

IONX Technical Data




Installation Manual
Edge T-Series
Model T6X
Communications Management Unit (CMU)



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1 Warning


These instructions are not designed to imply or replace any operating or safety rules. It is the responsibility of the installer to understand and follow all company safety practices.


 **WARNING** In order to comply with hazardous classification, only those items specifically listed can be used and must be used only as shown.


 **WARNING** Installation shall be carried out in accordance with the applicable code of practice by suitably-trained personnel.

 **WARNING** Repair of this equipment shall be carried out in accordance with the applicable code of practice.

 **WARNING** Any machining, drilling, and/or sanding related to the installation of this system should be pre-approved by the authorized department before work is started.

 **WARNING** If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

 **WARNING** RF Device: Unit cannot be painted or coated with any material. Coating can adversely affect the performance of the device. Unit shall be masked appropriately if post installation coating is required.

 **WARNING** Products contain Lithium Ion batteries. Proper disposal procedures are required upon end of life conditions. If there is not corporate policy for hazardous waste disposal, the units should be shipped back to IONX for proper disposal.

2 Unpacking the CMU

- 2.1 Inspect shipping box/s to make sure there is no damage.
- 2.2 Carefully unpack the shipping box making sure to open the top of the box.
There will be instruction guide/s for modules associated with the system order.
- 2.3 Open shipping box/s and verify that the internal contents match the shipping receipt.
- 2.4 The installation instructions ensure at all times that the minimum separation distance from the human body is always greater than 20 cm during installation.
- 2.5 Contact IONX in the event of any above problems toll-free at 800-621-8442.

 **WARNING**

If using a knife to cut the tape, do not let the blade extend more than 1/2 inch inside of the cardboard box.

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3 Activating the CMU

3.1 Before starting

- 3.1.1 Confirm your email address is set-up in the IONX TARA system by emailing tara@ionxlive.com with “help” in the subject line.
- 3.1.2 If there is no reply, contact the IONX Support Center at toll-free at 1-800-621-8442 to get your email address set-up to use TARA and IONXlive.net.

3.2 Setup Monitor Command

3.2.1 Start a new email message

- **To:** type TARA@IONXLive.net
- **Subject:** type
 - **'WSM'**
 - period '.'
 - The **serial number** of the CMU

Example: WSM.GA0000123A

3.2.2 Send the message and wait for the following response:

```
Wireless Sensor Monitor initiated for GA0001099A.  
  
Please remove the Red Label covering the T-Series device, and  
look on the bottom for a green blinking light.  
This will cause the device to wake-up, and send a message  
within the next 5 minutes.  
  
Please wait for further instructions...  
  
**This is an automated report email, responding to this message  
will re-issue the same command.
```

3.3 Remove the **red** label and magnet from the top of the CMU. (figure 1)



Figure 1: CMU T6X with red installation sticker intact

3.4 Flip over the CMU to see if the two white half circles in the recess are blinking **green** (Figure 2). These two white half circles are the Status LED. The Status LED will blink **green** for 30-seconds after removing the Red Label (which includes a small bar magnet) from the top of the CMU. If the Status LED is not blinking or blinking any other pattern than **green** contact the IONX Customer Support Center by phone at 1-800-621-8442 or email supportcenter@ionxlive.com.



Figure 2: Status LED on the bottom of the T Series CMU

3.5 You will get an email message from TARA when the CMU sends its power up message. See example email in below:

```
From: "Ionx, Tara" <TARA@ionxlive.net>
Date: May 21, 2012 5:39:33 PM CDT
To: "customer@customer.com"
Subject: WSM: GA0000123A - Terminal now awake

The Terminal is now awake. Remove the red label from all
of the wireless sensors now.

Wireless sensors associated with this terminal:
WS0000123A,WS0000124A,WS0000125A,WS0000126A

Please wait for further instructions...

**This is an automated monitoring email, replying to this
email will cancel the monitor.
```

Sample Installation Response

If WSN Sensors are included, use the following instructions.

3.6 Remove the red labels from all the WSN's

3.7 You will get a email message from TARA when the WSN's send a Node Live message. See example email in below:

```
The following wireless sensors are now awake.

WS0000252A,WS0000223A

Please wait for further instructions...

**This is an automated monitoring email, replying to this email
will cancel the monitor.
```

- 3.8 When the last WSN has sent a Node Live message, then you will get an email from TARA that all WSN's have joined and it is OK to install the equipment on the car.

From: "Ionx, Tara" <TARA@ionxlive.net>
Date: May 21, 2012 5:39:33 PM CDT
To: "customer@customer.com">
Subject: **WSM: GA0000123A - Ready for Installation**

All wireless sensors are now awake:

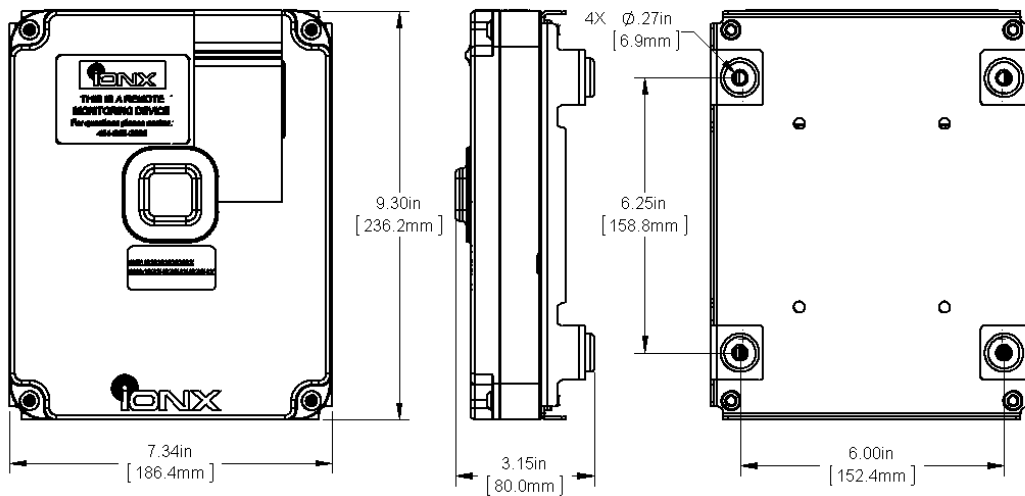
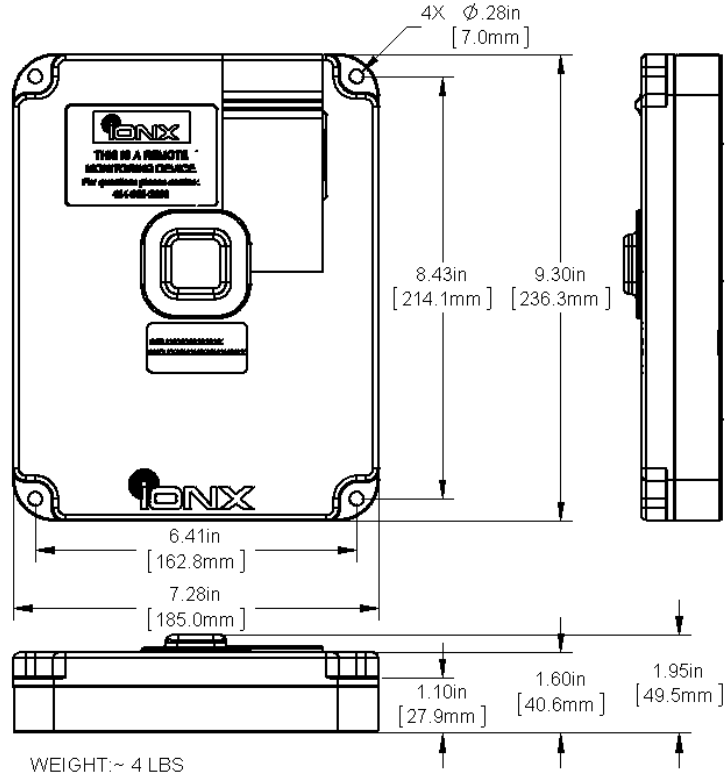
WS0000232A,WS0000233A

The system is ready for installation.

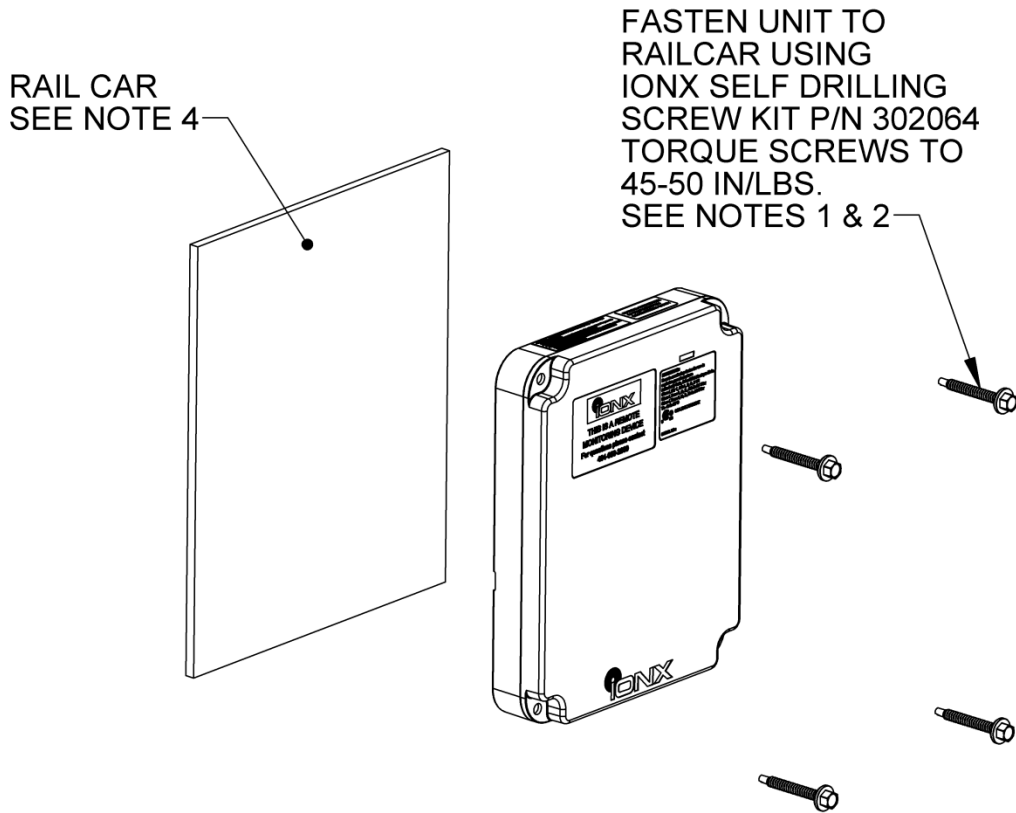
Sample Installation Response

4 Installing the CMU

The CMU can be installed with or without the optional mounting bracket.



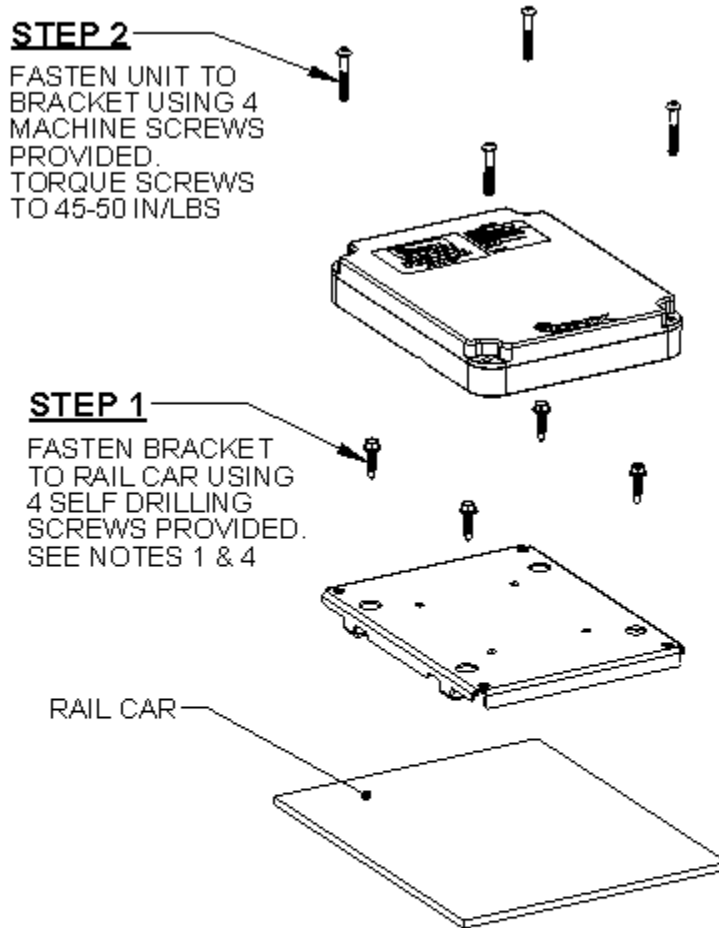
4.1 Installing the CMU without the bracket



NOTES:

1. THIS METHOD OF MOUNTING IS TO BE USED FOR MOUNTING TO NON-HORIZONTAL FLAT SURFACES ONLY. IF MOUNTING TO A HORIZONTAL OR CURVED SURFACE A MOUNTING BRACKET (P/N 213402) MUST BE USED.
2. ADDITIONAL MOUNTING OPTIONS:
 - HOLES CAN BE DRILLED AND TAPPED IN THE RAIL CAR AND CUSTOMER SUPPLIED 1/4-20 FASTENERS USED TO FASTEN THE UNIT.
 - THROUGH HOLES CAN BE DRILLED IN RAIL CAR AND CUSTOMER SUPPLIED 1/4-20 BOLTS, NUTS, AND LOCKWASHERS USED TO FASTEN THE UNIT.
3. ENSURE MOUNTING SURFACE IS FREE OF ANY IMPERFECTIONS THAT MAY PREVENT THE UNIT FROM MATING FLUSH TO THE SURFACE.
4. WHEN USING SELF DRILLING SCREWS THE MOUNTING SURFACE MUST BE A MINIMUM OF 1/8" THICK.

4.2 Installing the CMU with the mounting bracket (Optional)



NOTES:

1. AN OPTIONAL MOUNTING METHOD IS TO WELD THE FEET OF THE BRACKET TO THE RAIL CAR. NOTE: ENSURE CMU IS NOT MOUNTED ON BRACKET WHILE WELDING.
2. ENSURE MOUNTING SURFACE IS FREE OF ANY IMPERFECTIONS THAT MAY PREVENT THE BRACKET FROM MATING FLUSH TO THE SURFACE.
3. NOTE: IF MOUNTING ON A TANK CAR DRILL A 3/16" TEST HOLE AT ONE OF THE MOUNTING SCREW LOCATIONS TO TEST FOR THE DISTANCE BETWEEN THE JACKET AND THE INNER TANK. THIS OPERATION SHOULD BE PERFORMED WITH A DRILL STOP COLLAR ON THE DRILL BIT SET TO APPROXIMATELY 1/2". USE A SMALL ROD OR OTHER OBJECT TO DETERMINE THE DISTANCE BETWEEN THE JACKET AND INNER TANK. DO NOT PROCEED IF THERE IS LESS THAN 1 1/8".
4. REMOVE SCREWS, APPLY SILICONE SEALANT IN AND AROUND THE HOLES AND REINSTALL THE SCREWS MAKING SURE TO USE THE EXISTING THREADS.

5 Installing Wireless Sensor Nodes (WSN's)

- 5.1 Follow the Installation Manual supplied with the WSN.

6 Associating the CMU

The IONX Totally Autonomous Reporting Agent (TARA) is used to associate the car number with the CMU. This is completed by email using an email-enabled smart phone or any computer with email access.

6.1 Before starting

- 6.1.1 Confirm your email address is set-up in the IONX TARA system by emailing tara@ionxlive.com with "help" in the subject line.
- 6.1.2 If there is no reply, contact the IONX Support Center at toll-free at 1-800-621-8442 to get your email address set-up to use TARA and IONXlive.net.

6.2 Associating the Car Number to the CMU. *NOTE: If this is a replacement install see Appendix B*

- 6.2.1 Start a new email message

- **To:** type TARA@IONXLive.com
- **Subject:** type
 - 'I' or 'i'
 - period '.'
 - The **serial number** of the CMU
 - Period '.'
 - The **Car initials**
 - Period '.'
 - The **Car number** which the CMU is installed on
 - Period '.'
 - **Company Name**

Example: I.SerialNumber.CarInitial.CarNumber.CompanyName

Example: I.FA0000123A.ABCX.1234.ABCRailroad

- 6.2.2 Send the message

- 6.2.3 A response message confirming the installation will be sent from TARA. See example email in below:

```
Success!  
Unit FA0000123A now installed on ABCX 1234  
associated to ABC. If this is not correct -  
Contact IONX - 800-621-8442.  
  
**This is an automated report email, please do not  
reply directly to this message as it will be  
discarded.
```

Sample Installation Response

- 6.2.4 The CMU is associated with the car number. The installation is complete. The car now can be released into service.

7 Miscellaneous

Translations available upon request

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Appendix A: Validating the Installation

Validating the installation is an optional step that will allow new installers to confirm the installation was completed correctly. Validation is done with the IONX Totally Autonomous Reporting Agent (TARA) or with IONXlive.net .

A.1. Before starting:

Contact the IONX Support Center at toll-free at 1-800-621-8442 to make sure your email address is registered to use TARA and IONXlive.net.

A.2 Install Validation using IONXlive.net

- 2.1 Navigate to www.IONXlive.net and login if a username & password has been supplied.
- 2.2 Using the tracking navigator tree view on the left(See Figure 9):
 - 2.2.1 Find the unit being validated and click on the name.
 - 2.2.2 If you have not associated the CMU with the car name the unit will appear as the serial number on the website.
 - 2.2.3 If you have associated the car with the CMU the unit will appear as the car name on the website.
 - 2.2.4 If you cannot find the unit serial number or the car name in the tracking navigator please contact the IONX Customer Support Center by phone at 1-800-621-8442 or email supportcenter@ionxlive.com.



Figure 9: Selection of a car with the tracking navigator

2.3 Select serial number of the CMU or the car name. The message pane in the lower right will update with the latest messages (Figure 10)

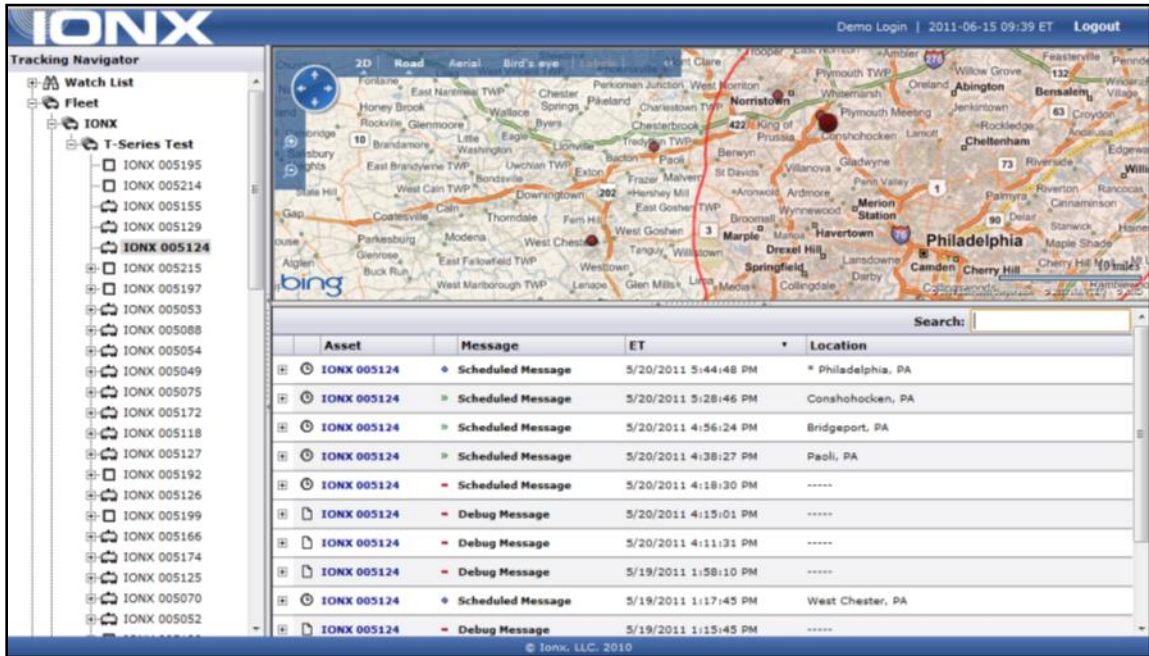


Figure 10: IONXlive.net displaying the latest asset information

2.4 If the installation was completed successfully, there should be a power up message at the time the installation magnet was removed. If the message does not show up on the website please contact the IONX Customer Support Center by phone at 1-800-621-8442 or email supportcenter@ionxlive.com.

2.5 If WSNs are part of the installation, there will be a Node Live message for each WSN and for the CMU. For example, if the system has three WSNs that go with it, then on the website there will be four Node Live messages. If the correct Node Live messages are on the website, the installation was successful. If all the message do not show up on the website please contact the IONX Customer Support Center by phone at 1-800-621-8442 or email supportcenter@ionxlive.com.

A.3 Install validation using TARA

Note: TARA is case insensitive. Upper case or lower case letters may be used in the subject line or address.

3.1 Find the **device serial** number of the CMU being installed. See Figure 11.



Figure 11: IONX CMU Serial Number Label

3.2 Start a new email message

- **To:** type **TARA@IONXLive.com**
- **Subject:** type 'MI' or 'mi' followed by a period '.' And the CMU serial number (See Figure 12)

Example: MI.SerialNumber

Example: MI.DE0000123A

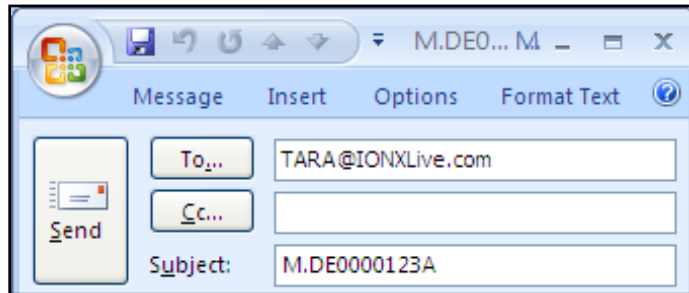


Figure 12: Sample Email Request to TARA

3.3 Send the email message

3.4 A response email will be sent from TARA confirming:

- 3.4.1 The subscription to TARA for the CMU
- 3.4.2 Example Below-Figure 13

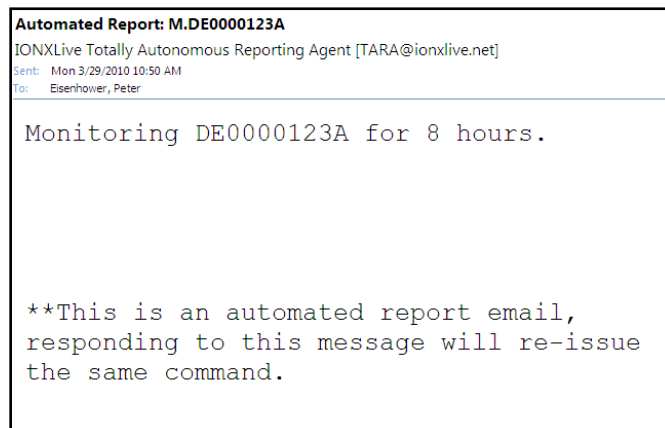


Figure 13: Sample Email Response from TARA

3.5 A second email will be sent from TARA, which is the most recent location report sent from the CMU.

3.5.1 The message may show a location message from a different location to where you are currently doing the installation. Disregard this message

3.5.2 See Figure 14

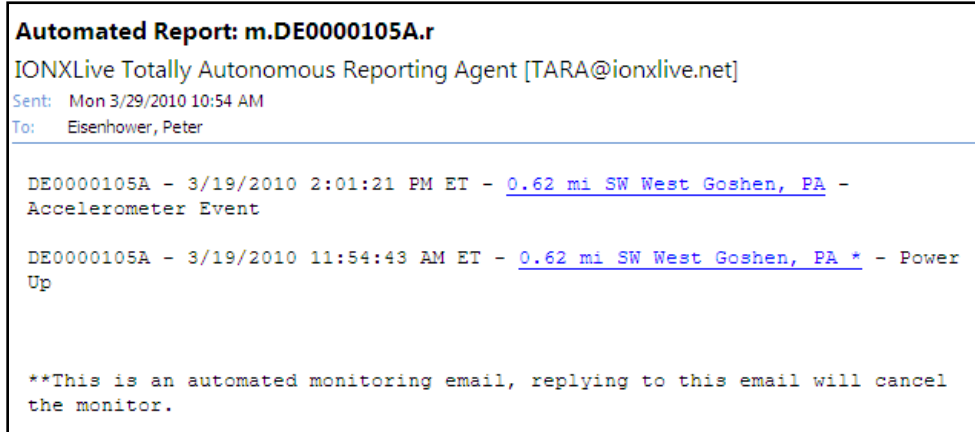


Figure 14: Sample TARA Message

3.6 TARA now is configured to monitor the CMU. Repeat the process for all the CMUs being installed today.

3.7 The installation was successful if you find TARA emails for triggering each sensor in position on the car.

Appendix B: Replace command

The IONX Totally Autonomous Reporting Agent (TARA) is used to associate the car number with the CMU. If an IONX GPS device has already been installed on the car and associated, the replace command will be used. This is completed by email using an email-enabled smart phone or any computer with email access.

B.1 Before starting

- B.1.1** Confirm your email address is set-up in the IONX TARA system by emailing tara@ionxlive.com with "help" in the subject line.
- B.1.2** If there is no reply, contact the IONX Support Center at toll-free at 1-800-621-8442 to get your email address set-up to use TARA and IONXlive.net.

B.2 Associating the Car Number to the CMU.

B.2.1 Start a new email message

- **To:** type TARA@IONXLive.net
- **Subject:** type
 - 'R' or 'r'
 - period '.'
 - The **serial number** of the old replaced CMU
 - Period '.'
 - The **serial number** of the new CMU being installed
 - Period '.'
 - The **Car initials**
 - Period '.'
 - The **Car number** which the CMU is installed on

Example: R.OldSerialNumber.NewSerialNumber.CarInitial.CarNumber

Example: R.1234A.FA0000123A.ABCX.1234

B.2.2 Send the message

B.2.3 A response message confirming the installation will be sent from TARA. See example email in below:

```
Success!

Unit 1234A has been replaced by FA0000123A for
ABCX.1234. If this has been done in error -
Contact Tanisha Rankin at IONX - 484-653-2600.

**This is an automated report email, responding to
this message will re-issue the same command.
```

Sample Installation Response

- B.2.4 The CMU is associated with the car number. The installation is complete. The car now can be released into service.

Appendix C: General Information

C.1 IONX Customer Support Center

Contact the IONX Customer Support Center by phone at 1-800-621-8442 or email supportcenter@ionxlive.com.

C.2 Status LED

Green Flashing: The CMU will flash green when the installation magnet is removed. Proceed to mount the CMU.

Red Flashing: Contact IONX customer service.

Green and Red Flashing: Contact the IONX Customer Support Center so the CMU can be commanded to calculate the “home” position again.

C.3 Forcing the CMU to call

If there is a problem verifying messages on the website or through TARA, the CMU can be forced to call for 24 hours after removing the installation magnet. Place the installation magnet onto the indentation, where it was located at the time of shipping, for 30-seconds then remove. The CMU should send a report within 15-minutes. If TARA is active for the CMU and no reports are received by email or on the website, contact the IONX Customer Support Center by phone at 1-800-621-8442 or email supportcenter@ionxlive.com.

C.4 Overview of CMU physical features

IONX Contact Information

Reed Switch

Intrinsic Safety Certification

Serial Number



Status LED

Appendix D: Trouble Shooting

D.1 Missed Wake-up Message

If the power up message does not show up through TARA within 30-minutes of the magnet being removed, another message can be forced to be transmitted within 24 hours of the installation magnet being removed. See Appendix B –General Information on “Forcing the CMU to Call.”

D.2 Unit does not appear on IONXlive.net

- 3.1 If the asset does not appear on IONXlive.net it could be a limitation of the user’s login id. Contact the IONX Customer Support Center by phone at 1-800-621-8442 or email supportcenter@ionxlive.com so a Customer Service Representative can check the permission level and adjust accordingly.
- 3.2 Initially the asset will be shown on IONXlive.net as the CMU serial number. When the CMU is associated to an asset, the CMU serial number will be replaced by the car name.

D.3 Power up message missing on IONXlive.net

If the CMU misses a power up message but has a recent message showing the current location, then the CMU is OK to install.



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