Gas Ultrasonic Meter (USM)
Aclara Communications Module
Instruction Manual

Y21058-TUM
Revision A
www.Aclara.com

A Hubbell brand

Disclaimer
The information in this document is subject to change without notice and should not be construed as a commitment by Aclara. Aclara assumes no responsibility for any errors that may appear in this document.

No responsibility is assumed for the use or reliability of software on equipment that is not supplied by Aclara.

Metrum Cellular, STAR, Synergize, and TWACS are registered trademarks of Aclara Technologies LLC.

Aclara Technologies LLC
Copyright 2024. All Rights Reserved.

Table of Contents

Chapter 1: Safety Guidelines & Compliance Declarations 1

Warning, Cautions, and Notices . . . 1
FCC Compliance Statement . . . 1
IC Compliance Statement . . . 2
Déclaration de conformité IC . . . 2
FCC/IC Exposure Statement . . . 3

Chapter 2: Aclara Communications Module and Gas Ultrasonic Meter Overview 5

Gas Ultrasonic Meter (USM) . . . 6
Aclara Communications Module . . . 7
Special Conditions of Use . . . 8
Labels . . . 9
Maintenance . . . 10
Support . . . 10
Aclara Connect . . . 10
Aclara University . . . 10
Technical Support . . . 10

Chapter 3: Pairing, Programming, and Installation 11

Tools, Materials, and Equipment Required . . . 11
Pairing a Mobile Device with the Aclara Communications Module . . . 12
Programming the Aclara Communications Module (MTU) . . . 16
Installing a New MTU and Meter . . . 16
Replacing an MTU . . . 21

Chapter 4: Field Replacement Instructions 25

Parts Included in Mounting Kit . . . 26
Tools Required . . . 26
Remove Aclara Communications Module . . . 26
Install Aclara Communications Module . . . 28
Putting the Device into Service . . . 29
Applicable Standards . . . 30
Maintenance and Repair . . . 31
Battery Disposal . . . 32

Index 33

CHAPTER

1

SAFETY GUIDELINES & COMPLIANCE DECLARATIONS

Always consult and adhere to all local and national safety codes, regulations, and standards. WARNING, CAUTION and NOTE statements are used throughout this manual to emphasize important and critical information to help you ensure safety and prevent product damage. These statements are defined below.

Warning, Cautions, and Notices

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious physical injury hazard.

CAUTION Indicates a situation, which, if not avoided, could result in damage to equipment, damage to software, loss of data or invalid results.

NOTICE Indicates important supplemental information.

FCC Compliance Statement

Aclara Model Number: 3511-066-LCW

FCC ID: LLB2022002

This device complies with part 15 of the FCC Rules. 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.

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:

- Reposition or relocate the receiving antenna. (This would have to be done by an installer.)
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician (Aclara) for help.

CAUTION Any changes or modification made to this device without the expressed, written approval of Aclara Technologies LLC may void the user's authority to operate this device.

IC Compliance Statement

Aclara Model Number: 3511-066-LCW

IC ID: 4546A-2022002

This device complies with Industry Canada license-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.

Déclaration de conformité IC

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux ppareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC/IC Exposure Statement

Aclara Technologies LLC low power RF devices and their antennas must be fixed-mounted on indoor or outdoor permanent structure(s) providing a separation distance of at least 1 meter (about 3 feet) from all persons during normal operation. This device is not designed to operate in conjunction with any other antennas or transmitters.

No other operating instructions for satisfying RF exposure compliance are needed.

Holding the antenna in one's hands while it is transmitting, or standing near a transmitting antenna for a prolonged period of time, could result in RF exposure that exceeds FCC and Health Canada recommendations.

Once the equipment is powered up and operational, it will emit RF energy. Installers, technicians, and the public at large should keep a distance of 1 meter (about 3 feet) or more from the plane of the antenna.

This equipment has been tested for exposure of humans to RF energy. It satisfies OSHA, FCC, and Health Canada requirements provided it is installed in a manner described in this manual and operated in accordance with the user guide.

CHAPTER

2

ACLARA COMMUNICATIONS MODULE AND GAS ULTRASONIC METER OVERVIEW

The SSM-iCON 250 is Pietro Fiorentini's ultrasonic gas flow meter. It's a smart meter used to measure dry gas on low pressure gas distribution networks in a residential environment and is suitable for use with natural gas, biomethane, and hydrogen blends (up to 20%). Equipped with state-of-the-art monitoring sensors, it can stop the gas flow for temperature (fire), pressure, or seismic events to enhance customer's safety by way of a shut-off valve. The shut-off ball valve allows for remote supply interruption, and it can be configured to shut off automatically for events such as:

- Pressure exceeding limits
- High temperature detection
- Earthquake event detection
- Anomalous flow-rate condition (overflow)
- Low battery levels
- Temperature and ultrasonic sensor failure
- Tampering detection (physical or air detection)

With the SSM-iCON 250's ability to interface with the Aclara Communications Module, event data is sent via STAR to an Aclara Data Collector Unit (DCU). The DCU collects and transmits all data and alarms to the headend server via a cellular, fiber, or Ethernet backhaul, and the data is presented in AclaraONE® for monitoring, billing, and analytics.

Gas Ultrasonic Meter (USM)

Figure 2.1 SSM-iCON 250 Gas Ultrasonic Meter (USM)

Aclara Communications Module

The Aclara Communications Module is installed in the PF SSM-iCON 250 Gas Ultrasonic Meter (USM) at the factory. Please refer to *Figure 2.2* below.

WARNING Potential electrostatic charging hazard. See special conditions of use below.

AVERTISSEMENT Risque potentiel de charge électrostatique. Voir conditions particulières d'utilisation ci-dessous.

Figure 2.2 Aclara Communications Module

The Gas Ultrasonic Meter/Aclara Communications Module are configured via the Aclara Mobile Programmer.

WARNING This apparatus is approved for installations in high explosion hazard areas, where an explosive atmosphere consisting of a mixture of air and flammable substances in the form of gas, vapor, or mist is present permanently or often for long periods. In these areas, sparks produced by electrostatic discharge can produce explosions. Electrostatic discharge protection should be implemented when installing or using this apparatus. Additional information can be found in IETCTS 60079-32-1: among possible actions, one example is the use of dissipative footwear and a damp cloth (% > 65%) during installation/maintenance operations.

WARNING The Aclara Communication Module enclosure is constructed of polycarbonate plastic. Install the device in a way which prevents the enclosure from being subjected to impacts or fiction, which could cause sparks in the presence of a potentially explosive atmosphere. Install the device away from sources of cooling (cooling system) or heating (heating system) that could alter the environmental conditions in which the device can operate, -40˚C – +70˚C (-40˚F – +158˚F).

NOTICE No additional assembly of the Aclara Communications Module is required on site.

NOTICE Installation, removal, and any work should be carried out by trained personnel in accordance with current safety requirements.

NOTICE Users are advised to maintain a distance of 35 cm or more from the Aclara Communications Module to minimize exposure levels.

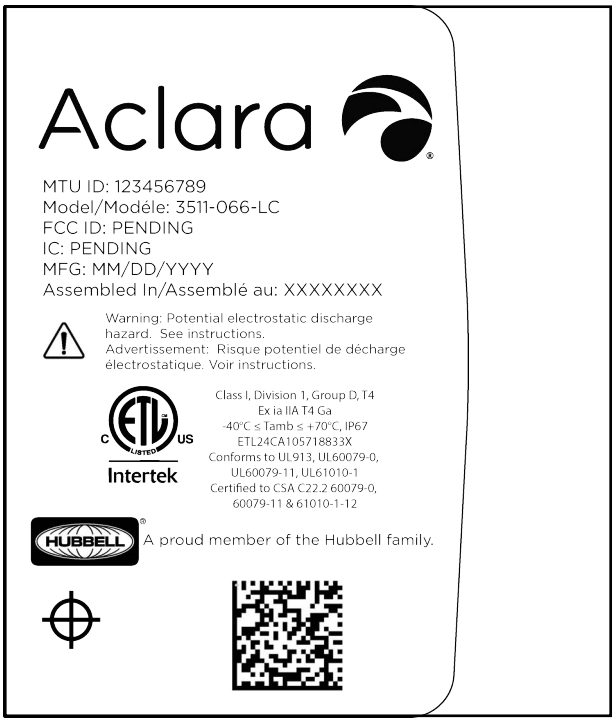
Special Conditions of Use

Potential electrostatic charging hazard. The equipment utilizes external non-metallic materials which pose a potential electrostatic charging hazard. Caution must be used when handling or cleaning products so there is no static build-up. Do not wipe off this product with a dry cloth. Clean the device using a damp cloth and allow to air dry. Do not use in high electric charge areas.

Labels

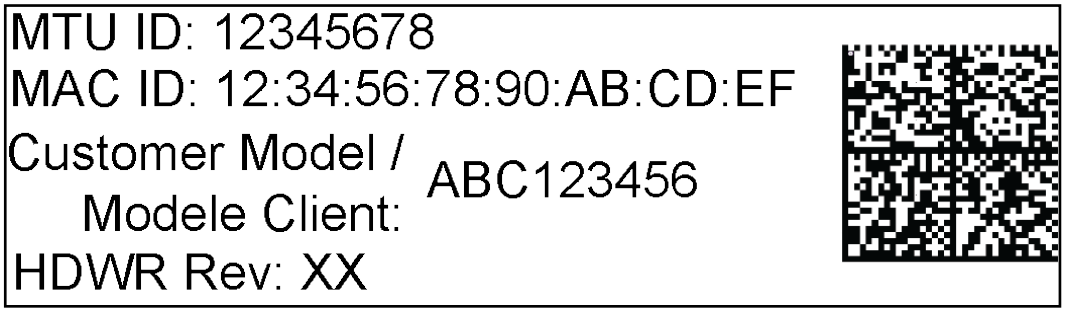
The following images depict information that can be located on the outside of the Aclara Communications Module.

Figure 2.3 Aclara Communications Module Front Label



Beneath this information, on the underside of the Aclara Communications Module, you will find the following information:

Figure 2.4 Bottom Right of Aclara Communications Module



Maintenance

Aclara Technologies LLC low power RF devices have passed through extensive testing and calibration procedures while in the factory. Therefore, no additional user maintenance is required.

Support

There are several ways to get help when you have a question, an issue, or would like to speak with Aclara Support.

Aclara Connect

Aclara's customer portal enables you to access our frequently-updated knowledge database, easily access product documentation, submit and track your Support cases and RMAs, access Aclara University's Online Learning Center, track your orders, join communities and discussions with other Aclara customers and Aclara personnel, and much more. If you do not have access to Aclara Connect, email aclarasupport@hubbell.com and request access.

Aclara University

Aclara's on-demand training makes content available to you in a convenient, cost-effective, online environment. The Online Learning Center (OLC) has recordings of several webinars, streaming educational videos, software simulations, and short interactive courses, which walk you through a specific task. Access the OLC by clicking the Aclara University link on the home page of Aclara Connect.

Technical Support

Email aclarasupport@hubbell.com or call 1-800-892-9008 to speak with an Aclara representative.

CHAPTER

3

PAIRING, PROGRAMMING, AND INSTALLATION

The Aclara Communications Module is physically installed on the PF SSM-iCON 250 Gas Ultrasonic Meter (USM) at the factory. This section provides instructions for pairing a mobile device with the Aclara Communications Module and programming the Aclara Communications Module with the Mobile Programmer application. For more information on the Mobile Programmer application refer to the *Mobile Programmer User Guide, Y21009-TUM*.

Tools, Materials, and Equipment Required

- Ultrasonic Meter (USM) with integrated Aclara Communications Module
- Magnet of at least 20 mT in strength (used to wake up the Aclara Communications Module)
- Bluetooth® wireless technology enabled programming device (iOS or Android® phone or tablet or Windows® 10 tablet or laptop) with Aclara Mobile Programmer application

Pairing a Mobile Device with the Aclara Communications Module

TIPS Be sure to start each day by:

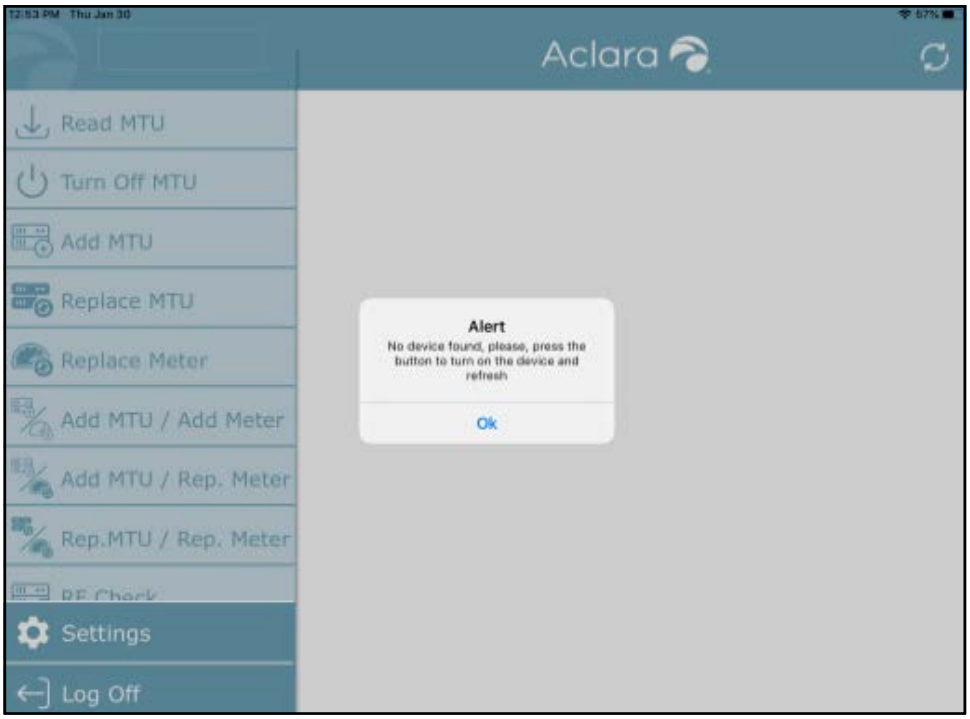
- Verifying the time and date on your mobile programming device are correct
- Verifying the mobile programming device batteries are fully charged
- Verifying you can log into the Mobile Programmer application

Use the following procedure to pair a mobile device, such as a smart phone or tablet, with the Aclara Communications Module.

1. From your mobile device, open the Mobile Programmer Application to view the log in window.
2. Enter Username and Password when prompted.

If necessary, enter configuration credentials to download xml files. (See the *Mobile Programmer User Guide, Y21009-TUM*.)

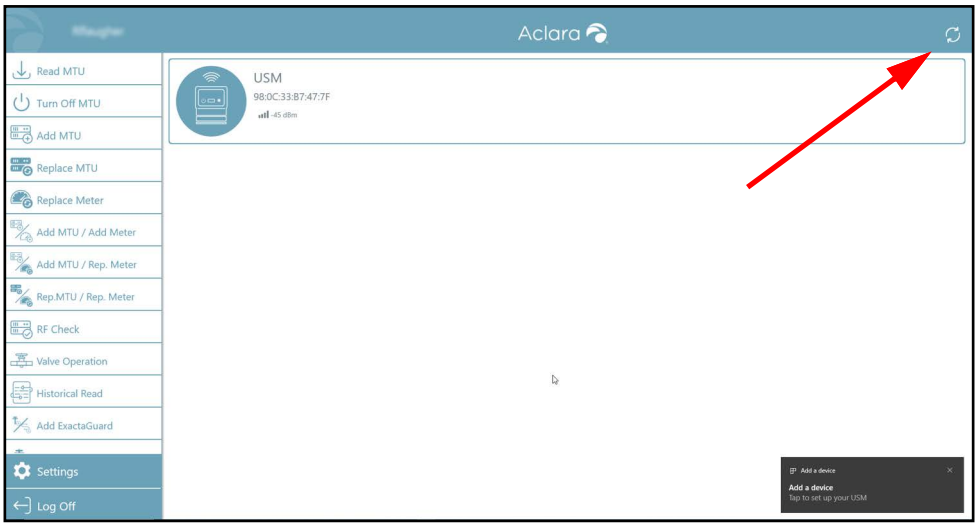
3. Tap **Login** to view the pairing window. At this point, no devices may display.



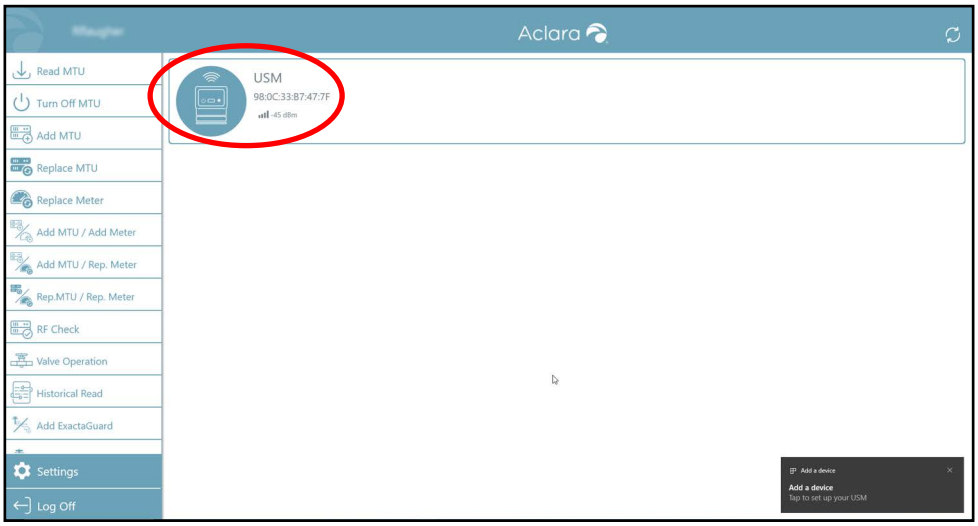
4. Use a magnet of 20 mT or greater to wake up the Aclara Communications Module by placing the magnet above the sensor as indicated in the following image.

You will have 5 minutes to pair the device. If you fail to pair the device within the 5 minute window, use the magnet again to return the device to pairing mode.

5. Tap the **Search** button, located in the upper right corner of the display, to view a list of devices detected by Bluetooth.



6. Tap the icon for the device you wish to pair.



Once pairing is successful, the icon for the device will enlarge as illustrated below.

NOTICE To unpair a mobile device and USM that were previously paired, use the Unpair icon, indicated in the following image,

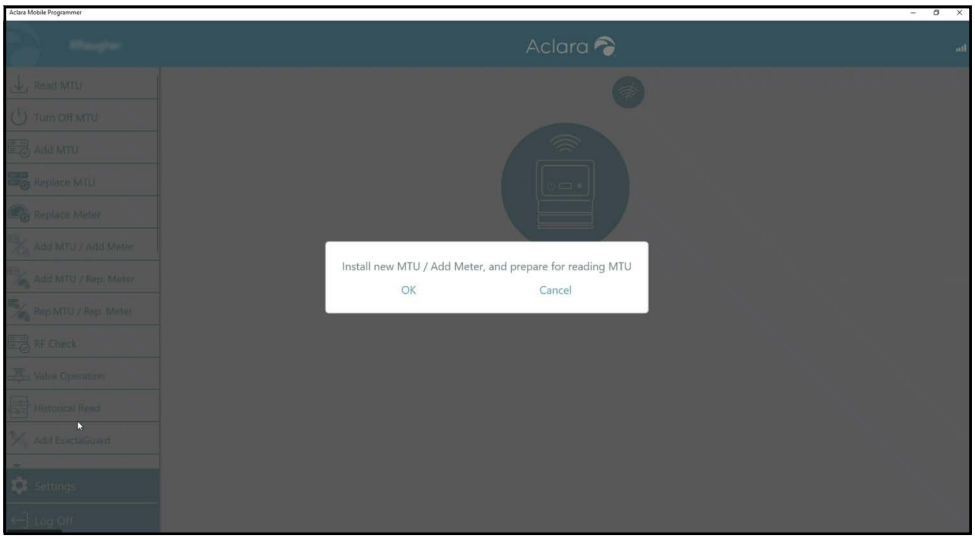
7. Proceed to *Programming the Aclara Communications Module (MTU)* on page 16, and follow the instructions for either *Installing a New MTU and Meter* on page 16 or *Replacing an MTU* on page 21.

Programming the Aclara Communications Module (MTU)

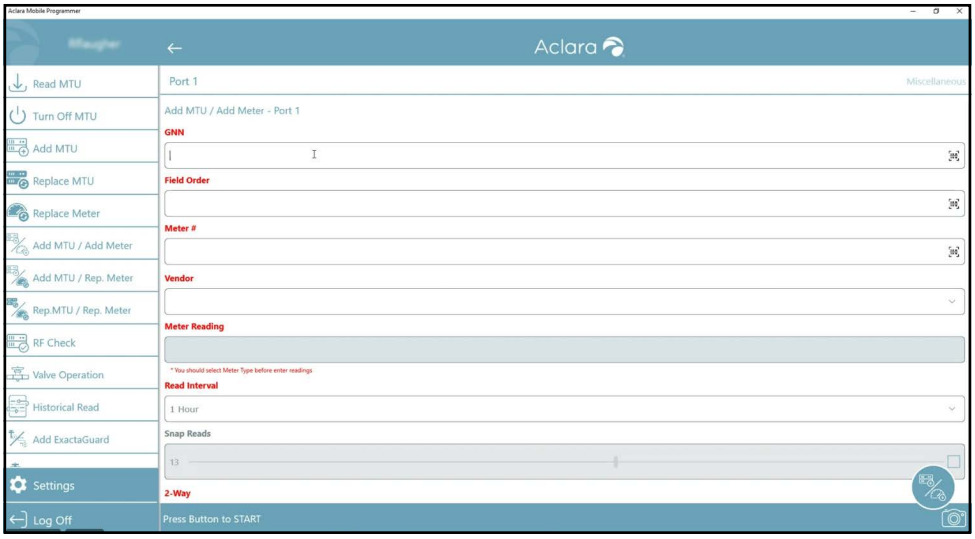
Installing a New MTU and Meter

NOTICE Aclara's Meter Transmission Unit (MTU) is a legacy name for, and is synonymous with, the Aclara Communications Module.

1. Follow the instructions in *Pairing a Mobile Device with the Aclara Communications Module* on page 12.
2. Tap **Add MTU / Add Meter** in the menu to display the message "*Install new MTU / Add Meter, and prepare for reading MTU*".



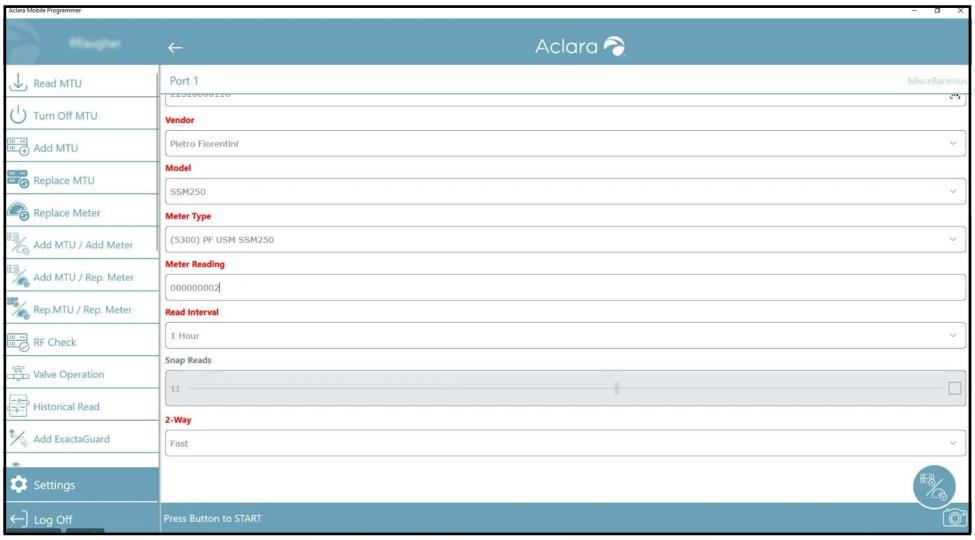
3. Tap **OK** to view the Port 1 display.



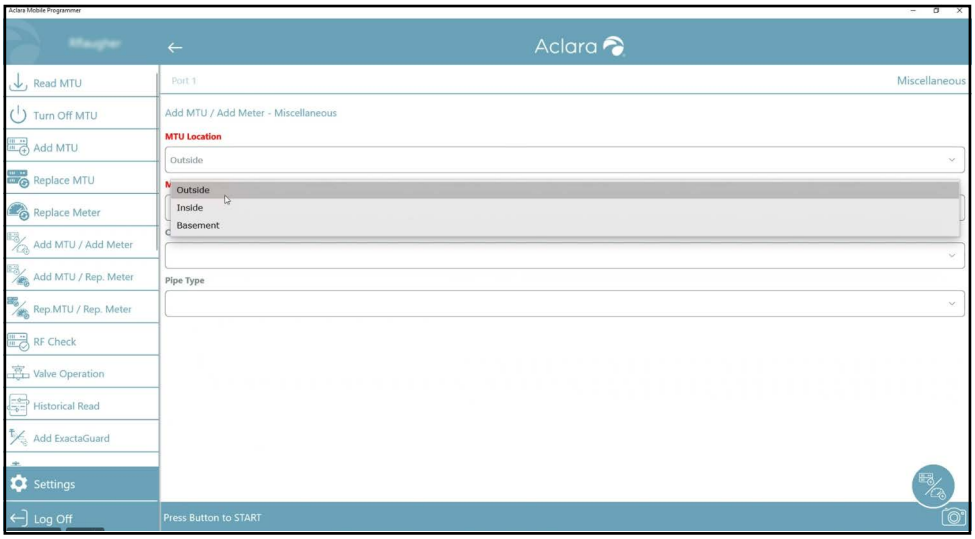
On this display all fields identified in red must be populated.

You will need to scroll down to view all required fields.

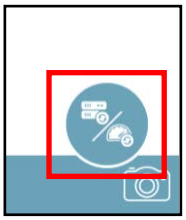
The Vendor, Model, and Meter Type fields will be populated via drop-down menus.



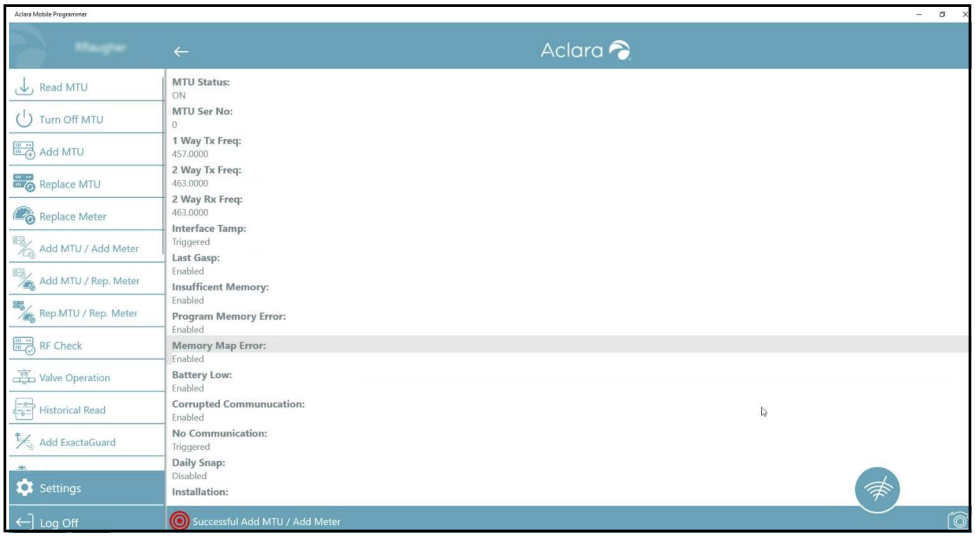
Verify all required fields have been populated. If you have missed any, you will not be able to proceed.



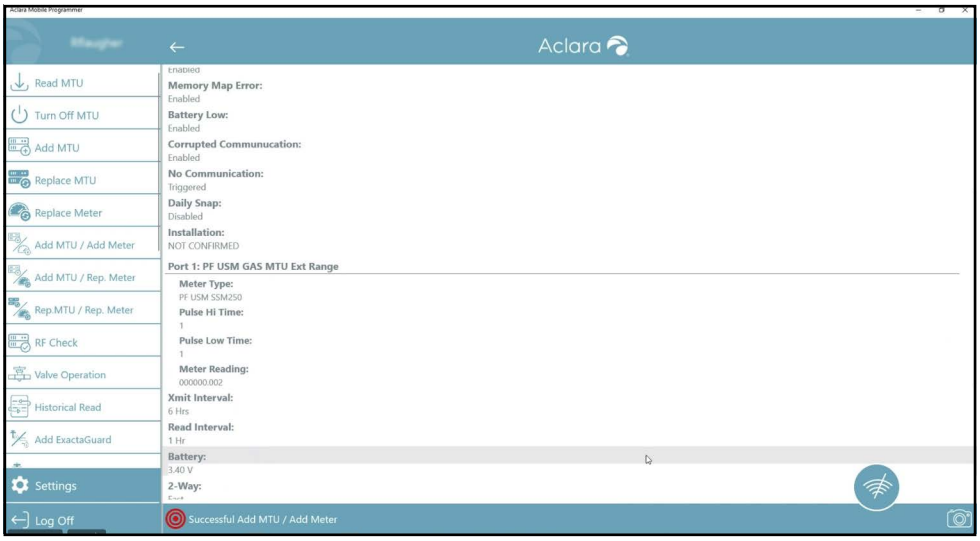
4. Tap the icon in the lower right corner of the window to initiate programming.

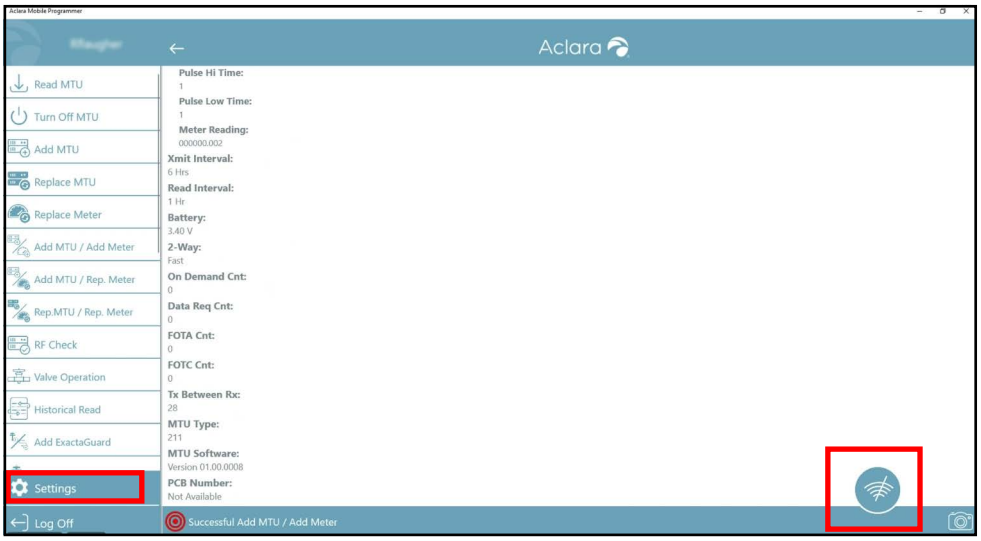


When programming is complete, a confirmation screen will open showing configuration and status information for both the meter and the Aclara Communications Module.

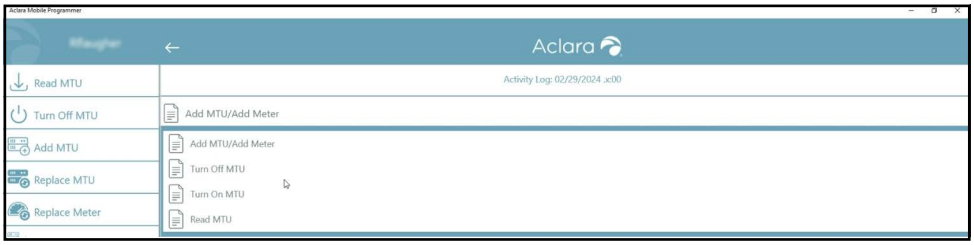


You will need to scroll down to view the entire summary.

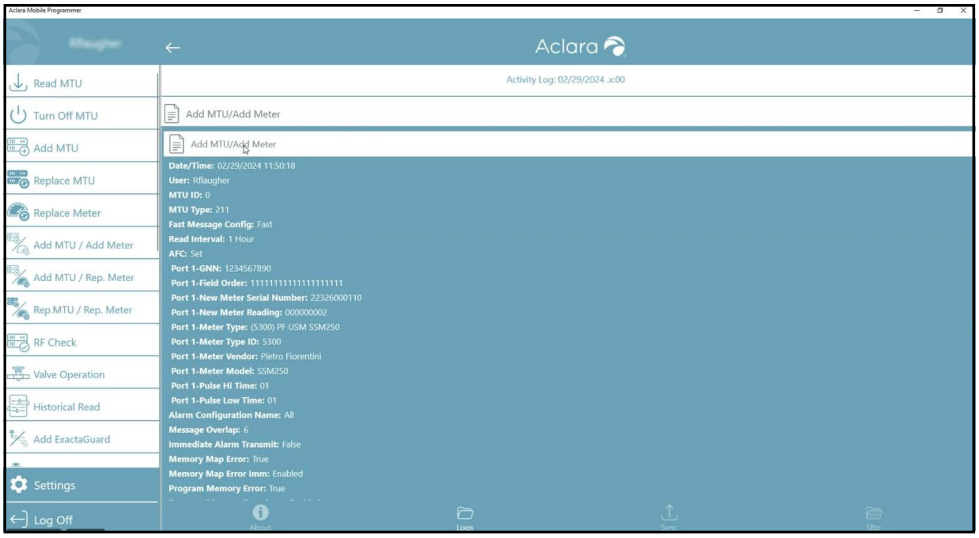




5. At this point you can tap the **Unpair** icon to return to the main menu to perform a new installation.
6. To view activity logs tap **Settings** in the main menu, and then tap the **Logs** button found at the bottom of the screen. Navigate left and right to view logs created in earlier or later hours.
7. Tap to **Add MTU/Add Meter** to expand the log list.

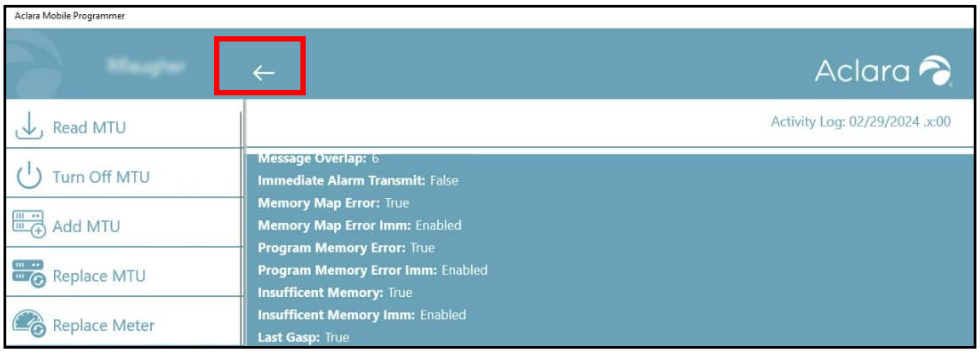


8. Tap the **Add MTU/Add Meter** submenu item to view the Add MTU/Add Meter log details.



You will need to scroll down to see the complete activity log.

9. To return to the main screen, tap the back arrow to the right of the user's name in the top left region of the display.



10. At least once per day, programming records must be uploaded. To do so, use the following procedure:

1. Tap **Settings**.
2. Then tap the **Sync** icon at the bottom of the screen.
3. Tap the **Upload Log Files** button. Within a few seconds you should receive a success message.

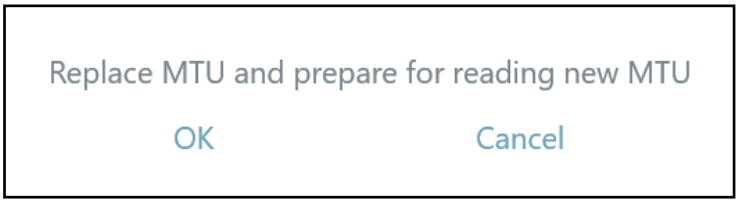
If upload fails, verify that the device is able to access the Internet (WiFi or cellular data active), then try again. If upload fails again, tap the **FTP** icon at the bottom of the screen and verify that the FTP settings are present. If not, contact your system administrator or Aclara Support for the proper credentials and enter them. Then repeat the upload procedure.

Replacing an MTU

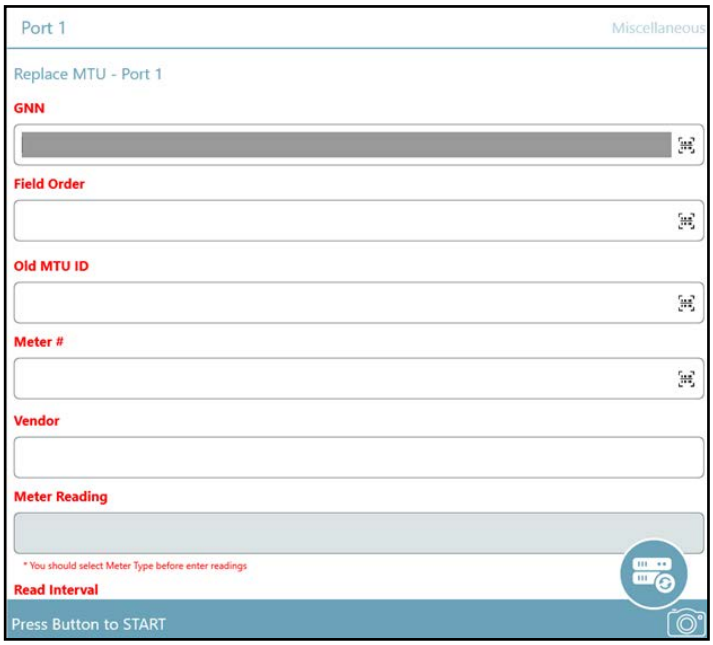
NOTICE Aclara's Meter Transmission Unit (MTU) is a legacy name for, and is synonymous with, the Aclara Communications Module.

Once the Aclara Communications Module is installed, use Aclara Mobile Programmer to program it.

1. Follow the instructions in *Pairing a Mobile Device with the Aclara Communications Module* on page 12.
2. Tap **Replace MTU** in the menu to display the message "*Replace MTU and prepare for reading new MTU*".



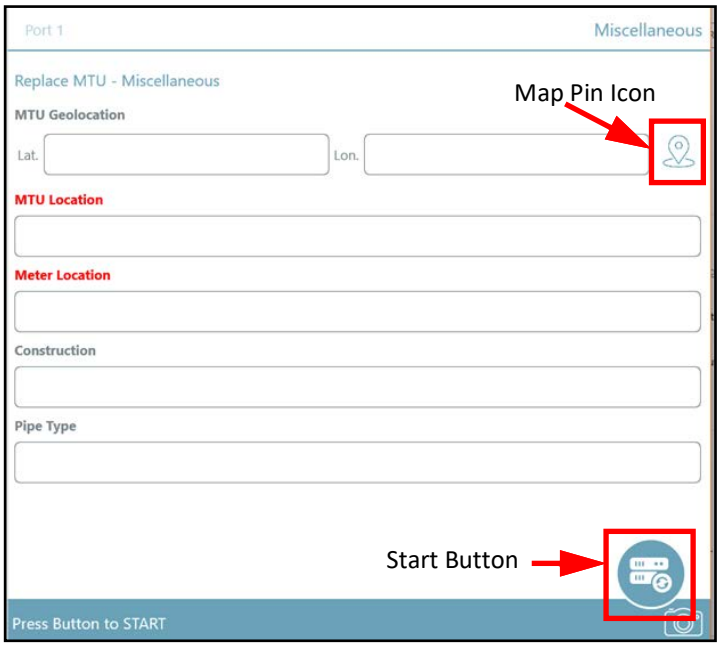
3. Tap **OK** to view the Port 1 display.



On this display all fields identified in red must be populated.

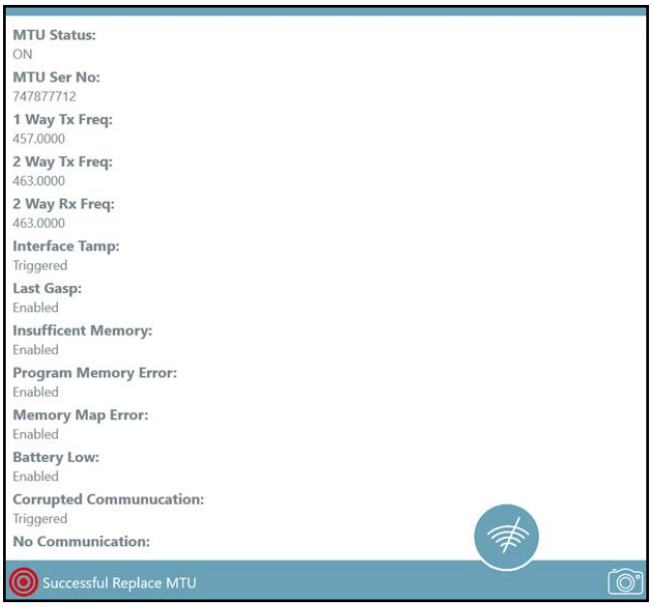
You will need to scroll down to view all required fields.

4. Tap **Miscellaneous** in the upper right corner to view the Replace MTU - Miscellaneous window, and complete all remaining fields.

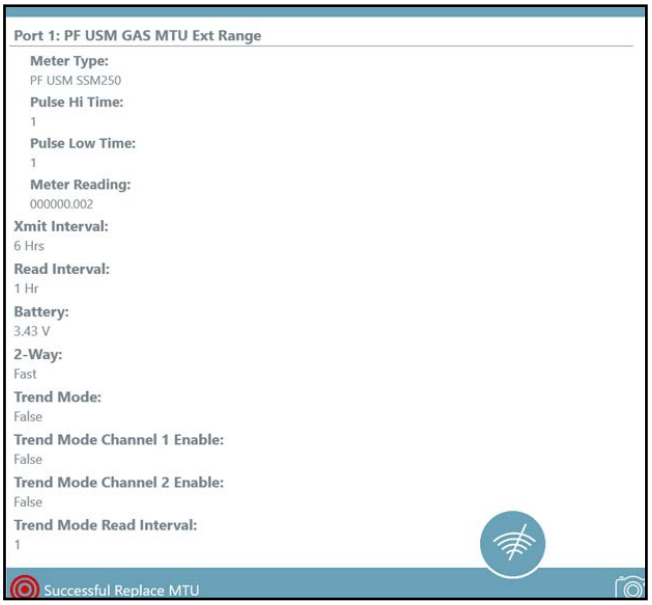


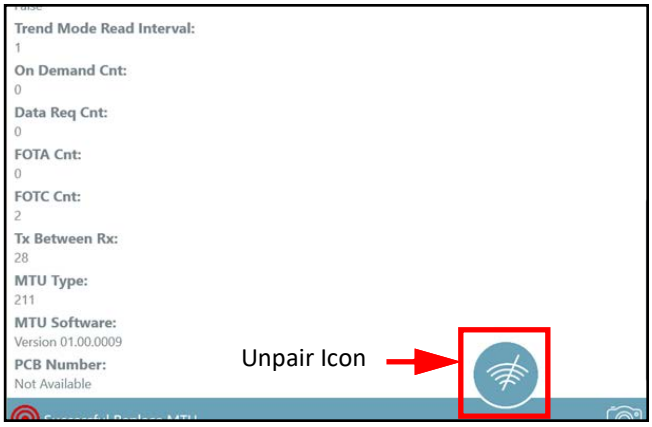
NOTE For the Lat. and Lon. coordinates, tap the map pin icon to have your device gather that information and populate the fields automatically.

5. Verify all required fields have been populated. If you have missed any, you will not be able to proceed.
6. Tap the **Start** button in the lower right corner of the window to initiate programming. This will take a few minutes. When it is complete you will see a confirmation screen similar to the following:



You will need to scroll down to view the entire summary.





7. At this point you can tap the **Unpair** icon to return to the main menu to perform a new installation.
8. To view activity logs tap **Settings** in the main menu, and then tap the **Logs** button found at the bottom of the screen. You will need to scroll down to see the complete activity log.
9. To return to the main screen, tap the back arrow to the right of the user's name in the top left region of the display.
10. At least once per day, programming records must be uploaded. To do so, use the following procedure:
    1. Tap **Settings**.
    2. Then tap the **Sync** icon at the bottom of the screen.
    3. Tap the **Upload Log Files** button. Within a few seconds you should receive a success message.

If upload fails, verify that the device is able to access the Internet (WiFi or cellular data active), then try again. If upload fails again, tap the **FTP** icon at the bottom of the screen and verify that the FTP settings are present. If not, contact your system administrator or Aclara Support for the proper credentials and enter them. Then repeat the upload procedure.

CHAPTER

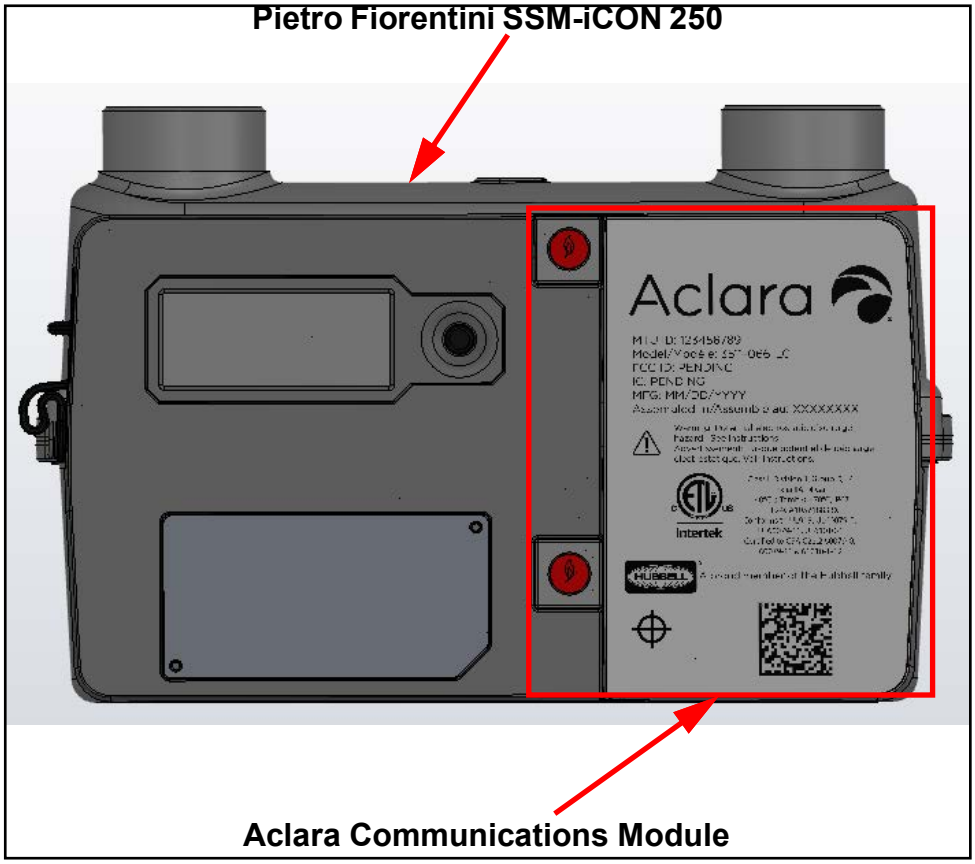
4

FIELD REPLACEMENT INSTRUCTIONS

These instructions provide a procedure for replacing an Aclara Communications Module, catalog numbers 3511-066-LC and 3511-066-LCW, on a Pietro Fiorentini (PF) SSM-iCON 250. (*The images in this document are for reference only.*)

NOTICE The instructions in this chapter provide details for replacing an Aclara Communications Module on a PF meter that has already been installed in the field.

NOTICE If the Aclara Communications Module cannot communicate with the meter and Mobile Programmer, then the Aclara Communications Module cannot be replaced. The replacement procedure will require the entire PF SSM-iCON meter/communications module assembly to be replaced.



Parts Included in Mounting Kit

#	Item	General Description	Qty
1	Aclara Communications Module	Transmission unit	1
2	M4 x 12 self-tapping screws	Screws	2
3	Snap seal anti-tamper plugs	Safety seals	2

Tools Required

To install the Aclara Communications Module on these meters, you will need the following tools and equipment:

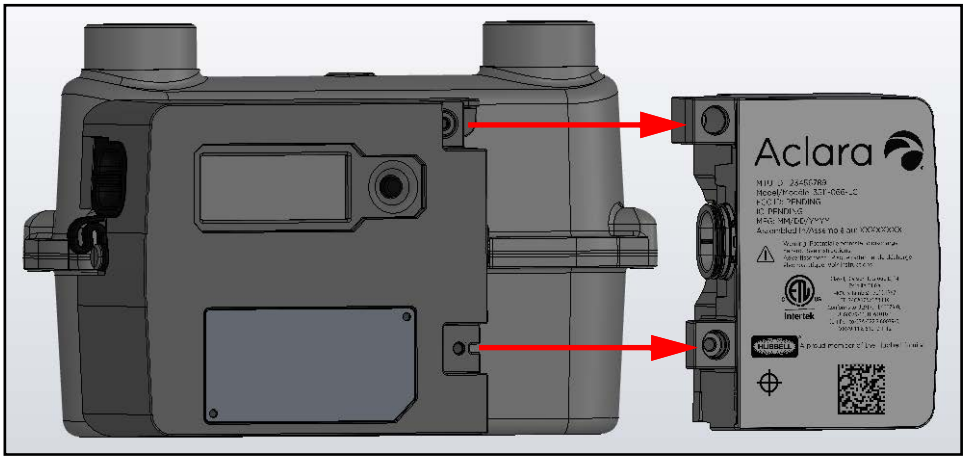
- Torque limiting screwdriver with a T20 Torx bit
- Standard/slotted screwdriver
- Safety glasses

Remove Aclara Communications Module

1. Remove the screw cover seals with a slotted screwdriver.

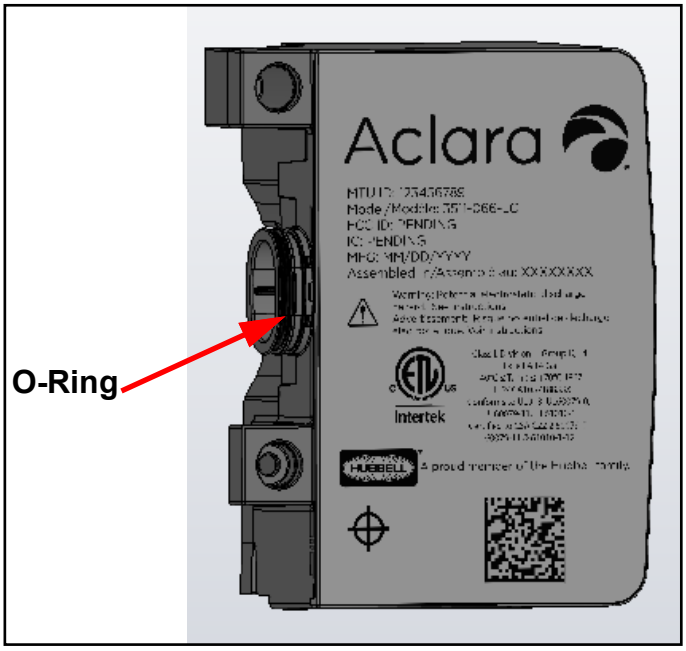
2. Remove the two T20 Torx screws securing the Aclara Communications Module to the meter.

3. Remove the Aclara Communications Module by pulling it from left to right.



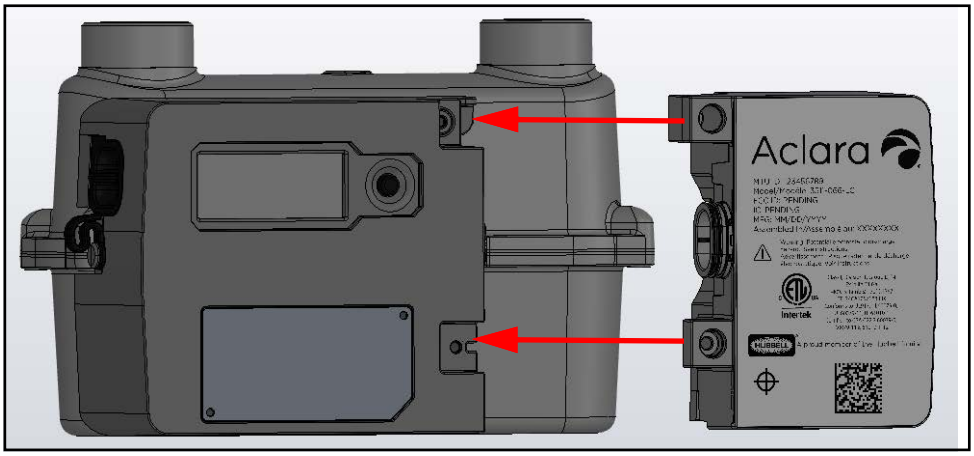
Install Aclara Communications Module

1. Verify the O-ring on the new Aclara Communications Module is correctly positioned in the outermost seat of the communication channel.



NOTICE The Aclara Communications Module comes with the O-ring already in place.

2. Align the communication channel and the guides, and push the Aclara Communications Module onto the PF SSM-ICON 250 gas meter from right to left.

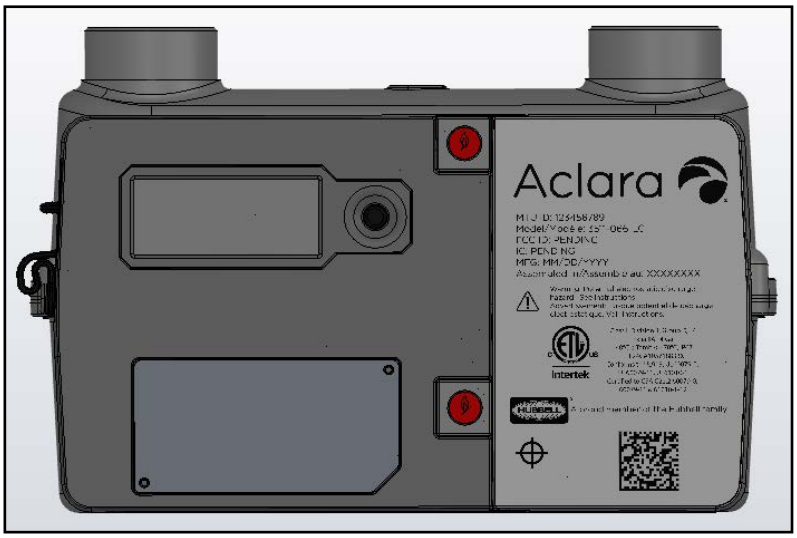


3. Verify the screw holes of the Aclara Communications Module are aligned with those of the SSM-ICON 250 meter.

4. Insert the two M4 x 12 self-tapping Torx screws into the screw holes on the Aclara Communications Module. You may have to hold the Aclara Communications Module in place until the first screw is started as the communication channel compresses the air and may cause the meter and Aclara Communications Module to push apart.
5. Tighten both screws to 13 inch-pounds.

CAUTION Excessive torque may damage the Aclara Communications Module and the meter.

6. Insert the screw cover seals over the screws.



Refer to the *MTU Installation Requirements Technical Brief, Y20355-TEB*, for additional installation guidance.

Putting the Device into Service

Program the Aclara Communications Module using the Mobile Programmer Application (available for iOS, Android, and Windows). Refer to *Pairing, Programming, and Installation* on page 11 for more information.

Applicable Standards

- ANSI B109.1
- PS-G-06
- S-G-03 part 1 and part 7
- UL 60079-0, Edition 7, Revision Date 04/15/2020
- CSA C22.2 No. 60079-0, Edition 4, Issue Date 02/2019
- UL 913, Edition 8, Revision Date 05/10/2022
- UL 60079-11, Edition 6, Revision Date 09/14/2018
- CSA C22.2 No. 60079-11, Edition 2, Issue Date 02/2014
- IEC 60079-0, 7th Edition (2017-12) + Corr. 1 (2020-01) + I-SH 01 (2019-04) + I-SH 02 (2019-06),
- IEC 60079-11, 6th Edition (2011-06) + Corr. 1 (2012-01) + I-SH 01 (2014-10) + I-SH 02 (2016-07) + I-SH 03 (2016-07) +
- I-SH 04 (2019-04) + I-SH 05 (2019-08) + I-SH 06 (2019-12)
- EN IEC 60079-0:2018
- EN 60079-11:2012
- UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations
- UL 61010-1:2010 - Safety Requirements for Electrical Equipment for Measurement, Control, and
- Laboratory Use - Part 1: General Requirements
- UL 50E - Enclosures for Electrical Equipment, Environmental Considerations
- CSA C22.2 No. 61010-1-12 - Safety Requirements for Electrical Equipment for Measurement,
- Control, and Laboratory Use - Part 1: General Requirements
- CSA C22.2 No. 94.1 - Enclosures for Electrical Equipment, Non-Environmental Considerations
- CSA C22.2 No. 94.2 - Enclosures for Electrical Equipment, Environmental Considerations

- EN 60079-32-1: 2016 – Electrostatic hazard, guidance
- 47 CRF Part 15B: Unintentional radiators (15.109)
- ICES 003 issue 7: Product standard for Information Technology Equipment (ITE)
- ANSI C63.4-2014: American National Standard For Methods Of Measurement Of Radio-Noise Emissions From Low-Voltage
- Electrical And Electronic Equipment In The Range Of 9 KHz To 40 GHz
- 47 CRF Part 15.247: operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
- RSS 247 issue 2: Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local
- Area Network (LE-LAN) Devices
- ANSI C63.10-2013: American National Standard Of Procedures For Compliance Testing Of Unlicensed Wireless Devices

NOTICE Training can be provided by Aclara or Aclara can train and certify third party installers. Installers may be anyone certified by Aclara.

Maintenance and Repair

This equipment requires no routine maintenance operations. It is designed to ensure field replacement of the remote communication apparatus in the event of any depletion of battery power.

WARNING It is forbidden to repair or make modifications to this equipment.

CAUTION All operations should be carried out away from heat sources.

CAUTION Fire extinguishers to be used in the event of a fire shall be Class D, since they are effective in extinguishing the start of fires in the presence of lithium.

Battery Disposal

The lithium battery may cause a fire or chemical burn if it is not disposed of properly.

WARNING Batteries, especially end-of-life (discharged) batteries, are dangerous and sensitive to shock, vibration, and exposure to open flames. Failure to comply with this document can lead to the risk of explosion, fire, and harmful emissions that can have serious health consequences.

WARNING Do not recharge, disassemble, heat above 212°Fahrenheit (100°Celsius), crush, expose to water, or incinerate the lithium battery. Fire, explosion, and severe burn hazards are possible.

WARNING The battery used in this device may present a risk of fire or chemical burn if mistreated.

CAUTION Keep the lithium battery away from children.

Index

A
Aclara Communications Module 7
Aclara Connect 10
Aclara University 10
Applicable Standards 30

D
Déclaration de conformité IC 2

F
FCC/IC Compliance Statement 1
FCC/IC Exposure Statement 3

G
Gas Ultrasonic Meter (USM) 6

I
IC Compliance Statement 2
Install Aclara Communications Module 28
Installing a New MTU and Meter 16

L
Labels 9

M
Maintenance 10, 11
Maintenance and Repair 31

P
Pairing a Mobile Device with the Aclara Communication Module 12
Putting the Device into Service 29

R
Remove Aclara Communications Module 26
Replacing an MTU 21

S
Safety Guidelines 1
Special Conditions of Use 8
Support 10

T
Technical Support 10
Tools, Materials, and Equipment Required 11

W
Warning, Cautions, and Notes 1