



# OpenWay Riva 500G Gas ERT Module Installation Guide, Direct Mount

## Identification

OpenWay Riva 500G Gas ERT Module Installation Guide, Direct Mount

10 June 2016 TDC-1671-000

OpenWay Riva 500G

500G ERT module part numbers: 500G: ERG-7000-001, ERG-7000-002, ERG-7000-003, ERG-7000-004, ERG-7000-005, ERG-7000-006, ERG-7000-007, ERG-7000-008

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## Confidentiality Notice

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## Trademark Notice

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All other product names and logos in this documentation are used for identification purposes only and may be trademarks or registered trademarks of their respective companies.

## Applicable Patents

U.S. Patent Numbers: 4,614,945; 4,753,169; 4,768,903; 4,799,059; 4,867,700

Canadian Patent Numbers: 1,254,949; 1,267,936; 1,282,118

## Compliance Statement

Telemetry Equipment for use in Hazardous Locations, for Cl I, Div 1, Gp D for Haz Loc, Temp Code T2,  $-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$

This device complies with 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 two conditions:

- This device may not cause harmful interference.
- This device must accept any interference that may cause undesirable operation.

This device must be permanently mounted such that it retains a distance of 20 centimeters (7.9 inches) from all persons in order to comply with FCC RF exposure levels.

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 this equipment does cause harmful interference to radio or 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 antenna.
- 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 or TV technician for help.

## Compliance Statement

This equipment complies with policies RSS-247 and RSS-GEN of the Industry Canada rules.

Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

## Transportation Classification

The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. When powered, any 500G ERT module is considered an operating transmitter and receiver and cannot be shipped by air. All product returns must be shipped by ground transportation.

## Modifications and Repairs


To ensure system performance, this device and antenna shall not be changed or modified without the expressed approval of Itron. Any unauthorized modification will void the user's authority to operate the equipment.

## Meter Installation/Removal

In the event of malfunction, all repairs should be performed by Itron. It is the responsibility of users requiring service to report the need for service to Itron.

## **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 above 100° Celsius (212° Fahrenheit), crush, expose to water, or incinerate the lithium battery.
- Keep the lithium battery away from children.
- Fire, explosion, and severe burn hazard.

 **Warning** Only authorized and qualified personnel should attempt to install or service Itron equipment. Attempts to do so by others might void any maintenance contract with your company. Unauthorized service personnel might also be subject to shock hazard on some Itron equipment if removal of protective covers is attempted.

 **Warning** To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

 **Warning** Substitution of components may impair intrinsic safety.

 **Warning** Electrostatic Ignition Hazard Ensure area is not hazardous when installing, servicing, cleaning or touching the ERT module.

 **Warning** Clean only with a damp cloth.

## Déclaration de conformité

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.



**Warning** ERT modules contain sensitive electronic components which can be damaged if the module is dropped from heights greater than 36 inches. Product warranty coverage is contingent on not exceeding this drop height limitation.

#### Suggestions

If you have comments or suggestions on how we may improve this documentation, send them to [TechnicalCommunicationsManager@itron.com](mailto:TechnicalCommunicationsManager@itron.com)

If you have questions or comments about the software or hardware product, contact Itron Technical Support:

The information included in this guide is current as of the date of publication. Information within this guide including software versions and product names are subject to change without notice.

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# Before You Begin

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## Document Conventions

The following documentation conventions are used in this installation guide:



**Caution** A Caution warns the installer that failure to follow the information in the note could result in loss of data. Be sure to carefully read a Caution note and follow the advice or instructions.



**Warning** A Warning alerts the installer about potential physical harm to the installer or hardware. It is critical that you pay strict attention to Warning notes, read the information carefully, and follow the advice or instructions.



**Tip** A Tip provides the installer with extra hints or suggestions to make a task easier to perform or a concept easier to understand.



**Note** A Note supplies generic information to the installer. The installer can ignore the information and continue a task without suffering any adverse consequences.

## Document Purpose

This installation guide provides step-by-step instructions for installing the 500G ERT module on a wide variety of meters. Mechanical installation procedures are identical for all 500G ERT modules based on form or meter type. Compatible meters are listed in the Meter Compatibility List.



**Note** The illustrations in the installation procedures may show the Itron 100G series gas ERT module. The form factor of the 100G series and 500G series Riva gas modules are identical.





## About the 500G Gas ERT Module

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Itron ERT Modules are radio-frequency (RF) devices designed to transmit meter data to an RF meter reading device within transmission distance of the ERT module. The 500G ERT module was designed with a higher output power to meet Itron mobile and fixed network requirements. The ERT module offers high transmit power capability which increases operational efficiency and reduces infrastructure costs. The 500G ERT module higher transmit power and data logging capability (time-stamped hourly interval data) is possible over both mobile and fixed network applications using increased antenna efficiency and more robust optimized messaging structures. Itron's 500G ERT module increases network efficiency with SCM+ messaging and optimum network security. The 500G ERT module OpenWay system security provides superior protection for communication messaging to prevent unauthorized users from gaining access to the system.

### Transmission Modes

The 500G ERT module can be set to transmit in Handheld (HH) or Mobile (M) Mode. In HH/M mode, the 500G ERT module transmits a medium-powered RF message every 15 seconds. Output power in this mode is 10 milliwatts or +10dBm; expected battery life is 20 years.

An FCC license is not required to read the 500G ERT modules.

### 500G Gas ERT Module and Itron Security Manager

The 500G ERT module is a component of Itron's OpenWay Riva system. The OpenWay Riva system enhanced security, provided by Itron Security Manager (ISM), applies to the RF communications between the collection device and the ERT module.

There are two fundamental security processes used in the Itron Security Manager to ensure system communication confidentiality and validity.

- **Authentication.** Authentication is the process of confirming that an artifact is genuine or valid. Authentication in the ERT module is the process of verifying a request is from a valid source and in its original form.
- **Encryption.** Encryption is the process of transforming information to make it unreadable to anyone who does not have a valid security key. There are two types of encryption, symmetric and asymmetric. Symmetric encryption uses a shared key to decrypt or encrypt information. Asymmetric encryption uses a private key to encrypt and a public key to decrypt.

As a component of the Itron Openway Riva solution, the ERT module supports the security model found in the OpenWay solution for both reading and programming. If the ERT module are shipped without enhanced security enabled (ready to secure), the utility can—at a later date—configure the modules for ISM enhanced security.



**Note** Enabling or working with Itron ISM enhanced security requires FDM Endpoint Tools Enhanced.

## Enabling 500G ERT Module Security

When 500G ERT modules ship from an Itron factory, each module contains utility factory keys. The presence of these utility factory keys does not enable the enhanced security; the installer enables the enhanced security at the time the ERT module is deployed or at a later time using an Itron programming device, Field Deployment Manager Endpoint Tools Enhanced, and programming commands. Initial key exchange commands are secured using the utility factory keys. For more information about programming the 500G ERT module for security, see the *FDM Endpoint Tools Mobile Application Guide* (TDC-0934).

## 500G Gas ERT Module Specifications

Functional Specifications	Description
Power Source	Two "A" cell lithium batteries
Tamper Detection	Tilt and cut cable
FCC Compliance	Part 15 certified
Innovation, Science and Economic Development Canada (ISED)	RSS-247 and RSS-GEN certified
Intrinsically Safe per	Telemetry Equipment for use in Hazardous Locations, for Cl I, Div 1, Gp D for Haz Loc, Temp Code T2, $-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$ .
Product Identification	Numeric and bar coded module type and serial number
Construction Materials	Gray polycarbonate housing and back plate with encapsulated electronics
Operational Specifications	Description
Operating Temperatures	$-40^{\circ}$ to $158^{\circ}$ F ( $-40^{\circ}$ to $+70^{\circ}$ C)
Operating Humidity	5 to 95 percent relative humidity
Program Frequency	908 MHz
Transmit Frequency	Frequency Hopping Spread spectrum 902.2 to 927.75 MHz in the ISM band
Data Integrity	Verified in every data message
Messages	FM and AM modulation

## Related Documents

Document Title	Document Part Number
<i>OpenWay Riva 500G Gas ERT Module Installation Guide, Remote Mount</i>	TDC-1678-XXX
<i>OpenWay Collection Manager Operational Guidelines</i>	
<i>OpenWay Riva Events and Exceptions Reference Guide</i>	
<i>Gas and Telemetry Module Meter Compatibility List</i>	PUB-0117-002
<i>Gas and Telemetry Module Ordering Guide</i>	PUB-0117-001
<i>OpenWay Riva 500G Gas ERT Module Specification Sheet</i>	
<i>Field Deployment Manager Endpoint Tools Mobile Application Guide</i>	TDC-0934-XXX
<i>Field Deployment Manager Field Representative's Guide</i>	TDC-0936-XXX

**Note** The last three digits of the user and installation guides represent the document's revision level. The revision level is subject to change without notice.

## 500G ERT Module Meter Compatibility List

The following table lists meter types compatible with the 500G ERT module. Due to continuous research and product improvements and enhancements, Itron reserves the right to change product or system specifications without notice.

### Elster American (Canadian)

Meter Model	Meter Notes	Module Type	Itron Part Number	Gas Module Notes
W75AL	Aluminum case	500G	ERG-7000-001	
AC-175	Aluminum case	500G	ERG-7000-001	
AL-175	Aluminum case	500G	ERG-7000-001	
ALC-175	Aluminum case	500G	ERG-7000-001	
AT-175	Aluminum case	500G	ERG-7000-001	
AT-210	Aluminum case	500G	ERG-7000-001	
AL-225	Aluminum case, Canada only	500G	ERG-7000-001	
5B-225	Aluminum case	500G	ERG-7000-001	Must cut 1/16" off the end of the module wiggler drive post which will make the module incompatible with other 2-ft. drive meters.
AC-250	Aluminum case	500G	ERG-7000-001	
AL-250	Aluminum case	500G	ERG-7000-001	
AM-250	Aluminum case	500G	ERG-7000-001	
AR-250	Aluminum case	500G	ERG-7000-001	
AT-250	Aluminum case	500G	ERG-7000-001	
AL-310	Aluminum case	500G	ERG-7000-001	
AL-350	Aluminum case	500G	ERG-7000-001	
AL-425	Aluminum case	500G	ERG-7000-001	
AC-630	Aluminum case	500G	ERG-7000-001	
AC-800	Aluminum case	500G	ERG-7000-001	
AL800	Top mount index	500G	ERG-7000-007	
AL1000	Top mount index	500G	ERG-7000-001	
AL1400	Top mount index	500G	ERG-7000-007	
AL2300	Top mount index	500G	ERG-7000-007	
AL3000	Top mount index	500G	ERG-7000-007	
AL5000	Top mount index	500G	ERG-7000-007	
35B	Iron case	500G	ERG-7000-007	
60B	Iron case	500G	ERG-7000-007	
80B	Iron case, must have front-reading index	500G	ERG-7000-007	
250B	Iron case	500G	ERG-7000-007	
500B	Iron case	500G	ERG-7000-007	

## About the 500G Gas ERT Module

### Elster American (Canadian)

Meter Model	Meter Notes	Module Type	Itron Part Number	Gas Module Notes
Rotary RPM Series (No pulser, no instrument)	Use Elster American kit numbers 93179K002, 003, 004, or 005 to modify the meter with an adapter to attach a residential gas module. Purchase adapter from Elster American.	500G	ERG-7000-001	
Rotary RPM Series	Instrument platform with mechanical drive.	500G	ERG-7000-007	

### GE Oil & Gas/Dresser Meters

Meter Model	Meter Notes	Module Type	Itron Part Number	Gas Module Notes
Series B3 8C—56M CTR 8C—16M TC (No pulser, No instrument drive)	To attach an Elster American residential ERT module, install GE Dresser's Elster American AMR adapter kit, P/N 059599-000. Purchase AMR adapter from GE Dresser.	500G	ERG-7000-001	
Series A (LMMA) 1.5M—5M CTR (No pulser, No instrument drive)	To attach an Elster American residential ERT module, install GE Dresser's Elster American AMR adapter kit, P/N 058530-610. Purchase AMR adapter from GE Dresser.	500G	ERG-7000-001	
Series A (LMMA) 7M—16M CTR (No pulser, No instrument drive)	To attach an Elster American residential gas module, install GE Dresser's Elster American AMR adapter kit, P/N 058531-610. Purchase AMR adapter from GE Dresser.	500G	ERG-7000-001	
Series A (LMMA) 1.5M—5M TC (No pulser, No instrument drive)	To attach an Elster American residential gas module, install Dresser's Elster American AMR adapter kit, P/N 058224-641. Purchase AMR adapter from Dresser.	500G	ERG-7000-001	
Series Z 5C/8C15	To attach an Elster American residential gas module, install GE Dresser's Elster American AMR adapter kit, P/N 059847-000. Purchase AMR adapter from GE Dresser.	500G	ERG-7000-001	
Instrument drive B3: CTR TC, 8C—11M	Instrument platform with mechanical drive.	500G	ERG-7000-007 ERG-7000-008	
LMMA: CTR TC: 1.5M—11M				

## About the 500G Gas ERT Module

### Itron (Actaris, Schlumberger, Sprague)

Meter Model	Meter Notes	Module Type	Itron Part Number	Gas Module Notes
175	2-hole index cover 3-hole index cover	500G	ERG-7000-005	
175 Combination	3-hole index cover integrated regulator 2-hole index cover	500G	ERG-7000-005	
175RM	Flat-face meter Regulator on back of meter	500G	ERG-7003-009	
175WC	3-hole index cover	500G	ERG-7000-005	
210	Slant-face meter	500G	ERG-7000-005	
240	Slant-face meter	500G	ERG-7000-005	
240	Flat-face meter 1-hole index cover	500G	ERG-7000-005	All modules require Itron 1A Adapter Kit, Itron P/N CFG-0015-001.
240	2-hole index cover	500G	ERG-7000-005	
240 Combination	Integrated regulator	500G	ERG-7000-005	
250	Slant-face	500G	ERG-7000-005	
I-250	Slant-face	500G	ERG-7003-005	
250WC	Integrated regulator	500G	ERG-7000-005	
METRIS 250	Slant-face	500G	ERG-7000-005	A longer mounting screw may be required when retrofitting to some vintage METRIS meters. Longer mounting screw is Itron P/N 010626-002.
METRIS RM	Slant-face meter, back inlet and outlet	500G	ERG-7000-005	A longer mounting screw may be required when retrofitting to some vintage METRIS meters. Longer mounting screw is Itron P/N 010626-002.
METRIS MB	Slant-face meter, back inlet and outlet without regulator	500G	ERG-7000-005	A longer mounting screw may be required when retrofitting to some vintage METRIS meters. Longer mounting screw is Itron P/N 010626-002.
1A	Flat-face meter includes 3-dial, 2 cf indexes.	500G	ERG-7000-005	Installation requires Itron 1A Adapter Kit, P/N CFG-0015-001.
305 Combination	Integrated regulator	500G	ERG-7000-005	
400	Slant-face meter	500G	ERG-7000-005	
400A	Slant-face meter	500G	ERG-5000-005	
675A	Top-mount index	500G	ERG-7000-007	Requires Itron (Actaris) adapter P/N 8005901-001. Purchase from Itron.
800A	Top-mount index	500G	ERG-7000-007	Requires Itron (Actaris) adapter P/N 8005901-001. Purchase from Itron.
1000A	Top-mount index	500G	ERG-7000-007	Requires Itron (Actaris) adapter P/N 8005901-001. Purchase from Itron.

## About the 500G Gas ERT Module

### National (Lancaster)

Meter Model	Meter Notes	Module Type	Iron Part Number	Gas Module Notes
175	National meter indexes with bow-tie shaped wrigglers cannot be used.	500G	ERG-7000-006	Actaris/Schlumberger/Sprague direct read (odometer) indexes cannot be used.
U175 UL175	National meter indexes with bow-tie shaped wrigglers cannot be used.	500G	ERG-7000-006	Actaris/Schlumberger/Sprague direct read (odometer) indexes cannot be used.
250	National meter indexes with bow-tie shaped wrigglers cannot be used.	500G	ERG-7000-006	Actaris/Schlumberger/Sprague direct read (odometer) indexes cannot be used.

### Romet

Meter Model	Meter Notes	Module Type	Iron Part Number	Gas Module Notes
RM series. Instrument drive	Instrument platform with mechanical drive	500G	ERG-7000-007	

### Sensus (Invensys/Equimeter/Rockwell/EMCO)

Meter Model	Meter Notes	Module Type	Iron Part Number	Gas Module Notes
RT-100	18-tooth	500G	ERG-7000-004	
S-110	11-tooth	500G	ERG-5000-002	
T-110	11-tooth	500G	ERG-7000-002	
S-120	11-tooth	500G	ERG-5000-002	
T-120	11-tooth	500G	ERG-5000-002	
R-175	11-tooth	500G	ERG-5000-002	
S-175	18-tooth	500G	ERG-7000-004	
S-190	18-tooth	500G	ERG-5000-004	
R-200	11-tooth	500G	ERG-5000-002	
RT-200	11-tooth	500G	ERG-7000-002	
S-200	11-tooth	500G	ERG-7000-002	
RC-225	11-tooth (Canadian only)	500G	ERG-7000-002	
RT-225	11-tooth	500G	ERG-7000-002	
RC-230	11-tooth	500G	ERG-7000-002	
RCM-230 (RC-230 Metric)	16-tooth	500G	ERG-7000-003	
RT-230	11-tooth	500G	ERG-7000-002	
250	11-tooth	500G	ERG-7000-002	
Cubix250	11-tooth	500G	ERG-7000-002	
MR-7 (Cubix250 Metric)	11-tooth	500G	ERG-7000-002	
R-275	11-tooth	500G	ERG-7000-002	24- and 30-tooth gears are not compatible.
MR-8 (R-275 Metric)	16-tooth	500G	ERG-7000-003	24- and 30-tooth gears are not compatible.
RT-275	11-tooth	500G	ERG-7000-002	
S-275	11-tooth (side connections)	500G	ERG-7000-002	
MR-5 (S-275 Metric)	16-tooth	500G	ERG-7000-003	24- and 30-tooth gears are not compatible.

## About the 500G Gas ERT Module

Sensus (Invensys/Equimeter/Rockwell/EMCO)				
Meter Model	Meter Notes	Module Type	Iron Part Number	Gas Module Notes
MR-9 (R-315 Metric)	16-tooth	500G	ERG-7000-003	24- and 30-tooth gears are not compatible.
310	11-tooth	500G	ERG-7000-002	
R-315	11-tooth	500G	ERG-5000-002	24- and 30-tooth gears are not compatible.
MR-9 (R-315 Metric)	16-tooth	500G	ERG-7000-003	24- and 30-tooth gears are not compatible.
RT-360	18-tooth	500G	ERG-5000-004	
415	18-tooth. Older meters may have gas module-to-meter mounting-hole variations that can make them incompatible.	500G	ERG-7000-004	24- and 30-tooth gears are not compatible.
MR-12 (415 Metric)	16-tooth	500G	ERG-7000-003	24- and 30-tooth gears are not compatible.
750	Vertical index only	500G	ERG-7000-008	
1000	Vertical index only	500G	ERG-7000-008	
1600	Vertical index only	500G	ERG-7000-008	
3000	Vertical index only	500G	ERG-7000-008	
5000	Vertical index only	500G	ERG-7000-008	
10000	Vertical index only	500G	ERG-7000-008	
750, 1000, 1600, 3000, 5000, 10000	Aluminum box direct reading (VDR) index	500G	ERG-7000-008	Requires Iron mounting screws, P/N SCR-0062-001. Must purchase separately.
EMCO	#2-1/2	500G	ERG-7000-008	
EMCO	#3	500G	ERG-7000-008	
EMCO	#4	500G	ERG-7000-008	
EMCO	#4-1/2	500G	ERG-7000-008	
EMCO	#5	500G	ERG-5000-008	

## Installation Overview

Installing the 500G ERT module on a meter involves four tasks:

1. Removing the index cover and index from the meter.
2. Assembling the 500G ERT module and index.
3. Programming the 500G ERT module assembly.
4. Attaching the 500G ERT module to the meter.



**Warning** ERT modules contain sensitive electronic components which can be damaged if the module is dropped from heights greater than 36 inches. Product warranty coverage is contingent on not exceeding this drop height limitation.

## Installation Prerequisites

Prior to installation, verify you have the following items:

- 500G ERT module designed for your specific brand of residential or commercial gas meters (ERT modules include new tamper seals).

## About the 500G Gas ERT Module

- A compatible meter (see the [500G ERT Module Meter Compatibility List](#) on page 3).
- A compatible index. Itron 500G ERT modules are compatible with standard dial and direct-read (odometer) indexes. Exceptions are noted on the [500G ERT Module Meter Compatibility List](#) on page 3.
- Installation tools (provided by installer or customer).
  - Small and medium flat-blade or Phillips screwdrivers.
  - Side-cutting pliers/wire snips.
  - Small putty knife.
  - Meter seals, wire seal, and seal press.
  - 11/32-inch nut driver or other blunt tool.
  - Itron programming device:
    - FC200SR handheld computer with Field Deployment Manager (FDM) software
    - or*
    - FC300 with SRead with Field Deployment Manager (FDM) software
    - or*
    - 900 MHz Belt Clip Radio with Field Deployment Manager (FDM) and a customer-supplied laptop
- Replacement screws:

 **Note** The FDM version required is dependent upon the 500G ERT module model in use.

<b>Replacement Screws</b>				
<b>Meter</b>	<b>To mount the 500G ERT module on the meter:</b>	<b>Itron Part Number</b>	<b>To mount the index on the 500G ERT module housing:</b>	<b>Itron Part Number</b>
Elster American	1/4 - 20 x 5/8" slotted, Fillister head		8 - 32 x 3/16" slotted, Fillister head	
Sensus/Rockwell	10 - 24 x 5/8" slotted, Fillister head		6 - 32 x 5/8" slotted, Fillister head	
Itron/Sprague	10 - 24 x 5/8" slotted, Fillister head		10 - 24 x 1/4" slotted, Fillister head	
Sprague/Schlumberger 175 RM	10 - 24 x 1/2-inch, slotted Fillister head	SCR-0175-002		
National/Lancaster	10 - 24 x 3/4" Phillips, flat-head, stainless steel	SCR-0014-004	10 - 24 x 3/8" thread-forming, Phillips pan-head to mount indexes with legs 6 - 19 x 3/8" thread-forming, Phillips, Fillister head to mount indexes with screw holes	SCR-0017-001  SCR-0037-001
<b>Commercial Meter</b>	<b>To mount the commercial ERT module on the meter:</b>	<b>Itron Part Number</b>	<b>To mount the index (and index assembly, if applicable) on the commercial ERT module housing:</b>	<b>Itron Part Number</b>
Elster American	2A x 3.35" length, slotted round-head drilled to accept utility-approved wire seals	SCR-0062-001	12 - 24 x 1/2" slotted, Fillister head machine screws, drilled to accept utility-approved wire seals	
Sensus	2A x 3.63" length, slotted round-head drilled to accept utility-approved wire seals	SCR-0062-002	2A x 2.94" length, slotted round-head	SCR-0062-003
Rockwell	For Aluminum Box Direct Reading (VDR) index only	SCR-0062-001		

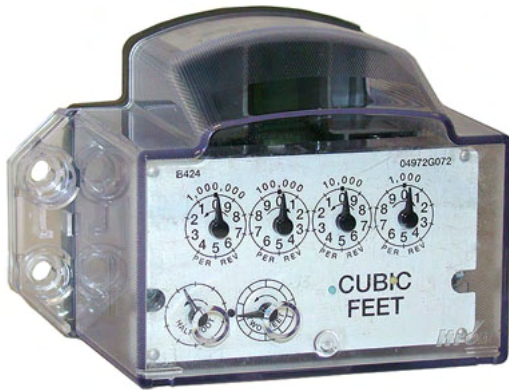


## CHAPTER 2

# Elster American Meter Installation

---

This chapter provides the instructions to install the 500G ERT module on an Elster American Meter.



## Removing the Meter Index

Begin the module installation by removing the index cover and index from the meter.

### *To remove the index from the meter*

1. Remove the four index cover screws and the index cover from the Elster American meter. Alternate screw removal following the numbered pattern in the photo.



2. Examine the mounting screws. If they are 5/8-inch long and not corroded, keep them to install the ERT module assembly to the meter. If the screws are not the correct length or if the screws are corroded, discard.

---

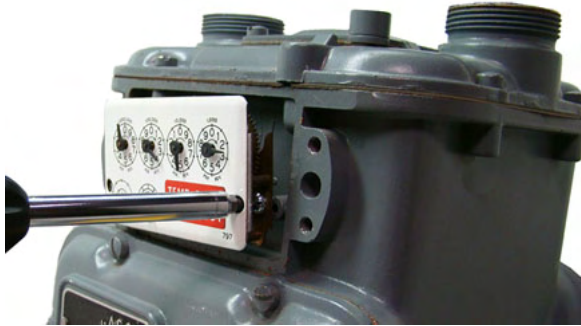
**Note** You may use the removed index cover as a temporary storage container for screws. Properly dispose all unused screws, old index covers, gaskets, tamper seals, and other leftover materials.

---

## Elster American Meter Installation

---

3. Unscrew one index mounting screw completely. Hold one hand under the index to catch the screw. While you remove the other mounting screw, pull the index away from the meter to keep the index backplate against the back of the screw. Remove the screw completely after the index is free of the meter.



Set the index aside where it will not be damaged or fill with dirt, rain or snow. You will mount the index to the ERT module later in this procedure.

4. Verify the index mounting screws are 3/16-inch long and not corroded. If the screws are the correct length and not corroded, retain for later use. If you discarded the original screws, use the correct replacement screws (see Installation Prerequisites).
5. Remove the old gasket, gasket residue and dirt from the meter (if applicable). The meter face must be free of gasket residue and foreign materials before you install the 500G ERT module.



## Assembling the 500G ERT Module and Index

Continue the ERT module installation by assembling the ERT module and index.

### ***To assemble the 500G ERT module and index***

1. Separate the ERT module housing from the cover by pulling the cover straight out from the housing.



## Elster American Meter Installation

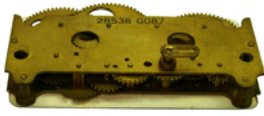
---

- Set the ERT module clear cover aside where it will not be damaged or fill with rain, dirt, or snow. You will use the cover later in this installation procedure.

**Note** Elster American Meter indexes are available in different models:

**Index wrigglers on one-foot meters with drive slots**

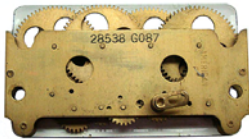
**Index meters on two-foot meters with drive posts**



**Index with mounting screw holes**



**Index with mounting slots**

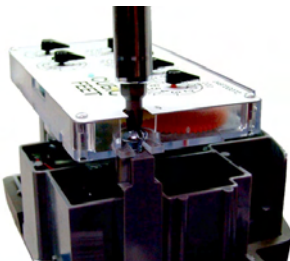


If your index has mounting screw slots, skip steps 3 and 4. If your index has mounting screw holes, perform steps 3 and 4, and skip steps 5 and 6.

- Using the original index mounting screw or a replacement screw, if necessary, place one 8 - 32 3/16-inch screw into the index's right-hand mounting screw hole.



- Attach the screw to the ERT module housing's right-index mounting post just enough to hold the screw and the right end of the index in place.



- Screw one 8 - 32 x 3/16-inch screw into the right index mounting post loosely—one or two turns. Do not tighten the screw.
- Place the right index mounting screw slot under the screw head. Do not tighten the screw.
- Slide the index drive post into the ERT module shaft slot. Verify positive engagement.



## Elster American Meter Installation

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**Caution** If the index wiggler has a drive slot, place the ERT module shaft drive post into the index drive slot. Failure to mate the ERT module shaft with the index drive post (or slot) can cause binding and lead to poor registration or meter failure.

---

8. Install and tighten the left index mounting screw (for indexes with either mounting screw slots or holes). Tighten the right index mounting screw. Install and tighten index mounting screws evenly.



9. Slide the ERT module cover over the index and housing. Verify the cover is installed correctly. The ERT module label should be clearly visible and easily read.



## Programming the 500G Assembly

Program the 500G ERT module using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher *or*
- A FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher *or*
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 3.9 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

The 500G ERT module modules support enhanced security with the Itron Security Manager. Enabling command or enhanced security requires additional programming.

To enable enhanced security and for more complete programming information, see the *Field Deployment Manager Endpoint Tools Mobile Application Guide* (TDC-0934).

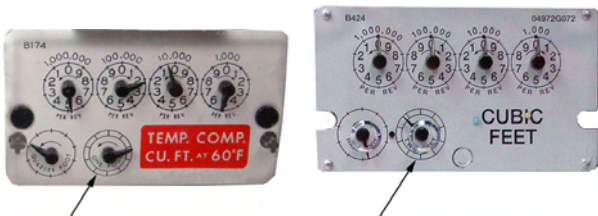


**FC200SR      FC300 with SRead      900MHz Belt Clip Radio**



**Caution** You must program the ERT module before use.

The ERT module is programmed based on the meter's drive rate. Take note of the index drive rate shown on a lower dial on the index. Elster American meter index drive rates are either 1-cubic foot, 2-cubic feet or 0.05 cubic meters (not shown below).



### To program the ERT module assembly

1. Program the meter drive rate into the 500G ERT module using the endpoint programming device.
2. For all programming and *Check Endpoint* operations, hold the handheld programmer as close to vertical as possible. For optimal results, keep the handheld programmer within 6 feet of the target ERT Module.
3. Verify you have the correct programming mode (Mobile/Handheld Mode).
4. Programming parameters are based on the configuration file loaded into the ERT module programming device. During programming, the ERT module is set to the nearest 100 cubic feet; the last two digits (tens and units) are programmed as zeros (0). After programming is complete, the ERT module assembly will read to the nearest cubic foot.

## Attaching the 500G ERT Module Assembly to the Meter

After the 500G ERT module is programmed, attach the ERT module assembly to the Elster American meter.

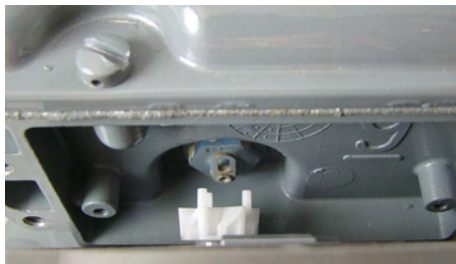
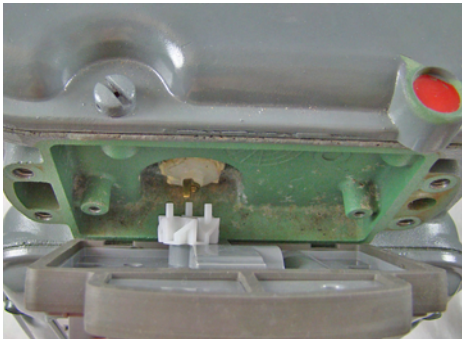


**Warning** For 5B-225 aluminum meters only: cut 1/16-inch off each ERT module wriggler post to prevent the wriggler from rubbing on the face of the nut holding the meter drive dog in place. Trimming the drive post may make the module incompatible with other 2-ft. drive meters.



### To attach the ERT module to the meter

1. Align the ERT module to connect with the drive post (or slot) of the meter.



- For one-foot meters: Align the ERT module assembly wriggler perpendicular to the meter drive post.
- For two-foot meters: Align the ERT module assembly wriggler perpendicular to the meter drive slot. The pin on the ERT wriggler may be installed inside or outside the meter drive slot. For easy assembly, Itron recommends installing the pin on the <ERT module> wriggler outside the meter drive slot.

---

**Warning** Failure to correctly align the meter drive post and ERT module drive slot can cause binding and lead to poor registration or meter failure. If there is a gap between the ERT module gasket and the meter, it may be the drive slot of the ERT module assembly's wriggler is not correctly aligned with the meter drive slot. Remove the ERT module assembly and repeat the alignment procedure. You must engage the ERT module wriggler with the meter drive dog.

---

## Elster American Meter Installation

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- Carefully align the ERT module's four screw holes with the holes on the meter. Attach the assembly using the original mounting screws if they are the correct size and are not corroded (1/4 - 20 x 5/8-inch screws.) If you discarded the original screws, use the correct replacement screws (see [Installation Prerequisites](#) on page 7). Tighten the screws in an alternating, diagonal pattern as shown in the photo:



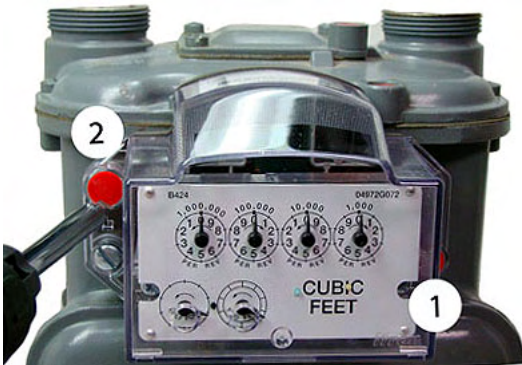
- Insert first screw and tighten 1/4 to 1/2 turn after the screw contacts the meter connection.
  - Insert the second screw and tighten 1/4 to 1/2 turn after contact with the meter connection.
  - Insert the third screw and tighten 1/4 to 1/2 turn after contact with the meter connection.
  - Insert the last screw and tighten 1/4 to 1/2 turn after contact with the meter connection.
- Return to the first screw and tighten. Continue with the second, third and last screw until all screws are tight. Use equal screw tension to tighten each screw.

---

**Important** Meter manufacturers: torque the mounting screws 15 to 20 inch-pounds.

---

- Place new tamper seals over the two screws with tamper seal mounts. Press tamper seals into place using an 11/32-inch nut driver or similar blunt tool.



## Elster American Meter Installation

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5. Complete necessary paperwork and verify all excess materials are removed from the customer premises. 500G ERT module installation on the Elster American meter is complete.





## CHAPTER 3

# Sensus Meter Installation

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This chapter provides the instructions to install the 500G ERT module on a Sensus meter. These instructions apply to 11-tooth, 16-tooth, and 18-tooth Sensus 500G ERT modules.



**Note** Sensus meters are also known as Invensys, Equimeter, or Rockwell. For these instructions, all meter types are referred to as Sensus meters.



500G ERT module



Sensus 11-tooth



Sensus 16-tooth



Sensus 18-tooth

## Removing the Meter Index

Begin the module installation by removing the index cover and index from the meter.

### *To remove the index from the meter*

1. Remove the four index cover screws and the index cover from the Sensus meter. Alternate screw removal following the numbered pattern as shown in the following photo.



2. Examine the mounting screws. If they are 5/8-inch long and not corroded, keep them to attach the 500G ERT module assembly. If the screws are not the correct length or if the screws are corroded, discard them.

---

**Note** You may use the removed index cover as a temporary storage container for screws. Properly dispose all unused screws, old index covers, gaskets, tamper seals, and other leftover materials. Do not leave materials on the customer premises.

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## Sensus Meter Installation

---

3. Remove one index mounting screw completely. Hold one hand under the index to catch the screw. While removing the other mounting screw, pull the index away from the meter to keep the index backplate against the back of the screw. Remove the screw completely after the index is free of the meter.



4. Set the index aside where it will not be damaged or fill with dirt, rain, or snow. You will mount the index in the ERT module later in this procedure.
5. Verify the index mounting screws are 5/8-inch long and not corroded. If the screws are the correct length and not corroded, retain for later use. If you discard the original screws, use the correct replacement screws (see Installation Prerequisites.)
6. Remove the old gasket, gasket residue, and dirt from the meter (if applicable). The meter face must be free of gasket residue or dirt before you install the ERT module.



## Assembling the 500G ERT Module and Index

Continue the ERT module installation by assembling the ERT module and index.

### ***To assemble the 500G ERT module and index***

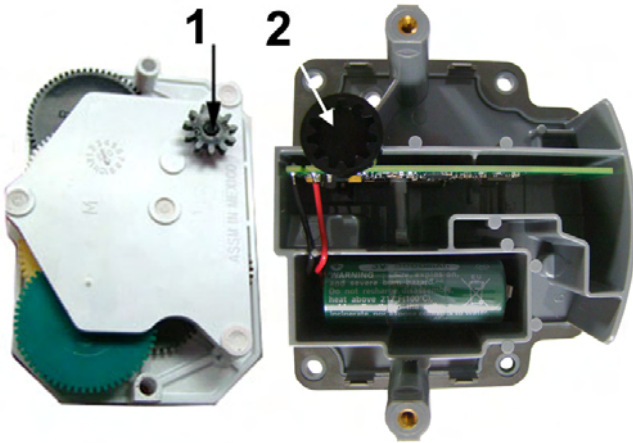
1. Separate the ERT module housing from the clear cover by pulling the cover straight out from the housing. Set the ERT module cover aside where it will not be damaged or fill with rain, dirt, or snow. You will replace the cover later in this installation procedure.



## Sensus Meter Installation

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- Place the index drive gear (1) in the shaft gear cup (2) of the ERT module. The example shows an 11-tooth drive gear. Your index may be a 16- or 18-tooth gear. Use the appropriate 500G ERT module for your specific meter. See the [500G ERT Module Meter Compatibility List](#) on page 3 for more information.

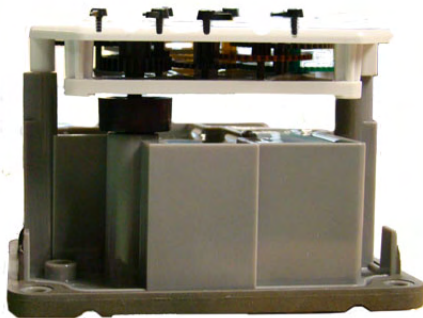


---

**Warning** Indexes have varying drive mechanism styles. Failure to align the ERT module shaft with the index drive post can cause binding and lead to poor registration or meter failure. To verify proper engagement of the index to the ERT module shaft, spin the wriggler one clockwise rotation, then one counterclockwise rotation. Do not spin the shaft more than one complete rotation. The shaft should spin freely, with little or no resistance.

---

- After the index drive gear is aligned and inserted into the shaft gear cup, the mounting holes will line up.



- Using the original index mounting screw or a replacement screw (if necessary), place one 6 - 32 x 5/8-inch screw into the index right mounting screw hole.
- Attach the screw to the ERT module housing right-index mounting post just enough to hold the screw and the right end of the index in place.
- Install and tighten the left index mounting screw.

## Sensus Meter Installation

---

7. Tighten the right index mounting screw completely. Install and tighten both index mounting screws evenly.



8. Slide the ERT module cover over the index and housing. Verify the cover is installed correctly. The ERT module label should be clearly visible and easily read.



## Programming the 500G Assembly

Program the 500G ERT module using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher  
*or*
- A FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher  
*or*
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 3.9 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

The 500G ERT module modules support enhanced security with the Itron Security Manager. Enabling command or enhanced security requires additional programming.

To enable enhanced security and for more complete programming information, see the *Field Deployment Manager Endpoint Tools Mobile Application Guide* (TDC-0934).

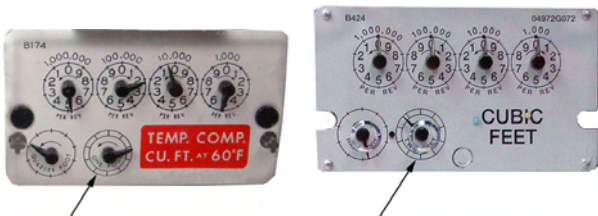


**FC200SR      FC300 with SRead      900MHz Belt Clip Radio**



**Caution** You must program the ERT module before use.

The ERT module is programmed based on the meter's drive rate. Take note of the index drive rate shown on a lower dial on the index. Elster American meter index drive rates are either 1-cubic foot, 2-cubic feet or 0.05 cubic meters (not shown below).



### **To program the ERT module assembly**

1. Program the meter drive rate into the 500G ERT module using the endpoint programming device.
2. For all programming and *Check Endpoint* operations, hold the handheld programmer as close to vertical as possible. For optimal results, keep the handheld programmer within 6 feet of the target ERT Module.
3. Verify you have the correct programming mode (Mobile/Handheld Mode).
4. Programming parameters are based on the configuration file loaded into the ERT module programming device. During programming, the ERT module is set to the nearest 100 cubic feet; the last two digits (tens and units) are programmed as zeros (0). After programming is complete, the ERT module assembly will read to the nearest cubic foot.

## **Attaching the 500G ERT Module Assembly to the Sensus Meter**

After the 500G ERT module is programmed, attach the ERT module assembly to the Sensus meter.

### **To attach the ERT module assembly to the meter**

1. Place the ERT module assembly against the front of the meter at angle.

---

**Warning** Failure to correctly align the meter drive gears and ERT module drive gears can cause binding and lead to poor registration or meter failure. If there is a gap between the ERT module gasket and the meter, it may be the drive gears of the ERT module assembly's wiggler are not correctly aligned with the meter drive gears. Remove the 500G ERT module assembly and repeat the alignment procedure. You must engage the ERT module wiggler with the meter drive gears.

---



2. Install and tighten the ERT-to-meter mounting screws in an alternating pattern. Use the original mounting screws if they were the correct size and not corroded. If you discarded the original screws, use the correct replacement screws (see [Installation Prerequisites](#) on page 7).

---

**Caution** As the ERT module assembly is secured into its final position on the meter, shifting may occur due to existing tolerances within the mounting screw holes. To ensure full ERT module wiggler gear to meter gear engagement, push the ERT module to the right while tightening the screws in the following pattern.

---

- Align the top right mounting screw hole on the meter with the top right screw hole on the ERT module.
- Insert the top right cover mounting screw and tighten the screw enough to hold the ERT module assembly in place. Do not completely tighten the screw.
- Rotate the ERT module assembly counterclockwise until the remaining three ERT module screw holes line up with the holes in the meter.

## Sensus Meter Installation

---

3. Install the remaining three mounting screws and tighten in the pattern shown in the following illustration.



2. Insert lower left mounting screw (2) and tighten to snug position.
3. Tighten upper right mounting screw (1,3) to snug position.
4. Insert upper left mounting screw (4) and tighten to snug position.
5. Insert lower right mounting screw (5) and tighten to snug position.

Tighten each mounting screw evenly.

---

**Important** Meter manufacturers: torque the mounting screws 15 to 20 inch-pounds.

---

4. Place a new tamper seal over the two screws with tamper seal cups. Press the new tamper seals into place using an 11/32-inch nut driver (or similar blunt tool).



5. Complete any necessary paperwork and properly dispose excess installation materials and scrap from the customer premises.

## Sensus Meter Installation

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500G ERT module installation on the Sensus meter is complete.





## CHAPTER 4

# Itron Meter Installation

---

This chapter provides the instructions to install the 500G ERT module on an Itron meter.



**Note** Itron meters are also known as Actaris, Schlumberger, or Sprague meters. For these instructions, all meters will be referred to as Itron meters.

## Removing the Meter Index

Begin the module installation by removing the index cover and index from the meter.

### *To remove the index from the meter*

1. Remove the index cover screws and the index cover from the Itron meter. Examine the mounting screws. If they are 5/8-inch long and not corroded, keep them to re-attach the 500G ERT module assembly. If the screws are not the correct length or if the screws are corroded, discard them.



---

**Note** Use the removed index cover as a temporary storage container for the screws. Properly dispose all unused screws, old index covers, gaskets, tamper seals, and other leftover materials.

---

## Ittron Meter Installation

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- Loosen the index mounting screws 1/2 to one turn. Slide the index to the left and off the mounting screws. Remove the index from the meter.



- Set the index aside where it will not be damaged or fill with dirt, rain, or snow. You will mount the index to the ERT module later in this procedure.
- Verify the index mounting screws are 1/4-inch long and not corroded. If the screws are the correct length and not corroded, retain for later use. If you discard the original screws, use the correct replacement screws (see [Installation Prerequisites](#) on page 7).
- Remove the old gasket, gasket residue, and dirt from the meter (if applicable). The meter face must be free of gasket residue or dirt before you install the ERT module.



## Assembling the 500G ERT Module and Index

Continue the ERT module installation by assembling the ERT module and index.

### ***To assemble the ERT module and index***

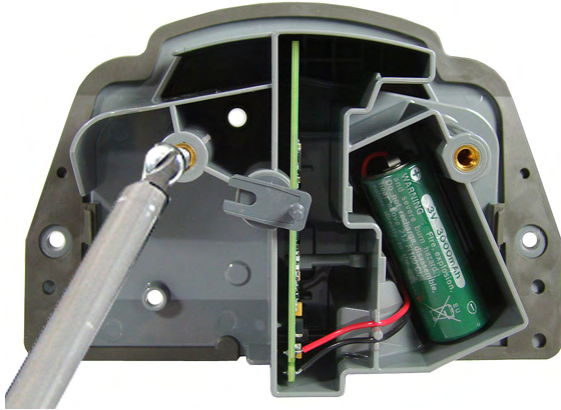
- Separate the ERT module housing from the cover by pulling the cover straight out from the housing. Set the module cover aside where it will not be damaged or fill with rain, dirt or snow. The cover is used later in this installation procedure.



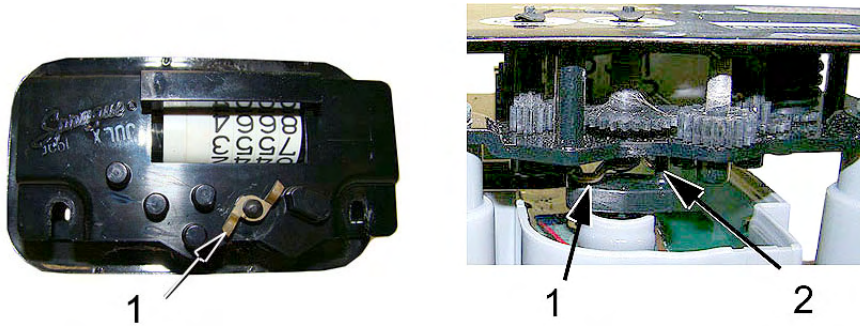
## Iron Meter Installation

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2. Screw the index mounting screws into the index mounting posts loosely (one to two turns). Do not tighten the screws.



3. Align the index wiggler (1) with the ERT module drive post (shaft, 2).



4. Carefully slide the index onto the mounting screws. Verify the ERT module housing drive post makes positive engagement with the index wiggler.

---

**Caution** Indexes have varying drive mechanism styles. Failure to align the ERT module shaft with the index drive post can cause binding and lead to poor registration or meter failure. To verify proper engagement of the index to the ERT module shaft, spin the wiggler one clockwise rotation, then one-counterclockwise rotation. Do not spin the wiggler more than one complete rotation. The wiggler should spin freely, with little or no resistance.

---

5. Hold the index in place and tighten the index mounting screws.



## Itron Meter Installation

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- Slide the ERT module cover over the index and housing. Verify the cover is installed correctly. The label should be clearly visible and easily read.



## Programming the 500G Assembly

Program the 500G ERT module using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher  
*or*
- A FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher  
*or*
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 3.9 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

The 500G ERT module modules support enhanced security with the Itron Security Manager. Enabling command or enhanced security requires additional programming.

To enable enhanced security and for more complete programming information, see the *Field Deployment Manager Endpoint Tools Mobile Application Guide* (TDC-0934).

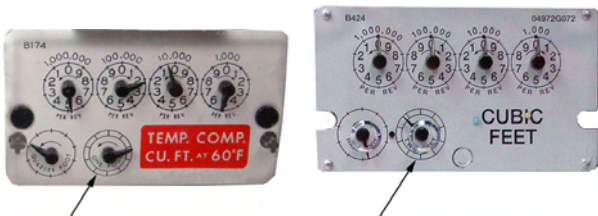


**FC200SR      FC300 with SRead      900MHz Belt Clip Radio**



**Caution** You must program the ERT module before use.

The ERT module is programmed based on the meter's drive rate. Take note of the index drive rate shown on a lower dial on the index. Elster American meter index drive rates are either 1-cubic foot, 2-cubic feet or 0.05 cubic meters (not shown below).



### To program the ERT module assembly

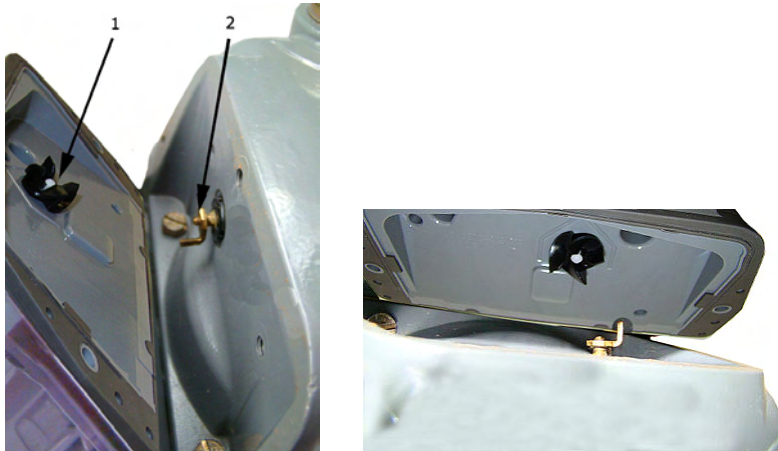
1. Program the meter drive rate into the 500G ERT module using the endpoint programming device.
2. For all programming and *Check Endpoint* operations, hold the handheld programmer as close to vertical as possible. For optimal results, keep the handheld programmer within 6 feet of the target ERT Module.
3. Verify you have the correct programming mode (Mobile/Handheld Mode).
4. Programming parameters are based on the configuration file loaded into the ERT module programming device. During programming, the ERT module is set to the nearest 100 cubic feet; the last two digits (tens and units) are programmed as zeros (0). After programming is complete, the ERT module assembly will read to the nearest cubic foot.

## Attaching the 500G ERT Module Assembly to the Itron Meter

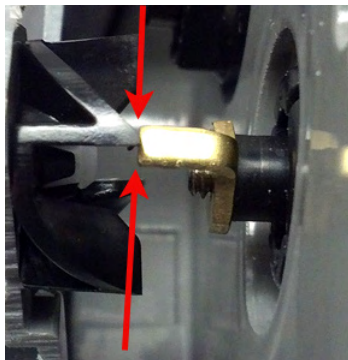
After you program the ERT module, attach it to the Itron meter.

### To attach the ERT module to the meter

1. Align the ERT module so one of its four drive *fins* (1) lines up with the meter drive dog (2).



**Warning** Failure to correctly align the meter drive post and ERT module wiggler can cause binding and lead to poor registration or meter failure. If there is a gap between the ERT module gasket and the meter, it may be the wiggler of the ERT module is *dead-headed* against the meter drive dog as shown in the following illustration.



Remove the ERT module assembly and repeat the alignment procedure. You must engage the meter drive post with the ERT module wiggler.

## Iron Meter Installation

---

- Place the 500G ERT module on the meter.
- Insert the right module mounting screw and tighten the screw until the gasket is against the meter. Do not completely tighten the mounting screw.

**Note** Use the original mounting screws to mount the 500G ERT module if they were the correct size and not corroded. If you discarded the original screws, use the correct replacement screws (see [Installation Prerequisites](#) on page 7.)

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- Slightly raise the left side of the ERT module (the module will rotate on the right screw) until the left ERT module mounting hole is approximately 1/4-inch above the left meter mounting hole.



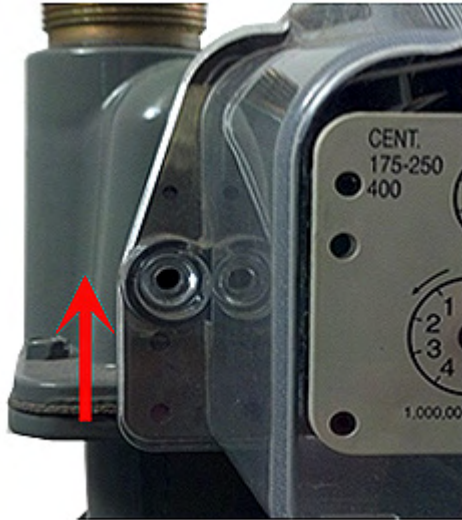
- Rotate the ERT module down until the module mounting hole is approximately 1/4-inch below the meter hole.



## Iron Meter Installation

---

6. Rotate the ERT module up to align the left mounting holes. Raising and lowering the ERT module on the meter drive post facilitates the proper positioning and engagement of ERT module wriggler with the meter drive post.



7. Insert the left mounting screw and tighten a few turns.
8. Tighten the right and left ERT-to-meter mounting screws in an alternating pattern. Tighten each mounting screw evenly.



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**Important** Meter manufacturers: torque the mounting screws 15 to 20 inch-pounds.

**Tip** The following conditions ensure proper engagement of the ERT module to the meter:

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- The ERT module fits flush against the meter body--there are no gaps between the ERT module gasket and the meter body.
- The ERT module mounting holes align with the index cover mounting holes on the meter body.
- The meter test dial moves in relation to gas flowing through the meter.



## Itron Meter Installation

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- Place a new tamper seal in the tamper seal cups surrounding the two mounting screws. Press the new tamper seals into place using an 1 1/32-inch nut driver or similar blunt tool.



- Complete any necessary paperwork and properly dispose excess installation materials and scrap from the customer premises.

500G ERT module installation on the Itron meter is complete.



## Attaching the ERT module Assembly to Sprague Flat-faced Meters

500G ERT module installation on a flat-faced Sprague meter requires the Itron Adapter Plate Kit (CFG-0015-001).



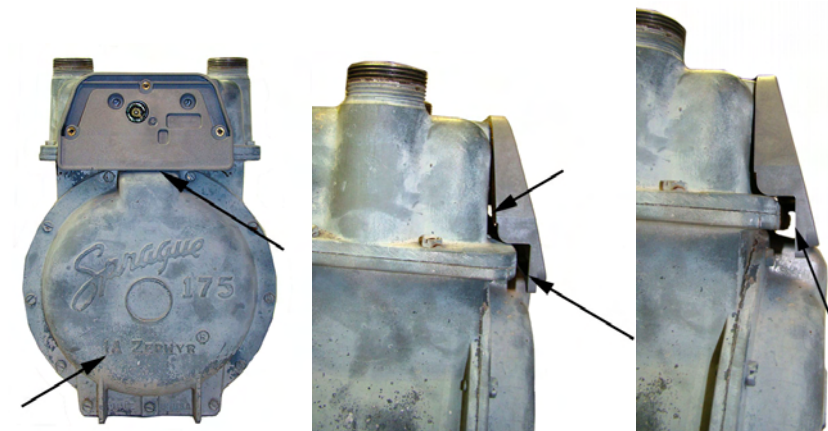
### Itron Adapter Plate Kit (CFG-0015-001)

1	Adapter Shim Plate
2	Index Cover Mounting Screws
3	Drive Dog
4	Adapter Plate Mounting Screws

### **To attach the ERT module assembly to the flat-faced Sprague meter**

1. Verify the kit includes the materials listed in the Itron Adapter Plate Kit table.

**Warning** The adapter plate must fit flush against the meter face. Some older Sprague meters are not compatible with the adapter plate. The following examples illustrate the potential obstruction (problem) areas between the adapter plate and meter. Failure to mount the adapter plate flush on the front of a meter could result in a binding condition and lead to poor registration or meter failure.



## Itron Meter Installation

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2. Remove the drive dog from the flat-faced Sprague meter. Replace it with the extended drive dog included in the kit. Hand-tighten to snug.

**Warning** A gasket surrounds the meter drive dog shaft. A gas leak could result if the gasket is damaged. Do not use a tool to install or tighten the new drive dog. Hand-tighten only.

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- Attach the adapter plate to the meter with the gasket against the meter face. Secure the plate to the meter with the two adapter plate mounting screws. Tighten the screws in an alternating pattern.
- Insert the right adapter plate screw and tighten the screw enough to hold it in place.
- Install the left mounting screw and tighten to a snug fit.
- Finish by tightening the right mounting screw to a snug fit.

Tighten each screw evenly.

**Note** The ERT module must be assembled and programmed following the instructions in [To assemble the ERT module and index](#) on page 26 and [Programming the 500G Assembly](#) on page 13 prior to installation on the meter.

## Securing Brass Meter Tags to Flat-faced Meters

Some older Sprague meters have metal index covers with brass meter tags attached (by screws or rivets) to metal index covers.



Typically, brass meter tags have mounting (screw/rivet) holes on each end of the tag.

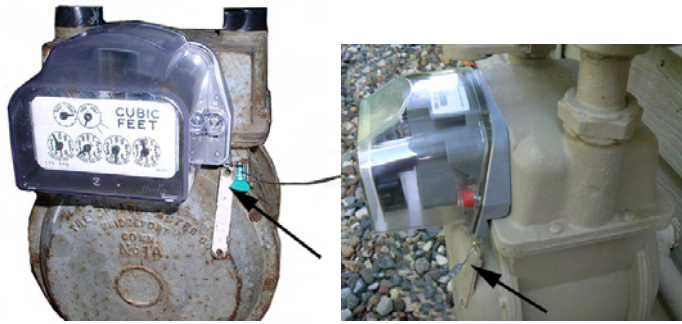


Mount brass meter tags using one of three Itron-approved methods.

### **To secure brass meter tags to flat-faced meters**

#### **Method 1 and 2**

1. Carefully remove the brass meter tag from the meter index cover. Try not to damage the meter tag mounting holes.
2. Attach the 500G ERT module assembly to the meter. The Sprague adapter plate has tag mounting holes in the lower left and right corners. Secure the meter tag to one of the holes with a utility-approved and provided security seal.



**Method 1: Attach the meter tag to the adapter plate tag mounting hole**



**Method 2: Attach the meter tag to the 500G ERT module mounting hole**

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**Note** If the brass meter tag will be secured to the meter utilizing the ERT-to-meter mounting hole, it must be attached during the 500G ERT module installation procedure described in Step 1 of [Attaching the 500G ERT Module Assembly to the Itron Meter](#) on page 30.

**Caution** A protruding brass meter tag can present a safety concern particularly if the tag is damaged with sharp edges protruding from the meter.

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### Method 3

1. Remove the 500G ERT module index cover.
2. Place the meter tag inside the ERT module assembly for optimal meter tag security. (See [To assemble the ERT module and index](#) on page 26.)



**Method 3: Place the brass meter tag inside the ERT module assembly**

## Attaching the ERT Module Assembly to a Sprague 175RM Meters

This section provides the information to attach the 500G ERT module to Sprague 175RM meters.



### Removing the Meter Index

Begin the module installation by removing the index cover and index from the meter.

#### *To remove the index from the meter*

1. Remove the index cover mounting screws and the index cover from the Sprague 175RM meter. Discard the index cover and index cover mounting screws.



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**Note** The removed index cover may be used as a temporary refuse container for screws. Properly dispose the index cover and all unused screws, gaskets, tamper seals, and other leftover materials. Do not leave materials on customer premises.

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2. Loosen the index mounting screws 1/2 to one turn. Slide the index up and off the mounting screws and remove it from the meter. Set the index aside where it will not be damaged or fill with dirt, rain or snow. You will mount the index in the module later in this procedure. Remove the index mounting screws from the meter. Verify the index mounting screws are 1/4-inch long and not corroded. If the screws are the correct length and not corroded, retain for later use. If the original screws are discarded, use the correct replacement screws (see [Installation Prerequisites](#) on page 7).

## Iron Meter Installation

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3. Remove the old gasket, gasket residue, and dirt from the meter (if applicable). The meter face must be free of gasket residue or dirt before you install the ERT module.



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**Note** Properly dispose all unused screws, old index covers, gaskets, tamper seals, and other leftover materials. Do not leave materials on customer premises.

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## Assembling the 500G ERT Module and Index

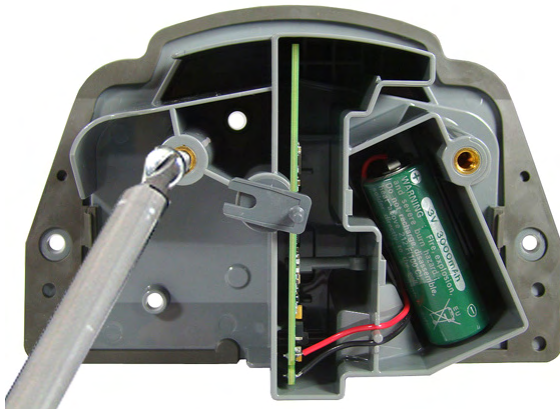
Continue the ERT module installation by assembling the ERT module and index.

### **To assemble the ERT module and index**

1. Separate the ERT module housing from the cover by pulling the cover straight out from the housing. Set the module cover aside where it will not be damaged or fill with rain, dirt or snow. The cover is used later in this installation procedure.



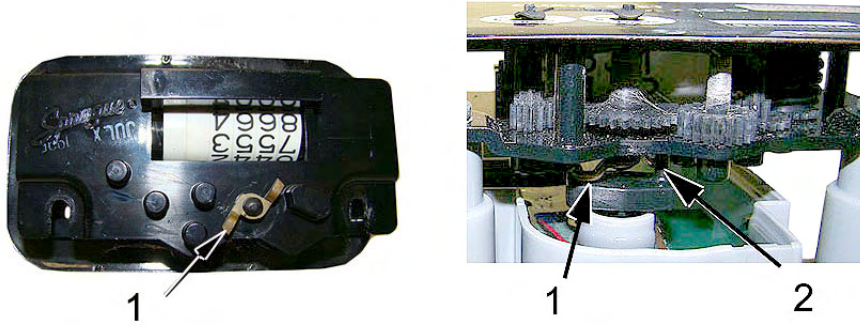
2. Screw the index mounting screws into the index mounting posts loosely (one to two turns). Do not tighten the screws.



## Ittron Meter Installation

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- Align the index wiggler (1) with the ERT module drive post (shaft, 2).



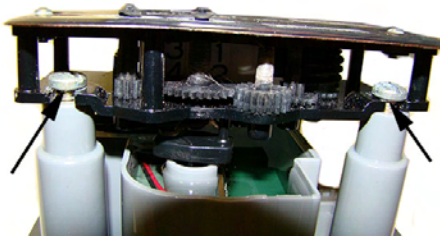
- Carefully slide the index onto the mounting screws. Verify the ERT module housing drive post makes positive engagement with the index wiggler.

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**Caution** Indexes have varying drive mechanism styles. Failure to align the ERT module shaft with the index drive post can cause binding and lead to poor registration or meter failure. To verify proper engagement of the index to the ERT module shaft, spin the wiggler one clockwise rotation, then one counterclockwise rotation. Do not spin the wiggler more than one complete rotation. The wiggler should spin freely, with little or no resistance.

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- Hold the index in place and tighten the index mounting screws.



- Slide the ERT module cover over the index and housing. Verify the cover is installed correctly. The label should be clearly visible and easily read.



## Programming the 100G ERT Module Assembly\_175RM

The 500G ERT module support enhanced security with the Itron Security Manager. Enabling command or enhanced security requires additional programming. Program the 500G ERT module using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher  
or
- An FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 3.9 or higher  
or
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 3.9 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

To enable enhanced security and for more complete programming information, see the *Field Deployment Manager Endpoint Tools Mobile Application Guide* (TDC-0934).



FC200SR

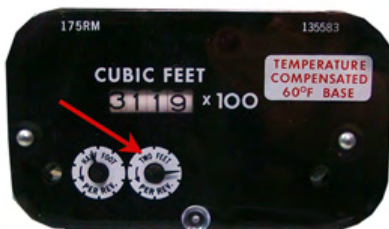
FC300 with SRead

900MHz Belt Clip Radio



**Caution** You must program the 500G ERT module before use.

The ERT module is programmed based on the meter's drive rate. Take note of the index drive rate shown on the drive dial on the index. The ERT module is programmed based on the drive rate. Sprague meter index drive rates are typically 2-cubic feet.





### **To program the ERT module assembly**

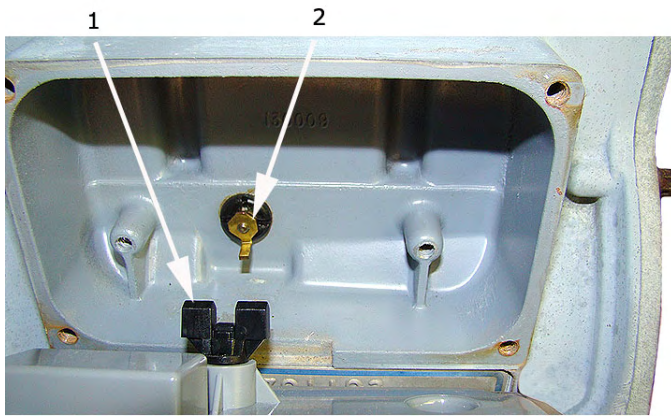
1. Program the meter drive rate into the 500G ERT module using the endpoint programming device.
2. For all programming and *Check Endpoint* operations, hold the handheld programmer as close to vertical as possible. For optimal results, keep the handheld programmer within 6 feet of the target ERT Module.
3. Verify you have the correct programming mode (Mobile/Handheld Mode).
4. Programming parameters are based on the configuration file loaded into the ERT module programming device. During programming, the ERT module is set to the nearest 100 cubic feet; the last two digits (tens and units) are programmed as zeros (0). After programming is complete, the ERT module assembly will read to the nearest cubic foot.

## **Installing the 500G ERT Module Assembly on the Sprague 175RM Meter**

After you program the 500G ERT module, install the ERT module assembly on the Sprague 175RM meter.

### **To install the ERT module on the 175RM meter**

1. Align the module wriggler (1) with the meter's drive dog (2).



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**Warning** Failure to properly align the ERT module wriggler with the meter drive post can cause binding and lead to poor registration or meter failure.

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2. Use the replacement mounting screws shipped with the 500G ERT module. Install module-to-meter mounting screws in an alternating pattern.
  - Insert the right module mounting screw and tighten the screw enough to hold it in place. Do not completely tighten the screw.
  - Install the lower left module mounting screw and tighten two turns.
  - Insert the lower right mounting screw and tighten two turns.
  - Insert the upper left mounting screw and tighten to snug.
  - Tighten the mounting screws in an alternating diagonal fashion as shown in the photo below.

## Iron Meter Installation

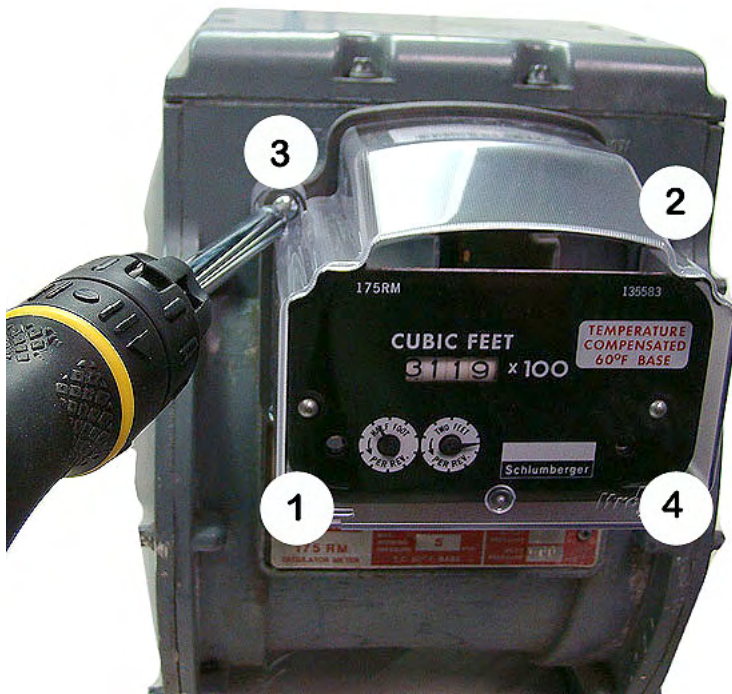
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Tighten each mounting screw evenly.

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**Important** Meter manufacturers: torque the mounting screws 15 to 20 inch-pounds.

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3. Place a new tamper seal over the two screws in the tamper seal cups. Press the new tamper seals into place using an 11/32-inch nut driver or similar blunt tool.



4. Complete any necessary paperwork and properly dispose excess installation materials and scrap from the customer premises.

## Itron Meter Installation

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500G ERT module installation on the Sprague 175RM meter is complete.





## National (Lancaster) Meter Installation

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This chapter provides instructions to install the 500G ERT module on 175 - 250 CFH National (Lancaster) meters.



### Removing the Meter Index

Begin the module installation by removing the index cover and index from the meter.

#### *To remove the index from the meter*

1. Remove any tamper seals from the index cover screws. Remove the index cover screws and the index cover from the meter. Discard the index cover mounting screws and index cover. The 500G ERT module includes new, different-size 500G ERT module mounting screws



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**Note** You may use the removed index cover as a temporary storage container for screws. Properly dispose all unused screws, old index covers, gaskets, tamper seals, and other leftover materials. Do not leave materials on customer premises.

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2. Remove one index mounting screw completely. Hold one hand under the index to catch the screw.
3. While you remove the other mounting screw, pull the index away from the meter to keep the index backplate against the back of the screw.

4. Remove the screw completely after the index is free of the meter.



5. Set the index aside where it will not be damaged or fill with dirt, rain, or snow. You will mount the index in the ERT module later in this procedure.
6. Discard the index mounting screws. The 500G ERT module for National (Lancaster) meters includes new, different-sized index mounting screws (see [Installation Prerequisites](#) on page 7 for screw information).
7. Remove the old gasket, gasket residue, and dirt from the meter (if applicable). The meter face must be free of gasket residue or dirt before you install the 500G ERT module assembly.



## Assembling the 500G ERT Module and Index

Continue the ERT module installation by assembling the ERT module and index.

### ***To assemble the 500G and index***

1. Separate the 500G ERT module housing from the cover by pulling the cover straight out from the housing.

