

# Installing the EA\_Gatekeeper

AC only option

## General

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**NOTICE**

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The previous name for this product was the EA Collector. With the introduction of the EnergyAxis Management System version 7, the name for this product is EA\_Gatekeeper. The installation instructions are the same regardless of the designation.

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Within the EnergyAxis® System, the managing device of the network configuration, communications, and data is one of the following:

- an EA\_Gatekeeper within an A3 ALPHA® meter that uses the appropriate option boards for local area and wide area network communications
- an EA\_Gatekeeper that can be mounted to different structures when deploying meter-based gatekeepers is not feasible or desired

This instructional leaflet explains the different installation options for the EA\_Gatekeeper. For more information regarding the different gatekeepers 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 with external antenna options
- A3 ALPHA meter/collector (PG42-1005) for information on the operation of the A3 ALPHA meter/collector and the EA\_Gatekeeper

The EA\_Gatekeeper uses either a NEMA4X-rated plastic enclosure or a NEMA4-rated metal enclosure that provides different installation, powering, and WAN options.

Figure 1 shows the major components of the EA\_Gatekeeper with a plastic enclosure. Figure 2 shows the major components of the EA\_Gatekeeper with a metal enclosure. Figure 3 through Figure 6 show illustrations of assembled EA\_Gatekeepers.

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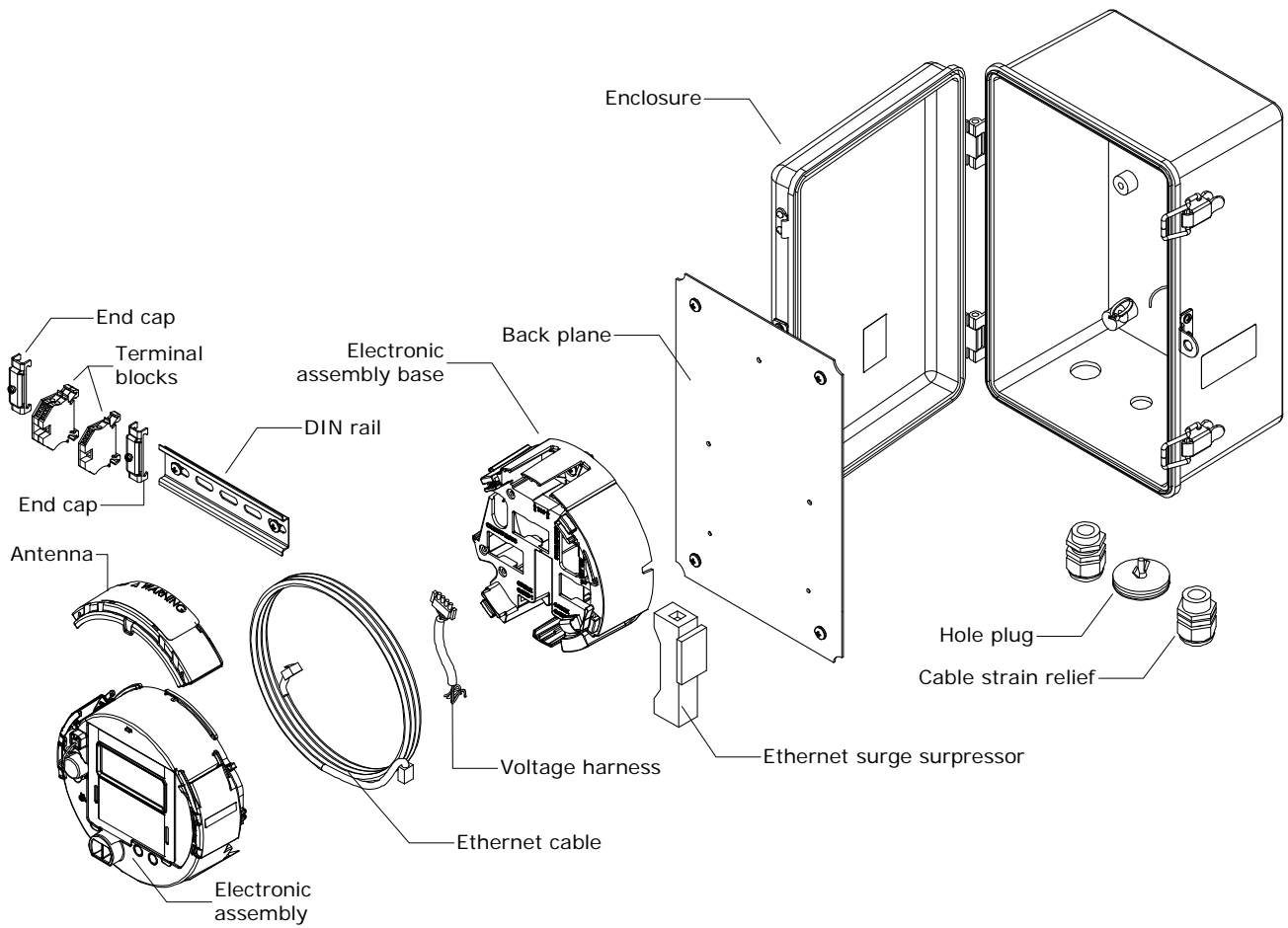


Figure 1. Exploded view of the EA\_Gatekeeper with Ethernet

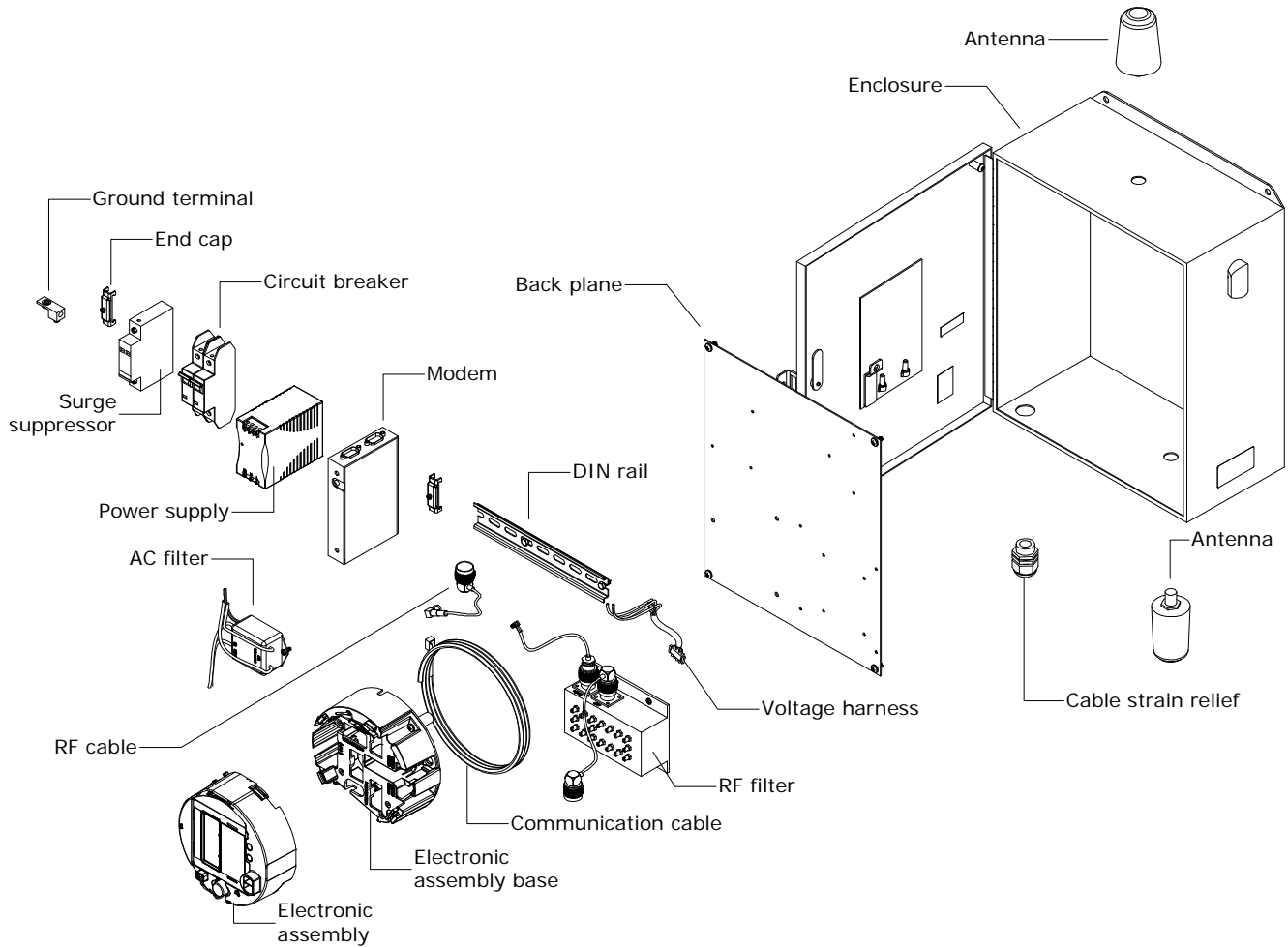
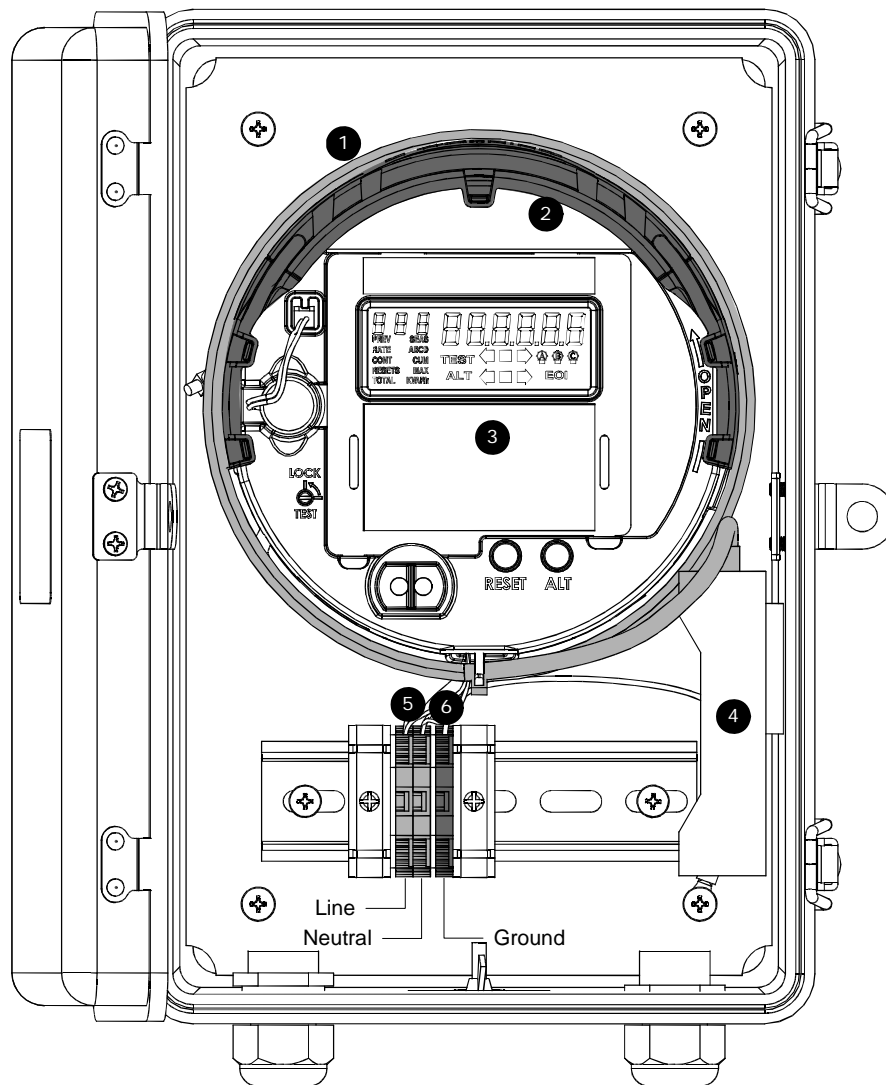
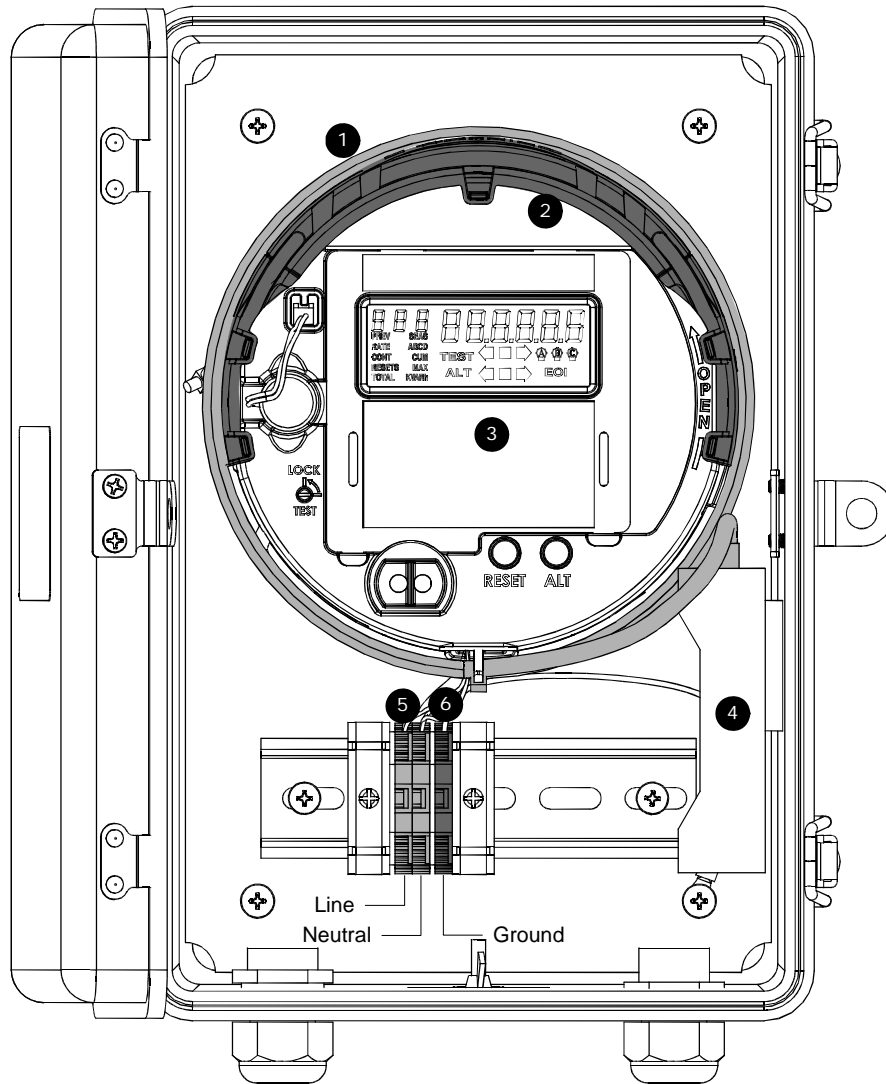


Figure 2. Exploded view of the EA\_Gatekeeper with cellular modem



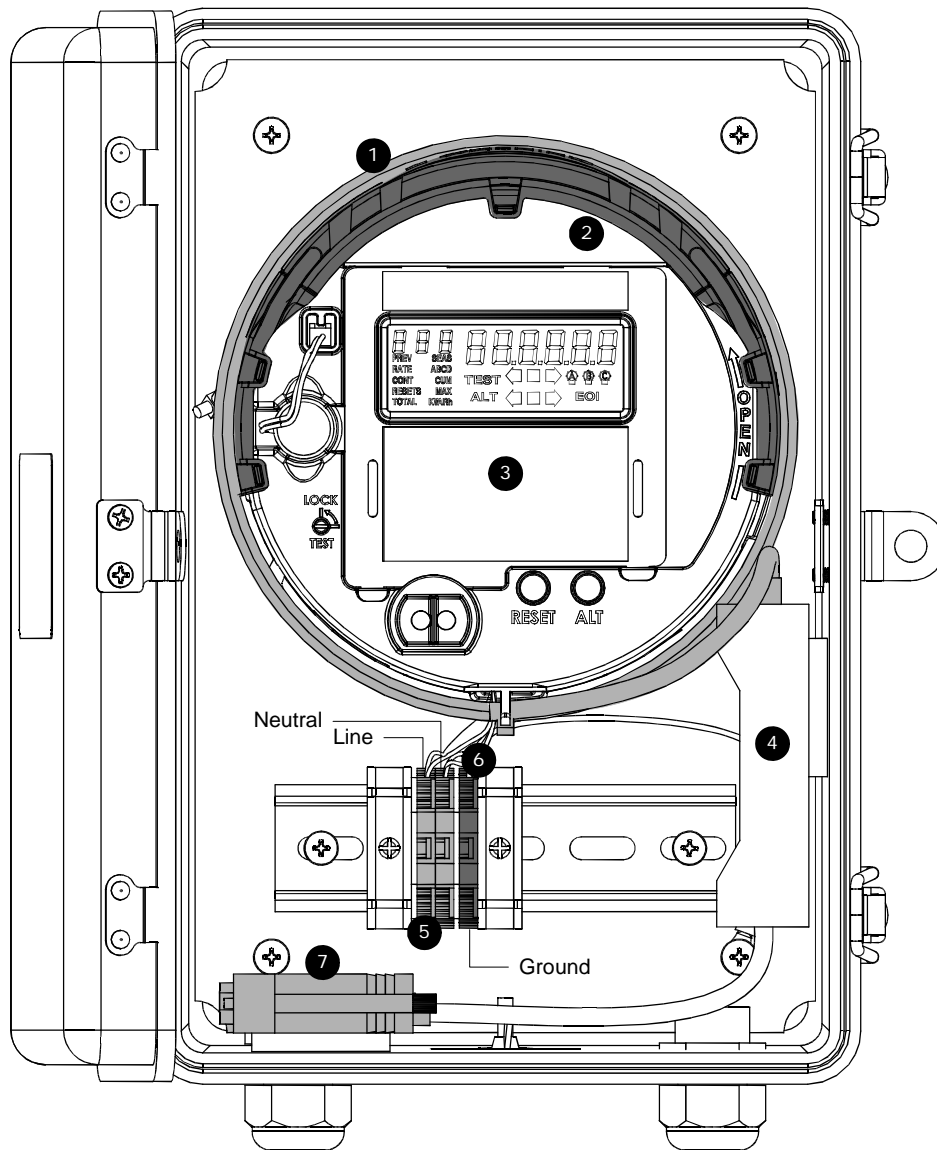
- 1 Ethernet cable
- 2 Antenna
- 3 Local data collector
- 4 Ethernet surge suppressor
- 5 Gray terminal block
- 6 Green terminal block

Figure 3. EA\_Gatekeeper with Ethernet modem



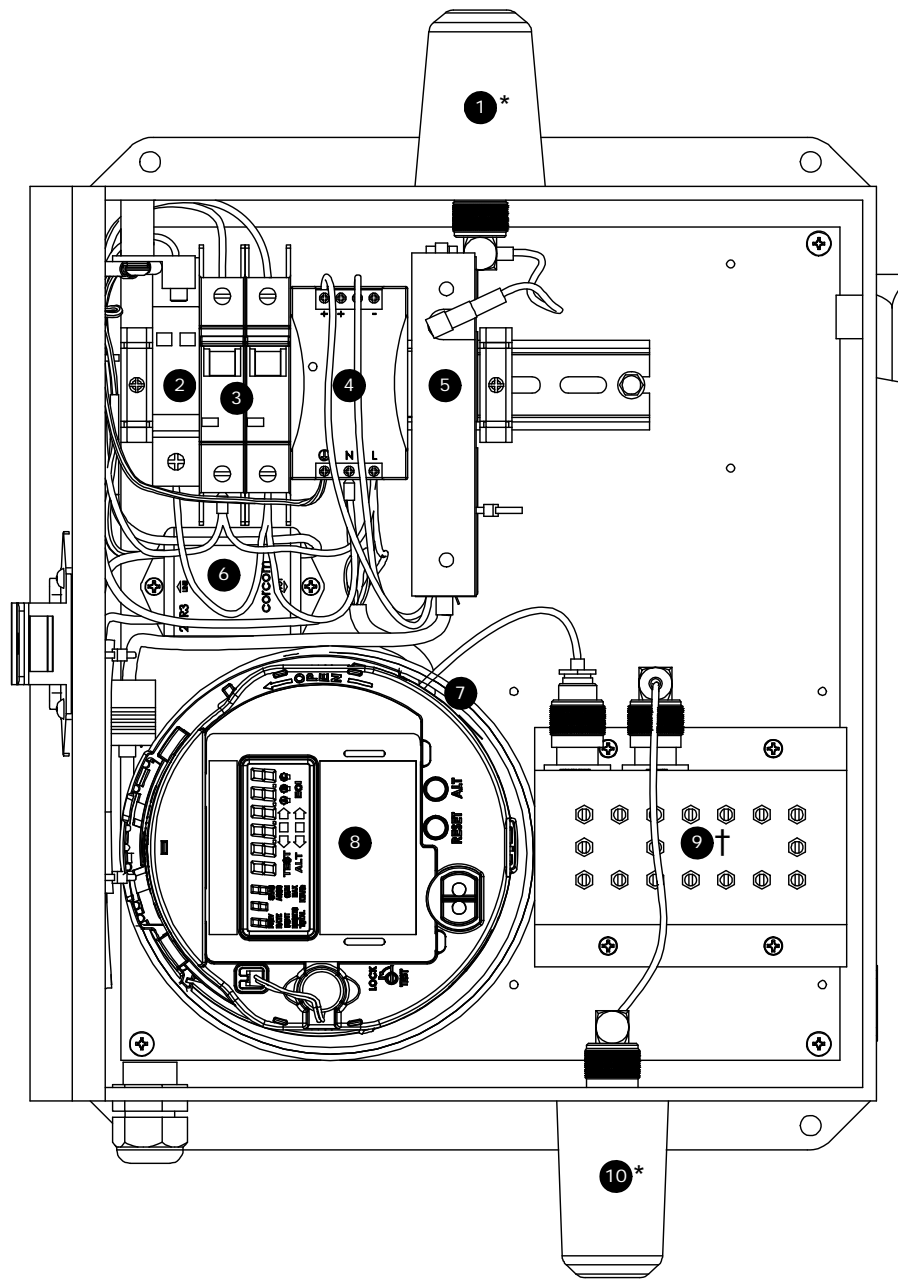
- 1 Communication cable
- 2 Antenna
- 3 Local data collector
- 4 Telephone surge suppressor
- 5 Gray terminal block
- 6 Green terminal block

Figure 4. EA\_Gatekeeper with POTS/PSTN modem



- 1 Communication cable
- 2 Antenna
- 3 Local data collector
- 4 RS-232 surge suppressor
- 5 Gray terminal block
- 6 Green terminal block
- 7 DB-9F – RJ-11 serial adapter

Figure 5. EA\_Gatekeeper with RS-232 modem



- |                              |                               |
|------------------------------|-------------------------------|
| ① Wide area network antenna* | ⑥ AC filter                   |
| ② Surge suppressor           | ⑦ Communication cable         |
| ③ Circuit breaker            | ⑧ Local area collector        |
| ④ Power supply               | ⑨ RF filter†                  |
| ⑤ Cellular modem             | ⑩ Local area network antenna* |

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

†Required only when 2 local external antennas are present

Figure 6. EA\_Gatekeeper with cellular modem connector

## Before you install

### ▲ WARNING

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

### NOTICE

For optimal performance of the LAN antenna, Elster recommends that the EA\_Gatekeeper 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\_Gatekeeper communications within the EnergyAxis System.

The EA\_Gatekeeper supports different mounting options, including mounting on 18-foot to 35-foot utility poles and telephone poles. The EA\_Gatekeeper 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\_Gatekeeper at its installation location.

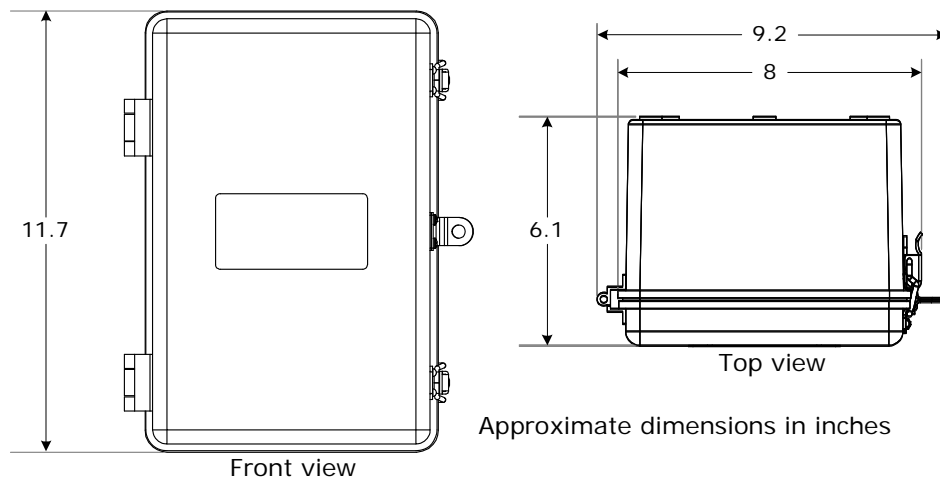


Figure 7. EA\_Gatekeeper dimensions (plastic enclosure)



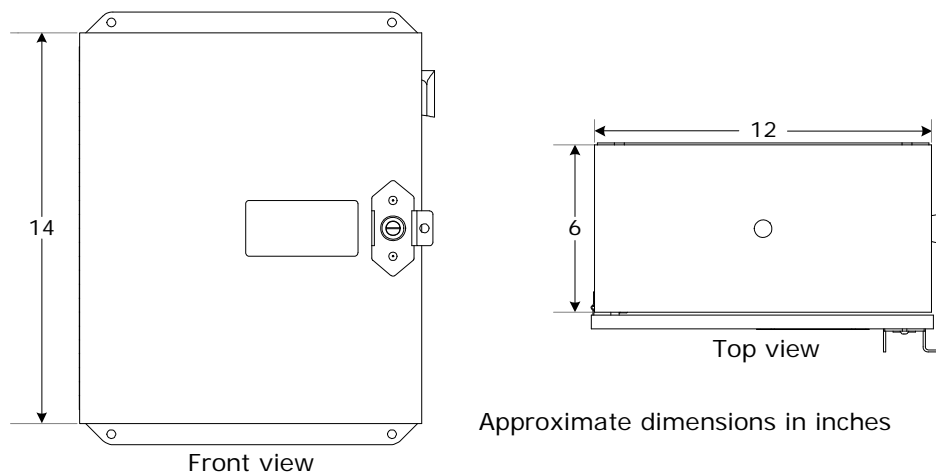


Figure 8. EA\_Gatekeeper dimensions (metal enclosure)

## Antenna options

The EA\_Gatekeeper 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\_Gatekeeper into service.

If the the gatekeeper is to be installed at a location that requires a greater height to overcome blocked signals, a remote antenna will be required.<sup>1</sup> Placing the EA\_Gatekeeper into service will require mounting the remote external antenna in a suitable location.

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### 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 cables unacceptable.

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### NOTICE

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

If the cable is mounted at the bottom of the enclosure, the cable should be mounted in drip loop fashion. A drip loop is formed by bringing the cable to a point below the enclosure and then bending it back up to the connector. This forms a U-shape that allows water to run down the cable exterior.

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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 (about 30 meters). Antenna cables should be ordered with N-type male connectors on each end.

<sup>1</sup> Remote antenna cable is not supplied by Elster. Your Elster sales engineer can assist you in ordering the correct cable length if you know the distance required.

## **LAN remote antenna**

If a LAN remote antenna is required, the EA\_Gatekeeper must be ordered specifying the LAN remote antenna option. The EA\_Gatekeeper 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 connections should be sealed for waterproofing.

## **WAN remote antenna**

If a WAN remote antenna is required, the EA\_Gatekeeper must be ordered specifying the WAN remote antenna option. The EA\_Gatekeeper 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\_Gatekeeper housing, and the other end attaches to the antenna. Your Elster sales engineer can assist you in ordering 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 ([www.lairdtech.com](http://www.lairdtech.com) or +1 800 492 2320).

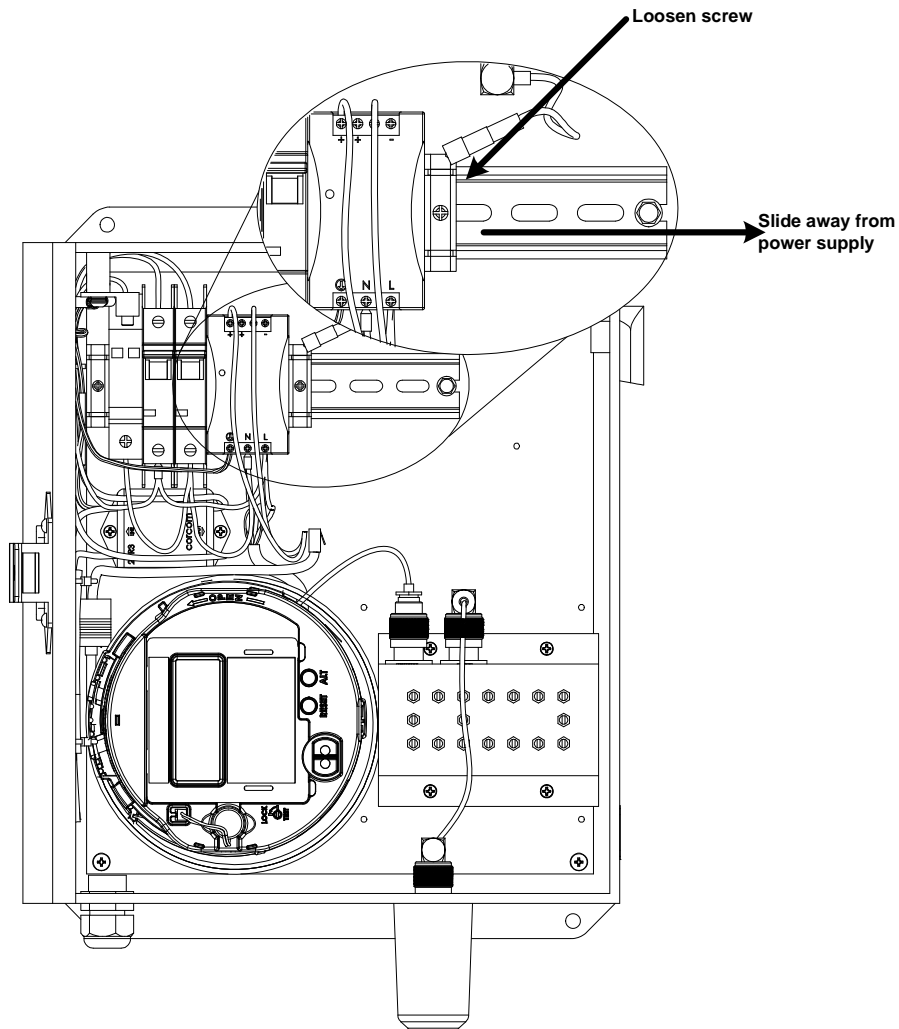
## **Installing a GPRS modem**

If using a GPRS modem, you must install the modem into the EA\_Gatekeeper 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.

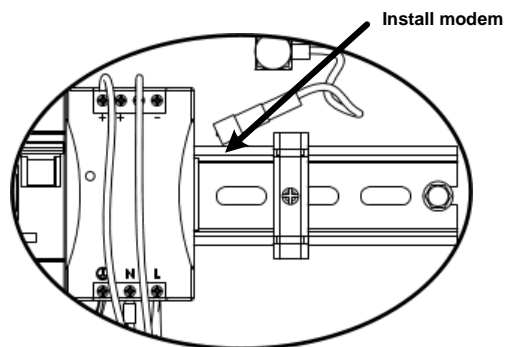
1. Remove the 2 screws that secure the modem's DIN rail bracket.
2. Remove the screw that secures the modem's SIM card door.
3. Insert the SIM card into the modem.
4. Replace the SIM card door to the modem and secure with a screw.
5. Replace the DIN rail bracket to the modem and secure with 2 screws.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

After the SIM card is installed in the modem, follow these procedures to install the modem into the collector.

1. Loosen the screw from the end cap and slide the end cap away from the power supply.

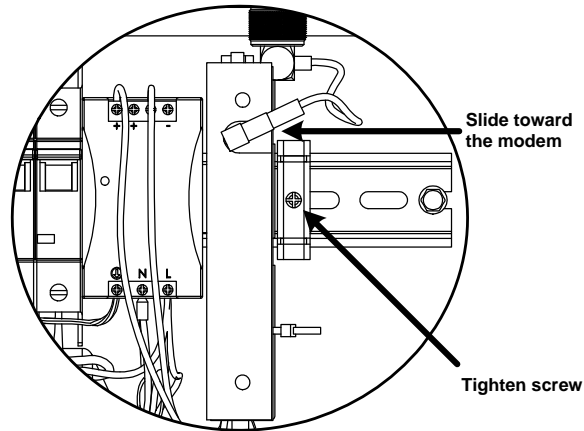


2. Insert the modem between the power supply and the end cap. Make sure the modem DIN rail bracket mounts to the collector's DIN rail.



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.

- Slide the end cap toward the modem and tighten the screw.



## Placing the EA\_Gatekeeper into service

### ⚠ WARNING

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

### NOTICE

Be sure to properly ground the EA\_Gatekeeper before placing the gatekeeper into service. See for more information.

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

#### Plastic enclosure

- Wire the power and the ground to the EA\_Gatekeeper. The unit is now powered. Power is applied to the EA\_Gatekeeper by a cable that enters the enclosure through the base of the unit and connects to the terminals (see Figure 3, Figure 4, and Figure 5). Line power is connected to the left terminal (gray); neutral is connected to the center terminal (gray); and ground is connected to the right terminal (green). After these steps, verify proper EA\_Gatekeeper operation.

#### Metal enclosure

- Wire the power and ground to the EA\_Gatekeeper. Power is applied to the EA\_Gatekeeper by a cable that enters the enclosure through the base of the unit and connects to the AC line filter and chassis ground. Line power is connected to the brown flying lead, neutral is

connected to the blue flying lead, and ground is connected to the ground lug (see Figure 2 for location of the ground terminal).

2. Close the breaker. The unit is now powered.  
When you are ready to activate the EA\_Gatekeeper, close the circuit breakers. After completing these steps, verify proper EA\_Gatekeeper operation.
3. If supplied with a remote antenna, mount the antenna in a suitable location using authorized utility procedures.

## Verifying EA\_Gatekeeper operation

### Plastic enclosure

The EA\_Gatekeeper's meter LCD will turn on when power is correctly supplied to the unit.

### Metal enclosure

The EA\_Gatekeeper has two LEDs that indicate the status of the power supply. The green LED is located on the power supply and indicates the status of the main power supply.

LED color	Location	Indicator	Definition
Green	Power supply	On (steady)	EA_Gatekeeper is operating using the main power supply.
		Off	Main power supply missing or below operating threshold.

## Verify the EA\_Gatekeeper is communicating properly

Depending on the communication option in use:

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

## Minimum recommended grounding guidelines

Be sure to follow your utility's procedures for properly grounding equipment. See for the different minimum recommended grounding guidelines.

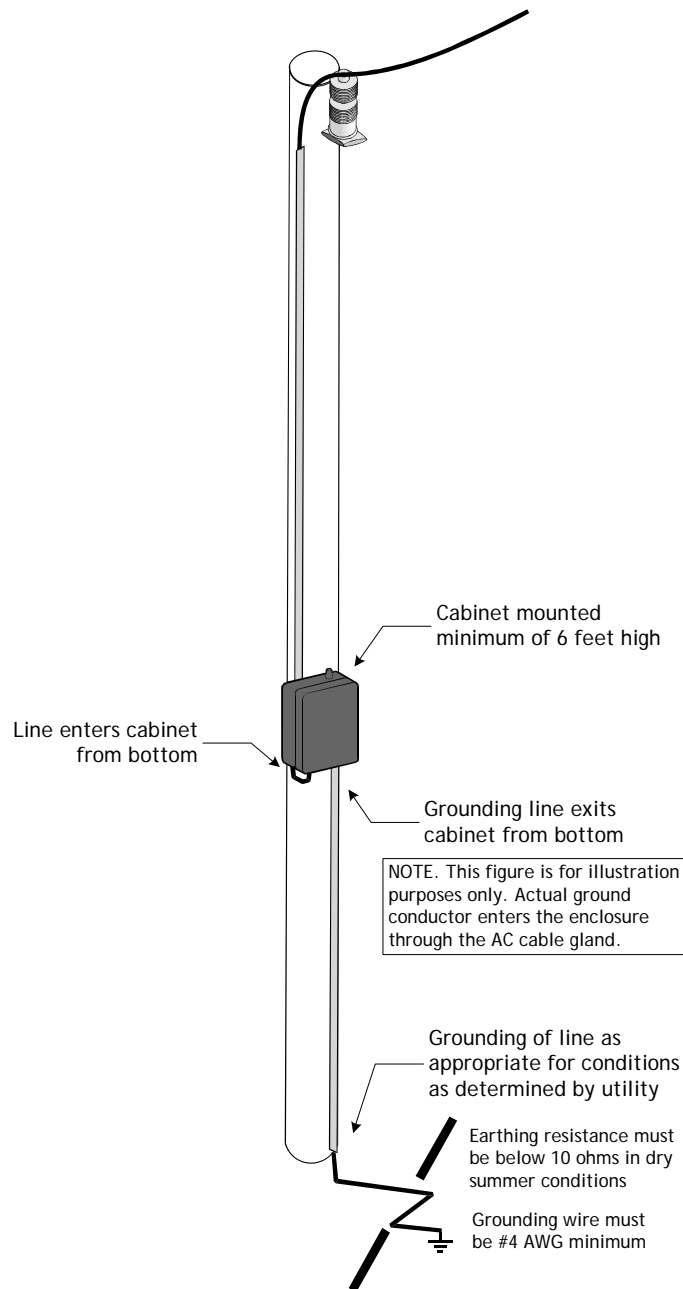


Figure 9. EA\_Gatekeeper grounding (no transformer)

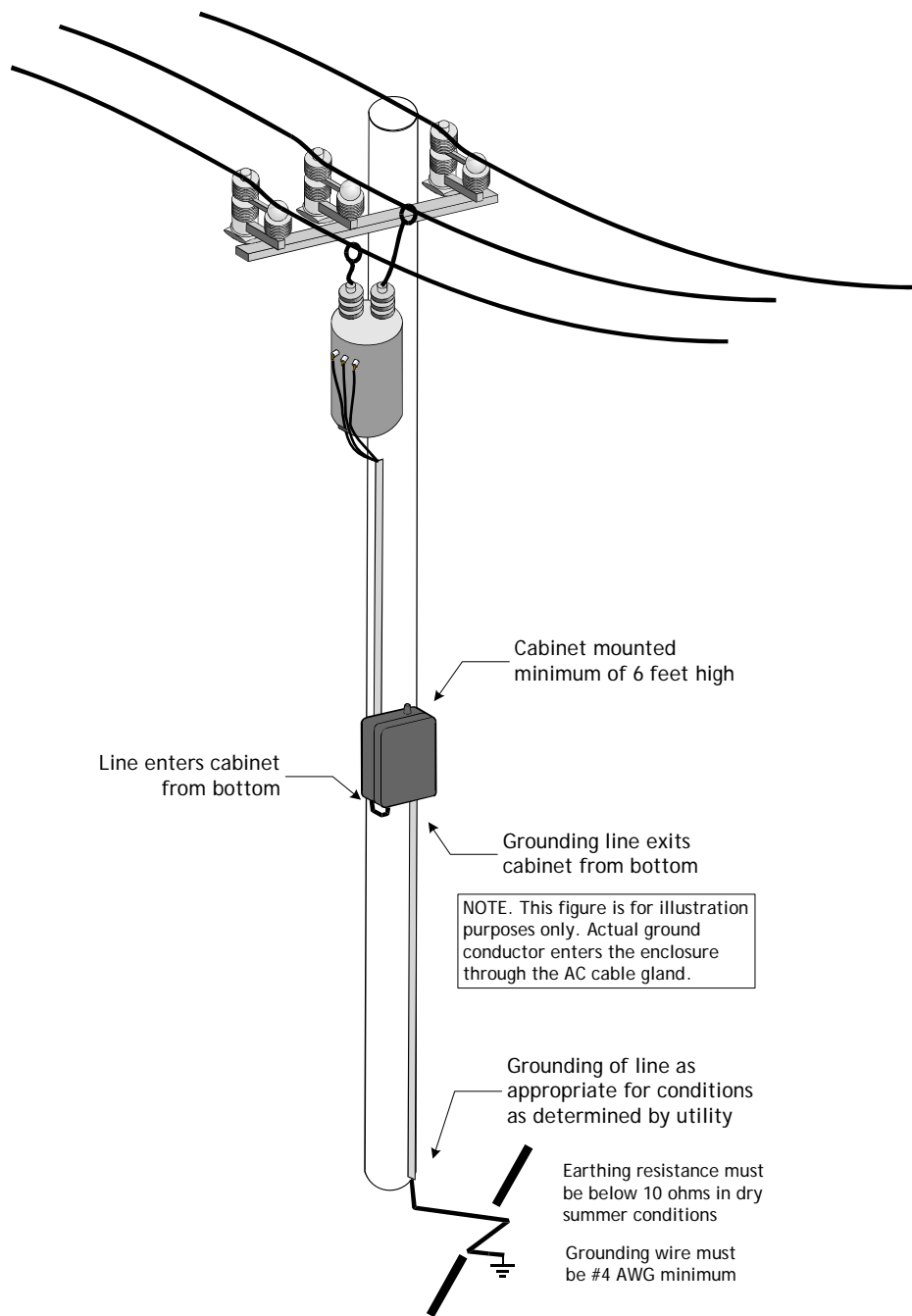


Figure 10. EA\_Gatekeeper grounding (transformer)



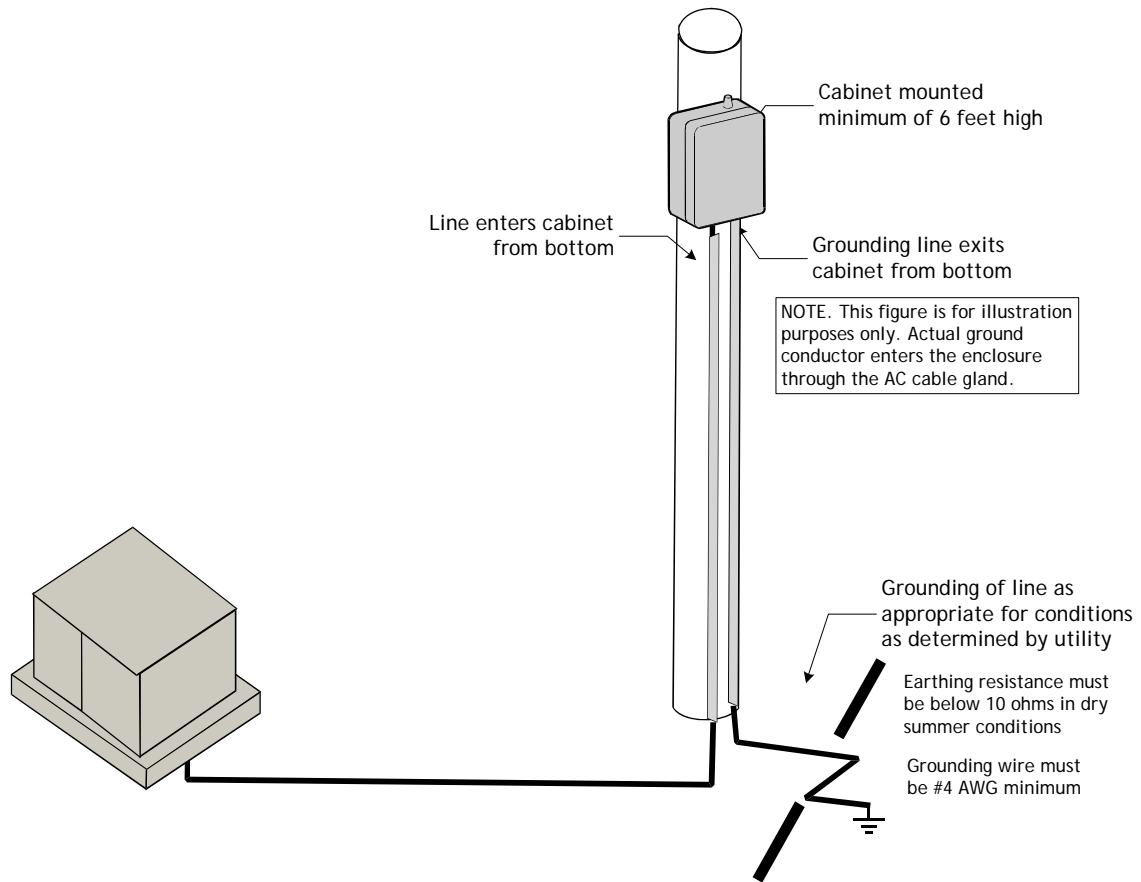


Figure 11. EA\_Gatekeeper grounding (underground transformer)

**Notes:**

**Notes:**

## 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](http://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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\*IL42-5006B\*

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