

IP AxisLink gateway and EA_Gatekeeper Series 3

Installation instructions for cellular backhaul
IL42-5103A

General

This document provides information for installing the IP AxisLink gateway and the EA_Gatekeeper Series 3 (see Figure 1), both of which use similar hardware. The polycarbonate enclosure has a NEMA 4X environmental rating. See Figure 2 for an exploded view; see Figure 3 for an illustration of the major components.

For more information on configuring the IP AxisLink gateway for service, see the installation and administration manual (TM42-4002). For more information on the EA_Gatekeeper, see the product guide (PG42-1023).

Figure 1. Front and side views

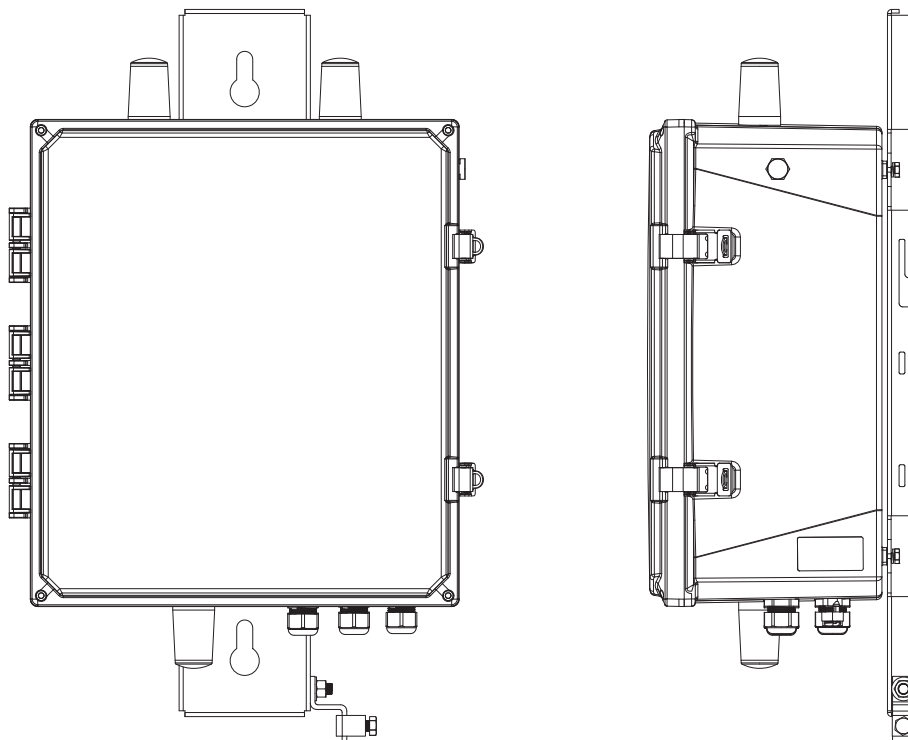


Figure 2. Isometric view

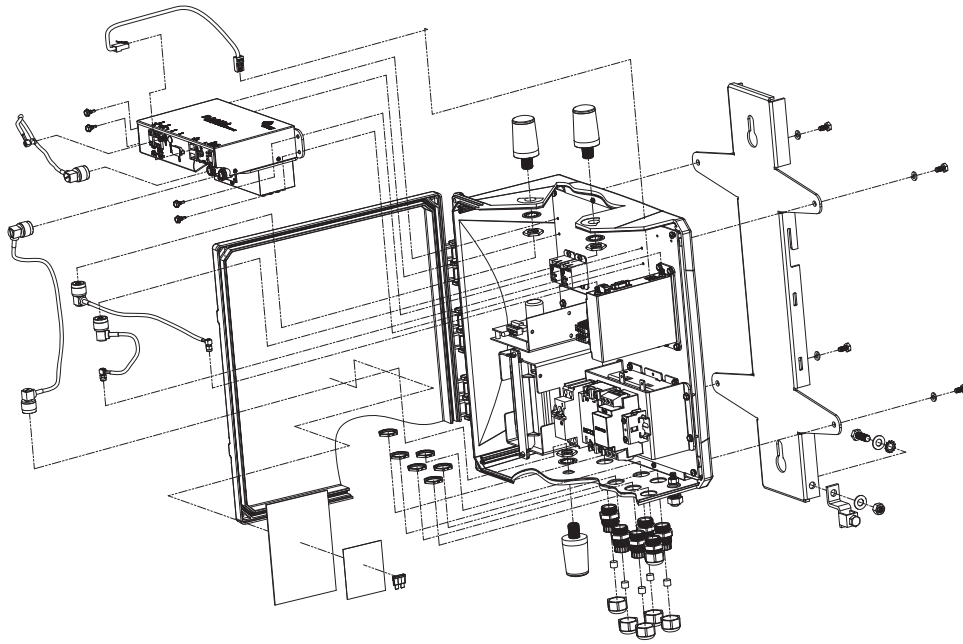
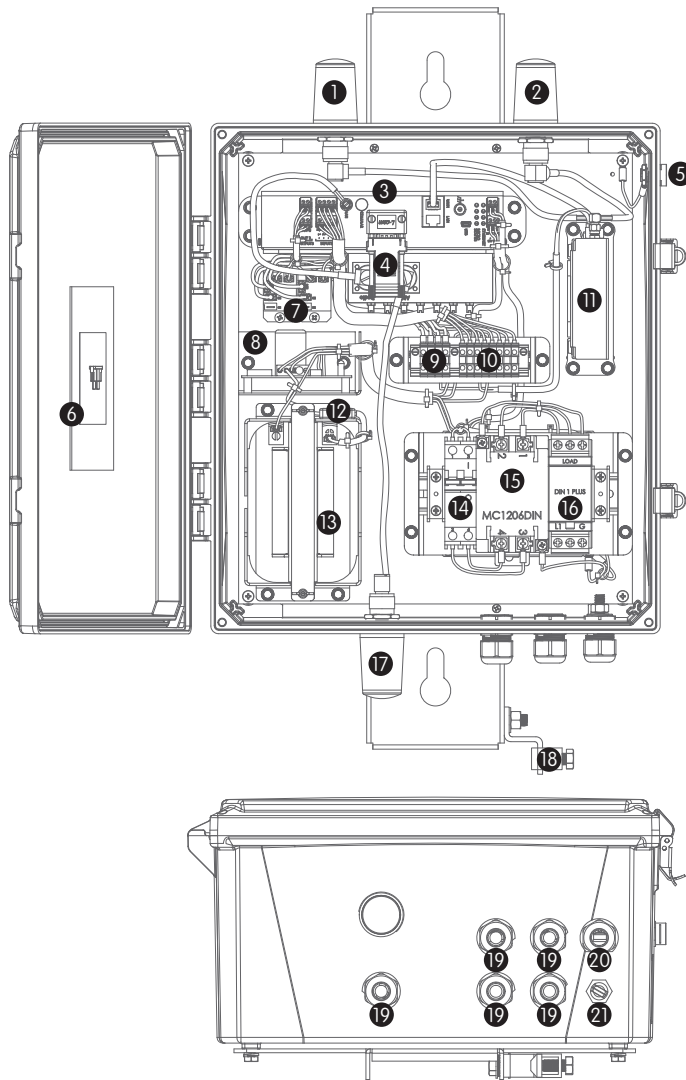


Figure 3. Major components



- ① Receive diversity antenna
- ② Primary cellular antenna
- ③ IP AxisLink module
- ④ DB-9 adapter*
- ⑤ Enclosure vent
- ⑥ Parts bag†
- ⑦ Interposing relays
- ⑧ Battery charger
- ⑨ Interposing relay outputs
- ⑩ Input pair terminals
- ⑪ Cellular modem (HSPA/EV-DO)
- ⑫ Fuse holder
- ⑬ Battery
- ⑭ AC circuit breaker
- ⑮ RF line filter
- ⑯ Surge protector
- ⑰ LAN antenna
- ⑱ Mounting bracket protective earth terminal
- ⑲ Cable entry glands (5 total)
- ⑳ AC line input gland
- ㉑ Enclosure protective earth terminal

*When using RS-232 communication

†Parts bag contains the fuse and serial port adapters

Before you install

⚠ WARNING

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

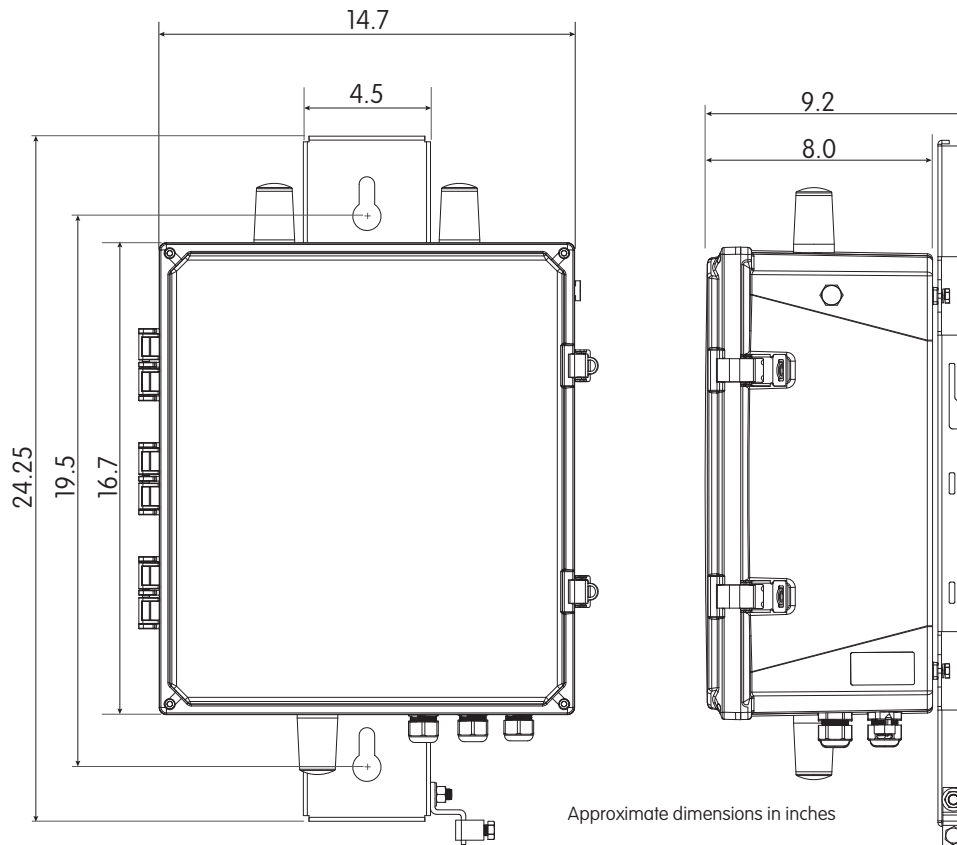
NOTICE

For optimal performance of the LAN antenna, Elster recommends that the enclosure be installed so that it is at least 5 feet (1.5 meters) off the ground. Failure to meet the minimum ground clearance can result in degraded performance of communications within the EnergyAxis System.

The enclosure is provided with a universal mounting bracket. This bracket allows the enclosure to be mounted to a pole or building using either bolts or band straps. Choose an installation location that provides easy access to the cable entry glands and internal enclosure terminations of the cables.

Two keyhole-shaped bolt holes are provided in the bracket (see Figure 4). The keyhole is provided to allow the fasteners to be partially secured to the installation location before mounting the enclosure. The head of the fastener can pass through the large opening in the keyhole and allow the enclosure to be suspended from the fasteners for final tightening.

Figure 4. Dimensions



Three slots are provided in the mounting bracket if band strapping is the preferred mounting method. These slots can accommodate stainless steel straps up to 5/8 inches wide. The top slot has an open aperture to allow the first strap to be mounted loosely and allow the enclosure to be suspended from this strap for easier installation of the other two straps. Elster recommends that all three straps be used to securely mount the enclosure to its location.

The enclosure must be powered from a 120 VAC to 240 VAC (nominal), 50 Hz or 60 Hz AC power source.

The enclosure has a weight of approximately 25 pounds (about 11 kilograms).

Placing the device into service

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The enclosure is shipped with most of the wiring connections already made. To complete the wiring and place into service, follow this procedure:

- 1 Mount the enclosure securely to the pole or structure.
- 2 Connect the protective earth terminals.

Two connection points are provided on the device. One protective earth grounding to the mounting bracket; the second provides earth grounding to the enclosure, electronics, and metal components. Both terminals must be connected to earth ground to ensure safety and reliability. The terminals will support up to 4 AWG solid conductor.

- 3 Make all desired communications connections to the module.

Five separate cable gland entry points have been provided to allow cables to enter the enclosure and route to any or all of the communications and I/O ports. Each cable gland supports one round, smooth jacketed conductor from 0.354 inches to 0.551 inches in diameter. The gland is large enough to allow an RJ45 connector to pass through. All communications cable glands have weatherproof plugs installed from the factory.

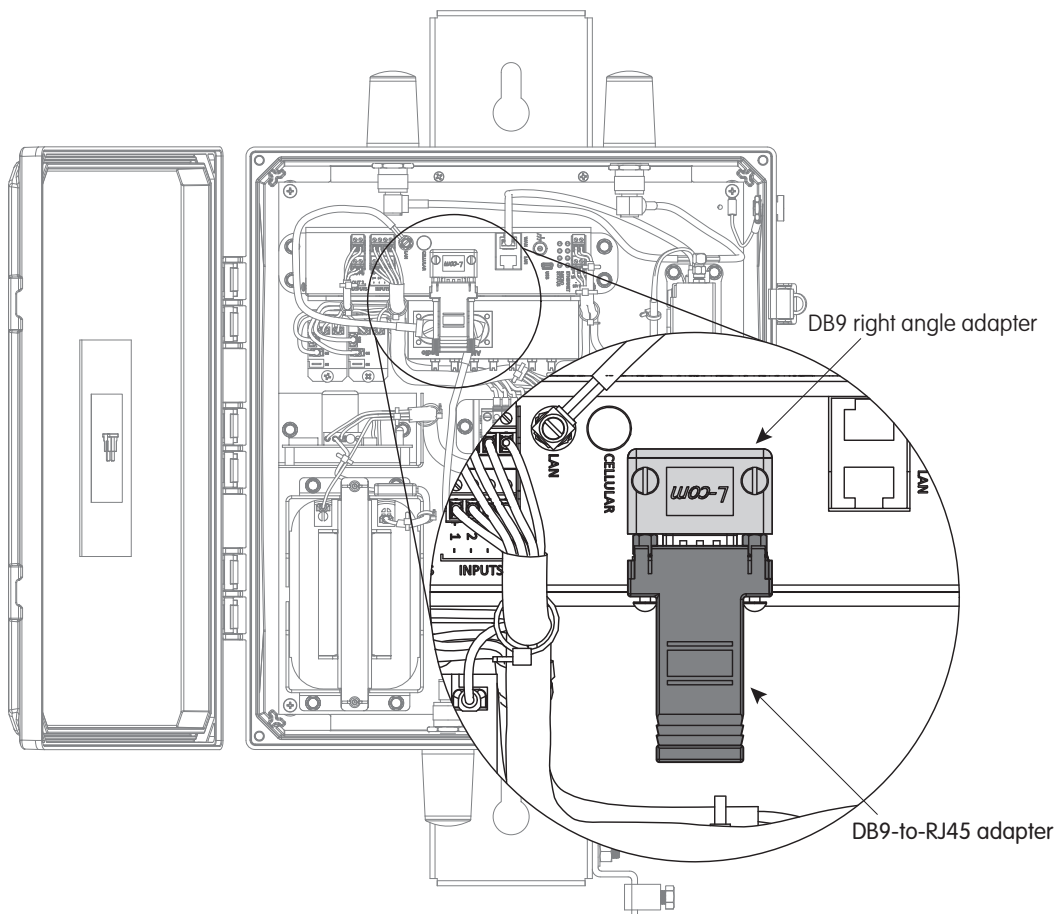
To use a particular gland location, simply loosen the outer dome nut and remove the plug. Once a cable is routed through a gland and terminated, tighten the dome nut on the gland to create a weatherproof seal.

- a Ethernet LAN and WAN: Connections are made by passing an RJ45 terminated cable through a cable gland and routing it directly to the proper receptacle on the module.
- b Serial port: Two adapters are provided in the parts bag for connecting to the serial port of the module. The included adapters allow for a tight, right angle launch from the device connector and conversion of the DB9 connector to an RJ45 allowing easy routing through the cable gland (see Figure 5).

The DB9-to-RJ45 adapter has a straight through pin assignment that maintains the signal designations of the DB9 connector. This pin assignment is as follows:

Pin number	Signal
1	NC
2	Rx
3	Tx
4	NC
5	SGND
6	NC
7	RTS
8	CTS
9	NC

Figure 5. DB9 adapters

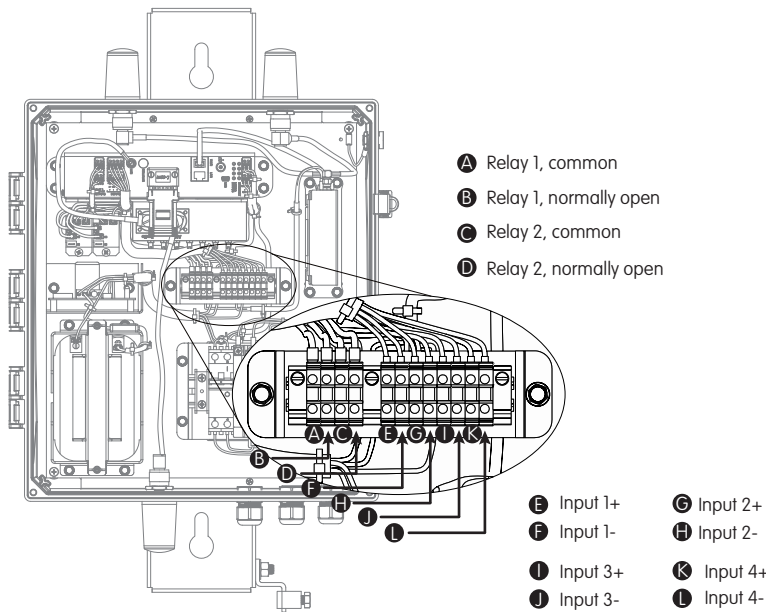


c I/O terminals: A terminal strip is provided inside the enclosure to allow easy connection. The terminal locations are identified in Figure 6.

Interposing relay output terminals accept wire sizes from 24 AWG to 10 AWG. The interposing relays are capable of switching 10 amp loads at 277 VAC or 28 VDC. Ensure connection wire gauge is sized properly to support the switched load.

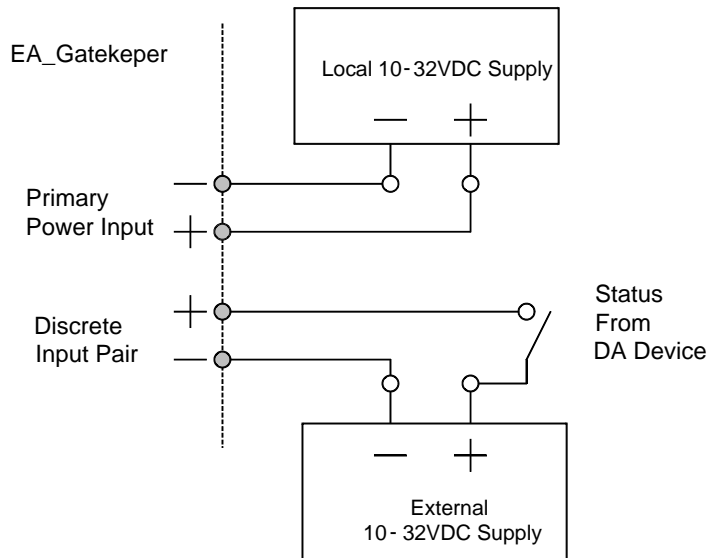
Input terminals will accept wire sizes from 24 AWG to 10 AWG. This port consists of 4 optically isolated discrete input pairs. To make any input active, apply a wetting voltage across the inputs within the range of 10 V TO 32 V. Each input will draw up to 18 mA at 32 V and down to 4 mA at 10 V. The wetting voltage can be sourced by an external isolated or non-isolated supply. For the case of an external isolated supply, its ground would not be tied to the ground of the module. A suggested connection diagram is given in Figure 7.

Figure 6. Interposing relay outputs and input pair terminals



- 4 Power is applied to the module by a cable that enters the enclosure through the AC line power cable gland and connects to the AC line surge suppressor. Line power connects to the L1 terminal of the surge module. Line 2 or neutral connects to the L2 terminal of the surge module. Ground connects to the GND terminal of the surge module.
- 5 Insert the DC fuse into the fuse holder.
- 6 When you are ready to activate the module, close the AC line breaker.
- 7 Contact your service provider to provision/activate this device on the cellular network. The cellular modem is shipped with most of the parameters set for proper operation. For more information on modem configuration and troubleshooting, contact your Elster representative.
- 8 After completing these steps, verify proper operation. See "Verifying proper operation" on page 8 for more information.

Figure 7. External wetting voltage



Verifying proper operation

⚠ WARNING

Use authorized utility procedures to install and service this device. Dangerous voltages are present. Equipment damage, personal injury, or death can result if authorized utility procedures are not followed when installing or servicing this device.

Following the application of power, the Micro Status LEDs will all come on for a few seconds then turn off with the exception of the heartbeat LED and the PPP LEDs. The Heartbeat and PPP LEDs will remain on for several seconds. The PPP LED will then turn off, and the Heartbeat LED flashes at a once per second rate. This indicates that the module has completed its installation and is ready for use.

Micro LEDs are located on the module and are labeled "MICRO STATUS."

Micro Status LED

LED 4 (top)	Unused
LED 3	Tunnel connected
LED 2	PPP connected
LED 1 (bottom)	Heartbeat

Removing the device from service

⚠ WARNING

Use authorized utility procedures when removing this device. Equipment damage, personal injury, or death can result if authorized utility procedures are not followed when removing this device.

Should it become necessary to remove the device from service, reverse the procedure for placing the device into service (see "Placing the device into service" on page 5), making sure that you follow this sequence:

- 1 Disconnect AC line power.
- 2 Remove the battery fuse.
- 3 Disconnect the I/O lines.
- 4 Disconnect communication cables.
- 5 Remove protective earth ground connections.
- 6 Remove the assembly from the mounting location.

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, which can be determined by turning the equipment off and on, 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 Authorization (RMA) feature available at the Online Customer Services at www.elstersolutions.com. Do not attempt to repair this equipment yourself unless you are replacing the entire module.

Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules and Class B digital apparatus requirements for ICES-003. 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 of the device.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Énoncé de conformité

Cet appareil est conforme à la Partie 15 des règles de la FCC et aux exigences relatives aux appareils numériques de classe B conformément à l'avis sur la compatibilité électromagnétique ACEM-3. L'utilisation de cet appareil est soumise aux deux conditions suivantes : (1) Cet appareil ne doit pas provoquer d'interférences nocives et (2) cet appareil doit accepter toutes les interférences reçues notamment celles pouvant provoquer un fonctionnement intempestif de l'appareil.

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. Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

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

The device should be installed in a location where there will be a separation greater than 20 cm (8 inches) from locations occupied by humans.

Collocation Statement

Collocation of simultaneously-transmitting (co-transmitting) antennas located within 20 cm of each other within a final product is not allowed.

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