



## Installation Instructions-Draft

### Sensus RadioRead

Model 510R2 – Non Pit Unit

#### Important

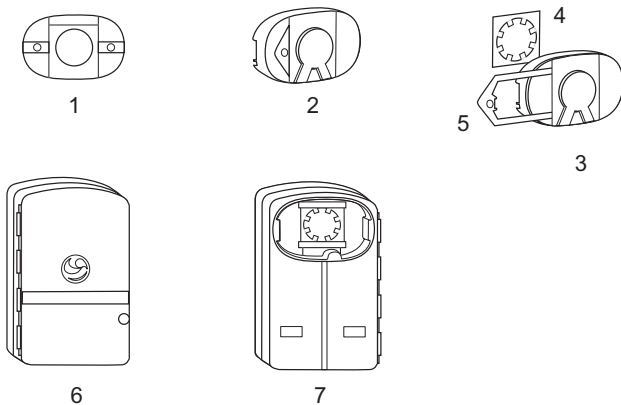
The following information contains installation instructions for the Sensus Model 510R2 MXU.

**Note:** *This installation sheet is only for installation of the Sensus Model 510R2. For instructions on installing other AMR devices, please request and refer to the individual installation instruction for those devices.*

#### General Information

The Model 510R2 MXU is designed for non pit, non submersible applications and is available for both a single port and dual port operation. The Model 510R2 can be mounted indoors or outdoors where it is not subject to submergence. The Model 510R2 is not intended for outdoor meter pits or vaults. The unit can be installed with either a TouchCoupler connection or wire connection. Please refer to AMR-326 for compatibility.

#### Definitions



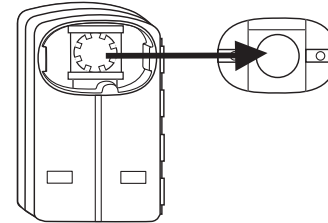
1. Sensus TouchPad
2. TouchPad Cover Assembly Complete
3. TouchPad Cover
4. TouchPad Fastener
5. TouchPad Cover Locking Clip
6. Model 510R2 Radio (Front View)
7. Model 510R2 Radio TouchCoupler Enabled Assembly (Rear View with TouchPad Cover)

#### TouchCoupler - Installation Instructions

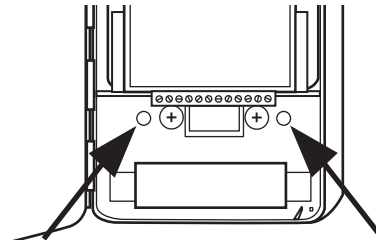
##### Single Port – TouchCoupler Installation

1. Perform a TouchRead on TouchPad(s) to insure TouchRead to the encoder works.
2. Taking a completely assembled Model 5102 Radio and Touch-Coupler Spacer with TouchPad Cover, align the TouchPad Cover over an installed Sensus TouchPad.

3. Place the unit over the TouchPad and press firmly until secure.



4. For additional support (optional), open the MXU door and pre-drill the holes designed to fasten the unit to the wall. (Fastener holes are located above the battery).



5. Secure the unit to the wall with screws.
6. Once unit is secured with the screws, close the door of the MXU and tighten security screw until unit is firmly sealed.
7. Once the unit is closed and secured, begin the activation process. (See Activate Radio section).
8. Coil excess wire and then secure to the body of the meter or service line in a presentable manner.

#### Single Port - Remote TouchCoupler Installation

Remote TouchCoupler installations are an option when a direct TouchCoupler (Sensus only) connection cannot be completed due to physical limitations. Before proceeding with the installation of a remote TouchCoupler application, be sure to find a location free from obstacles that would interfere with the connection from the TouchPad Cover to the MXU.

#### Recommended Tools and Materials

- Wire stripping tool
- Screwdriver - Small standard head for terminal connections
- SR II security screw socket with 1/4" nut driver or ratchet wrench
- Power drill and bit (1/4")
- 8 x 1" sheet metal screws

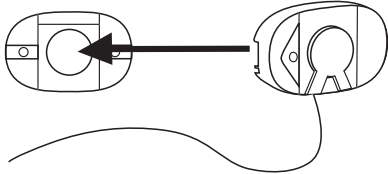
1. Find a suitable location for the installation where the TouchPad Cover and MXU installation will be free from interference.

**Note:** *If TouchPad is not already installed, install TouchPad allowing enough room for the TouchPad Cover to be securely placed over the installed TouchPad.*

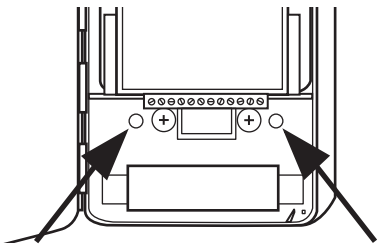
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2. Perform a TouchRead on TouchPad(s) to insure TouchRead to the encoder works.
3. Place the remote TouchPad Cover firmly over the Sensus TouchPad until secured.

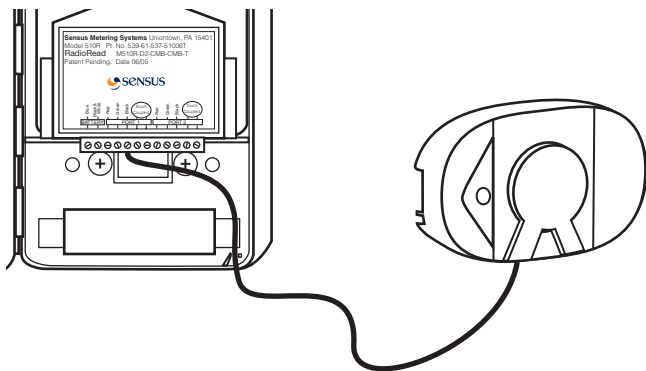


4. Once the TouchPad Cover is secured on the TouchPad, find a location close to the TouchPad Cover to install the MXU.
5. Place the MXU at the location for installation, with the door open, mark the location to pre-drill the holes designed to fasten the unit to the wall. (Fastener holes are located above the battery).



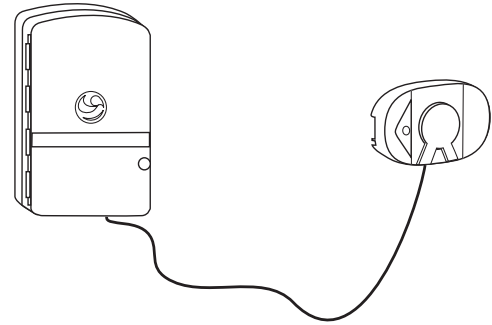
6. Remove the MXU from the wall and use a 1/4" drill bit to pre-drill the fastener holes.
7. Place the unit on the wall and align the pre-drilled holes with the fastener locations.
8. Secure the unit to the wall with screws.
9. Connect the wires from the TouchPad Cover to the coordinating port terminals in the MXU labeled TouchCoupled.

**Note: Red and black wires are non-polarized.**



10. Once all the connections are complete, close the door of the MXU and tighten security screw until unit is firmly sealed.
11. Once the units are secured, begin the activation process. (See Activate Radio section).

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### Dual Port – TouchCoupler Installation

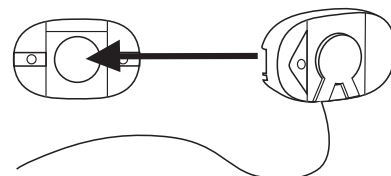
#### Recommended Tools and Materials

- Wire stripping tool
- Screwdriver - Small standard head for terminal connections
- SR II security screw socket with 1/4" nut driver or ratchet wrench
- Power drill and bit (1/4")
- 8 x 1" sheet metal screws

1. Perform a TouchRead on TouchPad(s) to insure TouchRead to the encoder works.
2. For new installations of dual ports, find a suitable location for an installation where two TouchPads can be installed that will be free from interference. The optimum distance should be less than 12" otherwise wires may require field splicing. (For existing TouchPad connections and second port is added, select a location for the second TouchPad installation that will be free from interference).
3. Determine which of the two TouchPads will use the TouchPad Cover only and which will use the TouchCoupler unit as the primary connection.

**Note: If TouchPad is not already installed, install TouchPad allowing enough room for the TouchPad Cover to be securely placed over the installed TouchPad.**

4. Place the remote TouchPad Cover firmly over the Sensus TouchPad until secured.



5. With the MXU door open, place the MXU over the second TouchPad location and press firmly until unit is secured to the TouchPad. For additional support (optional), pre-drill the holes designed to fasten the unit to the wall. (Fastener holes are located above the battery). Secure the unit to the wall with screws.

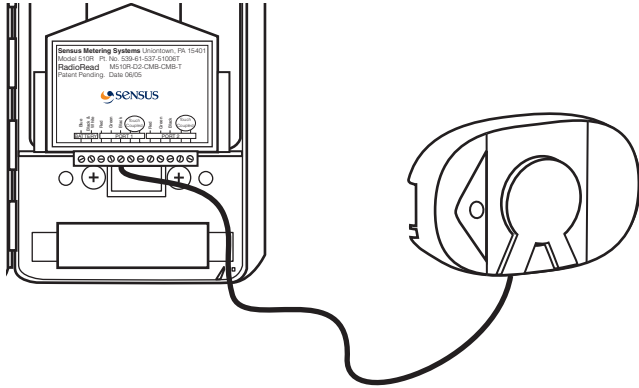
**Note: If not already installed, install the second TouchPad allowing enough room to connect the MXU to the TouchPad.**

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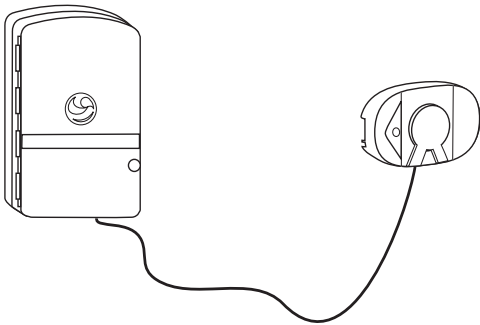
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- Connect the wires from the TouchPad Cover to the coordinating port terminals in the MXU labeled TouchCoupled.

**Note: Red and black wires are non-polarized.**

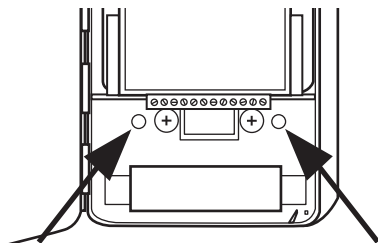


- Once all the connections are complete, close the door of the MXU and tighten security screw until unit is firmly sealed.
- Once the unit is closed and secured, begin the activation process. (See Activate Radio section).



### Single and Dual Port – Wired Installation

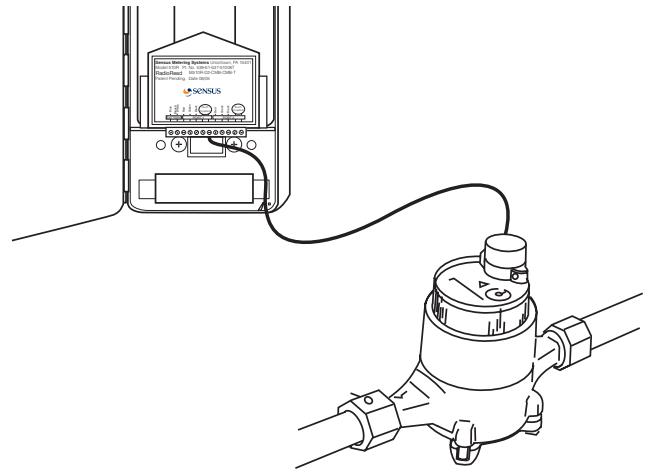
- Place the MXU at the location for installation, with the door open, mark the location to pre-drill the holes designed to fasten the unit to the wall. (Fastener holes are located above the battery).



- Remove the MXU from the wall and use a 1/4" drill bit to pre-drill the fastener holes.
- Place the unit on the wall and align the pre-drilled holes with the fastener locations.
- Secure the unit to the wall with screws.
- Strip wires prior to inserting into terminal strip.
- Connect the wires from the register to the coordinating port terminals in the MXU. Wire connections to terminal strip are red to red, black to black, and green to green.

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**Note: For the Neptune ProRead encoder, the color coded wire connections are not standard – For ProRead, connect the MXU red to ProRead black, MXU green to ProRead red, and MXU black to ProRead green.**

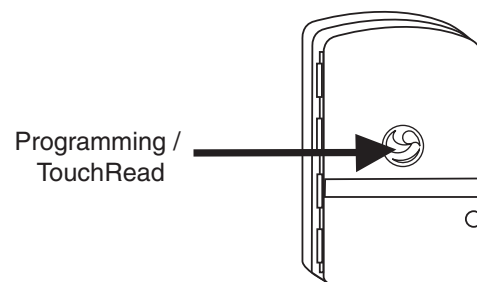


- Once all terminal connections are complete, close the door of the MXU and tighten security screw until unit is firmly sealed.
- Once the unit is closed and secured, begin the activation process. (See Activate Radio section).

### Activate Radio

**Note: if encoders or multiread modules are not connected to this radio, the radio will not activate.**

Once all meters are connected, the radio must be activated in order for it to perform its function. To activate, using a TouchReader or Model 4090 AutoGun, perform a TouchRead on the Programming/TouchRead port (See picture below). To use TouchReader+ to activate, follow instructions below. During activation process, the radio will determine what is connected to this unit automatically. This may take up to 3-6 seconds depending if the unit is dual port capable and what type of encoders are connected.



#### TouchReader+

- If the TouchReader+ is not in Programmer Mode, press both Up and Down arrow simultaneously to cycle through the different modes.

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- Once in Programmer Mode, pictured below, use the Up/Down arrows until ENABLE is displayed.
- Place the TouchReader+ Sensor on the Programming port of the radio and press the Read button. This will send a message to the radio to start the activation process. Keep TouchReader+ in place until complete – messages will appear on the screen.
- Once complete, the TouchReader+ will beep once upon success and display the radio's status.

`S-Dr on  
IaFF2aFF` or `Prog  
EnRbLEd`

If unsuccessful, the radio will remain in an idle state and the TouchReader+ will beep twice and display the radio's status.

`S-Dr oFF  
IaFF2aFF` or `Prog  
IdLE`

### TouchReader

- The TouchReader will beep once indicating that the radio acknowledged the TouchRead and is now detecting the type of register connection.
- After waiting approximately 3 seconds, perform another TouchRead, if a read error occurs, the radio is still in detect mode. Repeat this step again in 3 more seconds if read error occurs.
- If port detection is successful, the reading unit should provide either a TouchRead reading (Sensus only) or a single beep to indicate that the encoder is connected.

**Note:** *TouchRead is not supported on Neptune registers.*

### AutoGun (ID type set to Factory ID – see AutoGun manual for instructions)

- The AutoGun will beep and display the ID with a "0" at the end. This indicates that the radio acknowledged that TouchRead is in inactive/idle mode "0". This will start the detecting process.
- After waiting approximately 3 seconds, perform another TouchRead, if a read error occurs, the radio is still in detect mode. Repeat this step again in 3 more seconds.
- If successful detection, the AutoGun will display either a TouchRead reading (Sensus only) or
  - ID: 1** – which means a TouchRead was attempted on an unsupported meter (Neptune).
  - ID: 2** – which means that the port was configured for a meter type that supports TouchRead (Sensus only) but there was no response from the meter.
- If unsuccessful detection, the TouchRead will start the activation process again. The ID on the AutoGun will display "0" similar to the step 1 above.

**Note:** *Once the radio is activated and it detects the type of register connection, the only way to change its configuration to the correct type of register connection is to deactivate the radio using a programming tool and then re-activate the radio or use a programming tool to reprogram the port manually.*

## Deactivate Radio

### TouchReader+

- If the TouchReader+ is not in Programmer Mode, press both Up and Down arrow simultaneously to cycle through the different modes.
- Once in Programmer Mode, pictured below, use the Up/Down arrows until Deact is displayed.
- Place the TouchReader+ Sensor on the Programming port of the radio and press the Read button. This will send a message to the radio to start the deactivation process. Keep TouchReader+ in place until complete – messages will appear on the screen.
- Once complete, the TouchReader+ will beep once upon success and display the radio's status.

`S-Dr oFF  
IaFF2aFF` or `Prog  
IdLE`

If unsuccessful, the radio will remain in an active state and the TouchReader+ will beep twice and display the radio's status.

## FCC Compliance

This equipment has been tested and found to comply with the limitations 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 these 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 and 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 device
- Increase the separation between the equipment and 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/TC technician

**Warning:** *No party shall make any modifications or changes to the Sensus Model 510R2 MXU (the equipment) without express written consent of Sensus Metering Systems. Doing so could result in the equipment becoming non-compliant with the requirements of the Federal Communications Commission Rules CFR47 part 15 and could void the user's authority to operate the equipment.*

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