SENSUS METERING SYSTEMS

Installation Instructions

Sensus PhonRead® Meter Interface Unit (MIU)

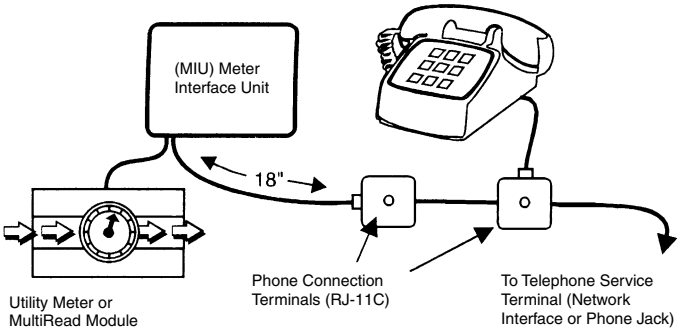
Important

The following PhonRead Meter Interface Unit (MIU) installation instructions provide the minimum requirements for a successful MIU installation.

This installation instruction document is only for installation of the PhonRead MIU. For instructions on installing other AMR devices, please request and refer to the individual installation instructions for those devices.

Recommended Tools and Materials

- Screwdrivers (Standard, Phillips head and SSI Security Screwdriver or ratchet with SSI Security Screw Socket)
- Screwdriver - Small standard head for terminal screws
- Battery powered screwdriver (optional)
- Wire cutter and stripper
- Wire stapler
- MIU Programmer, module and cable (Sensus 4000 HHD)
- MIU programming software
- RJ-11 modular plug tool (optional)
- Multimeter (optional)
- Lineman's telephone test (butt) set (optional)
- Sensus demand initiator unit (optional)
- 3-conductor solid wire (Sensus spec)
- Telephone station wire (2/22 AWG, Twisted Pair)
- Telephone extension wire
- #8 x 1" sheet metal screws
- RJ-11 6-position 4-conductor plugs (optional)
- RJ-11 Modular phone jack
- Cable ties



Installation

1. Find suitable location for MIU installation with following considerations:
   a. placement which is accessible to both utility meter and intended customer's telephone line access – and the telephone line is working.
   b. recommend inside installation (outside permitted) away from excessive amounts of heat and moisture. (Pit installation not recommended)
   c. consider convenience of homeowner
   d. room for installation and future access
   e. consideration for optional TouchRead® TouchPad installation if being used.
2. Install MIU at selected location using minimum of two sheet metal screws and/or cable ties.
3. If not already accessible, install a phone connection terminal within 18" of RJ-11 connector of MIU and connect to existing telephone network. A phone connection terminal with an RJ-11 connection is recommended. If telephone connection terminal is to be installed outdoors, the RJ-11 receptacle must be waterproof type. A waterproof contact lubricant is also recommended for all RJ-11 connections if the MIU is being installed outdoors or in high humidity locations such as a damp basement. Follow installation instructions provided with the phone connection terminal template to locate the mounting holes.

WARNING! DO NOT use telephone company's protector block as a connecting point if a standard network interface is connected to the protector block. Direct connection to the protector may be in violation of local telephone company regulations.

Before connecting to any phone system with an alarm interface or any alarm system interface jack, consult with the alarm company.

Note: MIU can only be connected to an analog loopstart phone line. If installing in existing digital telephone environment, an analog phone line must be provided.

4. Connecting encoder registers to MIU:

Inside ECR type registers:

a. Measure distance between ECR and meter; cut three-conductor cable to connect encoder register to MIU. (Do not exceed maximum length of 250 ft.)
b. Strip approximately two inches of outer insulation from both ends of three-conductor cable. **(Figure 1)**
c. Strip approximately 3/8" inch of the insulation from each of the three internal wires. **(Figure 1)**
d. Connect one end of three-conductor cable to encoder register as marked on register.

(Red to R; Black to B; Green to G)

- Proceed to step "e" next page.

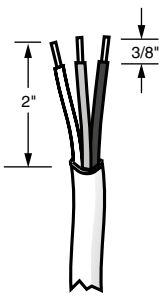


Figure 1

Installation Instructions

Sensus PhonRead® Meter Interface Unit (MIU)

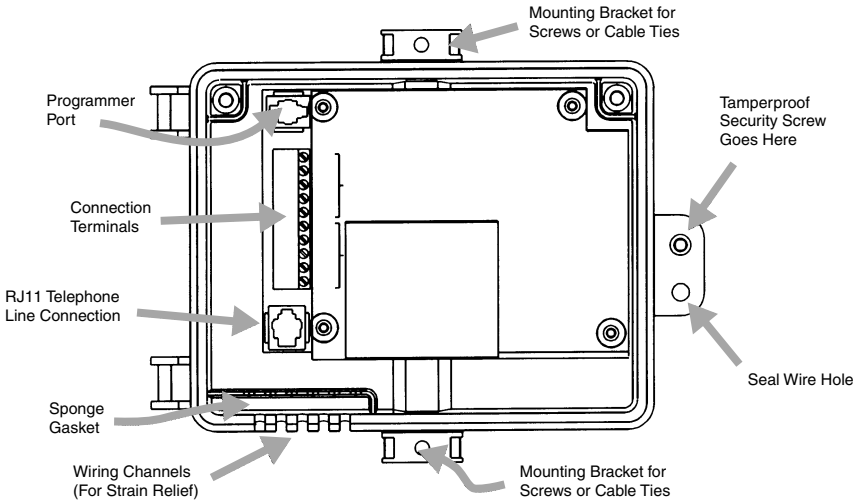


Figure 2 – MIU with Protective Cover Removed

Outside TR/PL and ECR/WP type registers:

a. Three-conductor cable is already connected and epoxy sealed to the terminal connections on the outside type Sensus encoder registers. Installer must ensure MIU is installed within reach of register wire or provide extension cable.

b. Cut encoder cable to desired length (if needed)

c. Strip approximately two inches of outer insulation from plain end of three-conductor cable. **(Figure 1)**

d. Strip approximately 3/8" of the insulation from each of three internal red, green and black wires. **(Figure 1)**

e. Connect MIU end of cable to desired port of MIU as marked on inside MIU protector plate. (Red to R; Black to B; Green to G) for Sensus encoder registers. Be sure to check that insulation is not trapped under screw of terminal block and no bare wires are making unintended contact. **(Figure 2)**

f. If optional TouchRead TouchPad is used, connect two-conductor cable to position marked “TP” on MIU protector plate with desired port. **(Figure 2)**

g. For wall mount TouchPad, two-wire connection is polarity insensitive. For TR/PL sensor installation, use red and black wires on sensor to read with TouchRead system. (For complete TouchRead installation and troubleshooting, see instruction bulletins TR-728, TR-997 and TR-998.

5. Coil and secure excess cable to the body of the meter or service line in a presentable manner.

6. To complete the MIU wiring installation, connect one end of the provided RJ-11 connection wire to the RJ-11 connection terminal on the MIU.

Connect the other end to the RJ-11 phone connection terminal that connects to the phone system. (The connection at the phone connection terminal may be made with either screw-down type spade connectors or a modular RJ11 plug.)

7. Leave approximately three inches of connection wires folded inside the MIU. Lift top section of sponge gasket in wire channel and route all connection wires through wire channels molded into the MIU enclosure. Fold sponge gasket on top of wires. When MIU cover is closed, this will provide strain relief for the connection wires. If programming MIU, proceed to next section. If MIU installation is complete, close MIU front cover and tighten tamperproof seal screw. Attach any required customer tamper detect seals.

Programming and Final Test

It is recommended the MIU be programmed in the field, at the installation site. This procedure ensures a proper installation and minimizes the need to revisit an installation.

Refer to MIU Programming Manual for options, instructions, and required hardware needed for programming.

Basic Programming Steps:

1. Connect MIU programmer to MIU programming port as identified on inside MIU protector plate.
2. Proceed with programming from HHD.
3. After programming and final test is complete, disconnect programming cable from MIU.
4. Close MIU front cover and tighten tamperproof seal screw. Attach any required customer tamper detect seals.

This completes the installation of the Sensus PhonRead MIU. If you have any questions regarding the installation, please contact Sensus Customer Service, your Sensus representative or authorized distributor representative.

Installation Instructions

Sensus PhonRead® Meter Interface Unit (MIU)

Federal Communications Commission (FCC) Requirements

The PhonRead Meter Interface Unit (MIU) is used on standard device telephone lines and connects to the standard USOC RJ11C telephone connection terminal. Connection to telephone company-provided coin service is prohibited; party lines service is subject to state tariffs.

If the MIU is not operating properly, remove it from the telephone network to insure that no harm will come to the network. The telephone company may temporarily discontinue service and may notify you in advance of disconnection. When notified, you can correct the problem and it's your right to file a complaint with the FCC.

The telephone company may make changes to its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications in order to maintain uninterrupted service.

The Ringer Equivalency Number (REN) is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs may result in the devices not ringing in response to an incoming call. In most, but not all cases, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total number of RENs, contact the local telephone company to determine the maximum REN for the calling area.

If repairs are needed to the MIU, they should be performed by Sensus or an authorized representative of Sensus. For more information contact:

Sensus Metering Systems
450 N Gallatin Ave.
Uniontown, PA 15401
Telephone: (724) 439-7700

FCC Warning Statement

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 the equipment does cause harmful interference to television or radio 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 antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modification not expressly approved by Sensus should void the user's authority to operate the equipment.

Canadian Requirements

NOTICE: The Canadian Industry and Science Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

> ***Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.***

The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

Installation Instructions

Sensus PhonRead® Meter Interface Unit (MIU)

AUTHORIZED SENSUS DISTRIBUTOR

SENSUS METERING SYSTEMS

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www.sensus.com (select "North America Water")

Email: h2oinfo@sensus.com