Installing the EA Collector Solar powered option

General

Within the EnergyAxis® System, the local data collector is one of the following devices:

- an A3 ALPHA® meter with the appropriate option boards for local area and wide area network communications
- an EA collector that can be mounted to different structures when deploying meter/collectors is not feasible or desired

This instructional leaflet explains the different installation options for the EA collector. For more information regarding the different collectors within the EnergyAxis System:

- "A3 ALPHA meters with external antenna capability: for use in the EnergyAxis System" (IL42-4020) for information on installing an A3 ALPHA meter/collector with external antenna options
- A3 ALPHA meter/collector (PG42-1005) for information on the operation of the A3 ALPHA meter/collector and the EA collector

The EA collector uses a NEMA4-rated metal enclosure that provides different installation and WAN options.

Figure 1 shows the major components of the EA collector. Figure 2 through Figure 5 show illustrations of assembled EA collectors.

NOTICE

For geographical regions that have solar insulation values between 2 to 4 kWh/meter^2 per day will require the installation of a second PV panel (Elster part number: 7S1805G001). Areas with less than 2 hours of sunlight per day for significant periods of time (for example, Alaska, northern Canada, etc.) are not suitable for the EA collector solar powered option.

For information regarding solar insolation, visit the following Web sites:

- Within the United States, see the National Renewable Energy Laboratory at http://www.nrel.gov/gis/solar.html
- Within Canada, see the Natural Resources Canada at https://glfc.cfsnet.nfis.org/mapserver/pv/index_e.php (English) or https://glfc.cfsnet.nfis.org/mapserver/pv/index_f.php (français)

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Antenna options

The EA collector supports different antenna options. If the antennas are mounted on the unit itself (that is, local external antenna), no additional steps are required when placing the EA collector into service.

If the collector is to be installed at a location that requires a greater height to overcome blocked signals, a remote antenna will be required.[1] Placing the EA collector into service will require the mounting of the remote external antenna in a suitable location.

Note that the EA collector may use a local antenna, a remote antenna, or a combination of the two.

NOTICE

Do not use a standard RG-8/U cable with solid polyethylene dielectric. The losses in solid dielectric RG-8/U cables in short distances make solid dielectric RG-8/U calbes unacceptable.

NOTICE

For assemblies with remote mounted antennas, be sure to waterproof on the RF cable terminations (such as using coax sealant) to help prevent water entering the cable terminations.

The most economical connection to the remote external antenna is the LMR-400 type cable. This type of cable is suitable for distances up to 100 feet. Antenna cables should be ordered with N-type male connectors on each end.

LAN remote antenna

If a LAN remote antenna is required, the EA collector must be ordered as the LAN remote antenna configuration. The EA collector is then shipped with the appropriate LAN remote antenna and mounting materials.

The LAN remote antenna should be mounted in the clear, as free from conductive or metallic obstructions as possible. The connectors should be sealed for waterproofing.

WAN remote antenna

If a WAN remote antenna is required, the EA collector must be ordered as the WAN remote antenna configuration. The EA collector is then shipped with the appropriate WAN remote antenna and mounting materials.

The WAN remote antenna should be mounted in the clear, as free from conductive or metallic obstructions as possible. The connections should be sealed for waterproofing.

Remote antenna cables

There are several options for remote antenna cabling. Regardless of whether the LAN or WAN antenna is remotely mounted, a cable with N-type male connectors is required. One end attaches to the EA collector housing, and the other end attaches to the antenna. Your Elster sales engineer can assist you order the correct cable length if you know the distance required. You may also perform on-site assembly or order pre-assembled cables,for example, from Laird Technologies (+1 800 492 2320 or www.lairdtech.com).

[1] Remote antenna cable is not supplied by Elster. Your Elster sales engineer can assist you order the correct cable length if you know the distance required.

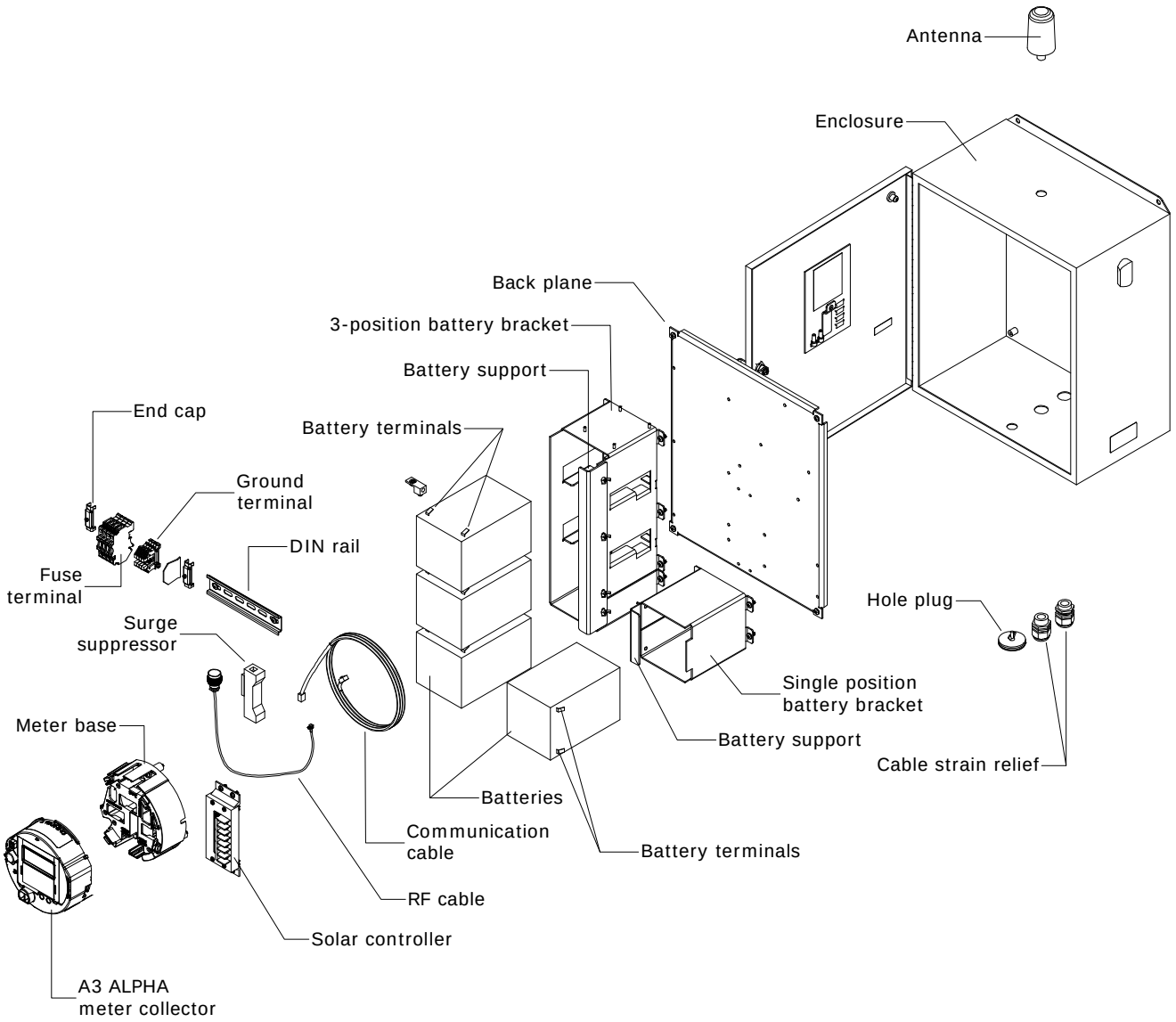
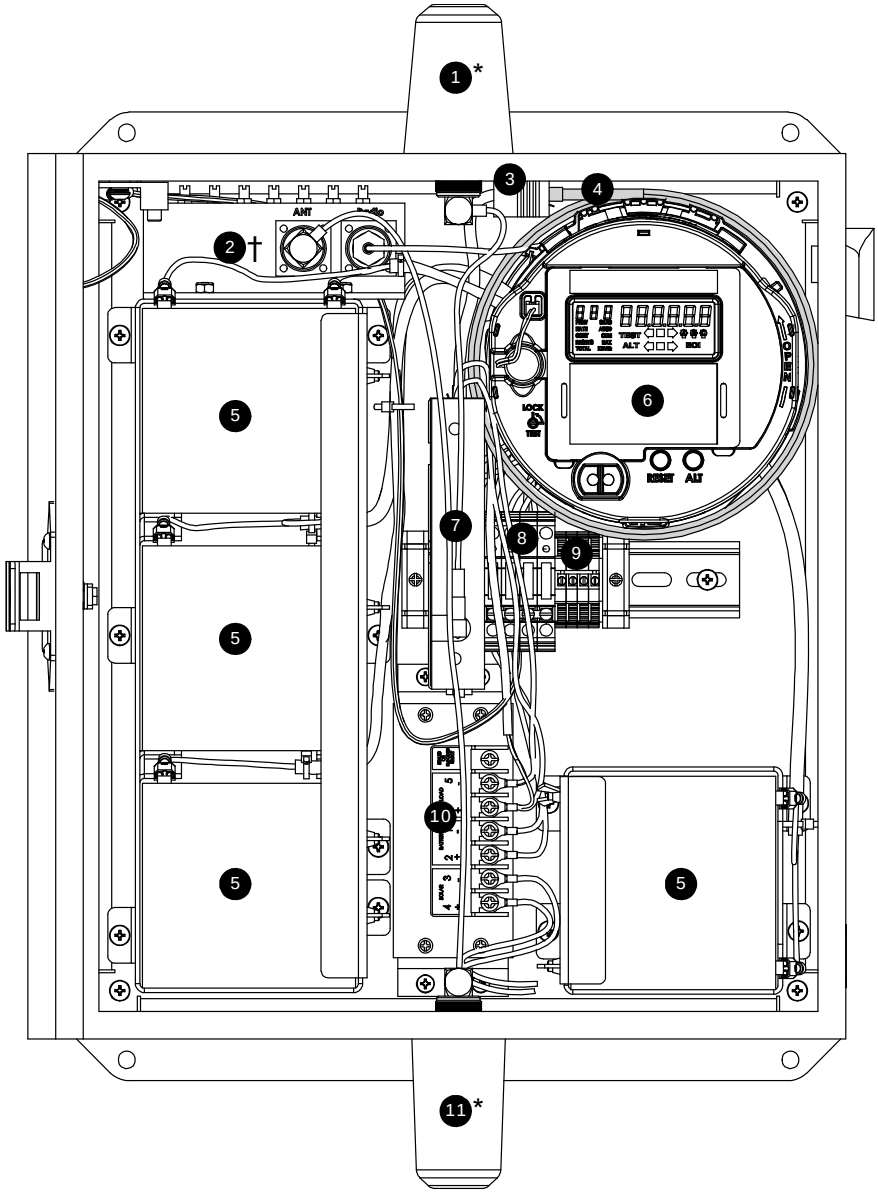


Figure 1. Exploded view of the EA collector with Ethernet (other models similar)



1 Wide area network antenna*

2 RF filter†

3 Ethernet crossover

4 Communication cable

5 Battery

6 Local data collector

*May be replaced with N-type female connector for the remote external antenna option

7 Cellular modem

8 Fuse terminal

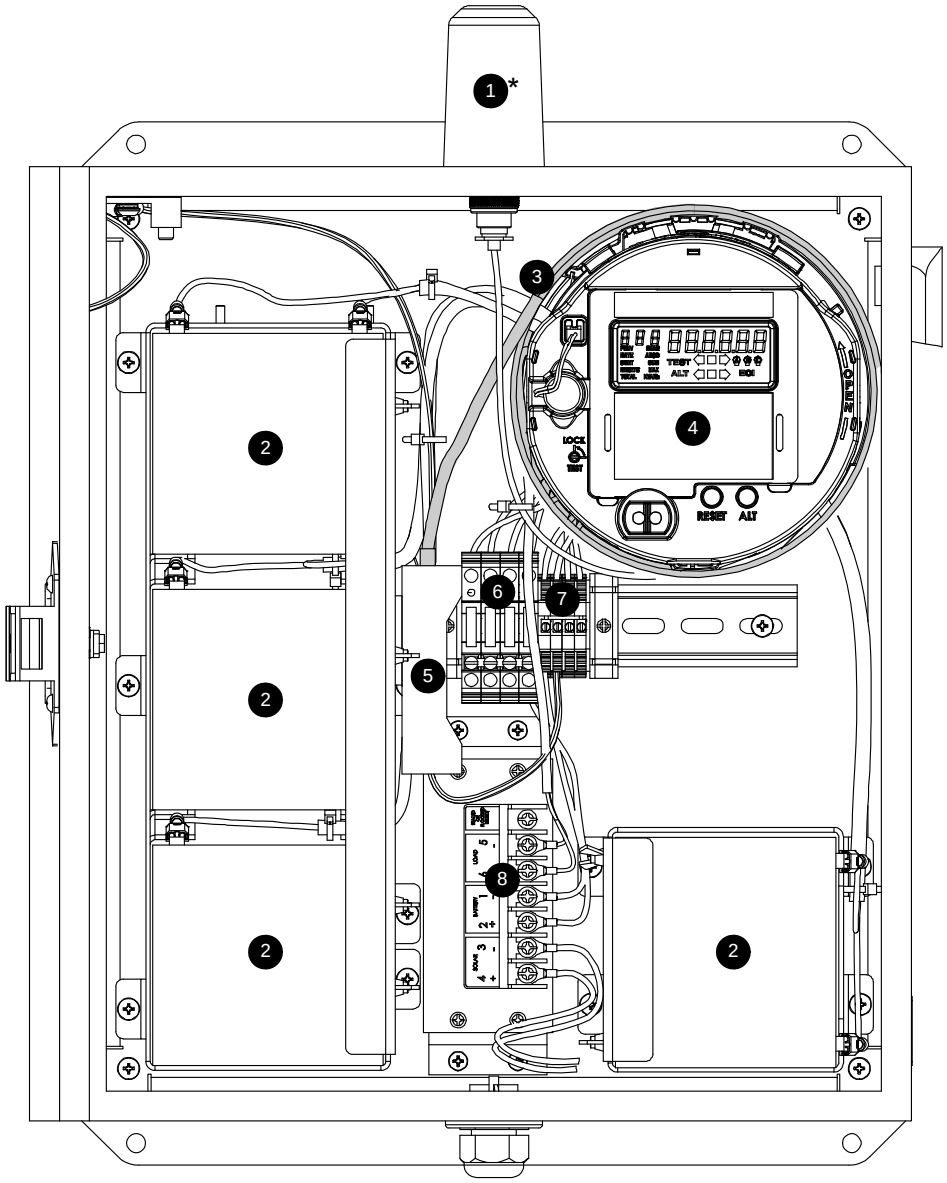
9 Ground terminal

10 Solar controller

11 Local area network antenna*

†Required only when 2 local external antennas are present

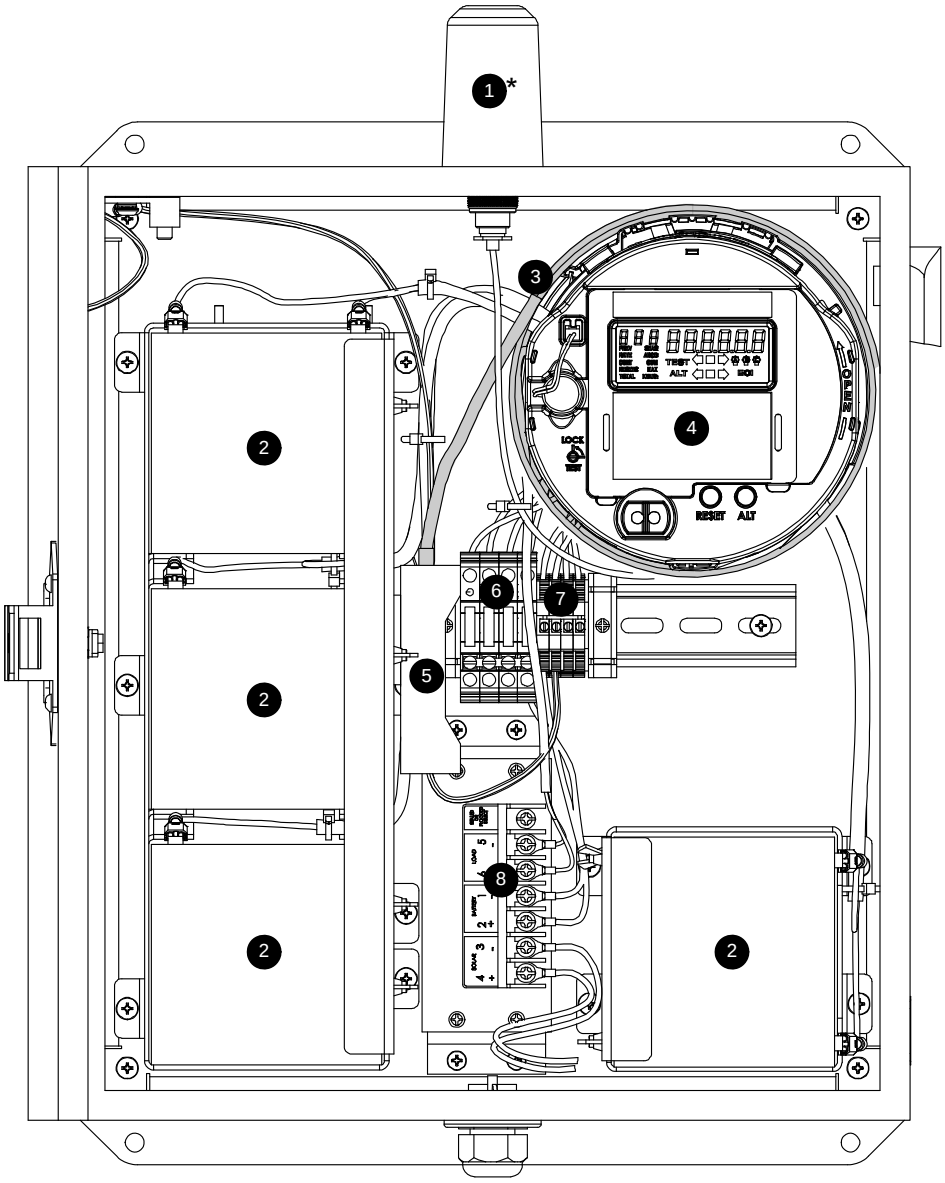
Figure 2. EA collector with cellular modem



1 LAN antenna
2 Batteries
3 Communication cable
4 Local data collector
5 Ethernet surge supressor
6 Fuse terminal
7 Ground terminal
8 Solar controller

*May be replaced with N-type female connector for the remote external antenna option

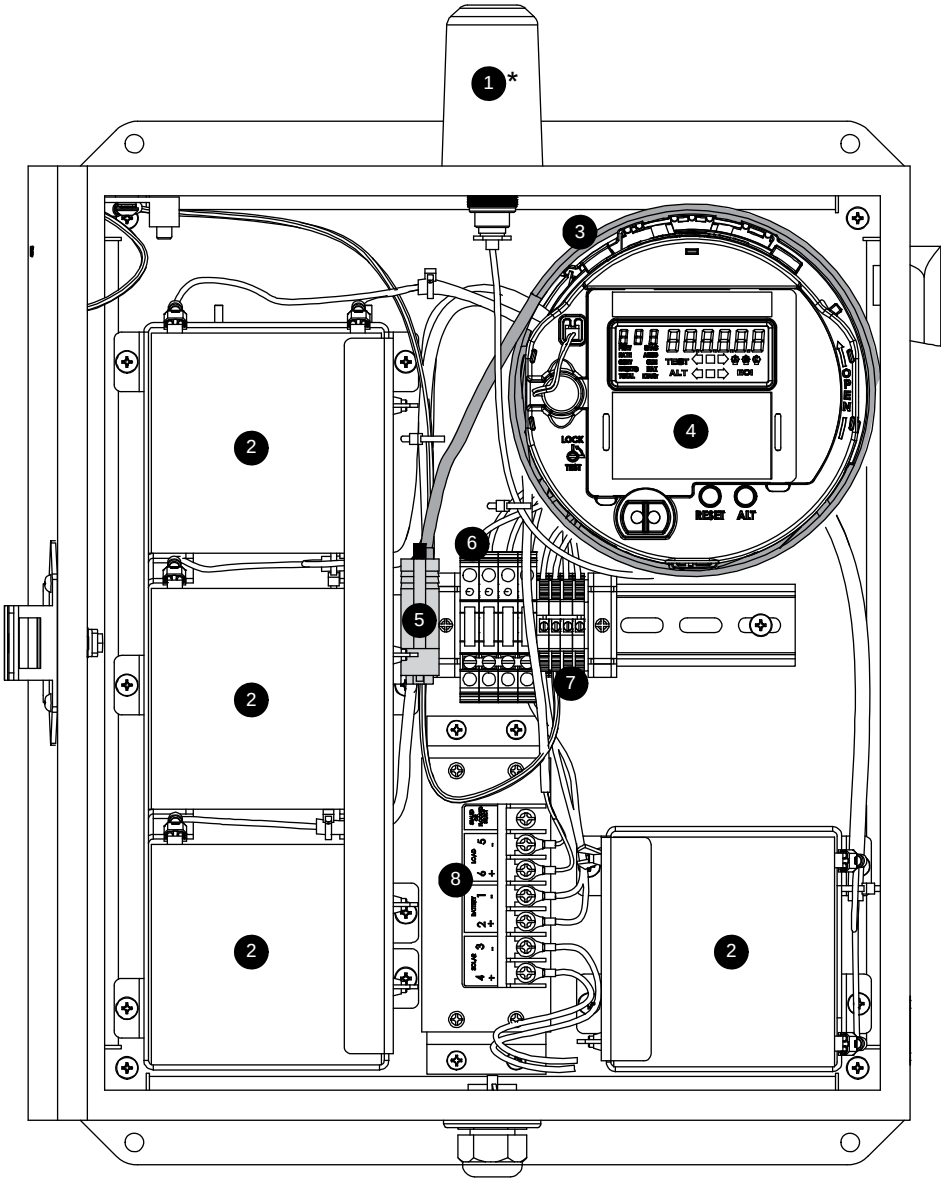
Figure 3. EA collector with Ethernet



1 LAN antenna
2 Batteries
3 Communication cable
4 Local data collector
5 Surge suppressor
6 Fuse terminal
7 Ground terminal
8 Solar controller

*May be replaced with N-type female connector for the remote external antenna option

Figure 4. EA collector with POTS/PSTN modem



1 Local area network antenna
2 Battery
3 Communication cable
4 Local data collector
5 Local data collector
6 Fuse terminal
7 Ground terminal
8 Solar controller

*May be replaced with N-type female connector for the remote external antenna option

Figure 5. EA collector with RS-232 connector

Before you install

⚠ WARNING

Use authorized utility procedures when installing the EA collector. Equipment damage, personal injury, or death can result if authorized utility procedures are not followed when installing the EA collector.

NOTICE

For optimal performance of the LAN antenna, Elster recommends that the EA collector be installed so that the LAN antenna is at least 5 feet off the ground. Failure to meet the minimum ground clearance can result in degraded performance of the EA collector communications within the EnergyAxis System.

Be sure to follow your utility's procedures for installing the solar panels that will be used for the EA collector.

The EA collector may have been shipped with the necessary hardware to support your mounting option, or your utility may have ordered the mounting hardware separately. Regardless of how the mounting hardware is provided, be sure to follow your utility's instructions for mounting the EA collector at its installation location.

The batteries, which are shipped separately, can be installed into the EA collector before deploying the unit in the field.

To connect the battery to the EA collector, follow these steps, referencing Figure 1:

1. Remove the battery supports from the battery brackets.
2. Insert the batteries into the bracket, connecting the postive lead to the positive battery terminal and the negative lead to the negative battery terminal.
3. Reconnect the battery supports to the battery backets.

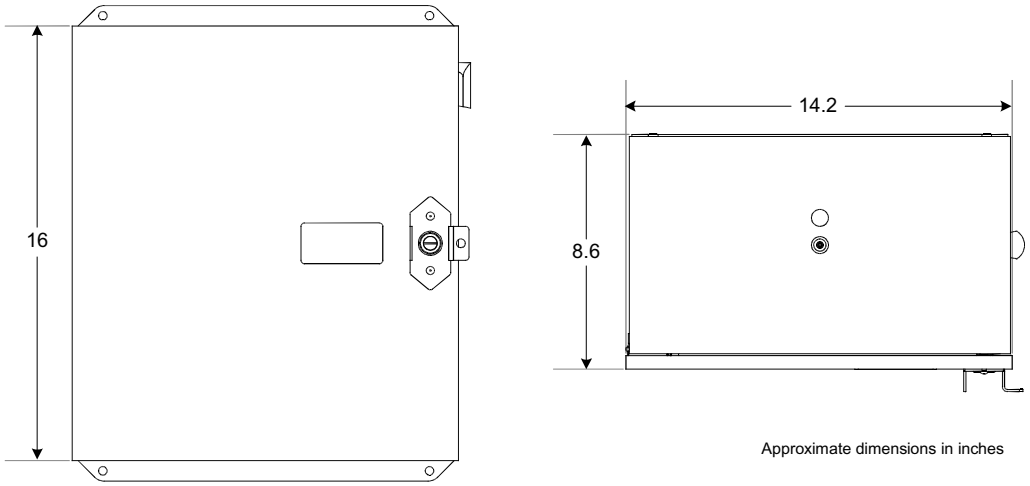


Figure 6. EA collector dimensions

Installing a GPRS modem

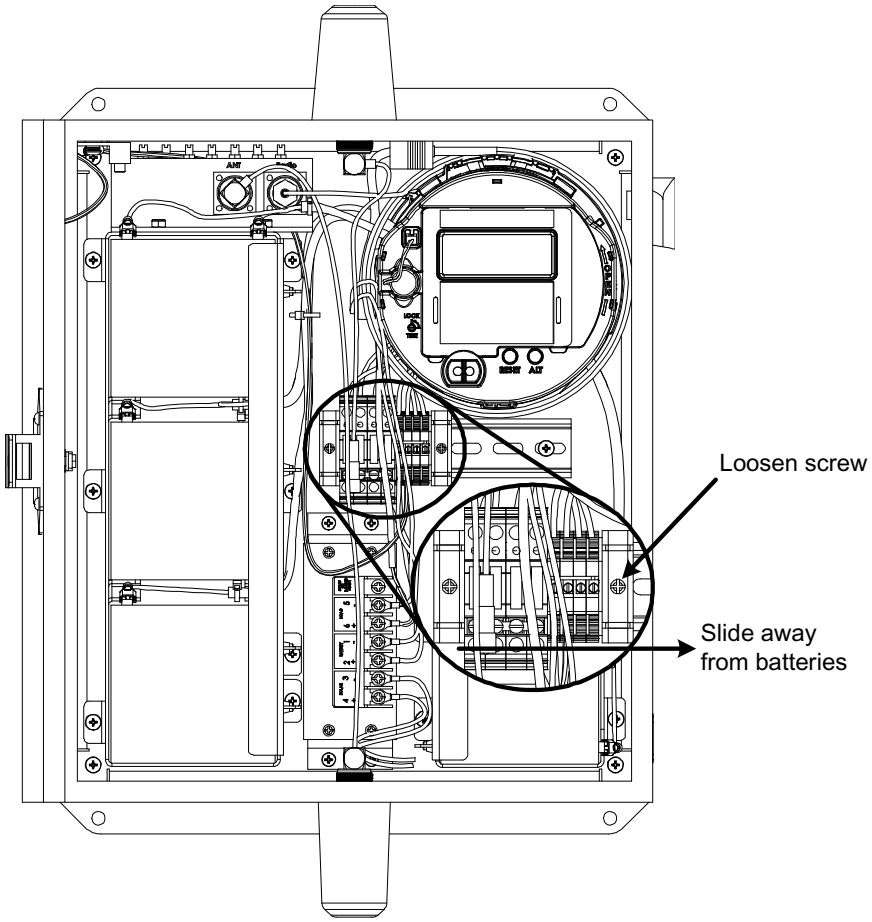
If using a GPRS modem, you must install the modem into the EA collector before placing the collector into service. After authorizing the SIM card with your carrier, follow these procedures to install the SIM card into the modem.

1. Remove the 2 screws that secure the modem's DIN rail bracket.
2. Remove the screw that secures the modem's SIM card door.

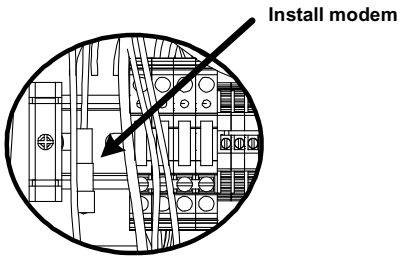
3. Insert the SIM card into the modem.
4. Replace the SIM card door to the modem and secure with a screw.
5. Replace the DIN rail bracket to the modem and secure with 2 screws.
6. Remove the protective backing on the adhesive on the sides of the modem.

After the SIM card is installed in the modem, use the following procedures to install the modem into the collector:

1. Loosen the screw from the terminal block and slide the terminal block to the right.

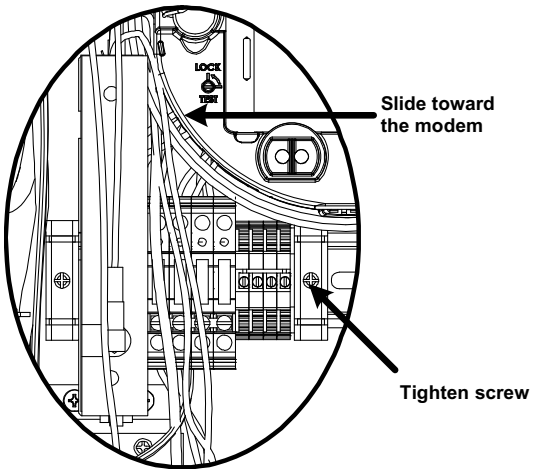


2. Insert the modem between the power supply and the terminal block. Make sure the modem DIN rail bracket mounts to the collector's DIN rail.



3. Attach the DC power cable to the modem by attaching the red wire to the positive terminal and white wire to the negative terminal
4. Attach the RF cable to the modem, and attach the RJ45 crossover cable to the modem.

5. Slide the terminal block toward the left and tighten the screw.



Placing the EA collector into service

⚠ WARNING

Use authorized utility procedures when installing the EA collector. Dangerous voltages are present. Equipment damage, personal injury, or death can result if authorized utility procedures are not followed when installing the EA collector.

⚠ CAUTION

Do not short-circuit the PV panel input to the controller. Shorting the PV panel input can permanently damage the solar controller and cause faulty operation to the collector.

The EA collector is shipped with most of the wiring connections already made. To complete the wiring and place the EA collector into service:

1. Feed the solar supply cable through the PV panel gland.
2. Attach the red PV panel cable to the solar controller blue flying lead.
3. Attach the black PV panel cable to the solar controller white flying lead.
4. Attach the fuses to the fuse terminal.
5. If supplied with a remote antenna, mount the antenna in a suitable location using authorized utility procedures. Note. For assemblies with remote mounted antennas, be sure to waterproof on the RF cable terminations (such as using coax sealant) to help prevent water entering the cable terminations.

Verifying EA collector operation

If the meter collector LCD is on and the solar controller “Load Disconnect” LED is off, the unit is correctly powered.

Verify the EA collector is communicating properly

If the EA collector uses a cellular modem, verify that the modem is working properly by checking the LED lights. If the EA collector is using an Ethernet connection, work with your Internet service provider (ISP) to troubleshoot any network connectivity problems.

Notes:

FCC and Industry Canada Compliance
User Information (Part 15.105): This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures: ■ reorient or relocate the receiving antenna ■ increase the separation between the equipment and the receiver ■ connect the equipment into an outlet on a circuit different from that to which the receiver is connected ■ consult the dealer or an experienced radio/TV technician for help If you experience trouble with this equipment, please use the Return Material Request (RMR) feature available at the Online Customer Services at www.elsterelectricity.com. Do not attempt to repair this equipment itself unless you are replacing the entire module.
Compliance Statement (Part 15.19): This equipment complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.
Antenna Compliance: To reduce potential interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than permitted for successful communication.
Warning (Part 15.21): Changes or modifications not expressly approved by Elster could void the user's authority to operate the equipment.
RF Radiation Safety Guidelines per Part 2 of FCC Rules and Regulations: The meter should be installed in a location where there will be a separation greater than 20 cm from locations occupied by humans.
Industry Canada Statement: The term "IC" before the certification/registration number only signifies that the Industry Canada technical specifications were met.
Collocation Statement: Collocation of simultaneously-transmitting (co-transmitting) antennas within 20 cm of each other in a final product is not allowed.

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