AIN ALPHA® Meter Installation Information

3–Element Meters Used for 3–Wire Delta Service Applications

General

This leaflet contains special installation instructions for 3–wire delta services temporarily using 3–element AIN ALPHA polyphase watthour meters normally designed for 4–wire wye applications. This practice in not recommended for general use; however, when necessary for emergency requirements, this IL provides suggestions and cautions for making these connections.

All meters are calibrated and tested before shipment. For proper installation, accuracy, and maximum life of the meter, use the following special installation procedures.

Note that this is a non–standard wiring configuration and requires special caution when meters are used at normal line voltages. The following DANGER statement on safety when changing batteries must be observed!

⚠ DANGER

Dangerous voltages are present

Use authorized utility procedures to install and service metering equipment. Dangerous voltages are present. Equipment damage, personal injury, or death can result from wiring an ungrounded meter and improperly grounded metering transformers if proper safety precautions are not followed.

Use circuit closing devices on any current transformer secondaries. Full primary line voltage can exist across the open, un–shorted secondary terminals of current transformers. Equipment damage, personal injury, or death can result if circuit closing devices are not used.

When 3–element meters designed for use on 4–wire wye connections are used to meter 3–wire delta services as described in this document, the voltage at the battery terminals will be at line voltage level. **Always** de–energize the meter by removing all voltage connections from the main terminals before connecting or installing a battery. Batteries should **never** be replaced when the meter is connected to normal line voltages—either with direct connections or through voltage transformers.

When 3–element meters are connected for 3–wire delta services, **never use external batteries or other external power–supplies to energize a meter that could be connected to line voltages**. If such external power supply connections are made and line voltage is applied to the meter terminals, the voltage at the terminals used for an optional external battery connection will be at the line voltage. Connecting a battery or external DC power supply to these points when using this connection will place any such connected device at full line voltage, creating the risk of a short–circuit, a dangerous high–voltage, or both!

Failure to observe these statements could result in serious injury or death!

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Installation

1. Determine the meter installation location. Make certain class and service connections are compatible before installing the meter.
2. Mount the bottom–connected meter. The housing, fixing holes, and terminal block conform to the DIN 43859 standard. The top hanger of the meter can be positioned above the housing, and thereby be visible and more easily installed, or it can be hidden under the housing. You can easily change the position of the hanger by pressing it together and then moving it to the desired position (see Figure 4 for mounting dimensions).
3. Wire the meter with 5mm (maximum) diameter wire. The voltage and current connections are equipped with combi–screws, enabling both flathead and Phillips screwdrivers to be used. If the wire diameter is larger than 5mm, approved adapters must be used (see Figure 1 and Figure 2 for installation wiring).
4. With the meter installed, verify that the red LED is blinking if any load is applied. If voltage is applied with no load, the P=0 annunciator should be illuminated on the LCD.
5. The pulse output can be connected as a relay, that is, the polarity does not matter (see Figure 3 for relay location). Note that the maximum ratings for this pulse output relay are limited to 120V AC_{RMS} or 200V DC and 100mA.

Battery Installation and Replacement

A multi–tariff meter is typically shipped with a battery installed and connected. However, if the battery was requested to be shipped disconnected, separately, or as a replacement, see the *AIN ALPHA Technical Manual* (TM42–2380B or later) for procedures and observe the DANGER statement below.

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When 3–element meters designed for use on 4–wire wye connections are used to meter 3–wire delta services as described in this document, the voltage at the battery terminals will be at line voltage levels. **Always** de–energize the meter by removing all voltage connections from the main terminals before connecting or installing a battery. Batteries should **never** be replaced when the meter is connected to normal line voltages—either with direct connections or through voltage transformers.

Never use the optional external power–up feature when using this special 3–wire delta connection on 3–element meters! Full line voltage will be present at the external battery terminal connections.

Failure to observe these warnings could result in serious injury or death!

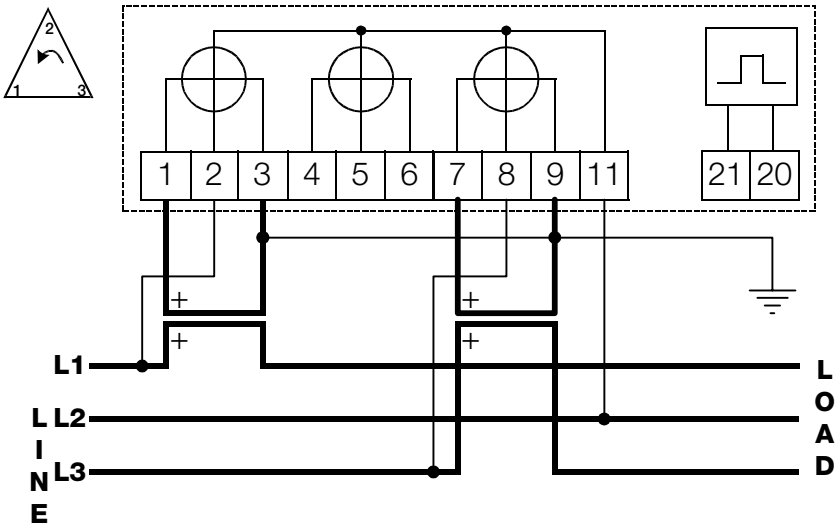

Figure 1. 3–wire delta system temporarily wired using a 3–element meter configured for 4–wire wye connections, using 2 current transformers and direct line connections

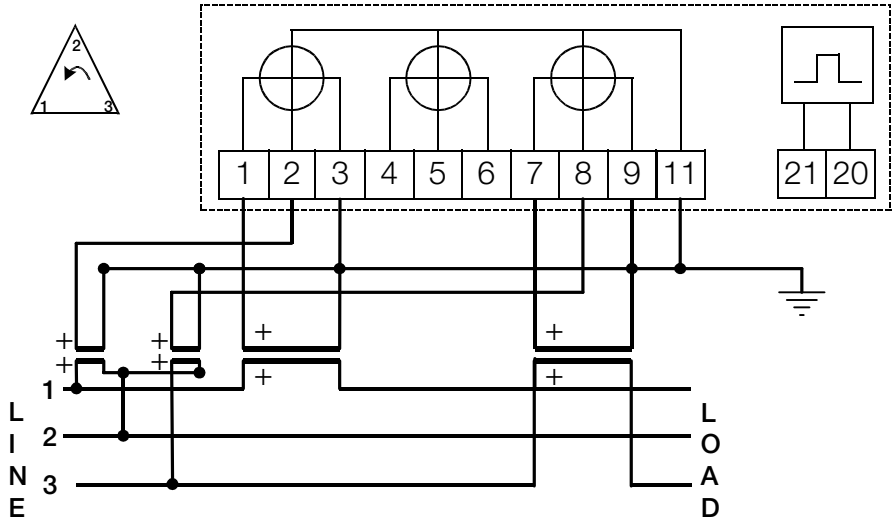

Figure 2. 3–wire delta system temporarily wired using 3–element meter configured for 4–wire wye connections, using 2 current transformers and 2 voltage transformers

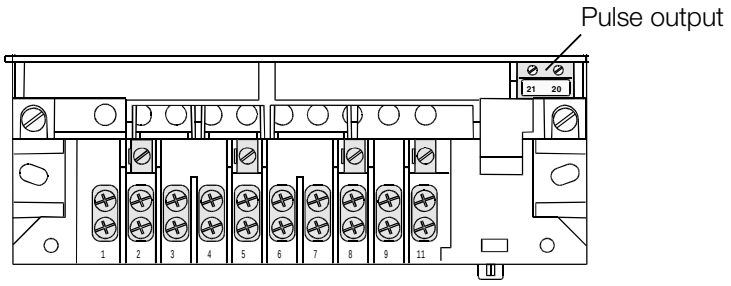

Figure 3. Pulse output relay location and terminal markings

If multiple relays are specified, terminals are located in rows above the power terminals. Communications options connections may be either in terminal strip or through 9–pin RS232 receptacle. Refer to the *AIN ALPHA Meter Technical Manual* (TM42–2380B or later) for identification of specific relay and communication outputs.

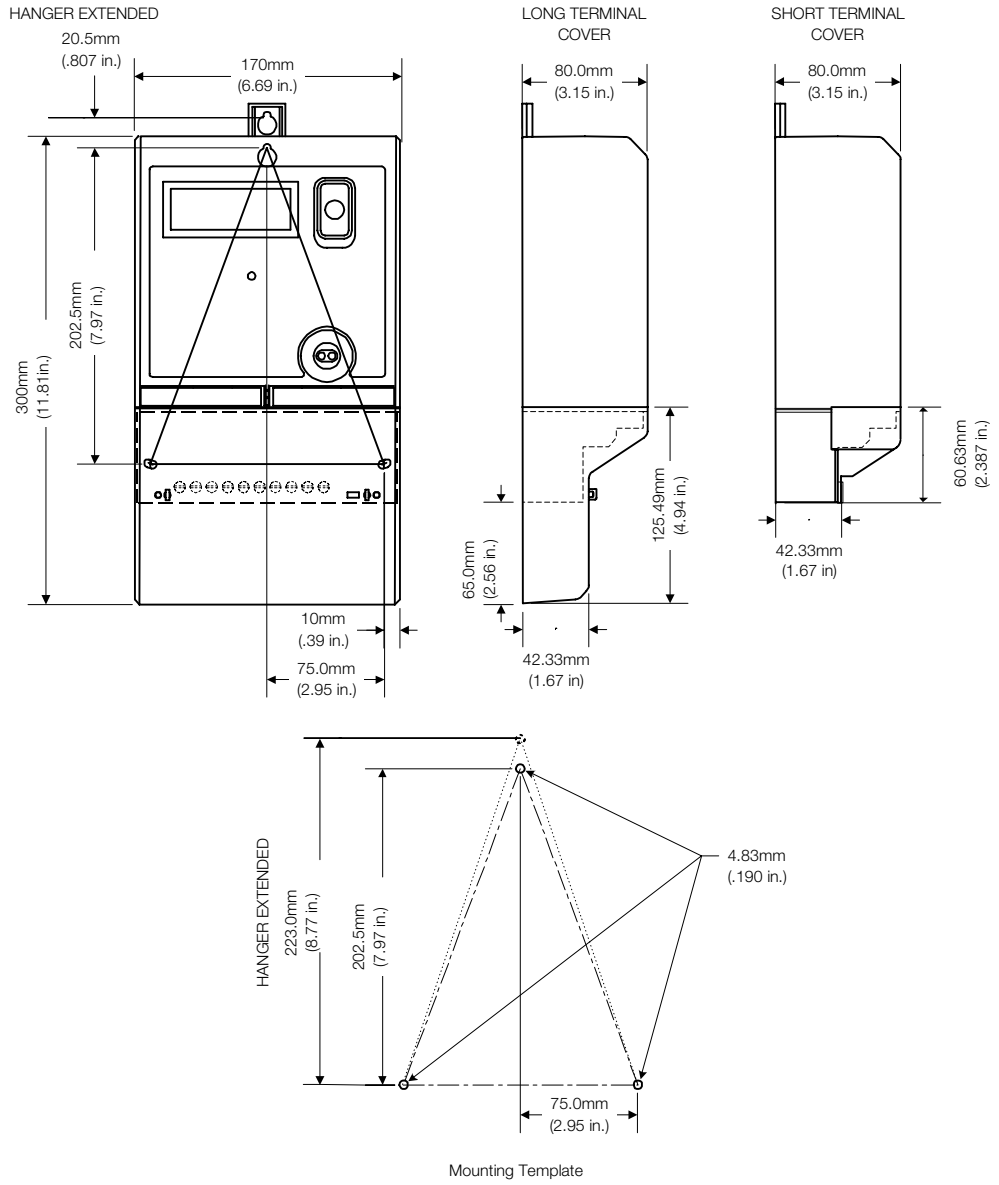

Figure 4. Mounting dimensions

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