrical clearance and creepage spacings at terminations.

### 3. MANUAL OPERATION AND THERMAL-MAGNETIC TRIP UNIT ADJUSTMENT

#### 3.1. MANUAL OPERATION

The circuit breaker handle and the Push-To-Trip button in the trip unit control manual operation of the circuit breaker. 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).

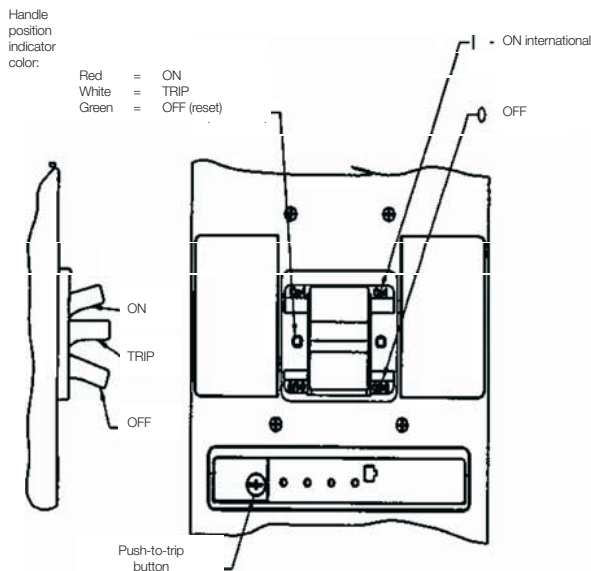


Figure 6: terminal installation

#### 3.2. CIRCUIT BREAKER RESET

After a trip operation, moving the circuit breaker handle to the Reset (extreme OFF) position resets the circuit breaker.

*Note: in the event of a thermal (overload) trip the circuit breaker cannot be reset immediately. In a breaker with a thermal-magnetic type trip unit the thermal element needs to cool (up to approximately five minutes) before it can be reset.*

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 operates the circuit breaker tripping function and may be periodically used to exercise the operating mechanism. In thermal magnetic trip units, the button is designed to be operated by a small screw-driver.

### 3.4. THERMAL-MAGNETIC TRIP UNIT ADJUSTMENT

The magnetic element of each pole of the trip unit is adjusted by rotating the adjustment buttons on the front 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 ( $I_n$ ).

To adjust the setting, rotate each button clockwise until arrow on button points to desired setting. The molded case switch is set at the factory (at 8X) and is not field adjustable.

## 4. INSPECTION AND FIELD TESTING

UBW800 molded case circuit breakers are designed to provide years of almost maintenance-free operation. The following procedure describes how to do a limited amount of field inspection and testing of a circuit breaker.

### 4.1. INSPECTION

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



#### Warning

- The voltages indenergized equipment can cause severed 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 to be 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 the circuit breaker to ON and OFF several times to be sure that the mechanical linkages operate freely and do not bind. If mechanical linkages do not operate freely, 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 the circuit breaker ON several times. If the mechanism does not reset each time the circuit breaker is tripped, replace the circuit breaker.
4. Check base, cover, operating handle and the handle barrier for cracks, chipping and discoloration. Circuit breakers should be replaced if cracks or severe discoloration is found.
5. Check wire connecting terminals and other type bus bar 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 original installed condition.
6. Check circuit breaker mounting hardware and tighten if necessary.
7. Exposure to certain types of chemicals can lead to deterioration of electrical connections. Check area where circuit breaker is installed for any safety hazards, including personal safety and fire hazards and take required precautionary actions.

## 5. FIELD TESTING

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

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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## WEG Worldwide Operations

### ARGENTINA

San Francisco - Cordoba  
Phone: +54 3564 421484  
[info-ar@weg.net](mailto:info-ar@weg.net)

Cordoba - Cordoba  
Phone: +54 351 4641366  
[weg-morbe@weg.com.ar](mailto:weg-morbe@weg.com.ar)

Buenos Aires  
Phone: +54 11 42998000  
[ventas@pulverlux.com.ar](mailto:ventas@pulverlux.com.ar)

### AUSTRALIA

Scoresby - Victoria  
Phone: +61 3 97654600  
[info-au@weg.net](mailto:info-au@weg.net)

### AUSTRIA

Markt Piesting - Wiener  
Neustadt-Land  
Phone: +43 2633 4040  
[watt@wattdrive.com](mailto:watt@wattdrive.com)

### BELGIUM

Nivelles - Belgium  
Phone: +32 67 888420  
[info-be@weg.net](mailto:info-be@weg.net)

### BRAZIL

Jaraguá do Sul - Santa  
Catarina  
Phone: +55 47 32764000  
[info-br@weg.net](mailto:info-br@weg.net)

### CHILE

La Reina - Santiago  
Phone: +56 2 27848900  
[info-cl@weg.net](mailto:info-cl@weg.net)

### CHINA

Nantong - Jiangsu  
Phone: +86 513 85989333  
[info-cn@weg.net](mailto:info-cn@weg.net)

Changzhou - Jiangsu  
Phone: +86 519 88067692  
[info-cn@weg.net](mailto:info-cn@weg.net)

### COLOMBIA

San Cayetano - Bogota  
Phone: +57 1 4160166  
[info-co@weg.net](mailto:info-co@weg.net)

### ECUADOR

El Batán - Quito  
Phone: +593 2 5144339  
[ceccato@weg.net](mailto:ceccato@weg.net)

### FRANCE

Saint-Quentin-Fallavier - Isère  
Phone: +33 4 74991135  
[info-fr@weg.net](mailto:info-fr@weg.net)

### GERMANY

Türnich - Kerpen  
Phone: +49 2237 92910  
[info-de@weg.net](mailto:info-de@weg.net)

Balingen - Baden-  
Württemberg  
Phone: +49 7433 90410  
[info@weg-antriebe.de](mailto:info@weg-antriebe.de)

### GHANA

Accra  
Phone: +233 30 2766490  
[info@zestghana.com.gh](mailto:info@zestghana.com.gh)

### INDIA

Bangalore - Karnataka  
Phone: +91 80 41282007  
[info-in@weg.net](mailto:info-in@weg.net)

Hosur - Tamil Nadu  
Phone: +91 4344 301577  
[info-in@weg.net](mailto:info-in@weg.net)

### ITALY

Cinisello Balsamo - Milano  
Phone: +39 2 61293535  
[info-it@weg.net](mailto:info-it@weg.net)

### JAPAN

Yokohama - Kanagawa  
Phone: +81 45 5503030  
[info-jp@weg.net](mailto:info-jp@weg.net)

### MALAYSIA

Shah Alam - Selangor  
Phone: +60 3 78591626  
[info@wattdrive.com.my](mailto:info@wattdrive.com.my)

### MEXICO

Huehuetoca - Mexico  
Phone: +52 55 53214275  
[info-mx@weg.net](mailto:info-mx@weg.net)

Tizayuca - Hidalgo  
Phone: +52 77 97963790

### NETHERLANDS

Oldenzaal - Overijssel  
Phone: +31 541 571080  
[info-nl@weg.net](mailto:info-nl@weg.net)

### PERU

La Victoria - Lima  
Phone: +51 1 2097600  
[info-pe@weg.net](mailto:info-pe@weg.net)

### PORTUGAL

Maia - Porto  
Phone: +351 22 9477700  
[info-pt@weg.net](mailto:info-pt@weg.net)

### RUSSIA and CIS

Saint Petersburg  
Phone: +7 812 363 2172  
[sales-wes@weg.net](mailto:sales-wes@weg.net)

### SOUTH AFRICA

Johannesburg  
Phone: +27 11 7236000  
[info@zest.co.za](mailto:info@zest.co.za)

### SPAIN

Coslada - Madrid  
Phone: +34 91 6553008  
[wegiberia@wegiberia.es](mailto:wegiberia@wegiberia.es)

### SINGAPORE

Singapore  
Phone: +65 68589081  
[info-sg@weg.net](mailto:info-sg@weg.net)

Singapore  
Phone: +65 68622220  
[watteuro@watteuro.com.sg](mailto:watteuro@watteuro.com.sg)

### SCANDINAVIA

Mölnlycke - Sweden  
Phone: +46 31 888000  
[info-se@weg.net](mailto:info-se@weg.net)

### UK

Redditch - Worcestershire  
Phone: +44 1527 513800  
[info-uk@weg.net](mailto:info-uk@weg.net)

### UNITED ARAB EMIRATES

Jebel Ali - Dubai  
Phone: +971 4 8130800  
[info-ae@weg.net](mailto:info-ae@weg.net)

### USA

Duluth - Georgia  
Phone: +1 678 2492000  
[info-us@weg.net](mailto:info-us@weg.net)

Minneapolis - Minnesota  
Phone: +1 612 3788000

### VENEZUELA

Valencia - Carabobo  
Phone: +58 241 8210582  
[info-ve@weg.net](mailto:info-ve@weg.net)

For those countries where there is not a WEG own operation, find our local distributor at [www.weg.net](http://www.weg.net).



WEG Group - Automation Business Unit  
Jaraguá do Sul - SC - Brazil  
Phone: +55 (47) 3276-4000  
[automacao@weg.net](mailto:automacao@weg.net)  
[www.weg.net](http://www.weg.net)

