

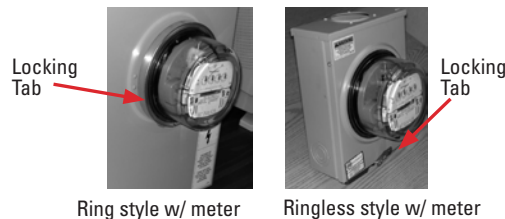
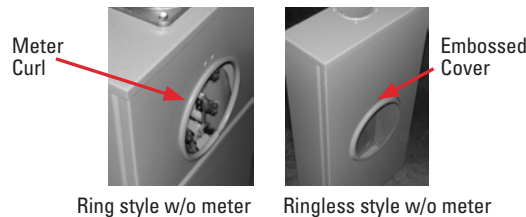
Ring vs. ringless style metering

Authors:
Daniel Vosbrink,
Lead Analyst;

Jason Cook,
Product Line
Manager

Electrical meter socket enclosures are classified in one of two categories; ring or ringless. Although the ring and ringless styles perform the same function, metering electricity, there are some physical distinctions between the two. These include how the meter is secured to the socket, safety benefits of each, and the style of bypass used. These distinctions are dependant on the type of application, (residential, commercial, or industrial), and geographic location of the metering installation.

The most apparent difference is the way the meter is secured to the socket. The ring style uses a specially formed ring that attaches to the meter curl on the enclosure and to the meter. These rings are available in a snap type or screw type. Ringless style metering uses the cover, which has an embossment for the meter, as the retainer. With either style, a sealing or locking mechanism is applied after all work has been completed and the meter has been secured. Once sealed, there is no way to remove the meter without signs of tampering. The type of meter mounting to be used in a certain area is determined by the governing electrical utility.



Safety is one of the main concerns of the electrical utilities when determining the type of meter mounting to be specified. The main safety concern occurs during the actual installation and removal of the meter when personnel need to be protected from exposure to live equipment.

The installation procedure for the ring type unit can be simplified to: wire the unit, install the cover, insert the meter into the socket, and install the sealing ring. The procedure for the ringless type is: wire the unit, insert meter, install the cover and add sealing or locking device.

The safety reasoning behind ring type metering is that if the lineman's hand slips while installing the meter, the cover will prevent his hand from contacting any live wires or equipment inside the enclosure. If this was a ringless style installation, his hand could go directly into the live-wired unit and might lead to disaster. The reasoning behind the ringless style is that by installing the meter while the cover is off, the lineman can see if any short-circuits exist and inspect the equipment for other defects before inserting the meter. Examples of short-circuit conditions include a screwdriver or wrench mistakenly left inside the unit that could become energized when the meter is installed. With a ring style installation, this short-circuit could not be seen since the cover would have already been installed.

The regional location of the installation is the next piece of information needed for metering selection. The electrical utility company operating in that region makes the final decision on the type of meter enclosure to be used for a certain application. The U.S. has three main regions when discussing which is to be used; the area west of the Rocky Mountains, the eastern U.S., and the mountain states. Although these three regions are geographically defined, the meter mounting style they use may have gray areas. The western region primarily uses ring style metering, while the eastern utilities primarily use ringless metering. Utilities in the mountain states differ in which type of meter mounting they require. Some will specify ring type, others ringless, and sometimes they allow both. Contacting the electrical utility is a good idea whether the installation is going to be in one of the three areas listed above or not. This way they can explain any special exceptions or restrictions that exist for that area and/or application. Contacting the utility prior to installation saves both in material and labor costs.



Powering Business Worldwide

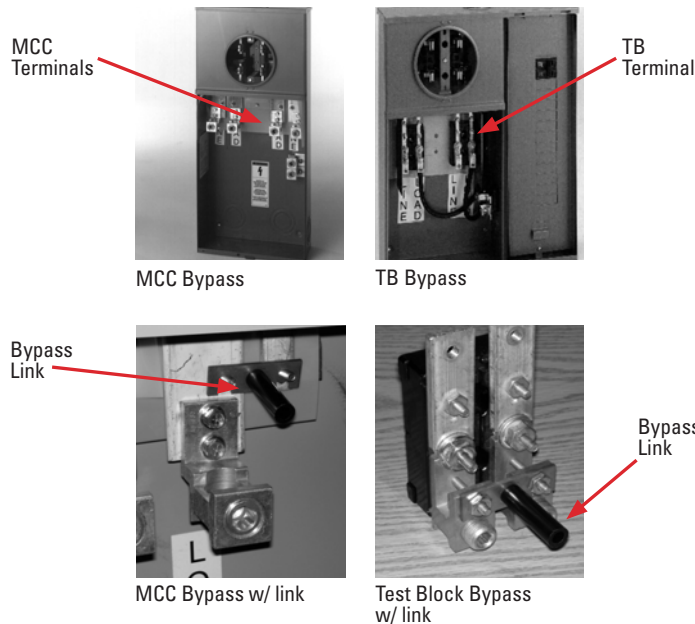
Another distinction between the types of metering is the style of bypass used. A bypass is a device to be installed only by the utility so the flow of electricity will not be disrupted when the meter is removed for maintenance. Residential metering units, houses, mobile homes, and apartment buildings, generally do not have a bypass. However, a bypass may be used if approved by the governing utility for a medical device, home office, or other application that requires the electrical current to the residence not be interrupted. Commercial applications, such as a small machine shop or a strip mall, normally require a bypass since a disturbance in electricity would cause problems to the business. There are different bypasses depending on whether the meter mounting is ring or ringless type, residential or commercial.

The ring type has a manual circuit closing, (MCC), bypass for residential units, while a test block, (TB); bypass is used on commercial models. A small metallic linking device is installed by the utility to initiate the bypass, see below. The MCC bypass diverts the current around the meter socket but a voltage potential is still present at the meter socket. The TB style bypass completely isolates the meter socket from any voltage or current while still allowing uninterrupted current flow to the customer.

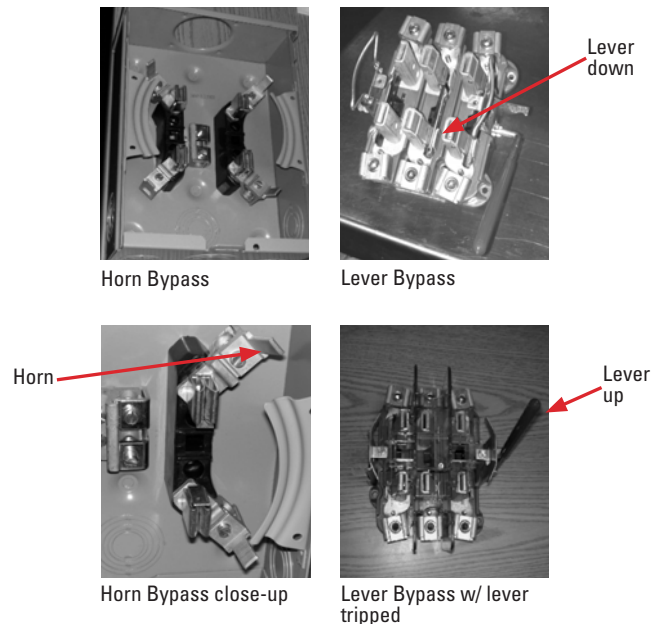
Ringless metering uses a horn bypass on residential assemblies and a lever bypass for commercial applications. The horn bypass serves the same function as the MCC bypass does for ring type. A jumper wire with special terminals is attached to the line and load side of the phases to begin bypassing the meter socket. For lever bypass units, the bypass occurs when the lever is tripped to the "Up" position. Some lever bypass units, in addition to diverting the current around the socket, also have a jaw-opening device that allows easy installation and removal of the meter. (Note: The lever bypass does not isolate the voltage potential from the meter socket).

The reason for having metering devices is so the power company can measure the customer's electricity usage. The physical characteristics and safety advantages of the ring and ringless style metering are different, but the same duty is performed. If there is ever a question as to which metering enclosure to use or any electrical question, always contact your local utility.

Ring type metering bypasses



Ringless type bypasses



Eaton
 1000 Eaton Boulevard
 Cleveland, OH 44122
 United States
 Eaton.com

B-Line Division
 509 West Monroe Street
 Highland, IL 62249
 Eaton.com

© 2019 Eaton
 All Rights Reserved
 Printed in USA
 Publication No. WP307008EN
 May 2019 BLTPS-05