

Water Solutions

60W Endpoint Installation Guide

Putting knowledge to work.

Identification
60W Endpoint Installation Guide
PUB-0771-001 Revision D 06/17/2009

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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. All product returns must be shipped by ground transportation.

Repairs and Modifications

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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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.

Support

If you have questions or comments about this product, contact Itron Technical Support:

North America

- E-mail: support@itron.com
- Phone: 1 800 635 8725

Australasia

- E-mail: helpdesk@itron.com.au
- Phone within Australia: 1 800 246 377
- Phone outside Australia: 61 2 9299 5744

International

- E-mail: support.emea@itron.com
- Phone: +31 20 60 65 220

Web Support

<http://eKnowledge.itron.com>

Itron Website

<http://www.itron.com>

Suggestions

If you have comments or suggestions on how we may improve this documentation, send them to TechnicalCommunicationsManager@itron.com.

The following documentation conventions are used in this guide:

Convention	Example
Iron product part numbers are noted in parentheses.	To install the endpoint (ERW-0771-3XX), perform the following steps.
Hypertext links are in blue.	See Installation Process Overview for a diagram of the installation process.



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 and instructions.



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.



NOTE! This type of note provides additional information to the user.

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CHAPTER 1

Before You Begin

This document describes the installation of the 60W Endpoint for rod mount, wall mount, through-lid, and shelf mount installations. The 60W Endpoint is available in the following cable configurations:

- Inline connector with approximately six inches of cable
- 5-foot open-end cable
- 6-inch open-end cable

These cable combinations provide easy interface to several types of pulser meter registers.

The 6-inch cable variant allows meter manufacturers to integrally mount the endpoint to their respective meter registers. Installing the 60W Endpoint integrated with a meter register in a water pit box reduces the endpoint's RF signal distance significantly. If read reliability is a problem, select a new installation method.

How This Document is Organized

This document is organized into the following chapters:

Chapter	Description
1: Before You Begin	Information about this publication.
2: About the 60W Endpoint	Overview of 60W Endpoint installation.
3: Installing the 60W Endpoint	Step-by-step endpoint installation instructions for: <ul style="list-style-type: none">• Rod mount• Wall mount• Through lid mount<ul style="list-style-type: none">• Pit Lid Mounting Kit (CFG-0771-010)• Pit Lid Mounting Kit (CFG-0771-011)• Passive Radiator Kit (CFG-0771-006)• Pit lid shelf mount
4: Connecting the 60W Endpoint	Instructions to connect the 60W to the water meter using an inline connector and 5 ft cable. <ul style="list-style-type: none">• Verifying 60W Endpoint operation

About the 60W Endpoint

60W Endpoint are low-power radio frequency Automatic Meter Reading (AMR) endpoints that attach to a water meter to collect usage and tamper data, encode the data, and transmit that data to a data collection device. 60W Endpoints operate in bubble-up mode; the endpoints transmit a standard consumption message (SCM) at approximately every seven seconds at +10 dBm (10 milliwatts) between 910-920 MHz.

The 60W Endpoint support protocols for a variety of meter manufacturer's registers. Refer to the Water Meter Compatibility List (PUB-0063-002), for the list of supported meters and registers.

60W Endpoints feature the following capabilities:

- **Leak Detection:** The 60W Endpoint indicates by meter reading software that a potential system leak exists if a zero consumption value does not occur over a seven day period of hourly register reads. Upon detecting a zero consumption, the leak message changes to an **Off** status and the seven day test period is reset.
- **Tamper Indicators:** To minimize the possibility of theft, the 60W Endpoint features cut cable tamper reporting as well as a security seal to indicate physical tampering. A cut cable tamper is reported when the cable connecting the register and endpoint is cut or disconnected. The tamper counter value continues incrementing until the problem is resolved.
- **Reverse Flow Detection:** To detect reverse flow, the 60W Endpoint compares the register's current consumption reading to the reading obtained at the previous hourly update. If the register value is less, the endpoint signals the meter reading software to report a reverse flow condition for the next 40 days. The 40 day time limit is continually reset if another reverse flow event occurs before the period has timed out.



NOTE! When all the digits of the register roll over to zero a reverse flow condition is reported.

Battery Life

Powered by a non-replaceable, long life dual lithium battery pack, the 60W Endpoint has an expected battery life of 20 years. Battery life is 15 years for cable lengths 150 feet and over.

Installation Options

Install the 60W Endpoint using one of the following methods:

- **Rod Mount**—The endpoint is mounted on a 1/2 inch outside diameter rod.
- **Wall Mount**—The endpoint is mounted to a wall or other vertical surface within a meter pit.
- **Through Lid**—The endpoint is mounted in lids with hole sizes from 1 3/4 inches to 2 inches. Through Lid installation requires the Pit Lid Mounting Kit (CFG-0771-010 - discontinued or CFG-0771-011) or Passive Radiator Antenna Kit (CFG-0771-006). Refer to 60W & 60WP Installation Methods Overview (PUB-0771-010) for guidance on which kit to install for different pit lid material and traffic conditions.
- **Shelf Mount**—Used in conjunction with the shelf mount adaptor, the endpoint slides into a pit lid slot.



NOTE! The Shelf Mount option requires a pit lid slot with the correct dimensions to fit the 60W Endpoint assembly. Evaluate each type of pit lid to determine the proper installation option. See [Shelf Mount Installation](#) on page 30 for more information.

For water pit boxes, the type of installation method is based on two factors: the type of lid material and the current lid configuration. Metal lids require a through-lid solution for optimal endpoint radio performance. Plastic lids and other composite materials accept any installation methods described above (some lids have an underneath shelf design and require a Shelf Mount installation).

60W Startup Sequence

The 60W ships in a **Sleep State**. Register reads and data transmissions begin after the endpoint enters into an operating mode.

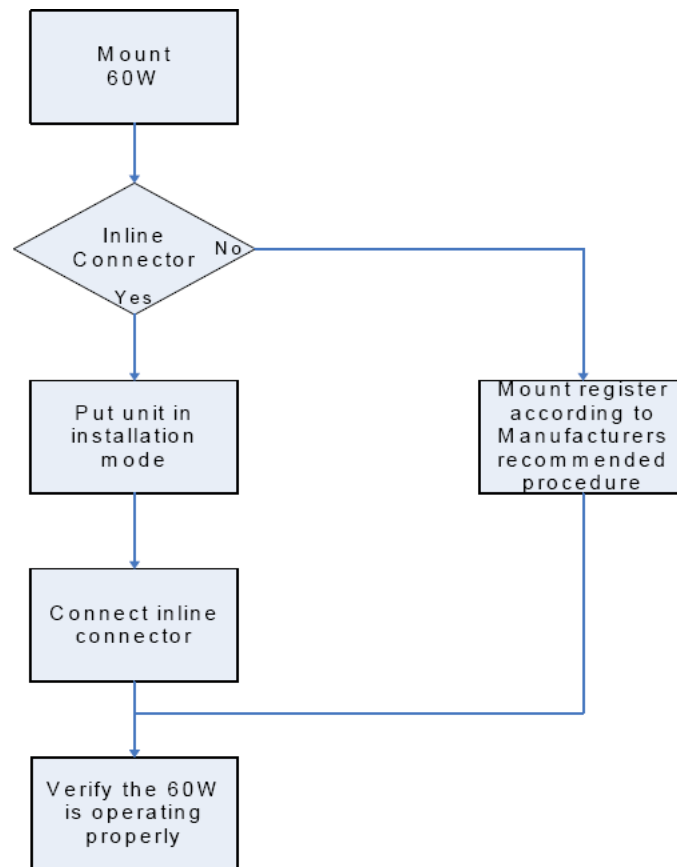
To place the 60W in an operating mode

1. Apply a shorting method (see [To connect the 60W to the register](#) on page 37) to place the endpoint into a **Fast Transmit State**. In **Fast Transmit State**, the endpoint transmits register data at two second intervals to determine if the endpoint and register are successfully communicating. The 60W-R remains in **Fast Transmit State** for 15 minutes if no communication errors occur.
2. If the 60W Endpoint obtains register data, it remains in the **Fast Transmit State** for 15 minutes and moves to a **Post Install State** for three hours.

3. If, during the **Post Install State**, the register connection is interrupted or the 60W does not get three additional register reads, the 60W Endpoint reverts back to the **Sleep State**.
4. If register and endpoint communications are successful, the 60W Endpoint enters a **Normal Operating State** after the three hour period. In **Normal Operating State**, the 60W reads the register once every hour and transmits data every seven seconds. After the 60W achieves **Normal Operating State**, it can never return to **Sleep State**.

Installation Process Overview

The process for installing a 60W Endpoint is illustrated below.



Attaching a Cable Tie to the Connector

If the 60W Endpoint and register are not installed at the same time, secure the protective connector cover on the endpoint using a cable tie (Itron part number MSE-0005-002). Cable ties are not shipped with the 60W Endpoint, but can be ordered from Itron. Use the protective cover (on the endpoint side) in the field for up to one year.

To install a cable tie to the connector

1. Thread the cable tie through the holes in the connector and protective cover.
2. Thread the cable tie end through the eye of the cable tie. Pull the cable tie tight to secure it (as shown).



CHAPTER 3

Installing the 60W Endpoint

This chapter provides the instructions to install the 60W Endpoint. Select one of the following procedures:

- [Rod mount](#) on page 15
- [Wall mount](#) on page 18
- [Through Lid mount](#) on page 20
- [Shelf Mount Installation](#) on page 32

Endpoint Accessories

60W Endpoint Accessories	
Accessory	Itron Part Number
Cable Ties 15-inch for indoor pipe mount installation (qty: 72)	CFG-0771-003
Pit Lid Mounting Kit minimum order: 36	CFG-0771-011
Passive Radiator Kit	CFG-0771-006
Shelf Mount Adaptor minimum order: 36	CFG-0771-007
Installation Shorting Plug (qty: 12)	CON-0774-002



NOTE! An installation plug is shipped with each box of 60W Endpoints.

Rod Mount Installation

The 60W Endpoint can be mounted below the pit lid on a customer-supplied 3/8-inch rod. The example installation described in this section uses a fiberglass rod. For supplier information on the rod material, see information under Compatibility Chart at the following Itron website address:

http://www.itron.com/pages/products_detail.asp?ID=itr_000428.xml&pgtype=&subID=ar



WARNING! The rod installation area must be free from other pipes, wires, or facilities that may be damaged by driving a rod into the ground.



CAUTION! You must follow local codes when using the rod mount installation method.

Required Tools and Hardware

- Hammer
- 3/8-inch to 1/2-inch outside diameter rod (1/2-inch diameter is preferred for new installations)
- Tape measure
- Cutting tool to adjust rod length

The 1/2-inch diameter rod hole is shown in the bottom and front view of the 60W Endpoint below.



To install the 60W Endpoint on a rod

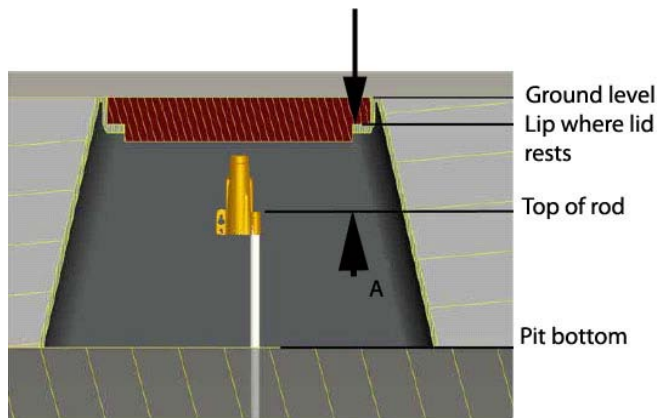
1. Remove the pit lid. Inspect the area to make sure there are no buried cables, pipes, or other obstructions.
2. Measure the depth of the pit box from the top of the lip (where the lid will rest) to the bottom of the pit. Be sure to measure the depth at the point where the rod will be driven into the ground.
3. Add 12 inches to the pit box depth measurement taken in step 2. The resulting total represents the minimum length of rod needed. Soil types and moisture conditions may require longer rod lengths to ensure the endpoint is well supported and remains vertical.
4. Without touching the meter body or adjacent pipes, position the rod as close to the center of the pit as possible. Drive the rod into the ground. Ensure the rod remains vertical.



5. Drive the rod into the ground to a depth equal to dimension A in the following illustration.
 - If the rod cannot be driven in enough to equal the 5 3/4 inch spacing, cut the remaining rod length to the proper height using an abrasive cut off tool.
 - If the rod is driven to the correct depth but remains loose in the soil, replace the rod with a longer version.



CAUTION! Cutting fiberglass creates dust particles. Practice proper safety precautions when using cut-off tools to prevent exposure to fiberglass dust particles.



- A. The top of the rod should be 5 3/4 inches below the lip where the lid rests. For pit lids extending more than two inches below the pit box lip, add the excess length to the 5 3/4 inch dimension.
6. Place the endpoint on the rod. Completely insert the rod into the endpoint's rod mount hole. Do not force the endpoint onto the rod. If the endpoint does not slide freely on the rod, remove the endpoint and examine the endpoint rod hole and rod for burrs or obstructions.



7. Installation is complete when the endpoint is perpendicular to the underside of the lid.
8. The endpoint must not contact the pit structure or lid.



CAUTION! If the 60W Endpoint is installed too high, too low, or is touching any of the surrounding surfaces, adjust as necessary.



Wall Mount Installation

For locations other than a water pit box, select a flat vertical mounting surface. Install the endpoint in an upright position. The arrow on the endpoint label must point upward.



CAUTION! Endpoint positioning other than upright could negatively affect radio performance and battery life.

To mount the endpoint to a water pit box, select a mounting location on the inside of the pit box and try to maintain a distance of one to three inches from the bottom of the pit box lid.

The endpoint is suitable for use with up to 300 feet of Itron approved cable.

Required Tools and Hardware

- Drill and drill bits appropriate for pit box material.
- Common hand tools for the selected fastening method.
- Mounting screws: #10 size pan head screws appropriate for the box material.

To install the 60W Endpoint using the wall mount procedure

1. Select a vertical surface in the meter box.
2. Position the endpoint vertically so the top of the endpoint is between one and three inches below the bottom of the lid.
3. Mark the location of the top mounting hole.
4. Drill a pilot hole in the pit box wall. Follow the screw manufacturer's recommendation for the size of the pilot hole.
5. For concrete-type pit boxes, it may be necessary to use a screw anchor. Choose an anchor appropriate for a #10 pan head screw.



CAUTION! Do not over-tighten the mounting screws. Over-tightening the mounting screws may break the endpoint mounting tabs.

6. Start a screw into the pilot hole. Using the top hole of the endpoint, set the endpoint over the screw head and slide it down so the screw is now at the top of the notch (as shown). Carefully tighten the screw until snug. Over-tightening the mounting screw could crack the endpoint housing.



7. Holding the 60W Endpoint in the upright position, drill the second pilot hole. Use the bottom mounting hole as a template.



NOTE! If mounting requires a screw anchor, mark the location of the bottom anchor and remove the endpoint. Drill the required mounting hole, insert the anchor, and re-attach the endpoint.



CAUTION! Any endpoint position other than upright may negatively affect radio performance and battery life.

8. Screw the bottom screw into the pilot hole until snug. Do not over-tighten the mounting screw.

Through Lid Mount

This section provides instructions to mount the 60W Endpoint in a pit lid with a drilled, round 1 3/4-inch, 1 7/8-inch, or 2-inch hole.



CAUTION! Some pit lids have a molded, recessed cavity that allows Itron 40W-1, 50W-1, and 50W-2 ERT modules to sit flush with the top surface of the lid. However, the dome of the endpoint retainer and passive radiator antenna for the 60-series endpoints, have a smaller diameter and do not fill the pit lid cavity. This can cause the cavity to become a trip hazard. Itron does not recommend using this type of pit lid with 60 Series endpoints.

Pit Lids with Holes

The Pit Lid Mounting Kit or the Passive Radiator Antenna Kit can be used for this application. This section will explain how to install both types of kits. Please refer to publication PUB-0771-010 for guidance on which kit to install for different pit lid material and traffic conditions.



NOTE! For lids requiring a drilled hole (lids without a hole), see [To install in new lids](#) on page 30.

Required Tools and Hardware

This mounting method requires the Pit Lid Mounting Kit or Passive Radiator Antenna Kit. Refer to 60W & 60WP Installation Methods Overview (PUB-0771-010) for guidance on which kit to install for different pit lid material and traffic conditions.

- Pit Lid Mounting Kit (CFG-0771-011)
- Passive Radiator Antenna Kit (CFG-0771-006)



NOTE! The Pit Lid Mounting Kit is not intended for applications involving vehicular traffic. Use the Passive Radiator Antenna Kit in incidental traffic areas (such as residential environments).

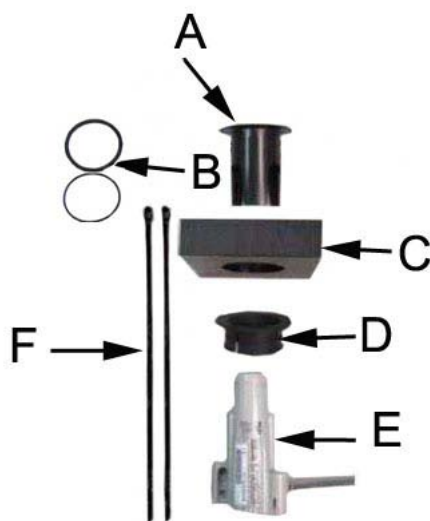
To install in lids with holes using Pit Lid Mounting Kit CFG-0771-010



NOTE! This mounting kit is discontinued and replaced by Pit Lid Mounting Kit CFG-0771-011. Customers with Pit Lid Mounting Kit CFG-0771-010 must follow this procedure. To mount the 60W with Pit Lid Mounting Kit CFG-0771-011, see [To install in lids with holes using the Pit Lid Mounting Kit \(CFG-0771-011\)](#) on page 24.

This section provides the instructions to install the 60W Endpoint in a pit lid with a hole using the CFG-0771-010 Pit Lid Mounting Kit (installation with the discontinued Pit Lid Mounting Kit requires a cable tie gun).

1. Verify you have the following items to complete the installation.



- | | |
|---|--|
| A | Retainer clip |
| B | O-ring spacer (not required for 1 3/4-inch hole)
small ring - 1 7/8" hole
large ring - 2" hole |
| C | Pit lid with a pre-drilled hole (simulated pit lid material shown) |
| D | Retainer clip collar |
| E | 60W Endpoint |
| F | Cable ties and cable tie gun |

2. Measure the diameter of the hole in the pit lid. If the hole diameter is 1 3/4-inch, an O-ring spacer is not required.
3. For 1 7/8-inch or 2-inch holes place the appropriate O-ring spacer over the pit lid mounting kit.
4. Insert the retainer clip into the hole in the pit lid.

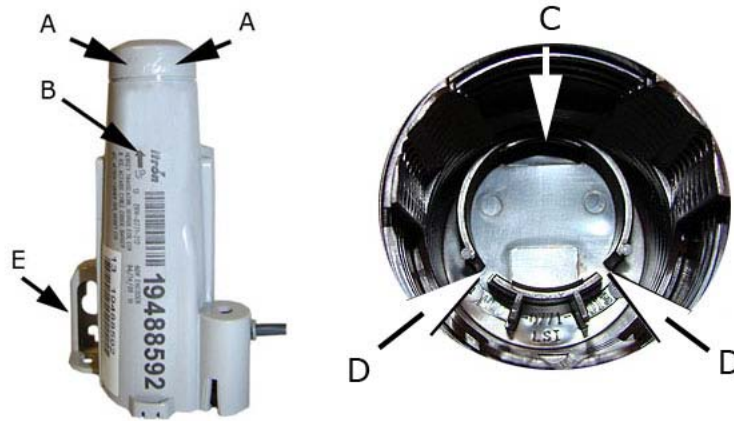
5. From the bottom side of the lid, place the retainer clip collar around the retainer clip and snug the collar to the bottom side of the pit lid. Make sure the top of the retainer clip is seated against the lid surface (photo shows inverted lid material and retainer clip collar).



6. Use a cable tie gun and 2 cable ties to secure the assembly.



7. Align and insert the top of the 60W Endpoint into the cavity of the retainer clip. The 60W Endpoint slides into the cavity with the Itron logo (A) and UP arrow (B) pointed to the top of the cavity circle (C). The two slots in the inner cavity circle (D) align with the back of the 60W (flat portion of the endpoint with screw holes for wall mounting - E).



8. Push the endpoint into the retainer clip until it snaps into place.

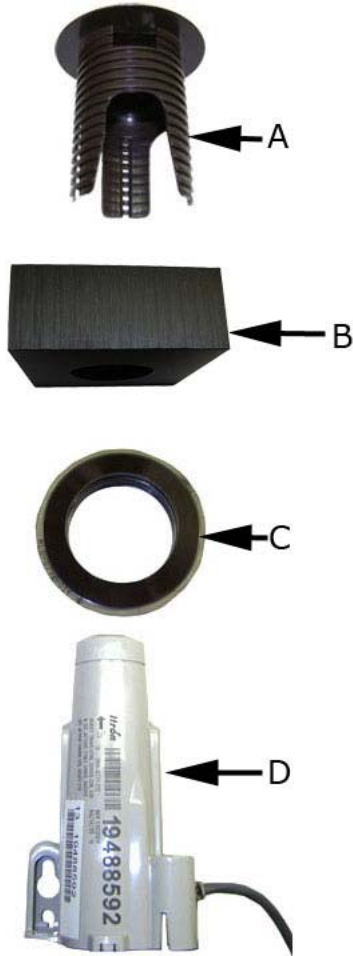
This completes installation of the 60W Endpoint in a pit lid with a drilled hole.



To install in lids with holes using the Pit Lid Mounting Kit (CFG-0771-011)

This section provides the instructions to install the 60W Endpoint in a pit lid with a hole using the Pit Lid Mounting Kit (CFG-0771-011).

1. Verify you have the following items to complete the installation.



- A Retainer clip
- B Pit lid with a pre-drilled hole
(simulated pit lid material shown)
- C Retainer clip collar
- D 60W Endpoint

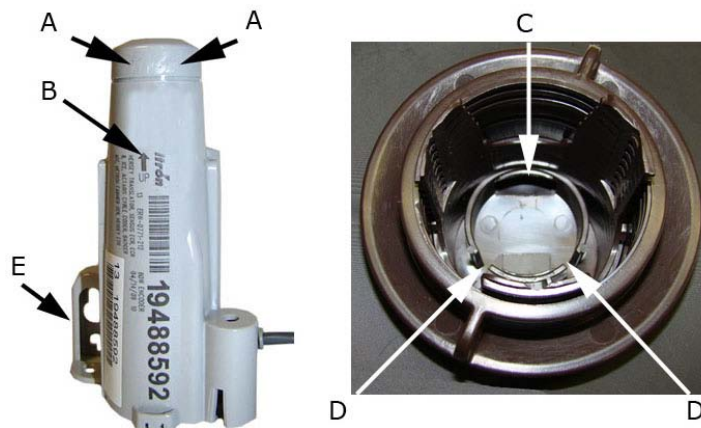
2. Insert the retainer clip into the hole in the pit lid with the convex surface on the top of the pit lid.



3. From the bottom side of the lid (picture below shows inverted lid material and collar), screw on the threaded collar two or three turns.



4. Align and insert the top of the 60W Endpoint into the cavity of the retainer clip. The 60W Endpoint slides into the cavity with the Itron logo (A) and UP arrow (B) pointed to the top of the cavity circle (C). The two slots in the inner cavity circle (D) align with the back of the 60W (flat portion of the endpoint with screw holes for wall mounting - E).



5. Tighten the retaining clip collar until the assembly is snug against the bottom of the pit lid.



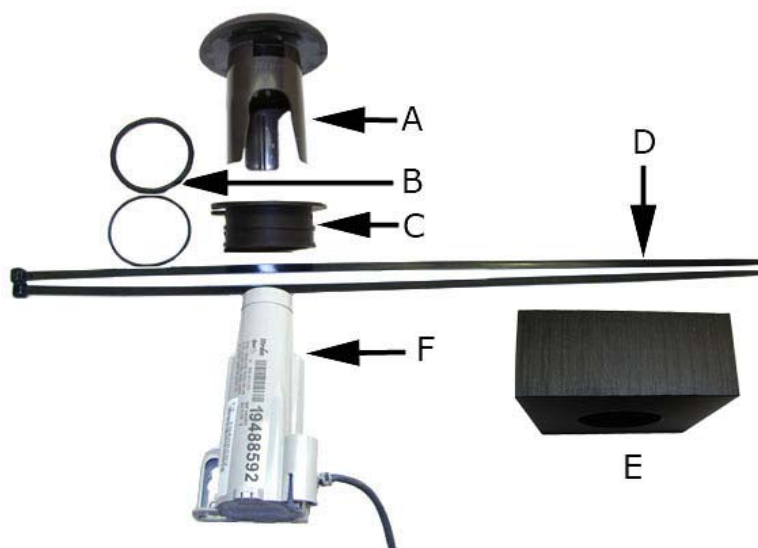
Pit Lid Mounting Kit installation is complete.

Mounting the 60W with the Passive Radiator Kit

Passive Radiator Kit installation requires a pit lid with a minimum hole circumference of 1 3/4" (maximum hole size is 2"). These instructions were completed using a simulated pit lid.

To install the Passive Radiator Kit

1. Verify you have the following materials.



60W Passive Radiator Kit (CFG-0771-006)

- A Passive Radiator
- B O-ring spacer
 - small ring - 1 7/8" hole
 - large ring - 2" lid hole
- C Retainer clip
- D Cable ties
- E Pit lid with a pre-drilled hole
(simulated pit lid material shown)
- F 60W Endpoint

2. Insert the passive radiator antenna, into the hole in the pit lid with the convex surface of the antenna on the top of the pit lid. The arrow on the passive radiator must point to the street.



CAUTION! The arrow on the Passive Radiator cover must point toward the street.



3. Place the retainer clip collar around the retainer clip. The collar must be snug against the bottom of the pit lid (the picture below shows an inverted assembly).



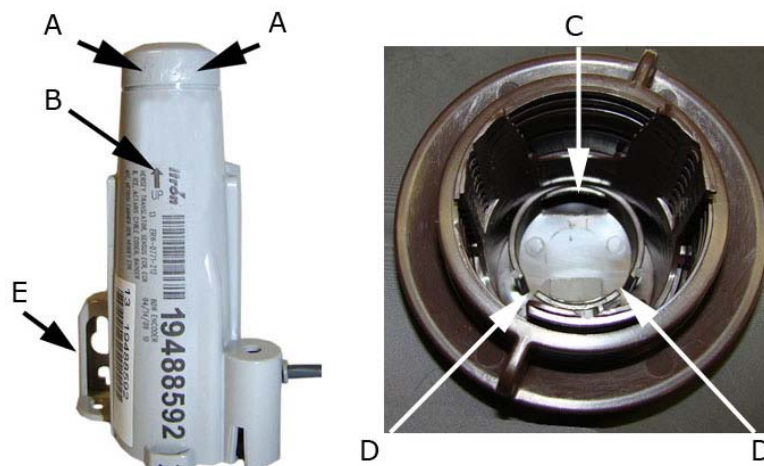
4. Attach the cable ties in the grooves on the retainer clip collar as shown below.



5. Remove excess cable ties from assembly.



6. Align and insert the top of the 60W Endpoint into the cavity of the retainer clip. The 60W Endpoint slides into the cavity with the Itron logo (A) and UP arrow (B) pointed to the top of the cavity circle (C). The two slots in the inner cavity circle (D) align with the back of the 60W (flat portion of the endpoint with screw holes for wall mounting - E).



7. Push the endpoint into the passive radiator antenna cavity until it snaps into place.



This completes installation of the 60W Endpoint in a pit lid using the Passive Radiator Kit.

Installing in a New Lid

This section describes installation of the 60W Endpoint in a pit lid without a drilled hole.



NOTE! For lids with holes already drilled, see [Pit Lids with Holes](#) on page 20.

Required Tools and Hardware

- Drill
- 1 3/4-inch drill bit appropriate for the lid material

This mounting method requires the Pit Lid Mounting or Passive Radiator Antenna Kit. Refer to 60W & 60WP Installation Methods Overview (PUB-0771-010) for guidance on which kit to install for different pit lid material and traffic conditions.

- Pit Lid Mounting Kit (CFG-0771-011)
- Passive Radiator Antenna Kit (CFG-0771-006)



NOTE! The Pit Lid Mounting Kit is not intended for applications involving vehicular traffic. Use the Passive Radiator Antenna Kit in incidental traffic areas (such as residential environments).

To install the 60W Endpoint in a new pit lid

1. Select a hole location with enough clearance on the bottom side of the lid to attach the retainer clip collar and cable ties or threaded clip collar.
2. Drill a 1 3/4 inch hole in the lid.



NOTE! The O-ring spacers included with the discontinued Pit Lid Mounting or Passive Radiator Kit are not used with this size hole. You can discard the O-rings.

3. See [To install in lids with holes using the discontinued Pit Lid Mounting Kit](#) on page 20, [To install in lids with holes using the Pit Lid Mounting Kit](#) on page 23, or [To install the Passive Radiator Kit](#) on page 27 to complete installation in a new lid.

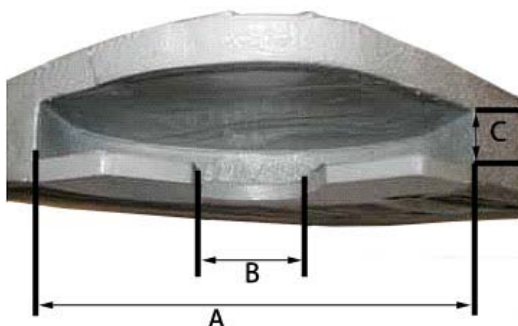
Shelf Mount Installation

This section describes 60W Endpoint installation using a Shelf Mount Adaptor to mount the endpoint in a pit lid slot.



CAUTION! The pit lid and slot must have the correct dimensions for the 60W Endpoint assembly to fit properly.

The following illustration and the accompanying table give pit lid slot dimensions for the shelf mount installation method.

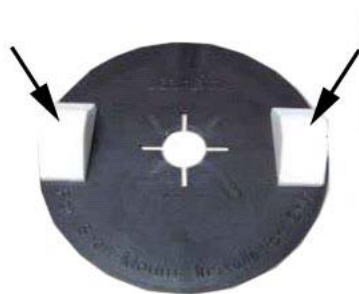


Pit Lid Slot Dimensions		
Dimension	Minimum (Inches)	Maximum (Inches)
A	6 3/4	N/A
B	2	5 3/4
C	3/4	1

Required Tools and Hardware

Installing the 60W Endpoint using a shelf mount adaptor for a pit lid slot requires a Shelf Mount Adapter with Foam Spacers.

- Shelf Mount Adapter (CFG-0771-007) includes foam spacers

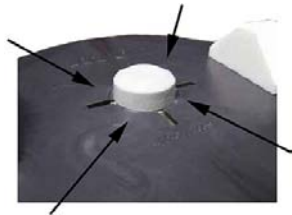


To install using the shelf mount adapter

1. With the foam spacer side of the adaptor up, snap the top of the 60W into the shelf mount adaptor.



2. Ensure that all 4 snap fingers are engaged in the groove around the 60W Endpoint.



3. Slide the adapter assembly into the pit lid with the foam spacers positioned on each side of the pit lid slot.



Correct position for foam spacers



CAUTION! Mount the shelf mount adapter with the foam spacers supported. Do not install the adapter assembly in a manner that provides little or no support under the foam spacers.



Foam spacer incorrect mounting position

4. The installed position of the endpoint should be vertical and upright when the lid is replaced on the pit.



CAUTION! Any endpoint position other than upright may negatively affect radio performance and battery life.

CHAPTER 4

Connecting the 60W Endpoint

This chapter provides the instructions to wire the 60W Endpoint to the water meter using an inline connector, a 5-foot cable, or a longer cable.

Using an Inline Connector

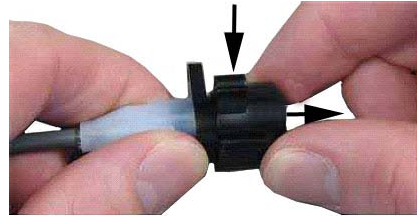
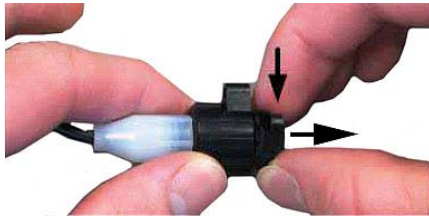
This section describes how to connect the 60W Endpoint to the water meter register using an inline connector assembly. Follow the manufacturer's recommended procedure for installing the water meter register on the meter.

To connect the inline connector



NOTE! If an inline connector is not used and the 60W Endpoint is already connected to the water meter register, skip this step.

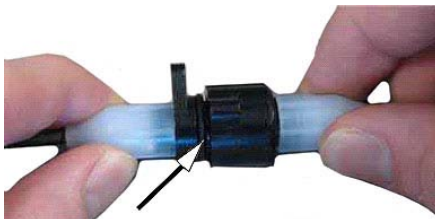
1. Remove the protective cover from the connector by twisting the two halves in opposite directions. Pull the halves apart.



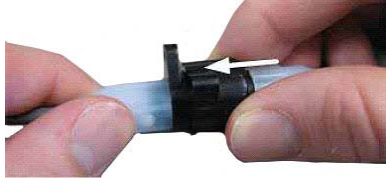
CAUTION! Make sure the connector halves are clean and dry before assembly.

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

- Any of the three pins are damaged or missing
 - The O-ring is missing
 - The cable is cut or nicked
2. 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.



3. 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.



4. Twist to align the two tabs.



5. 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. The 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).



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

Using a 5-Foot Cable

This section describes how to connect the 60W Endpoint to the water meter register using the 5-foot cable.



CAUTION! The wire terminations must be properly coated with a non-conductive gel material to prevent water intrusion; otherwise, this configuration should not be used in a pit box environment.

To connect the 60W to the register

1. Remove the protective cover from the end of the cable by grasping the cover and pulling.
2. Use the shorting plug provided with the inline connector or temporarily short the red and white wires to initiate installation mode (see [60W Start-up Sequence and Operating Modes](#) on page 10). In installation mode, the 60W Endpoint reads the register every 30 seconds and transmits every second for the first 15 minutes. Failure to connect to a register in the allotted time, causes the endpoint to revert back to **Sleep** state. If the endpoint reverts back to a **Sleep** state, repeat this step.



CAUTION! If you simply connect the 60W to the meter register, the endpoint might not activate.

3. Connect the wires to the register screw terminals according to the following table.

Register manufacturer	60W wire color		
	Red (data)	Black (power/clock)	White (ground)
	Register wire screw color		
AMCO Invision	R	GRN	BLK
AMCO Scancoder	R	GRN	BLK
Hersey Translator	GRN	R	BLK
Badger ADE	GRN	R	BLK
Sensus ECR	GRN	R	BLK
Sensus ICE	GRN	R	BLK
Metron Famier	GRN	R	BLK
Actaris Coder	GRN	R	BLK
ProRead	R	BLK	GRN
ARBV	R	BLK	GRN
Performance ETR	GRN	R	BLK
SevernTrent SM700 SmartMeter (Sensus Protocol)	GRN	R	BLK



CAUTION! If the screws are not sufficiently tightened or if wire insulation is under the head of the screw, intermittent electrical connection may occur. You must use a moisture-proof sealant if the meter will be used outdoors or in any environment where moisture could collect on the screw terminals.

Verifying Operation of the 60W Endpoint

Use one of the following handheld computers to verify consumption:

- G5R
- FC200R



NOTE!

- Each handheld radio requires special setup and configuration parameters to successfully read and program 60-series products. Refer to the respective meter reading application for specific instructions.
- When using an FC200R ensure the RF Mode is set to 32. The G5R will require a special API. See MVRS 7.6 Release Notes for details.
- When comparing the actual register value to that reported by the 60W Endpoint please keep in mind the endpoint's consumption value is updated every hour when it is in a "Normal" state.
- ReadOne Pro, FS2PN and FS3PN readers should not be used to read the 60W Endpoint. These readers do not keep their receivers on long enough or at the right frequency to reliably capture a 60W Endpoint transmission.