

Using the 20 mA Current Loop Option with ALPHA[®], ALPHA Plus[®], and A3 ALPHA[®] Meters

General

The 20 mA current loop option board may be provided on the ALPHA, ALPHA Plus, and A3 ALPHA meters with timekeeping features. This option board provides a method for connecting a meter to another device for point-to-point communications up to 19.2 kilobits per second. For example, the 20 mA current loop option board can be used to connect the meter to a third party automated meter reading (AMR) communication device. This option can also be used to provide a direct connection between a meter and a computer using the computer's serial port and a current loop to RS-232 converter. The maximum cable length for a 20 mA current loop depends on the cable configuration, the hardware used at the remote end of the loop, and the data rate. For typical installations, the maximum cable length is approximately 2,000 feet (600 meters).

For more information about the ALPHA and ALPHA Plus meter option boards, see *ALPHA Meter Options* (TM42-2181B or later). For more information about the ALPHA Plus meter, see the *ALPHA Plus Meter Technical Manual* (TM42-2182B or later). For more information about the A3 ALPHA meter, see the *A3 ALPHA Meter Technical Manual* (TM42-2190A or later).

▲ WARNING

Use authorized utility procedures to install and service metering equipment. Dangerous voltages are present. Equipment damage, personal injury, and death can result if safety precautions are not followed.

Use circuit-closing devices on current transformer secondaries. Dangerous currents and voltages are present. Equipment damage, personal injury, and death can result if circuit-closing devices are not used.

20 mA Current Loop Option Board

ALPHA Meter Information

The 20 mA current loop option board is a single board design providing a cable connector for the 20 mA current loop communication connections. This option board may also be provided with 1, 2, or 6 relays for pulse output, load control, or end of interval indication. These relays are optional and must be specified at the time of order entry.

The 20 mA current loop option board connects to P5 connector on the -A, -L, or -AL enhanced function option board (see Figure 1).

ALPHA Plus Meter and A3 ALPHA Meter Information

The 20 mA current loop option board is a single board design providing a cable connector for the 20 mA current loop communication connections. See the meter's technical manual for information on configuring the relays. These relays are optional and must be specified at the time of order entry.

The 20 mA current loop option board connects to the J4 connector on the ALPHA Plus or A3 ALPHA meter main circuit board (see Figure 2).

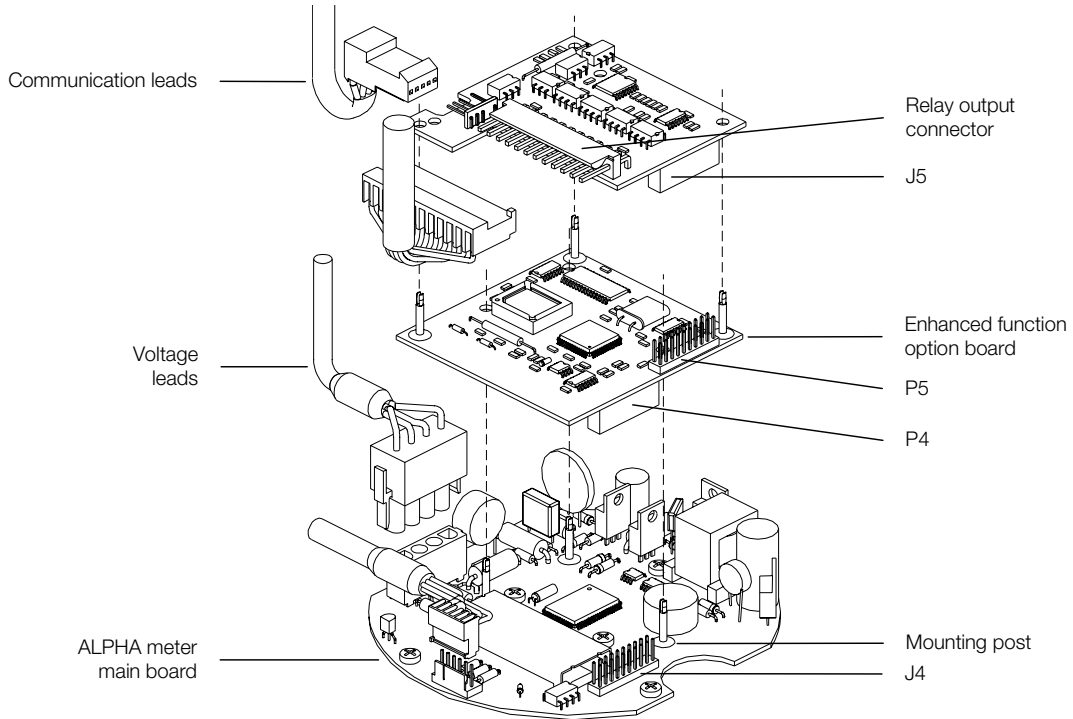


Figure 1. 20 mA current loop board connections for ALPHA Meter

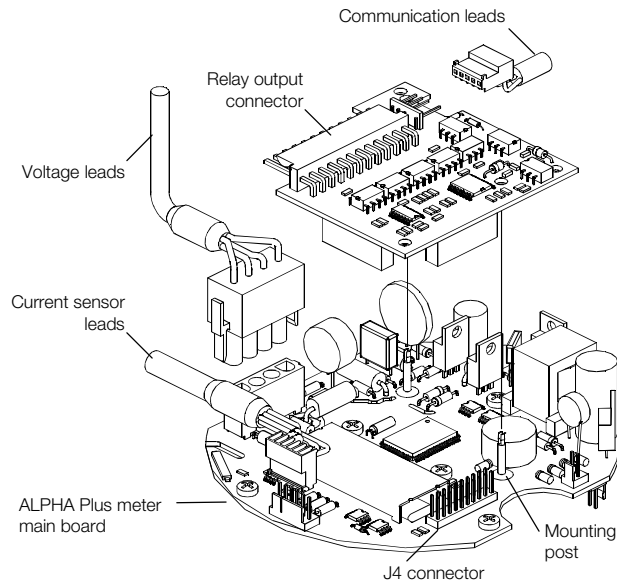
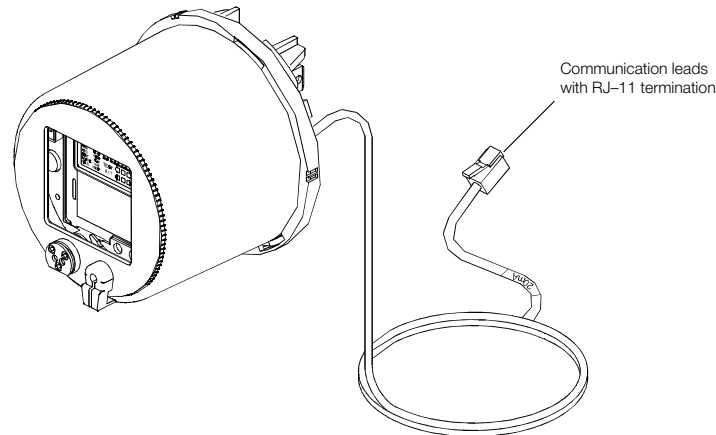


Figure 2. 20 mA current loop board connections for ALPHA Plus Meter (A3 ALPHA meter is similar)

External Connections

The 20 mA current loop cable exits the meter base through the option cable opening. This cable terminates in an RJ-11 jack. There is a wire marker, approximately 6 inches from the RJ-11 end, with “20 mA” printed on it for identifying this option. RJ-11 connector pin outs for the 20 mA current loop are listed in Figure 3.



RJ-11 Connector Pin outs	
Yellow	Positive (+)
Red	Negative (-)
Green	NC
Black	NC

Figure 3. Meter with 20 mA current loop cable

Programming

The ALPHA, ALPHA Plus, and A3 ALPHA meters are usually programmed for operation using Elster Electricity meter support software package. The remote definition option to use for Elster Electricity’s optical protocol on a 20 mA current loop varies depending on the meter:

- For an ALPHA or ALPHA Plus meter, select “Current Loop” when selecting remote definition options from the meter programming window.
- For an A3 ALPHA meter, select “Direct Connect” when configuring the remote definition options to be used with the meter.

To use a 20 mA current loop with Elster Electricity’s remote communication protocol, an appropriate remote definition must be created and selected when programming the meter. This remote definition should specify the communication rate to use and any other information required by the receiving hardware.

Relay Connections

The 20 mA current loop option board may be equipped with 1, 2, or 6 relays. Option boards with one relay have a 6-lead relay output, but only 3 leads are used (see Figure 4). Option boards with two relays have a 6-lead relay output cable (see Figure 5). Option boards with six relays have a 12-lead relay output cable (see Figure 6).

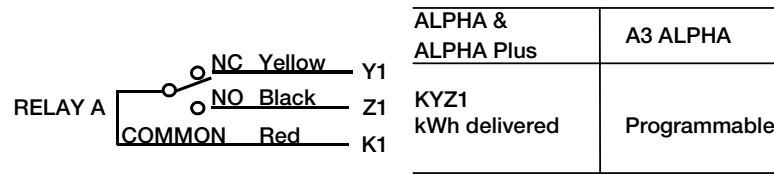


Figure 4. Relay output connector pin outs (1 relay current loop option board)

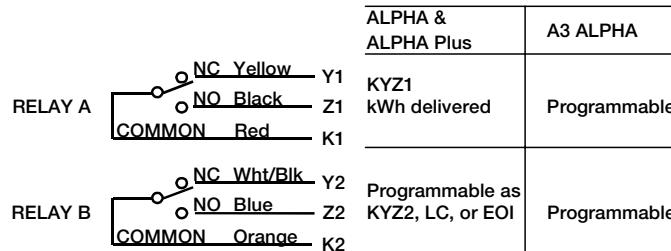


Figure 5. Relay output connector pin outs (2 relay current loop option board)

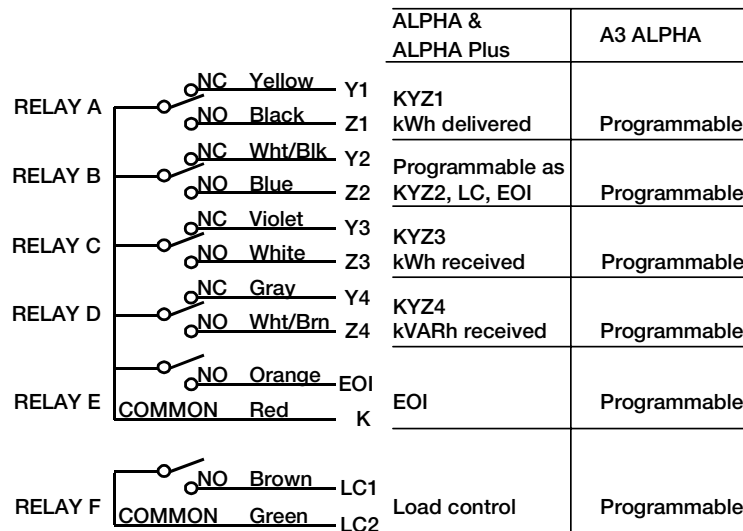


Figure 6. Relay output connector pin outs (6 relay current loop option board)

DISCLAIMER OF WARRANTIES AND LIMITATIONS OF LIABILITY

There are no understandings, agreements, representations, or warranties either express or implied, including warranties of merchantability or fitness for a particular purpose, other than those specifically set out by any existing contract between the parties. Any such contract states the entire obligation of the seller. The contents of this document shall not become part of or modify any prior existing agreement, commitment, or relationship.

The information, recommendations, descriptions, and safety notices in this document are based on Elster Electricity, LLC experience and judgment with respect to operation and maintenance of the described product. This information should not be considered as all-inclusive or covering all contingencies. If further information is required, Elster Electricity, LLC should be consulted.

No warranties, either expressed or implied, including warranties of fitness for a particular purpose or merchantability, or warranties arising from the course of dealing or usage of trade, are made regarding the information, recommendations, descriptions, warnings, and cautions contained herein.

In no event will Elster Electricity, LLC be responsible to the user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental, or consequential damage or loss whatsoever, including but not limited to: damage or loss of use of equipment, cost of capital, loss of profits or revenues, or claims against the user by its customers resulting from the use of the information, recommendations, descriptions, and safety notices contained herein.

