Installation Guide

RTK Bridge®-X

Integration with:

Trimble® XCN-2050™

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Overview

The Trimble® XCN-2050™ receiver is typically configured to accept CMR format RTK corrections from an Intuicom RTK Bridge®-X, which in turn has been configured to connect to a GPS/GNSS reference network.   The intended audience for this document are dealers or integrators familiar with the XCN-2050 and access to its set-up menus, as well as general familiarity with the Intuicom RTK Bridge®–X. The Intuicom RTK Bridge®–X User Guide covers the steps necessary for its configuration.

1   Requirements for Installation

1.1   Required Information

In order to operate an Intuicom RTK Bridge®–X, you are required to have the necessary information to access and log in to the Real-Time Network. This information is entered into the RTK Bridge®–X and stored in a profile. More details on setting up an RTK Bridge®–X is available in the RTK Bridge®-X User Guide. Required information for the Profile configuration include:

- IP Address
- TCP Port
- NTRIP Mountpoint Name
- Username and Password for access to the real-time GPS/GNSS Network

1.2   Required Equipment

1.2.1 Intuicom Equipment and Accessories

1. Intuicom RTK Bridge®–X with activated data provider account (Verizon, AT&T, etc.)
2. Intuicom RTK Bridge®–X to XCN-2050 data/power cable: [P/N: XRTKCAB-DD6]
3. Intuicom RTK Bridge®–X Bluetooth Receiver: [P/N: XRTK-BT-T]
4. Intuicom RTK Bridge®–X Cellular/GPS antenna/cable:
   [P/N: FIP4-MMDM-MM (magnetic mount)]

1.2.2 Other Equipment and Accessories

5. Trimble XCN-2050 Receiver with RTK (CMR) option enabled and Port D available
6. Trimble XCN-2050 Data Cable and source of power for Trimble XCN-2050 (or any cabling system typically used to run the Trimble XCN-2050 for configuration)
7. Trimble EXP-100 Port Expander

2 Installation Instructions

Below (Diagram 1) are the components for the recommended installation of the Intuicom RTK Bridge®–X utilizing the equipment noted above.

Diagram 1
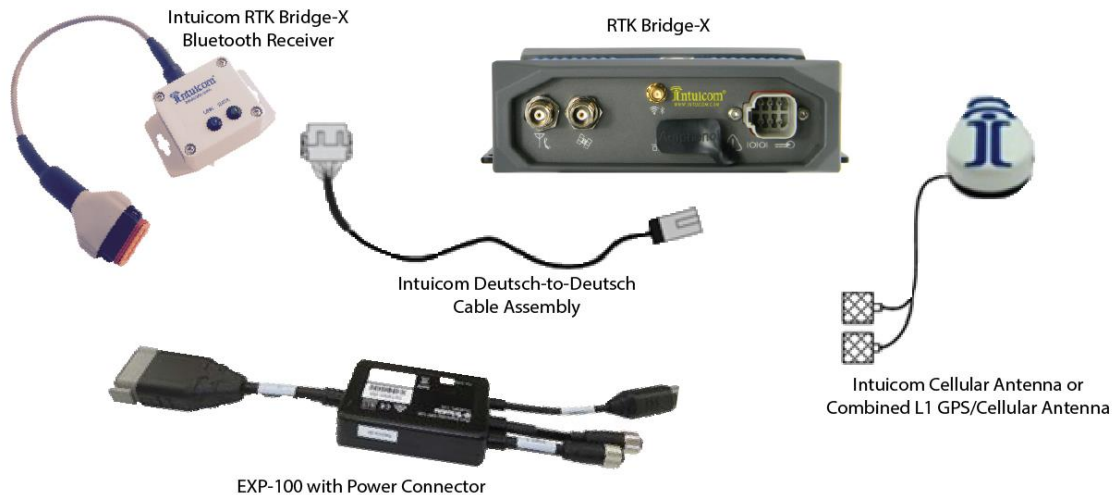
2.1 Configuration

- Configure the Intuicom RTK Bridge®–X to connect to GPS/GNSS Reference network and obtain CMR/CMR+ correction data stream from an appropriate single reference station, or as a VRS.

- Configure the resulting RTK correction data to be output at a known baud rate (a baud rate of 38400 is recommended).

- Confirm GPS and cellular antenna (typically a combined antenna with two coaxial cables with TNC connectors) are connected and placed where they have good sky view and good cellular signal.

- Configure the pinout on the Deutsch connector on the RTK Bridge®–X to FMX data/power cable to match the appropriate pin-out. See Pin-out Diagram 1 on the following page.

Pin-out Diagram 1

Deutsch	Cable Color	Signal	FMX D-Port
3	Red	Power	9
6	Green	Receive (from RTK Bridge®-X to remote device)	3
1	White	Xmit (to RTK Bridge®-X from remote device)	4
4	Black	Power Ground	8
4	Brown	Signal Ground	5

Deutsch connector (DTM06-12S) pinout
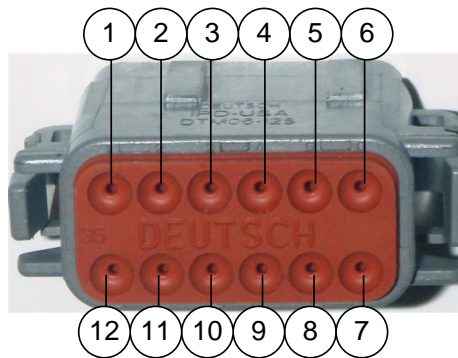
- Using the Intuicom RTK Bridge®–X to XCN-2050 data/power cable (XRTKCAB-DD6), connect the RTK Bridge®–X data port/Bluetooth Receiver to the EXP-100 port expander that is connected to the TM200 receiver.

- Apply power and turn on the XCN-2050.

- Open the FM-1000+ [FmX Plus] app to configure the RTK options.

- Select the Settings tab,

- Then select System [System] from the left column, then click-on Setup on the upper-right.

Configuration

System [System]	Setup
Autopilot [Intuicom]	Calibrate
GPS Receiver	Diagnostics
Implement [New implement]	Save Config
	Switch Config

| Add/Remove | 🔒 Lock Config | OK |
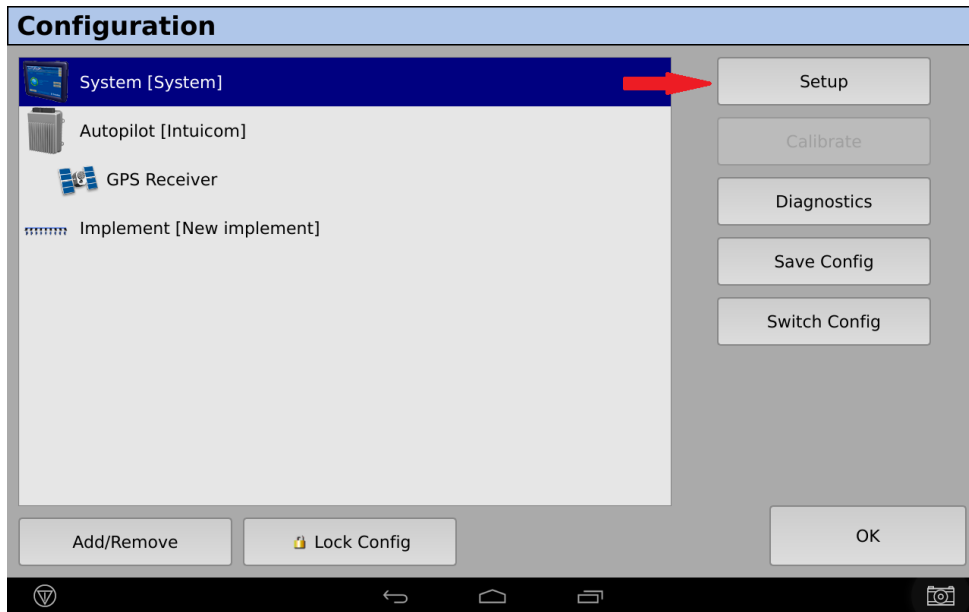
- Enter the Administration Password (assigned by Trimble) to setup the RTK Configuration (if prompted).

Enter Administration Password

| CLEAR | 2009 | << |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

| q | w | e | r | t | y | u | i | o | p |

| a | s | d | f | g | h | j | k | l |

| z | x | c | v | b | n | m |

| CAPS | SPACE |

| Cancel | OK |

- Select Port Setup from the left column, and then click on Setup on the upper right.

Display Setup

Data Dictionary   Setup

Data Files

Default Settings

EZ-Remote

Feature Mapping

Guidance

Language & Units

Lightbar

Map Settings

Port Setup

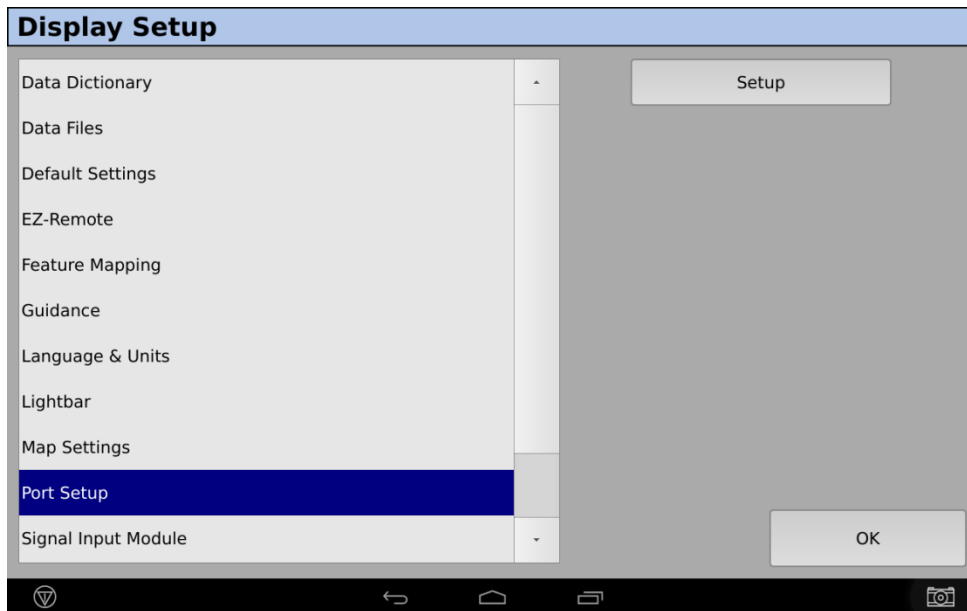Signal Input Module   OK
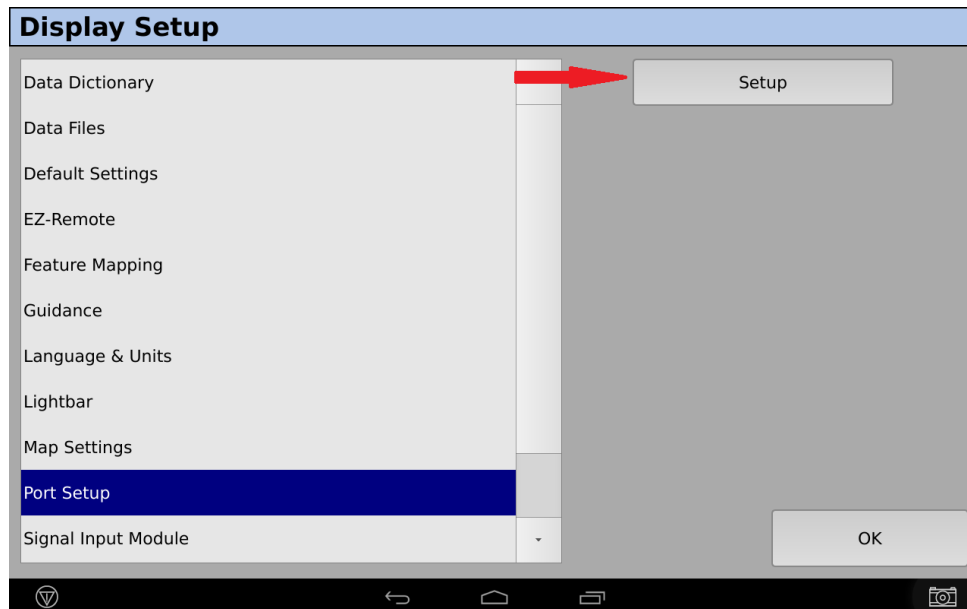
- Go to the second field on the right side of the screen below titled, "Receiver EXP-100". In the drop-down menu to its Right, you will discover that the Receiver's Serial number has been pre-populated in the drop-down menu. Select the Serial number present and click on OK.

Port Setup

Receiver Status

GNSS-1   TM-200 (5619550132)
TM-200 Primary internal receiver

GNSS-2   AG-815 not present
AG-815 Secondary internal receiver

Device Port Assignments

TM-200 Ethernet Port   TM-200 Port A and Port B
TM-200 Ethernet Port (Black Ampseal 8-pin); used for DCM-300 communication or EXP-100 port expanders.   TM-200 Port A and B are connected to GNSS-1; used for EZ-Steer, EZ-Pilot, or Autopilot on the TM-200; equivalent to "Port C" or "Port D" on a physical FMX.

EXP-100 #1   Receiver EXP-100
EXP-100 SN assignment; typically used for SerialVR or   None   EXP-100 SN assignment; typically used for External Radios;   5609H00298
External Receivers; equivalent to "Port A" or "Port B" on a   equivalent to "Port D" on a physical Fmx.
physical FmX.

EXP-100 #2   Primary USB Port
EXP-100 SN assignment; typically used for SerialVR or   None   Designates primary data transfer port when two USB sticks   Side
External Receivers; equivalent to "Port A" or "Port B" on a   are present.
physical FmX.

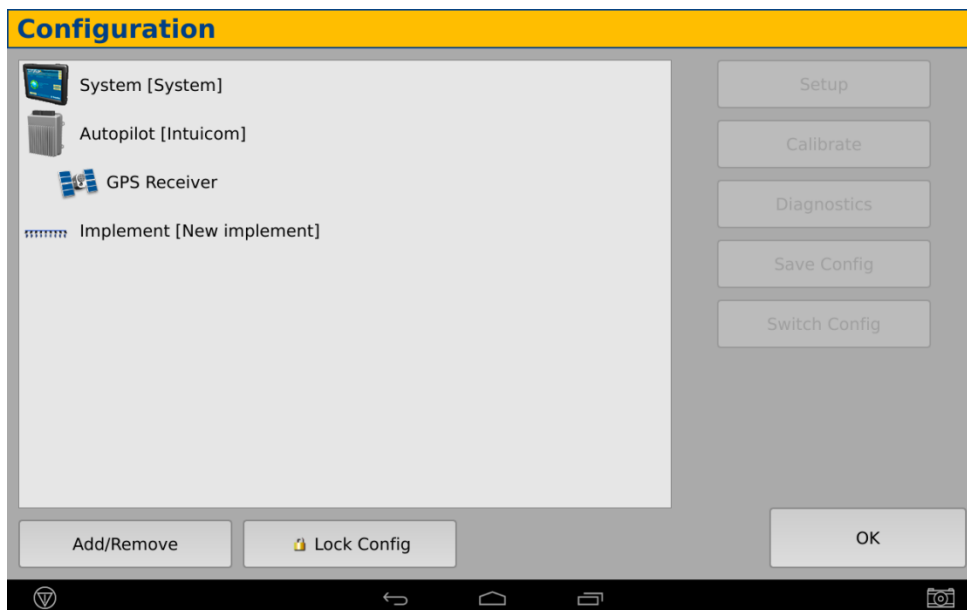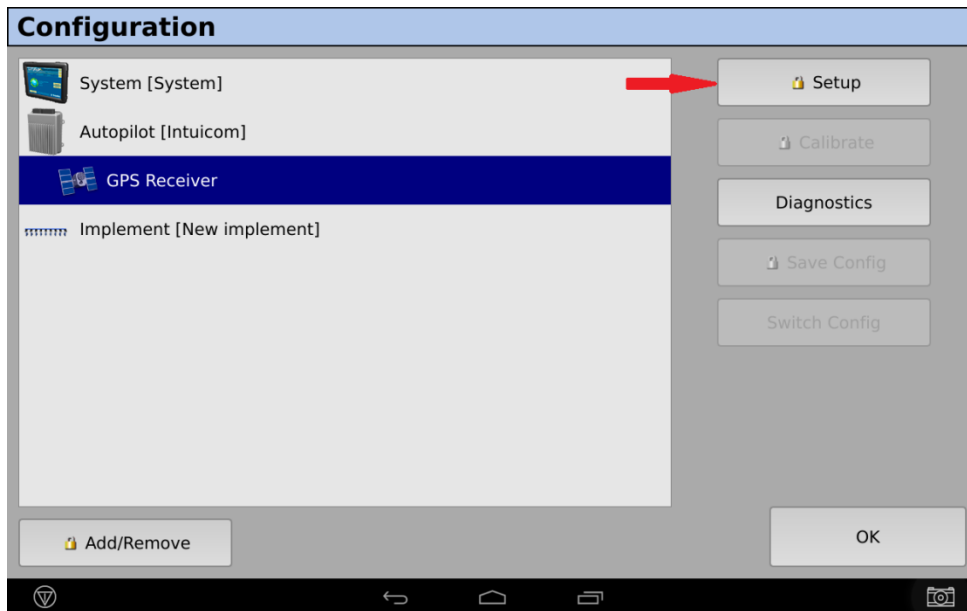Cancel   OK

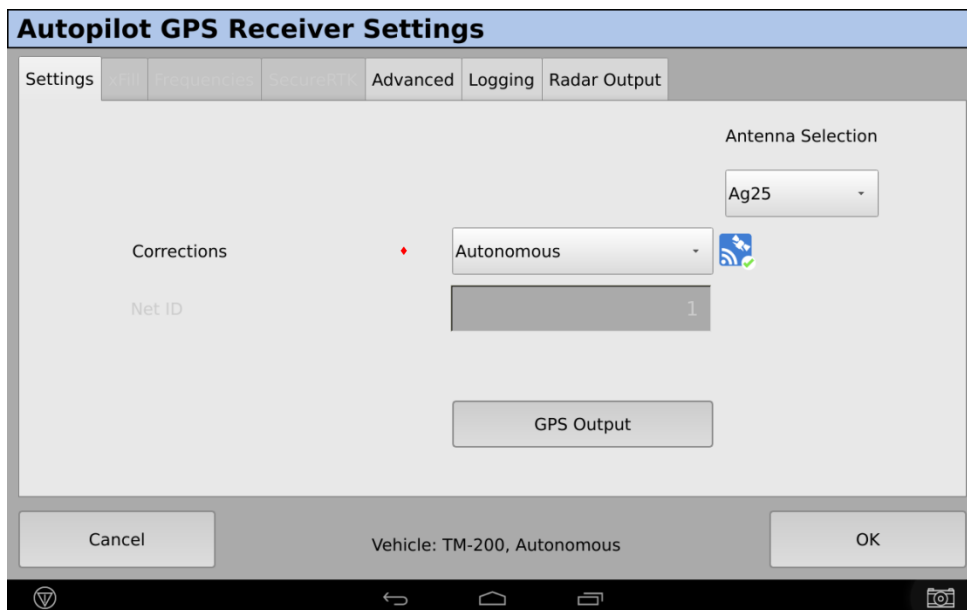- Click on OK to exit back to the Configuration page, below.

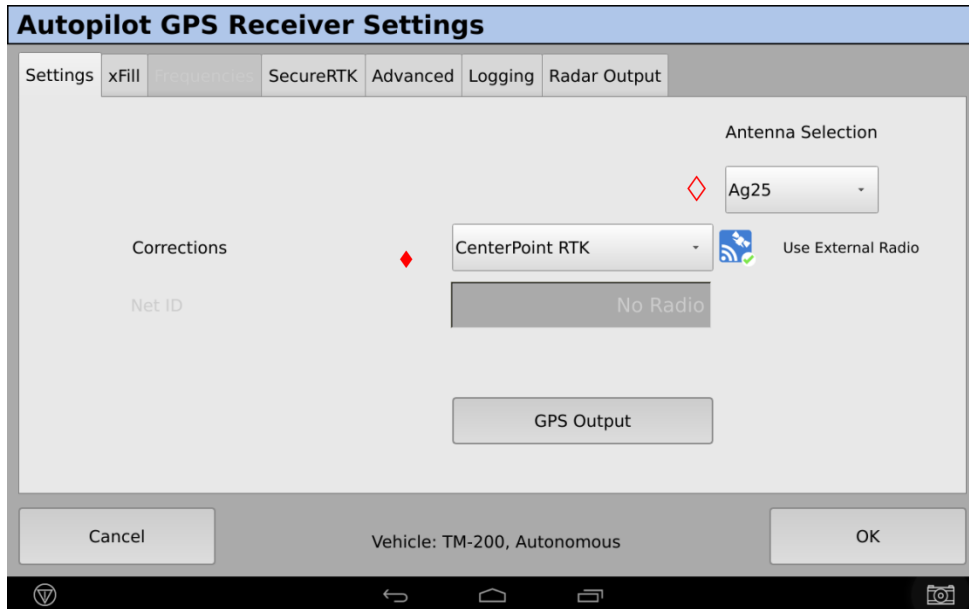- Click on OK again to return to the Configuration page below

- Select GPS Receiver from the left column, and then click on Setup in the upper-right.

- The default setting for the corrections will be Autonomous ⬧.

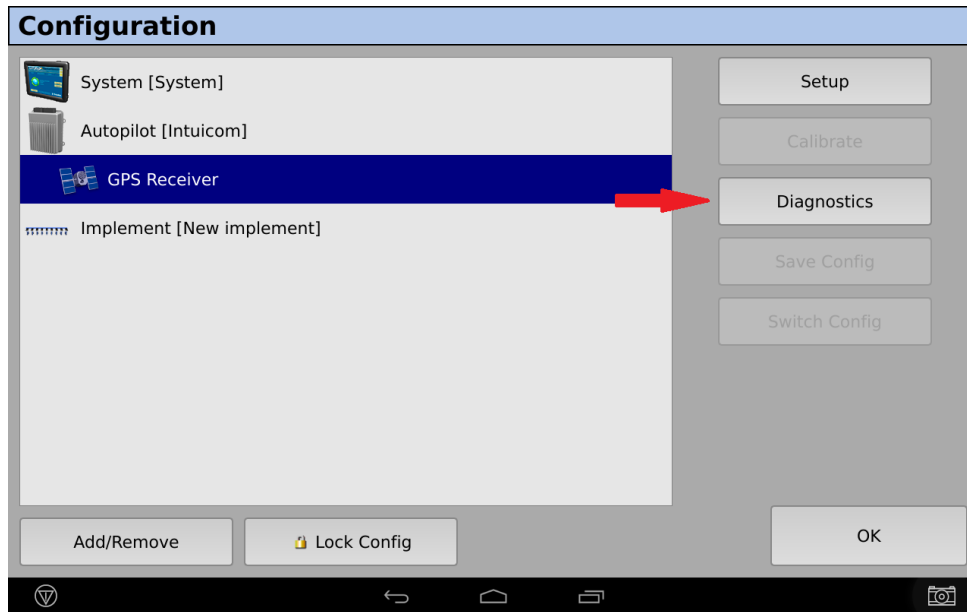- Using the pull-down menu, change this setting to CenterPoint RTK ♦.

- Ensure the Antenna Selection ◊ is set to the appropriate type from the pull-down menu; for this Installation Guide, Ag25 was used. Now click OK on the lower-right to confirm your settings.
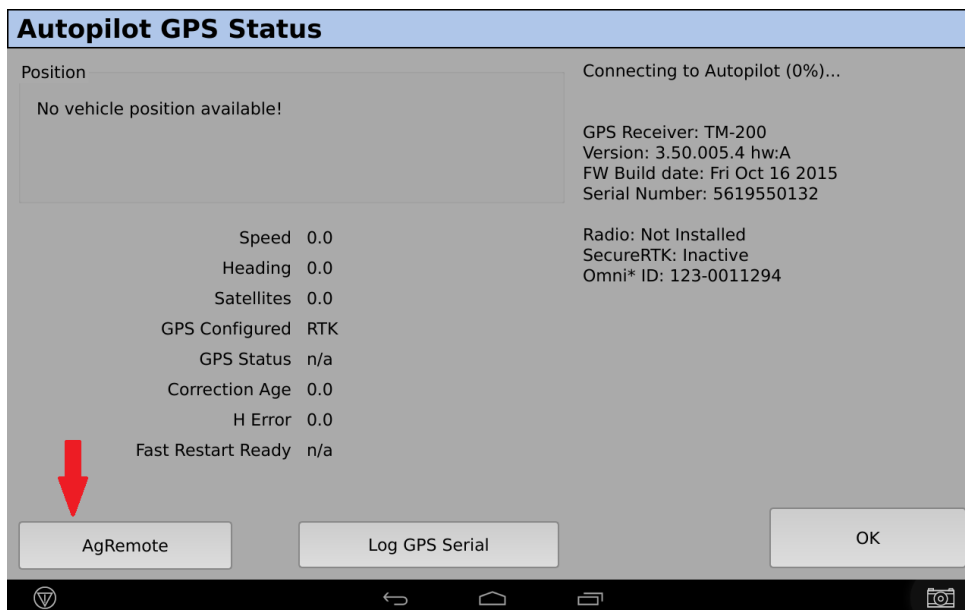
NOTE: Using the RTK Bridge®-X, you do not require the use of an external radio so simply click on OK if the following screen appears.
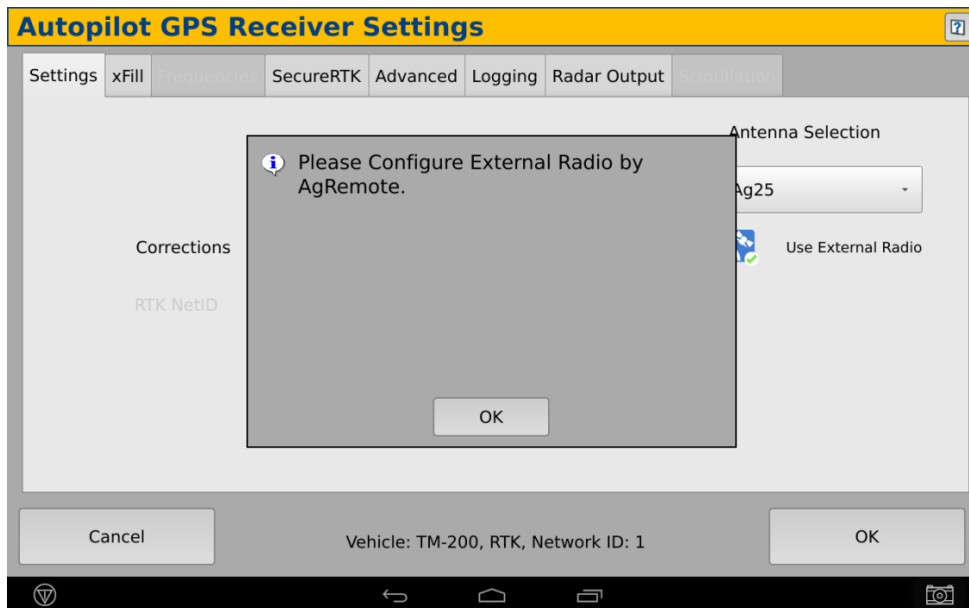
- Click on GPS Receiver from the left column, then click on the Diagnostics to the right to configure the EXP-100 for Port D.

Configuration

System [System]	Setup
Autopilot [Intuicom]	Calibrate
GPS Receiver	Diagnostics
Implement [New implement]	Save Config
	Switch Config

Add/Remove   🔒 Lock Config   OK

- On the Autopilot GPS Status page, click on AgRemote, in the lower-left corner.

Autopilot GPS Status

Position

No vehicle position available!

Connecting to Autopilot (0%)...

GPS Receiver: TM-200
Version: 3.50.005.4 hw:A
FW Build date: Fri Oct 16 2015
Serial Number: 5619550132

Radio: Not Installed
SecureRTK: Inactive
Omni* ID: 123-0011294

|	
Speed	0.0
Heading	0.0
Satellites	0.0
GPS Configured	RTK
GPS Status	n/a
Correction Age	0.0
H Error	0.0
Fast Restart Ready	n/a

AgRemote   Log GPS Serial   OK

NOTE: In AgRemote, you will toggle through the screens using the up/down arrows and the right/left arrows to transition through the settings and screens to configure Port D.
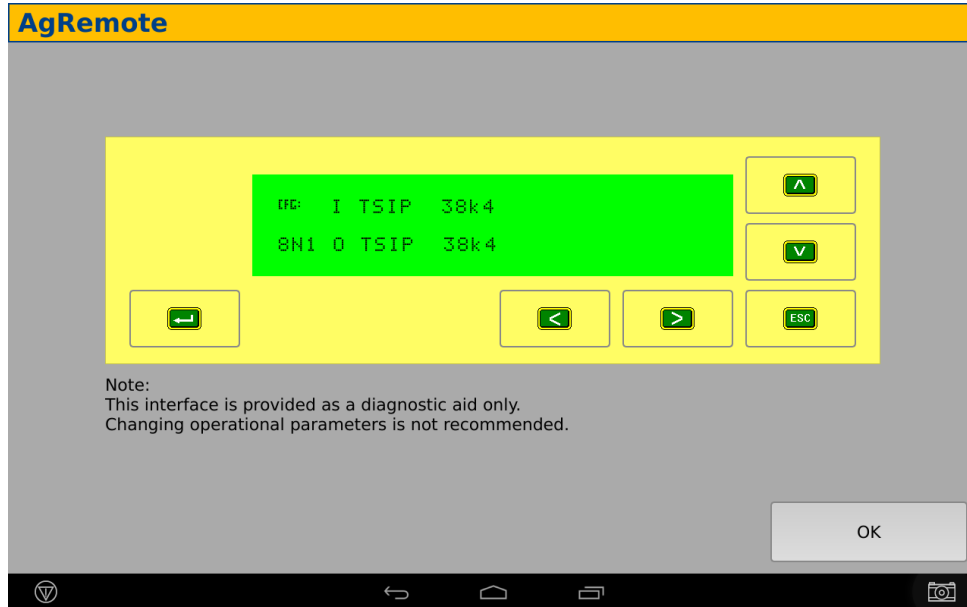
- In AgRemote, click on the right arrow (>) to get to the Configure screen. Now click on the down arrow (v) to Enter your selection.
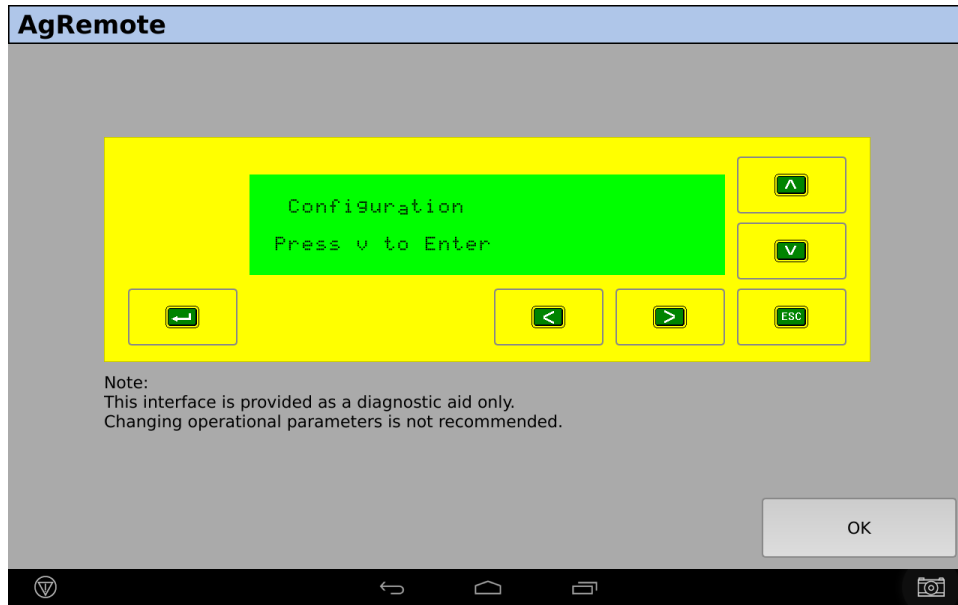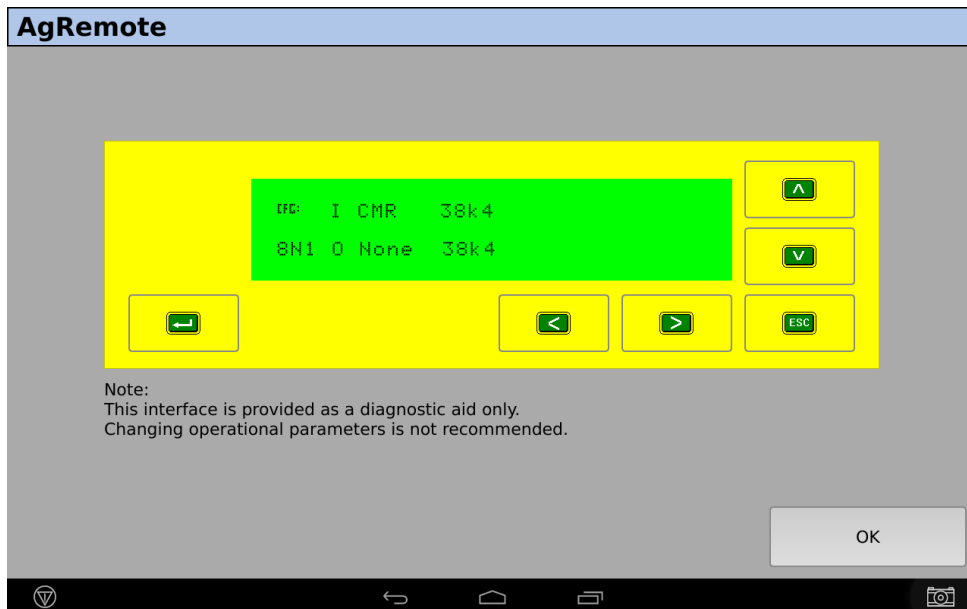

- Click on the right arrow (>) to get to Port D Config and confirm your selection by clicking on the down arrow (v).
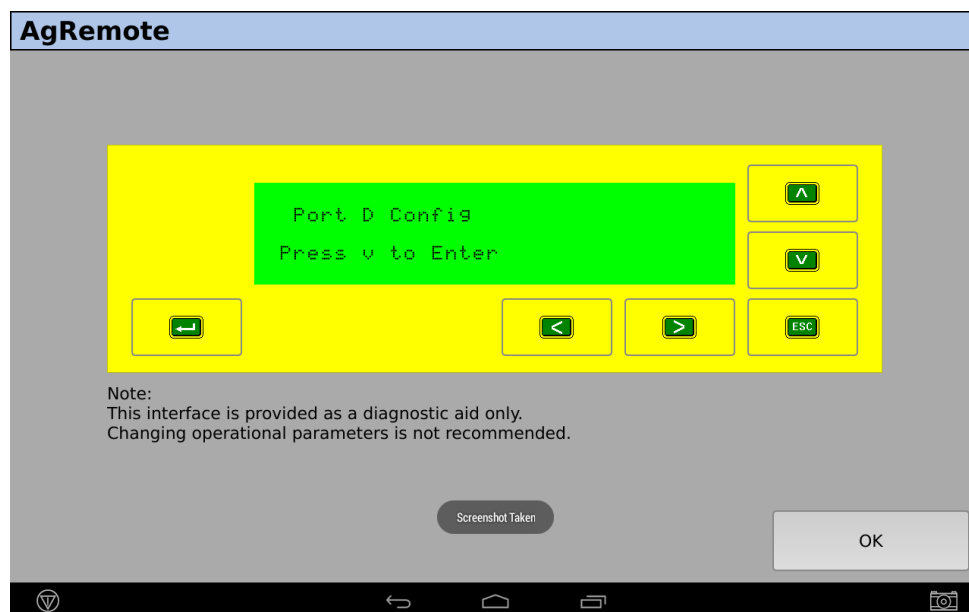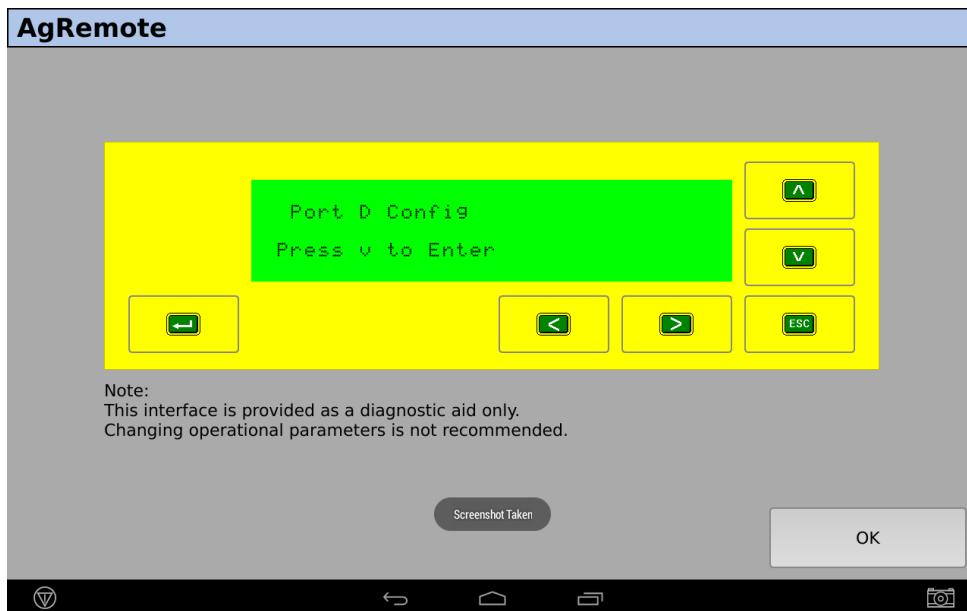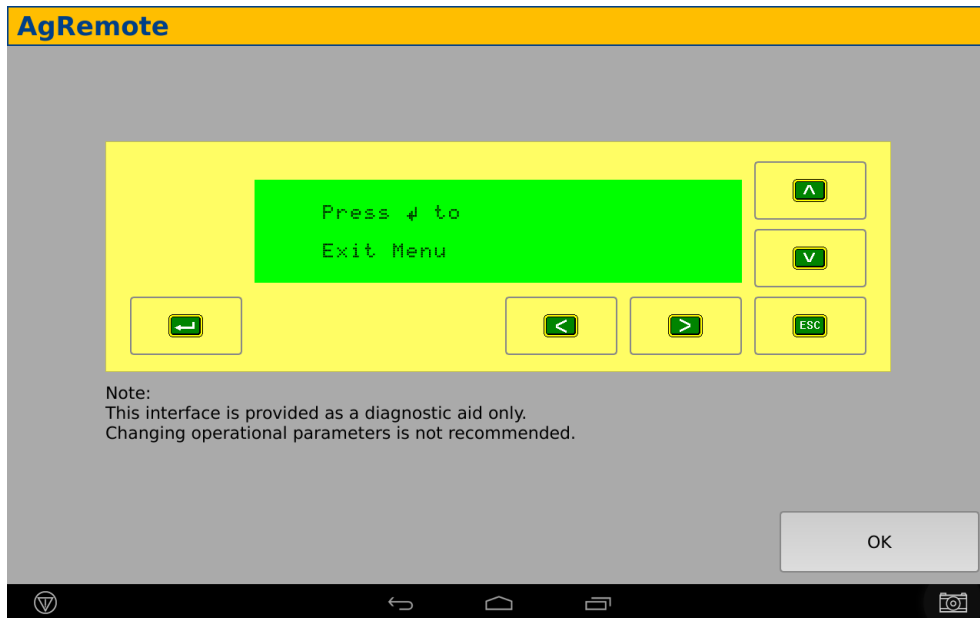
- AgRemote's default correction source is TSIP and a baud rate of 38400. To change this to CMR you will need to use the arrows to navigate the available options.
- Use the right arrow (>) to move the cursor over to the 'T' in TSIP.
- Click on the down arrow (v) to change the setting to CMR.
- Using the right arrow (>) again, scroll over to the 'T' in TSIP visible on the screen.
- Using the down arrow (v), change the setting to None.

AgRemote

```
CFG:   I TSIP   38k4
8N1  O TSIP   38k4
```

Note:
This interface is provided as a diagnostic aid only.
Changing operational parameters is not recommended.

OK

- Press the (↵) button to save your settings, the cursor will disappear.

AgRemote

```
CFG:   I CMR    38k4
8N1  O None   38k4
```

Note:
This interface is provided as a diagnostic aid only.
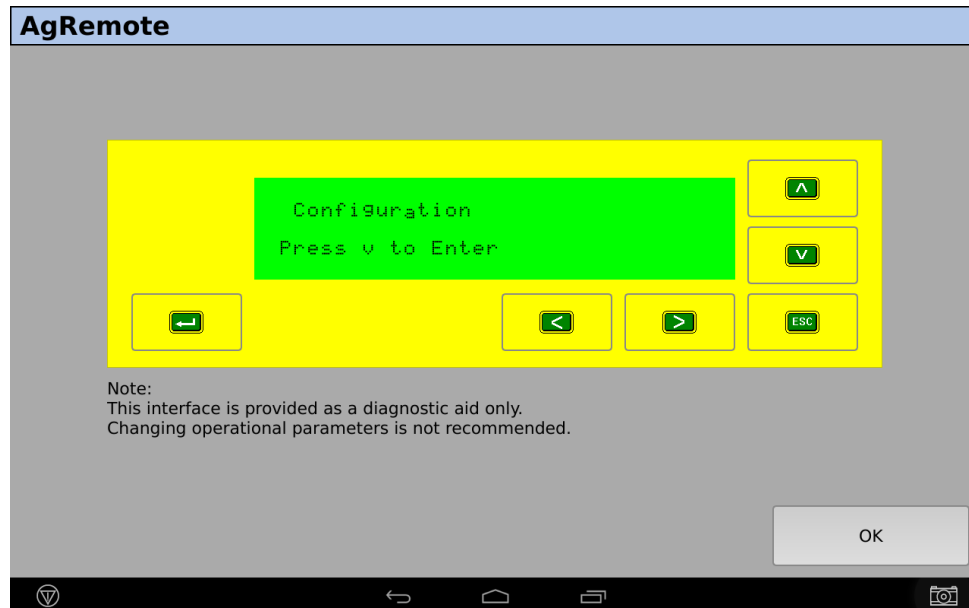Changing operational parameters is not recommended.

OK

- When the cursor stops blinking press the up arrow (**^**), to get to the screen below. Press the (↵) to return to the Port D Config screen.

AgRemote

```
        Press ↵ to

        Exit Menu
```

^
v
↵
<
>
ESC

Note:
This interface is provided as a diagnostic aid only.
Changing operational parameters is not recommended.

OK

AgRemote

```
        Port D Config

        Press v to Enter
```

^
v
↵
<
>
ESC

Note:
This interface is provided as a diagnostic aid only.
Changing operational parameters is not recommended.

Screenshot Taken

OK

- Using the left arrow (<), scroll through the screens until you get to the following screen.

AgRemote

```
                    Press ^ to
                    Exit Menu
```

Note:
This interface is provided as a diagnostic aid only.
Changing operational parameters is not recommended.

OK
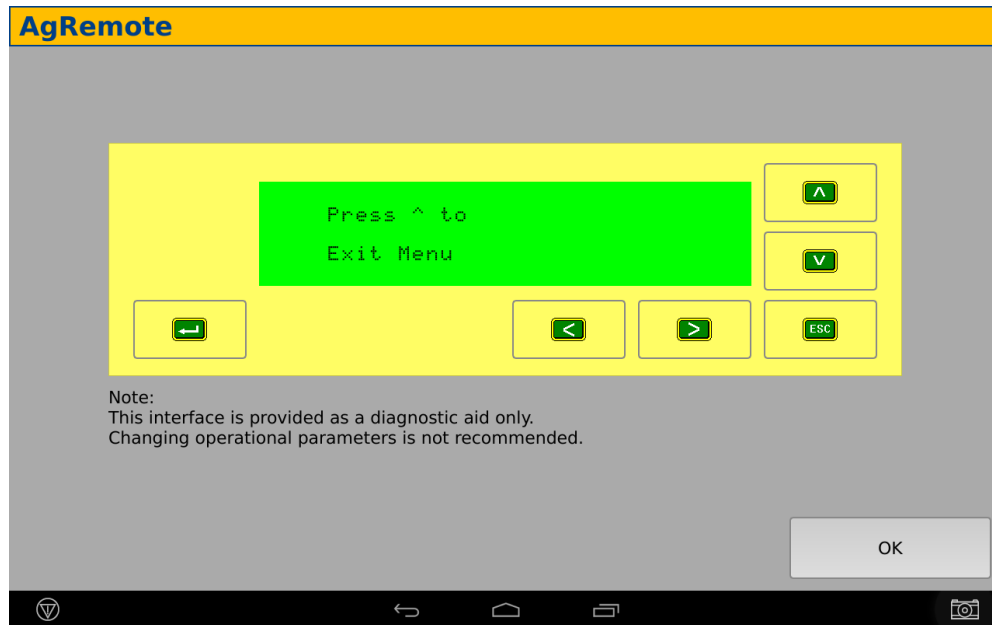
- Press the up arrow (^), to return to the Configuration screen.

AgRemote

```
                 Configuration
                 Press v to Enter
```

Note:
This interface is provided as a diagnostic aid only.
Changing operational parameters is not recommended.

OK

- Press on the left arrow (<) to scroll through to the Status screen (below):
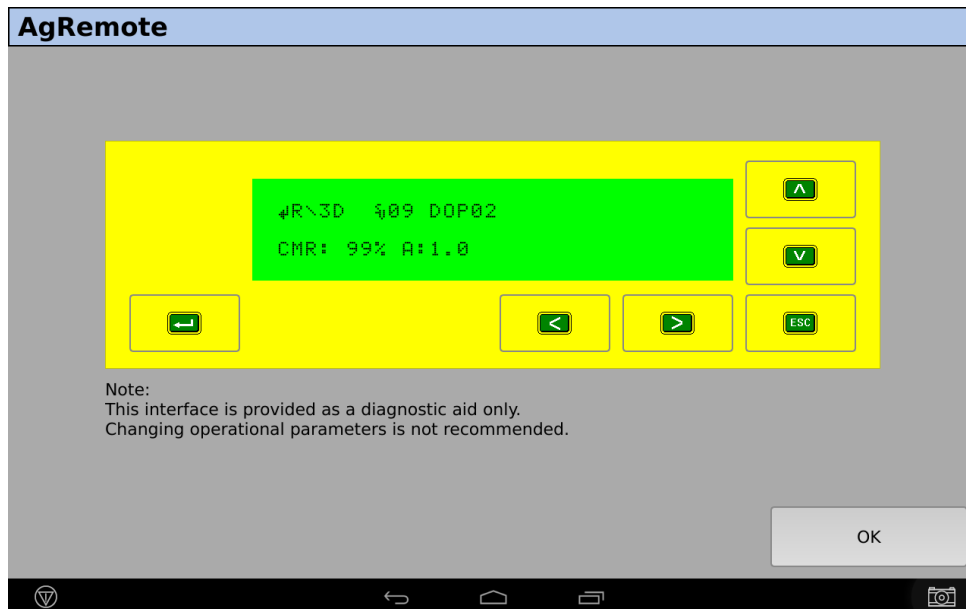
The above screen is intended to confirm that your Intuicom RTK Bridge®-X is correctly configured and its antennas are connected and within cellular coverage. The main status view (above) reports that it is receiving RTK corrections. CMR: indicates the percentage of packets being received; and A: indicates the age, in seconds, of the corrections. The lower the number, the better. We like to see the correction age at 2.0 seconds or less for desired accuracy.

The 'R' in the top line indicates whether your RTK correction is fixed or floating. A capital 'R' indicates an RTK Fix; and a lower case 'r' indicates RTK Float.

Your Trimble XCN-2050 is now configured and integrated for use with your Intuicom RTK Bridge®-X.

For Technical Support of the RTK Bridge®-X, Intuicom recommends "Intuicom Remote Support". Please contact Intuicom, or visit http://www.intuicom.com/gps-gnss-products/intuicom-remote-support for details on this real-time remote support program.

For general technical support, please contact us at support@intuicom.com or call us at 303.449.4330.