Introduction

This document discusses how Meter Interface Units(MIUs) are installed. This is intended for qualified service people and the Zenner service team. This document covers both the hardware & software portions of installations.

The standard sequence of installation follows the order below.

1. MIU Mounting & Assembly
2. Hardware Installation
3. Software Installation

Required Items

1. Fully charged & configured handheld(Andoid is used here but Trimble Nomad works too)
2. Fully charged BTIR(Bluetooth radio) – Zenner#100-0023-001
3. Crimping Tool, Klein - Part#D2346
4. Wire Connectors, crimpable(aka gel caps) - 3M UY connectors
5. Wire Cutter
6. Magnet
7. Burial Pod(aka grease pot) - Part# SA102



Handhelds(Android & Trimble)

BTIR(Bluetooth radio)

Tools & Parts

MIU Mounting

The MIU supports several mounting options including pit, wall and pole mounting.

Pit Mounting & Inspection

With pit mounting, the MIU should be upright and the lid should be able to fully close and seal securely. The pictures below show a proper pit installation of a MIU. The MIU is sitting beneath the lid. The lid can close properly without putting any weight on the MIU. When a MIU has been improperly installed, check for damage and proper operation. If the physical shell of the MIU or wiring is damaged, the MIU should be replaced. The top left image shows the parts involved prior to assembly.
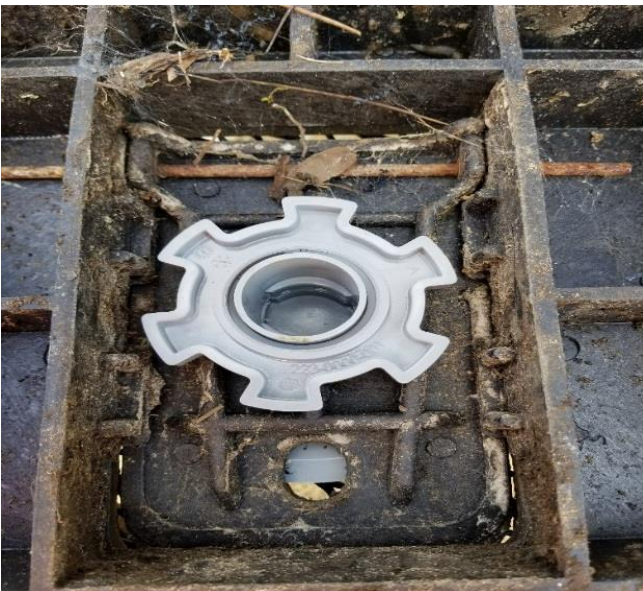
Per Zenner USA policy, under no circumstances should a MIU be installed if the lid is not cut.

Pit Lid Assembly

Pit mounting requires some assembly with the pit lid. The following information describes how this assembly work is done.

1. Screw Top
2. Nut
3. Riser Plate
4. Stealth Reader(MIU)
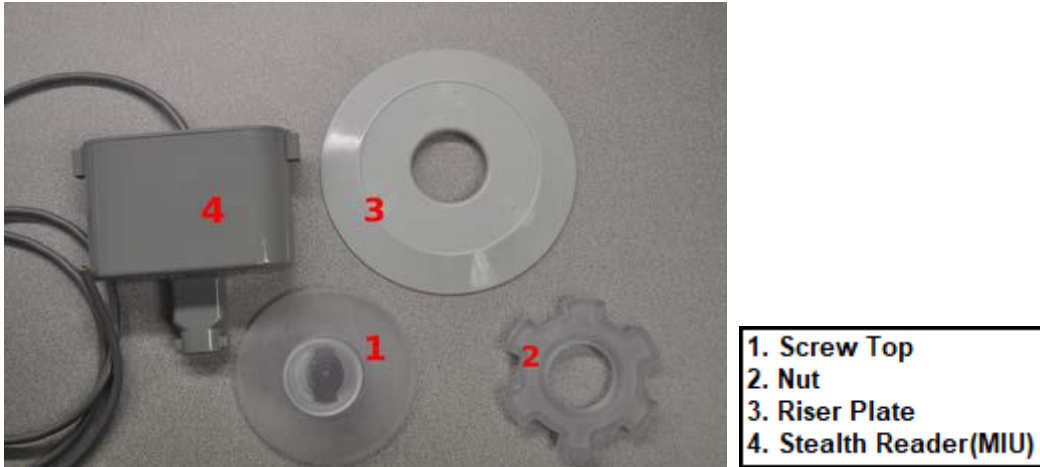
1. Gather the mounting materials as shown in the picture above.
2. Inspect the pit lid. It should have an appropriate opening for mounting an MIU. If it does, continue on. If it does not, the MIU cannot be mounted.
3. Remove the lid from the pit. This may require a tool.
4. If the pit lid is thin enough, place the Riser on top (outside) of the pit lid over the hole.
5. If the Riser is used, place the Screw Top over the Riser. If there is no Riser, place the Screw Top directly over the hole in the pit lid. The threaded portion of the Screw Top should be pointing downward into the pit.
6. To secure the Screw Top onto the Lid, take the Nut and twist it onto the Screw Top. Tighten the Nut until it is snug. **CAUTION: Do NOT over-tighten the Nut.**
7. Insert the top of the MIU(the end opposite the wire) through the pit lid and into the Screw Top. Turn the MIU a quarter turn until a click is heard. The click indicates that the MIU is locked into the Screw Top.
8. Pick up all trash in and around the pit.
9. Carefully place the pit lid(with attached MIU) on to the pit. Make sure the lid closes completely without putting weight on the MIU. **CAUTION: Never let the weight of the lid be supported by the MIU. This could result in the MIU being damaged.**
10. When the lid is in the closed position, latch the lid in position if possible.

Exterior Wall Mounting(from basement)

Shows conduit from basement. It contains wires from the MIU.

Shows exterior mounted conduit. It contains wires from the MIU.

Shows exterior mounted conduit, wall plate and MIU.

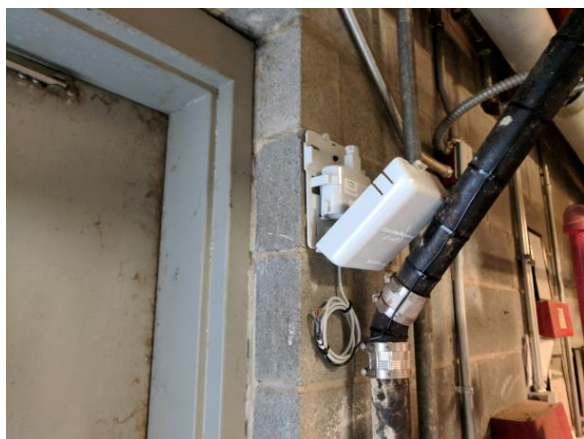Shows full exterior mounting without the cover.

Shows full exterior mounting with the cover.
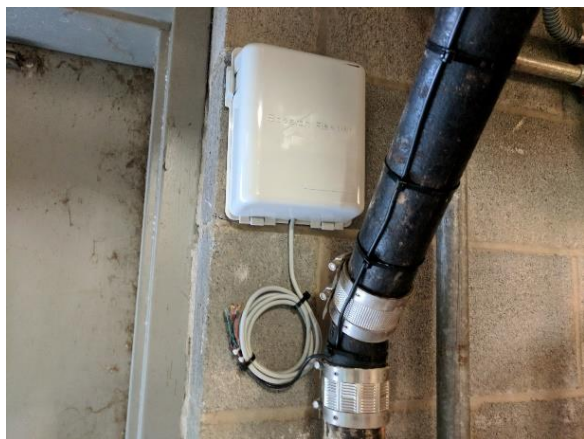
Interior Basement Mounting

Shows interior mounted wall plate and MIU.

Shows interior mounting with the cover open.
Note the high mounting position near the top of the door frame.

Shows interior mounting with the cover closed.

Hardware Installation

Care should be taken when making wired connections between the MIU and the Register(aka ETR). If the wire connections are not made properly, the MIU will not function properly. The following wire table is used to make the proper wire connections. Other wire tables are available for other register types.

Brand	Register Type	Stealth Reader Wires	Register(ETR) Wires
Zenner	Encoded	Red	Red
		Green	Green
		Black	Black

1. When connecting the MIU to the Register, please use the following procedure:
   a. Check the chart above for the proper wiring for the brand and model of register.
   b. Connect the wires using UY gel cap connectors.
      i. Note: Do NOT strip the ends of the wires. If the wires are stripped, cut off the stripped ends. Wires must have un-stripped ends in order to use the gel cap connectors. Use the Klein Crimping tool to secure the gel cap connectors.
   c. The connections for encoded registers will be tested during MIU software installation.
   d. Insert the UY gel cap connectors into the burial pod so the cables come out on either side of the pod.

Software Installation

1. From the handheld (Android), click on the Stealth Pro HH application icon to start the application. Observe and verify the application version and the BTIR device connectivity status, then tap on the **AMR** button. The Home page of the application should display.
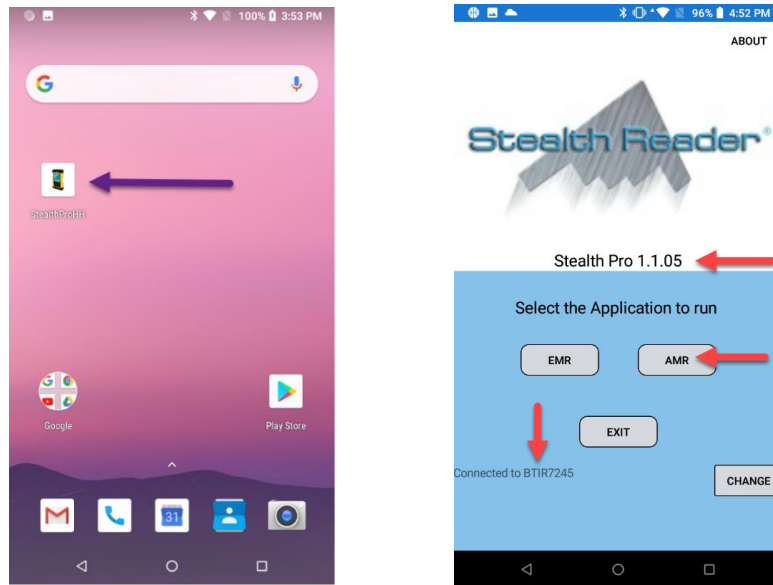
2. You'll need to setup your handheld according to the system you're working with. You can check with your Zenner support team for the correct handheld settings. Tap on the antenna icon to access the radio settings. Make sure you are setup for the proper radio mode(Mesh or Drive-By) and phy fram(aka SSID). Be sure to **SAVE** any changes. The default settings are MESH and SSID=B4D2B4D2. Tap on the **CANCEL** button to return back to the Home screen.
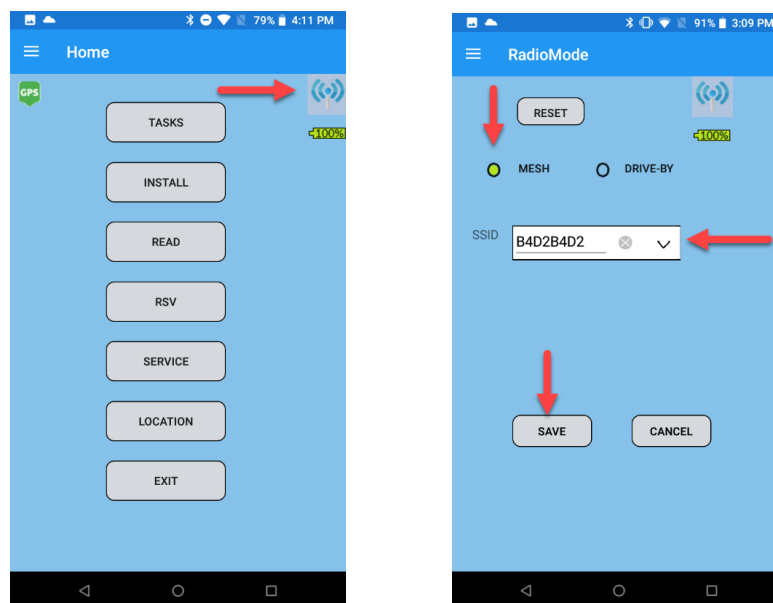
3. Tap on the hamburger menu located at the upper left corner of the screen and select "Preferences". This should display the Preferences screen. Turn-on the option for "Required GPS Location" and "Allow Manual Reads", then tap on **SAVE** button to return back to Home screen.
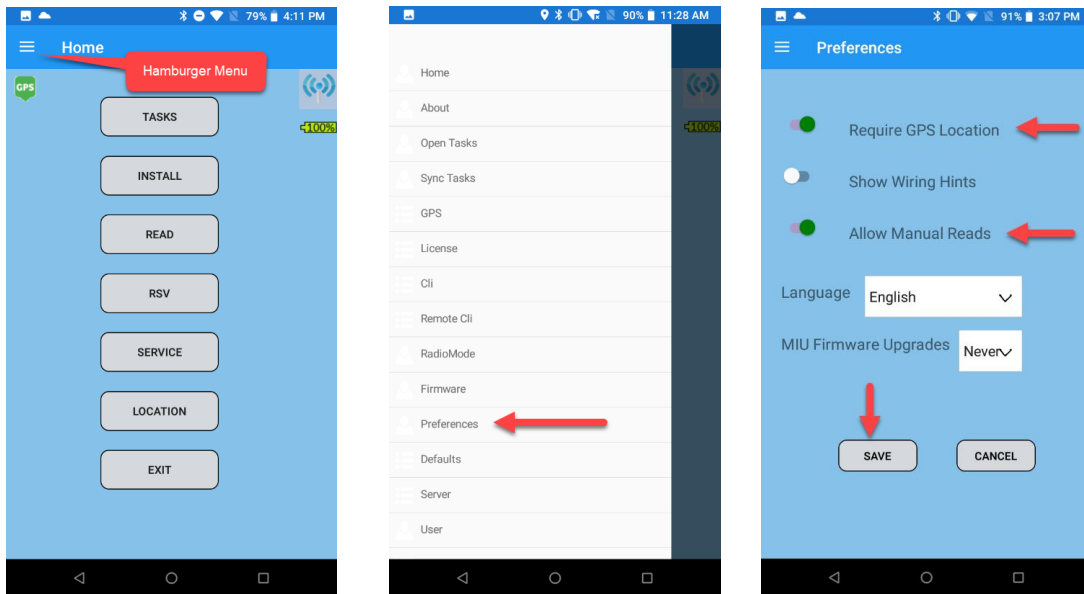

4. Once back at the Home screen, tap on the **TASKS** button to begin the install process. It is assumed that install tasks were already setup and the handheld was synced.

5. On the Task screen, you can search by pressing the **SEARCH** button, or if you are on the correct address just Tap on the **START** button as shown below:
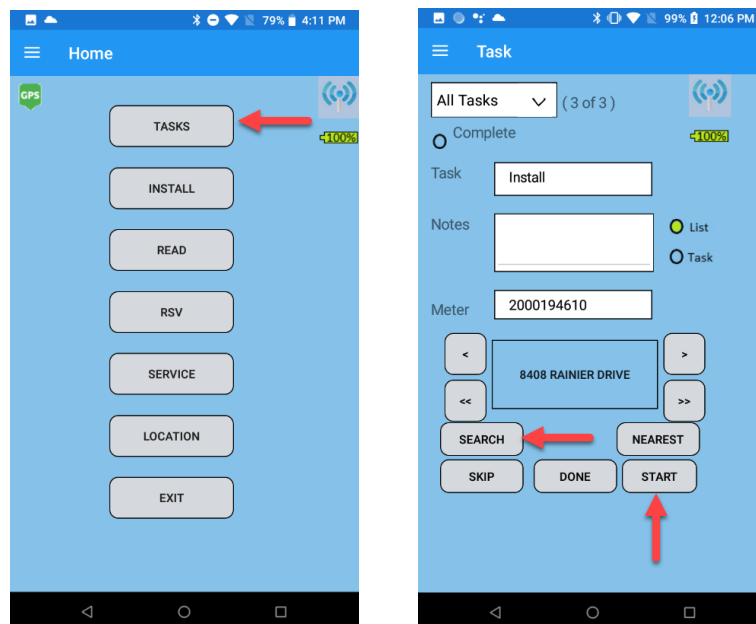
6. Select the meter type **ENCODER** as shown below to navigate to register configuration screen(Install).
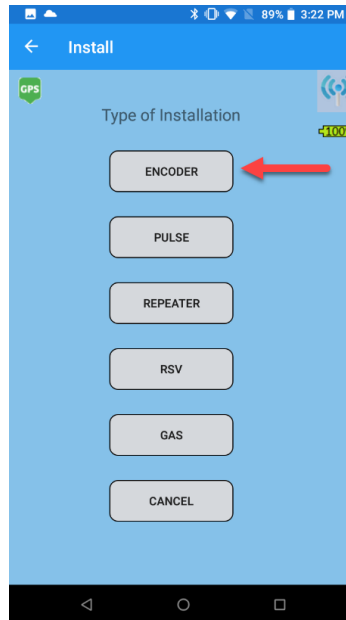
7. The Install screen will ask you to set the reading dials, truncation and constant. These values should be preset by default and it can be changed according to requirements. Tap on the **NEXT** button to proceed to the next screen.
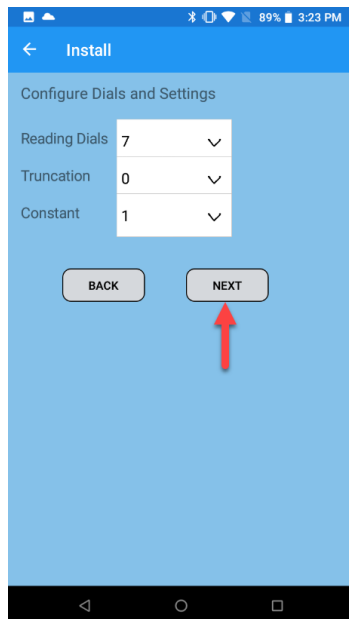
NOTE: Dials default value for Zenner Meters are as follow:

Reading Dials   7

Truncation   0

Constant   1

Pulse   1

8. Once the wiring connection has been confirmed, tape on the **NEXT** button. The handheld will display a message on the screen as to how to activate the MIU, as shown below:
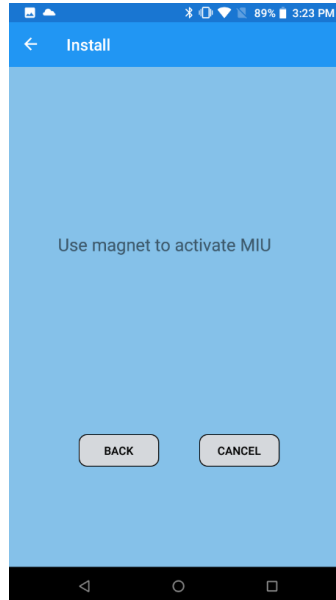
9. Next take a magnet and swipe the MIU. A correct swipe is done by placing the magnet at the base of the MIU and swiping upward toward the top of the MIU as shown below.
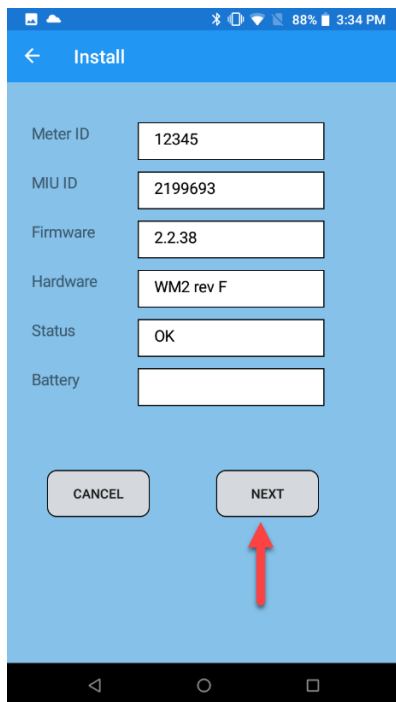
10. A correct MIU swipe will activate the red and green indicator lights at the base of the MIU.

11. Once the MIU is active, the handheld will detect it and display the meter\MIU information.
12. Confirm the meter ID & MIU ID by comparing the screen values to the actual ID numbers(meter and MIU). In the example below, these IDs do NOT match(in the real world they should).

13. Tap on the **NEXT** button, the handheld will search for the register by displaying "Detecting Register". Once it finds the register(ETR), the Install Register screen will display.
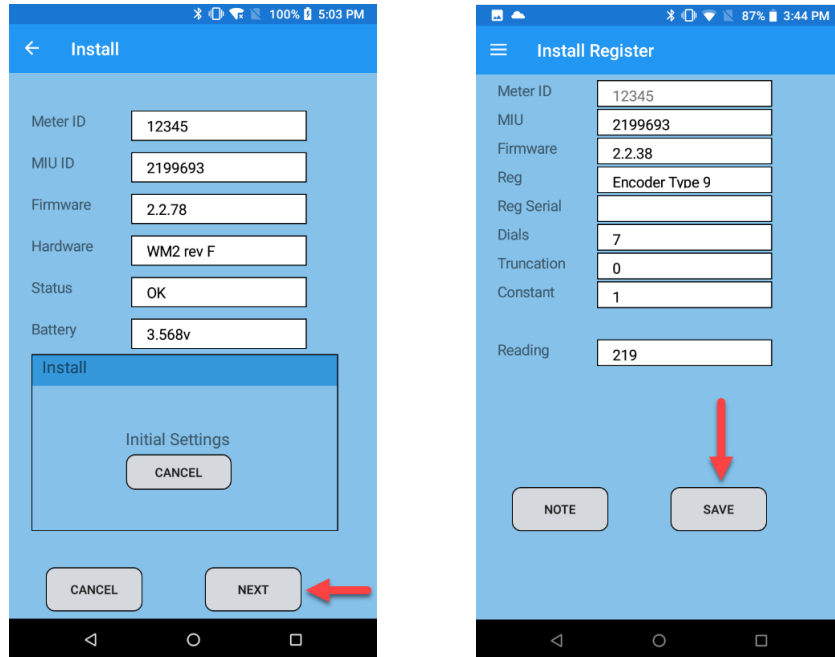
14. Verify that the Reading value on the handheld matches the actual reading on the meter's register face. In the example below, the readings do NOT match(in the real world they should).

15. If readings match you have a completed install. After completing the install, the reading of the old meter needs to be recorded for the meter change out process. At the Completed Install screen, tap on the **NOTE** button.
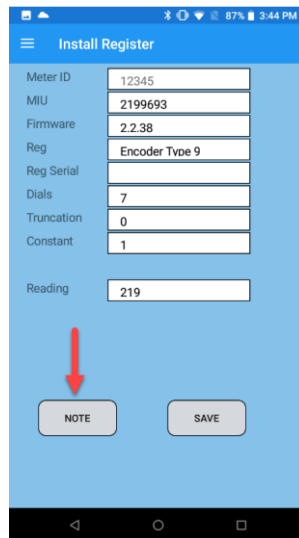
16. Enter the previous reading and old meter number (e.g. 7799) and tap on the **SAVE** button. When the handheld is synced to the website, this information will be removed from the handheld and made available on the website.

17. Tap the **OK** button at the base of the completed install screen and check to see if this task has a check mark in the done box indicating that it is complete. A checkmark means that the install task has been completed.
18. On a mesh system, verify the light sequence on the MIU to ensure it has linked up the network.

LED Light Behavior

When the MIU is activated, two LED indicators provide visual status information. Red LED generally provides status regarding the connection between the MIU and the register(ETR). The Green LED provides status regarding the communication link between the MIU and other similar radios.

The chart below identifies the status information an MIU may provide and the actions that may be taken.

Red Light	Green Light	Status	Action
Fast Blink	Off	No application firmware installed	Return for service
Off	Fast Blink	Date and Time not set	Proceed with installation, check Stealth Reader battery and alarm status at end of installation.
Slow Blink	Active	No register detected	Check register wiring/connections
Fast Blink	Active	•Encoded register: error reading register	•Encoder: check wiring/connections
On	Active	•Encoded register: read OK	See below for actions based on Green LED
Active	Slow Blink	Searching for fixed network	May be OK, but if persists may require installation of a repeater or additional Stealth Readers nearby
Active	Fast Blink	Found fixed network, waiting to register/re-register.	May be OK, if persists may require installation of a repeater or additional Stealth Readers nearby
Active	On	Fixed network found and successfully registered.	See above for actions based on Red LED
On	On	Fixed network found and successfully registered Water register found and connected	No action, install successful!