Ringless Metering: Non-Lever Bypass

Ringless, non-lever bypass is one of the most frequently used types of meter sockets in residential and light commercial applications. The term “ringless” describes how the electrical meter is secured to the meter socket enclosure, and the term “non-lever bypass” tells the user that a bypass other than a lever must be used if required.

FYI:

For more information on the other method of meter securement, Ring type, see BLTPS-05. “Ring vs. Ringless Metering”.

As with the other types of meter socket enclosures, the non-lever bypass design must be constructed and installed per the applicable governing agencies and codes, including; National Electrical Code (NEC), National Electrical Manufacturers Association (NEMA), Underwriters Laboratories (UL), and the local electrical utility. Manufacturers must be familiar with all product-design requirements such as; wire bending radius, heat generation, dissimilar metal corrosion (usually copper wire vs. aluminum lugs), enclosure materials and finishes, and the overall construction of the unit. Installers must be aware of any special project constraints and also have a good understanding of the applicable local codes and the utility specification to ensure that the proper meter socket enclosure is used on the project.

The ringless non-lever bypass style of meter socket enclosure is the most economical due to its lack of moving parts. As with the other styles of meter socket enclosures, the socket will accept line side cabling from the utility transformer and load side cabling as installed by an electrical contractor. These units are typically used for residential installations, but are also suitable for certain commercial applications such as remote pump stations.

When an electrical meter requires maintenance, removal of the meter will cause an interruption in the electrical service unless a bypass is used. In certain residential and commercial applications, this interruption in service does not create major problems. However, if uninterrupted electrical service is required, there are bypass options.

The first option is the horn bypass. The horn bypass can only be used on 100A and 200A non-lever bypass ringless units (Class 320A units are not offered with horn bypass since there is an increased electrical shock hazard). The horn bypass feature is shown in Figure 1. On the line and load side lugs for each phase, there is a tab, or horn, for attachment. When the meter needs to be replaced, (by trained utility personnel only), the first step is to put on all necessary safety apparel, (insulated boots, gloves, face shield, etc.). Next, the meter person uses special bonding jumpers to connect the line and load sides of each phase. Now, the electrical current bypasses the meter and, electrical service will remain continuous upon removal and replacement of the meter.
Acceptance of the horn bypass is determined by individual utilities. Since this type of bypass is relatively simple to use and does not add significant cost, some utilities feel it is the best bypass solution in their area. Other utilities consider the horn bypass a safety threat due to the close proximity of the meterperson to live conductors at the socket, and the voltage potential that exists at the bypassed jaws when the meter is removed. Another concern is electricity theft.

Another bypass option is the lever bypass. This type of meter socket enclosure is discussed in another white paper, **BLTPS-17: Ringless Metering: Lever Bypass**.

The ringless non-lever bypass style of meter socket enclosure is very popular among installers and customers mainly due to its low cost. By using the horn bypass, the installation can now provide uninterrupted electrical service. However, as with all meter socket installations, the governing utility’s specification should be reviewed and understood prior to any product purchase or installation. The specification will inform the installer if ringless non-lever bypass enclosures can be used, or if an alternative is required.