

**Itron**

*Electric | Gas | Water*  
*Information collection, analysis and application*

# **60W Endpoint**

Installation Guide

## Identification

60W Endpoint Installation Guide  
PUB-0771-001 Rev. A 01/06

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## Compliance Statement

This equipment has been tested and found to comply with the limits, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Operation is subject to the following conditions:

- This device may not cause interference.
- This device must accept any interference that may cause undesired operation of the device.

Complies with IC: R.S.S.-210

## Transportation Classification

The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. When powered, endpoints are considered operating transmitters and receivers and cannot be shipped by air.

## Product Returns

To comply with FCC, UN, and Department of Transportation regulations, all **units must be returned in their original packaging** following Itron's RMA process. **Bubble-up transmission must be disabled prior to shipping.** If you are unable to disable the transmitter or provide original packaging, contact Itron Customer Care.

## Repairs



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**WARNING!** Attempts to repair this device by unauthorized personnel may subject the person to shock hazard if removal of protective covers is attempted. Unauthorized repair may void the warranty and/or maintenance contract with your company.

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## Lithium Batteries



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**WARNING!** Follow these procedures to avoid injury to yourself or others.

- The lithium battery may cause a fire or chemical burn if it is not disposed of properly.
  - Do not recharge, disassemble, heat, or incinerate the lithium battery.
  - Keep the lithium battery away from children.
  - Replace the lithium battery only with batteries meeting Itron specifications. Any other battery may cause a fire or explosion
- 

## Suggestions

If you have comments or suggestions on how we may improve this document, send them to:

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# Before You Begin

## Overview

The 60W is available with either a 5' length of cable (not terminated) or with an inline connector (attached to approx. 7' of cable) and will interface with several encoded (absolute) registers. This document describes the installation of the 60W endpoint, including rod mount, wall mount, pipe mount and through-lid installations.

## How This Document is Organized

This document is organized as follows.

Chapter	Description
<a href="#">Chapter 1. <i>Getting Started</i></a>	Provides an overview of the 60W endpoint installation, including installation options, siting, and required tools.
<a href="#">Chapter 2. <i>Installing the 60WP Endpoint</i></a>	Provides step-by-step instructions for wiring the endpoint to a register and installing the endpoint using the rod mount, on a wall or similar surface, or on a pipe.

## Documentation Conventions

This document uses the following conventions.

Convention	Example
Iron product part numbers are noted in parentheses.	To install the endpoint (ERW-0771-2XX), do the following steps.
Hypertext links are <a href="#">blue</a> .	See <a href="#">Contents on page iii</a> for the complete table of contents.
The last line in a table is defined by a thick gray line.	Note the thick gray line below this row. If the table continues on another page, the column headings are repeated on each page.

**CAUTION** This type of note warns the user that failure to heed the information in the note could result in loss of data. Be sure to carefully read a CAUTION note and heed the advice/instructions.



**WARNING!** This type of note is used to warn of potential physical harm to the user or hardware. It is critical that you pay strict attention to WARNING notes, read the information carefully, and heed the advice/instructions.







# Chapter 1

## Getting Started

### About the 60W Endpoint

#### Overview

The 60W water endpoint is an AMR module that collects consumption and tamper information and reports in a bubbleup fashion. Approximately every 8 seconds, the 60W transmits a standard consumption message (SCM) at approximately +10dBm between 910-920 MHz. The 60W supports protocols for a variety of meter manufacturer's registers, including but not limited to: AMCO, Badger, Hersey, Neptune, and Sensus.

The 60W features the following capabilities:

- **Leak Detection** The 60W will continually compare hourly register readings. The 60W will report in the SCM if a zero consumption (equal to previous read) doesn't occur over a period of seven years
- **Tamper Indicators** To minimize the possibility of theft, the 60W features cut cable tamper reporting, as well as a security seal to indicate physical tampering. Cut cable is reported when the cable has been cut or disconnected from the register or the endpoint.
- **Reverse Flow Detection** The 60W will compare the hourly read with the previous read. If the current read is less than the previous read the 60W will report in the SCM that this occurred.

#### Battery Life

Powered by a non-replaceable long life dual lithium battery pack, the 60W endpoint has an expected battery life of 20 years.

#### Installation Options

The 60W endpoint may be installed in the following ways:

- **Rod Mount** Rod mount installation allows the endpoint to be mounted to a 3/8" outside diameter length of pipe, rebar, or conduit that has been driven at least 12 inches into the ground at the bottom of the meter pit..
- **Wall Mount** Wall mount installation attaches the endpoint to a wall or other surface within a meter pit..
- **Pipe Mount** The pipe mount (vertical pipe only) option allows the endpoint to be installed on a pipe near the meter rather than on a wall surface.
- **Through Lid** Used in conjunction with the through-lid mounting kit, this option allows the endpoint to be mounted up into a hole (1 7/8") in a pit lid.

## Included Materials

The following materials are supplied by Itron:

- 60W endpoint with inline connector (connector includes a protective cover) and security seal.

*or*

- 60W endpoint with a 5' cable (This configuration allows for connection directly to the register terminals.)
- Connector cables in 5-foot and 25-foot lengths. Itron typically supplies these cables to the meter manufacturer for potting to the register.

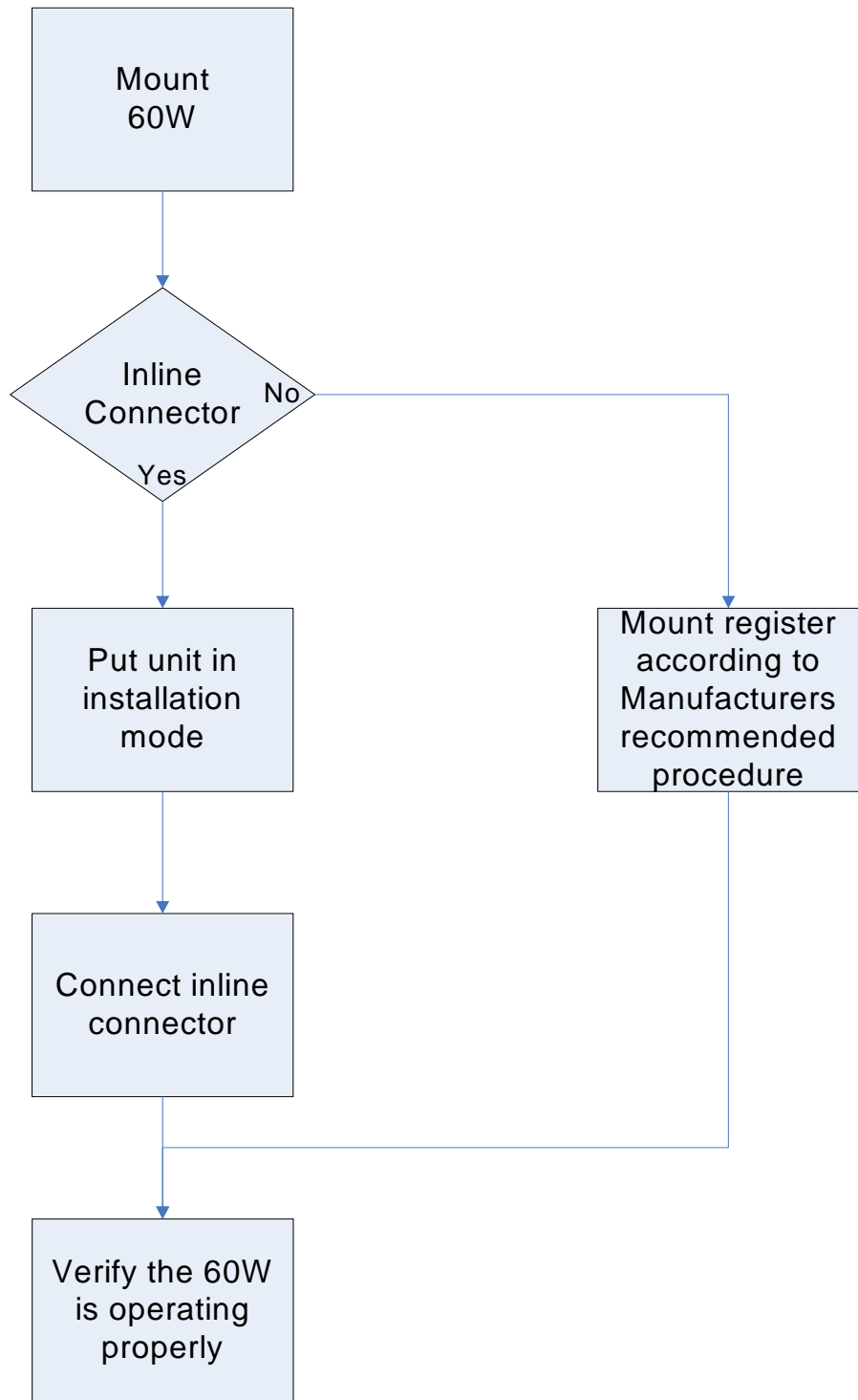
Figure 1: 60W Endpoint



## Materials Not Included

- Screws, Rebar Cable Ties, Hammer, Tape Measure and Screwdriver.
- Through Lid Mounting pieces, these can be ordered in quantities of ?? and include a Through Lid mount, Lid mount clamp and cable ties

# Installation Process Overview



## Compatible Registers

The following water meter registers are compatible with the 60W.

- AMCO Scancoder
- AMCO InVision
- Badger ADE (To be released at a later date)
- Hersey Translator (To be released at a later date)
- Sensus ICE, ECR, WP, TR-PL, and AMR System (To be released at a later date)
- Neptune ProRead and ARB V (formerly Schlumberger) (To be released at a later date)

The following figures show the cable assembly required for each installation

*Figure 2: AMCO InVISION*



*Figure 3: AMCO Scancoder with factory assembled inline connector and cable*



Figure 4: Badger ADE with factory assembled inline connector and cable



Figure 5: Hersey Translator with factory assembled inline connector and cable



Figure 6: For Neptune ProRead and ARB V, use the inline connector and cable assembly with unterminated wires



Figure 7: Sensus ICE, ECR WP, TR-PL, or AMR System with factory installed inline connector assembly



**NOTE** If the 60W endpoint and register are *not* being installed at the same time, the protective connector cover on the endpoint to be installed must be secured using cable tie *MSE-0005-002*. These cable ties can be ordered from Itron; they are not shipped with the 60W endpoint. The protective cover (on the endpoint side) is only meant to be used in the field for up to one year.

### Attaching a Cable Tie to the Connector

Follow the steps below to attach a cable tie to the connector.

Figure 8: Cable Tie (*MSE-0005-002*)



**NOTE** Follow utility recommendations for removing ties from cable assemblies.

- To install a cable tie, thread it through the holes in the connector and protective cover, then through the eye of the cable tie. Then pull the cable tie tight to secure it, as shown below.

Figure 9: Cable tie on a 60W connector



Figure 10: Cable tie on register connector





# **Chapter 2**

## ***Installing the 60WP Endpoint***

This chapter shows you how to install the 60W endpoint, including mounting, electrical connection and verify operation.

### **Step 1: Mounting the 60W**

Use one of the following procedures to mount the 60W.

- Rod Mount Installation ..... 4
- Wall (Pit Vault) Mount Installation ..... 8
- Pipe Mount Installation ..... 10
- Through-Lid Mount Installation .....12

## Rod Mount Installation

### Overview

The 60W endpoint can be mounted below the pit lid on a customer-supplied rod.

**WARNING!** The installer is responsible for ensuring that the area where the rod will be installed is free from other pipes, wires, or facilities that may be damaged by driving a rod into the ground.

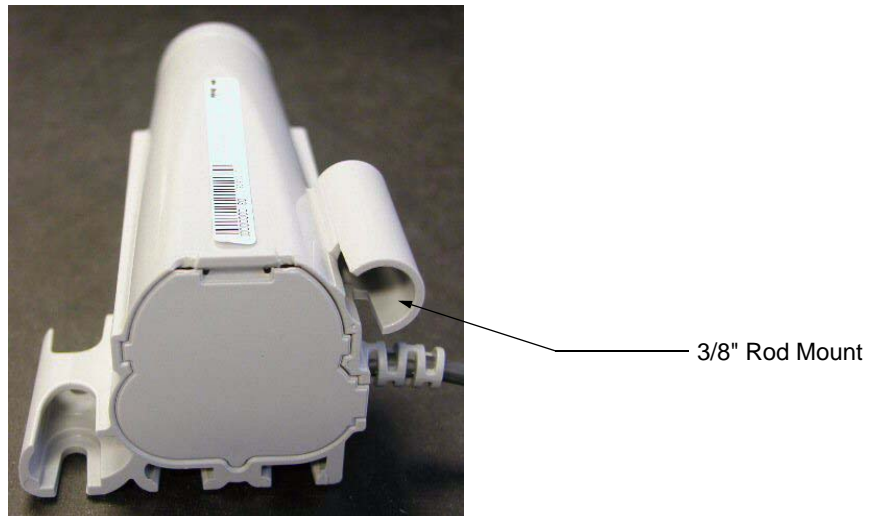
Local codes must be followed in the following procedure.

### Required Tools and Hardware

The following items are required for this type of installation.

- Hammer or sledge hammer
- Rod (Steel rod stock, PVC, or conduit): 3/8" outside diameter.
- Tape measure

*Figure 1: Bottom view of the rod mount, showing the 3/8" diameter rod hole*





## Installing with the Universal Rod Mount

To perform this type of installation, follow the steps below.

Step	Action
1.1	Remove the pit lid. Inspect the area to make sure there are no cables, pipes, or other obstructions.



1.2	Measure the depth of the pit, from the top lip (which the lid rests on) to the bottom of the pit.
-----	---



1.3	To properly mount, the rod (rebar, PVC, or conduit) must be cut at least 7" longer than the measured depth of the pit. For example, if the pit is 36" deep, the rod must be at least 40" long. Cut the rod to the appropriate length.
-----	--

Step	Action
------	--------

- |     |  |
|-----|--|
| 1.4 | <p>Without touching the meter body or adjacent pipes, position the rod as close to the center of the pit as possible, and then drive it into the ground at least 12".</p> <ul style="list-style-type: none"><li>• The rod must remain vertical.</li><li>• The top of the rod should be 5" below the lip of the pit (which the lid rests on).</li></ul> |
|-----|--|



**NOTE** For the best RF performance, the top of the endpoint must be perpendicular to the pit lid, and be within 1" to 3" below the pit lid once the installation is complete.

**NOTE** Due to varying soil conditions, Itron recommends the rod be driven into the ground at least 12".

1.5



3/8" Rod Mount

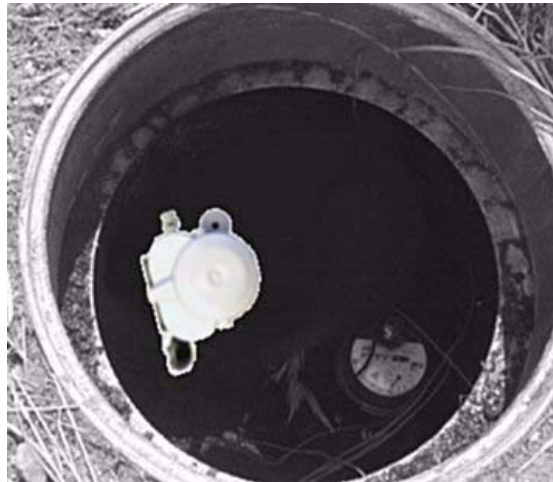
**Step Action**

- 1.6 Connect the 60W endpoint to the register via the inline connector, making sure the O rings are properly seated and not bulging out of the connector. Install the endpoint and rod mount assembly onto the rod, making sure the rod goes into the proper hole of the adapter.



- 1.7 When the installation is complete, the top of the endpoint should be perpendicular to and 1" to 3" below the underside of the lid. The endpoint must not contact the pit structure or lid.

**CAUTION** If the module installation is too high, too low, or touching, disassemble and relocate the rod in the pit.



## Wall Mount Installation

### Before You Begin

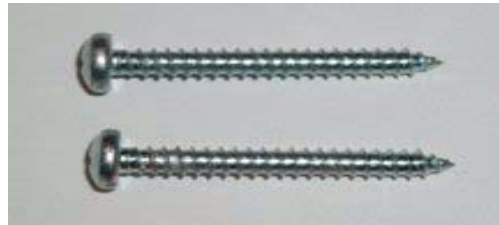
Select a mounting location inside the pit. Itron recommends mounting a 60W endpoint as close as possible to the top of the pit, and away from any metal objects.

### Required Tools and Hardware

Wall mount installation requires the following tools and hardware:

- Drill and bits for expected surface mounts
- #2 Phillips screwdriver
- Mounting screws.

Figure 2: Wall Mount materials



### Installing on a Surface

Use the wall mount installation kit to install a 60W endpoint on a wall or other flat surface in a meter pit.

- When mounting the endpoint to the wall in a rectangular pit box, use a flat wall as the mounting surface.
- When mounting the endpoint to the wall in a round pit box, ensure that the center spacing of the pilot holes is on-center and that the holes are straight and perpendicular to where the endpoint will attach. When the endpoint is installed, the mounting tabs will not be completely flush against the wall because of the curvature of the surface. In this environment, care should be taken to not over-tighten the mounting screws; the mounting tabs on the endpoint may break as a result.

To install the 60W endpoint, follow the steps below.

Step	Action
1.1	Select an installation location for the endpoint in the meter box.
1.2	Pre-drill two 3/32" holes into the wall or other surface. Position the pilot holes vertically on 3/4" centers.

**Step Action**

- 1.3 Position the 60W endpoint in an upright position, over the pilot holes as shown.



**IMPORTANT!** Any other endpoint position may negatively affect radio performance and battery life.

- 1.4 Screw the endpoint to the wall until snug using the supplied mounting screws.

## Pipe Mount Installation

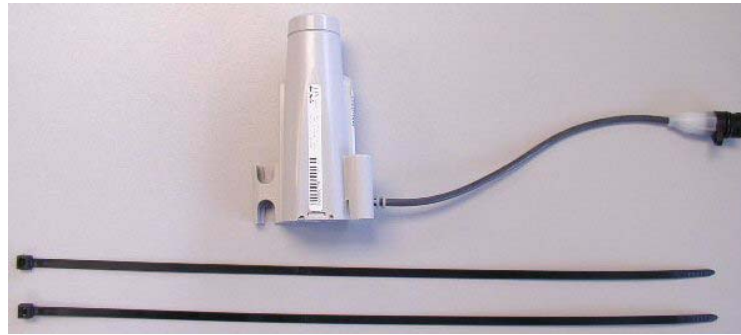
### Before You Begin

Select a mounting location. Itron recommends mounting the 60W endpoint as close to the top of the pit as possible, and also away from any metal objects.

### Required Tools and Hardware

You will need two 15" nylon cable ties (574-9008-007)

- Pliers



### Installing on a Pipe

To install the endpoint on a pipe, follow the steps below. .

Step	Action
1.1	Select an installation location.
1.2	Place first cable tie around the bottom of the 60W endpoint so that it will attach to the pipe in an upright position.
1.3	Place second cable tie around the top of the 60W endpoint so that it will attach to the pipe in an upright position.



Step	Action
------	--------

- |     |  |
|-----|--|
| 1.4 | Position the 60W endpoint in an upright position as shown. |
|-----|--|



**IMPORTANT!** Any other endpoint position may negatively affect radio performance and battery life.

# **Through-Lid Mount Installation**



## Step 2: Connecting the 60W to the water meter register

Note: Skip this step if an inline connector is not being used and the 60W is already connected to the water meter register. Follow the manufacturer's recommended procedure for installing the water register on meter.

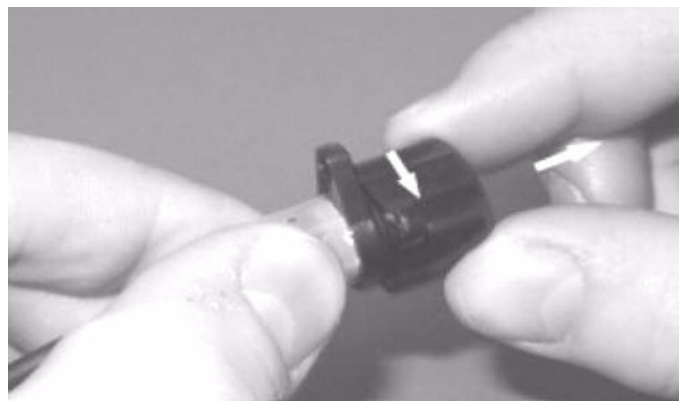
### Connecting an Inline Connector

The following section shows you how to attach the inline connector assembly.

Step	Action
2.1	Remove the protective cover from the connector by twisting the two halves in opposite directions, and then pull the halves apart.



Register or reed switch connector



Endpoint connector

**CAUTION** If any of the following conditions occur, do not install the endpoint:

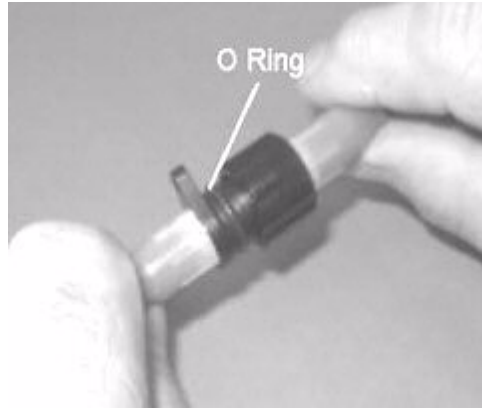
- If any of the three pins are damaged or missing
- The O ring is missing
- The cable is cut

**IMPORTANT** Make sure the connector halves are clean and dry before assembly.

Step	Action
2.2	Use shorting plug to initiate installation mode (optional). This will put the 60W in a mode where by it will read the register every minute and transmit every second for the first 15 minutes.

Step	Action
------	--------

- 2.3 Connect the endpoint to the register cable connector.
- Holding the connectors by the back-shells, rotate one end to align the keyed slots. Push until snug.



- Slide the black coupling over the O-ring. Make sure the O-ring stays seated. If the O-ring does not stay seated, disconnect and try again

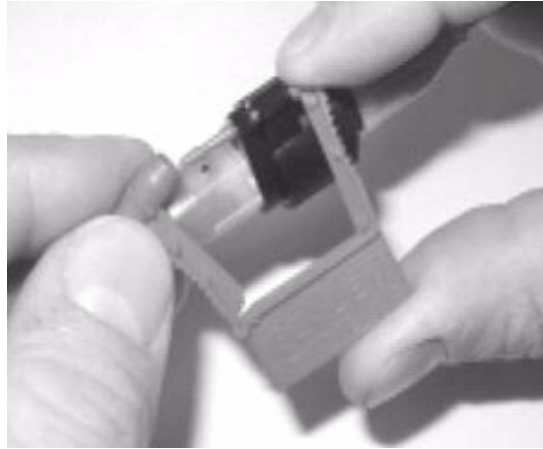


- Twist to align the two tabs.



Step	Action
------	--------

- |     |  |
|-----|--|
| 2.4 | Install the security seal as shown. Push it until it snaps into place. |
|-----|--|



**NOTE** For future servicing of either the meter or endpoint, break the security seal by pulling apart. Original protective connector covers can be reused if kept clean and dry. Install a new security seal after servicing either device. To order more parts, see the *Water Endpoint Ordering Guide (PUB-0063-001)*.

**IMPORTANT** Be sure to protect connectors with protective covers. Do not leave an exposed connector in the field.

## Step 3: Verify that the 60W is operating properly

Step	Action
3.1	<p>Using a G5R or FC200 verify that the 60W can be read and is reporting the correct consumption.</p> <p>Note: If the 60W is in "Installation mode" it will read the register every minute, if it's in "Normal mode" it will read the register every hour. This needs to be kept in mind when comparing the 60W for consumption to the water meter register index.</p>

Note: ReadOne Pro's, FS2PN and FS3PN readers should not be used to read the 60W. These readers do not keep their receivers on long enough or at the right frequency channels

## Appendix A

### Attaching the Inline Connector to the Neptune ProRead and ARB V Registers

Follow the steps below to attach the inline connector cable to the Neptune (formerly Schlumberger) ProRead and ARB V registers.

Figure 3: Neptune ProRead register



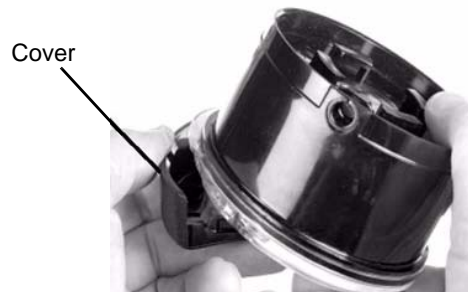
**CAUTION** Itron strongly recommends that customers contact Neptune to request factory potting of the inline connector cable to the register to ensure a proper seal. Should a retrofit be desired in the field, it is recommended that the register be removed from the field and the following procedure be performed in a controlled environment.

Step	Action
------	--------

- |   |  |
|---|--|
| 1 | Acquire an inline connector and cable assembly with unterminated wires. Refer to the <i>Water Endpoint Ordering Guide (PUB-0063-001)</i> for more information. |
|---|--|



- |   |   |
|---|---|
| 2 | Pull the bottom edge of the wire terminal enclosure's cover out and down, as shown below. |
|---|---|



**IMPORTANT** Failure to follow steps 3 and 4 will void the Itron warranty.

Step	Action
------	--------

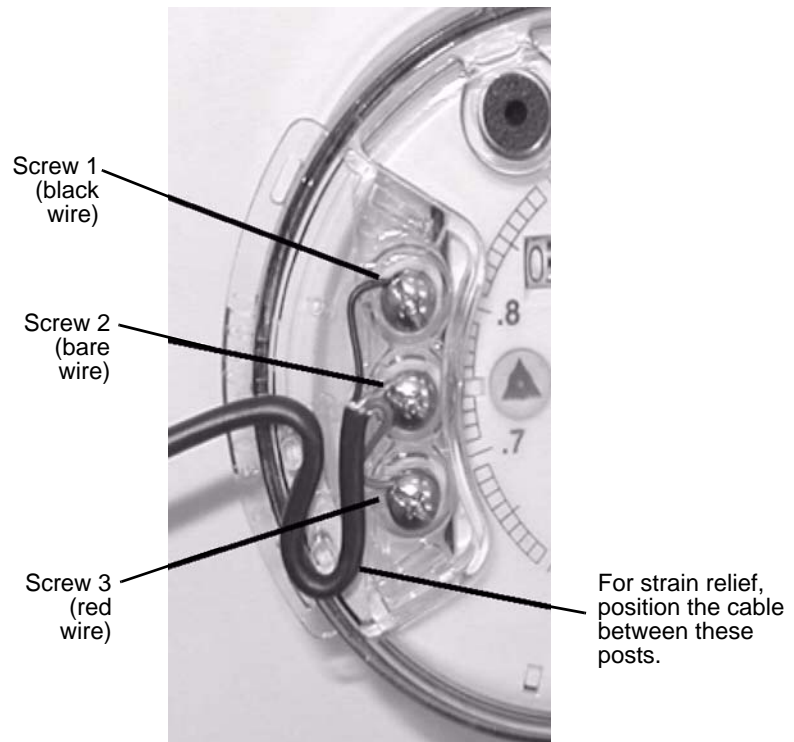
3 Connect the cable wires to the register screw terminals as shown below.

**IMPORTANT** Be sure to bend the wires around the screws in a clockwise direction (as viewed from the top). Failure to do so may allow some or all of the wire strands to come out from under the screw heads as you tighten them.

- Connect the black cable wire to **Screw 1**.
- Connect the bare cable wire to **Screw 2**.

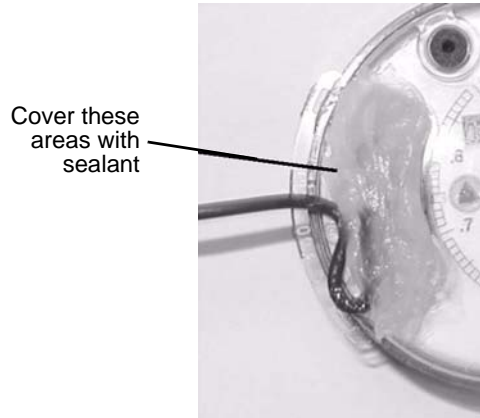
**NOTE** Make this bare wire short so that it pulls the cable close to the terminals and away from the outer jacket.

- Connect the red cable wire to **Screw 3**.



- | Step | Action   |
|------|--|
| 4    | Thoroughly cover the cable wires and register screw terminals with the Neptune-approved Dow Corning Compound #4 sealant. If necessary, contact Neptune for a list of suppliers in your area that carry this sealant. |

**IMPORTANT** Make sure all screw heads, the potting well, and the end of the cable are fully encapsulated with sealant.



- 
- |   |   |
|---|---|
| 5 | Put the terminal enclosure cover back on the register.  |
| 6 | When you have finished, the register and cable should look like this:<br><b>IMPORTANT</b> Excess sealant should be visible and extrude from the cable connection when the cover is mounted. |

