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Natural Gas Solutions

100G DLS Gas ERT Module Installation Guide, Direct Mount

Identification

100G DLS Gas ERT Module Installation Guide, Direct Mount
17 April 2012 TDC-0823-009
100G, 100G DL, 100G DLN, 100G DLS

ERT module part numbers:

100G ERT: ERG-5000-001, ERG-5000-002, ERG-5000-003, ERG-5000-004, ERG-5000-005, ERG-5000-006, ERG-5000-007, ERG-5000-008
100G Datalogging ERT: ERG-5002-001, ERG-5002-002, ERG-5002-003, ERG-5002-004, ERG-5002-005, ERG-5002-006, ERG-5002-007, ERG-5002-008
100G Datalogging FN ERT: ERG-5003-001, ERG-5003-002, ERG-5003-003, ERG-5003-004, ERG-5003-005, ERG-5003-006, ERG-5003-007, ERG-5003-008, ERG-5003-009
100G DLS ERT: ERG-5006-001, ERG-5006-002, ERG-5006-003, ERG-5006-004, ERG-5006-005, ERG-5006-006, ERG-5006-007, ERG-5006-008, ERG-5006-009

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Trademark Notice

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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

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-210 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.

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.

Transportation Classification

The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. When powered, any 100G series gas ERT 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. Fire, explosion, and severe burn hazard.
- Keep the lithium battery away from children.
- Replace the lithium battery only with batteries meeting Itron specifications. Any other battery may cause a fire or explosion.



Warning Only authorized Itron personnel should attempt repairs on 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.

Suggestions

If you have comments or suggestions on how we may improve this documentation, send them to TechnicalCommunicationsManager@itron.com
If you have questions or comments about the software or hardware product, contact Itron Technical Support:

Contact

- Internet: www.itron.com
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Before You Begin

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 100G series gas ERT module on a wide variety of meters. This installation guide may refer to the 100G series as the 100G DLS gas ERT module based on form or meter type. Mechanical installation procedures are identical for all modules. 100G series gas ERT module compatible meters are listed in the [Meter Compatibility List](#).

About the 100G DLS Gas ERT Module

Itron 100G DLS gas 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 100G gas ERT was designed with a higher output power than earlier Itron gas ERT modules to achieve an increased RF transmission distance. The 100G series gas ERT modules have greater output power to meet Itron mobile and fixed network requirements. The first 100G gas ERT module offered high transmit power capability which increased operational efficiency and reduced infrastructure costs. The 100G Datalogging gas ERT module was enhanced to offer higher transmit power with data logging capability (time-stamped hourly interval data) for both mobile and fixed network applications. Itron's 100G Datalogging Fixed Network (DLN) gas ERT module added improved network performance through a higher transmit power, accomplished using increased antenna efficiency and more robust optimized messaging structures. Itron's 100G DLS gas ERT module continues a legacy of increased efficiency in messaging and adds network security.

Transmission Modes

The 100G DLS gas ERT module can be set to transmit in Fixed Network, Mobile and Handheld, or Hard to Read Mobile and Handheld Mode.

- **Fixed Network Mode.** The 100G DLS transmits a high-powered network interval message (NIM) RF message every five minutes. Output power in this mode is 500 milliwatts or +27 dBm. Interspersed in the high power NIM, the 100G DLS transmits a medium power RF message at 10 milliwatts or +10 dBm every 60 seconds; expected battery life is 20 years.
- **Mobile High Power Mode.** The 100G DLS transmits a high-powered RF message every 60 seconds. Output power in this mode is 250 milliwatts or +24dbm; expected battery life is 20 years.
- **Mobile and Handheld Mode.** The 100G DLS 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.
- **(Optional) Hard to Read Mobile and Handheld Mode.** The 100G DLS transmits a high-powered RF message every 30 seconds. Output power in this mode is 250 milliwatts or +24dBm; expected battery life decreases to 15 years in this mode. The *Hard to Read Mobile and Handheld Mode* should only be used for exceptionally hard-to-read applications (such as meters installed on roof tops or in sub-basements).

An FCC license is not required to read 100G series gas ERT modules.

100G DLS Gas ERT Module Security

The 100G DLS is a component of a ChoiceConnect system. ChoiceConnect system security applies to the RF communications between the handheld computer, Mobile Collector, or Fixed Network system and the ERT module. There are two fundamental security processes used in the ChoiceConnect system to ensure confidentiality and validity of the system communications.

- **Authentication.** Authentication is the process of confirming that an artifact is genuine or valid. Authentication in the 100G DLS 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 ChoiceConnect solution, the 100G DLS supports the security model found in the ChoiceConnect solution for both reading and programming. If the 100G DLS modules are shipped without ChoiceConnect security enabled, the utility can, at a later date, inject security key sets into the 100G DLS ERT modules.

Enabling 100G DLS Gas ERT Module Security

When 100G DLS ERT modules ship from an Itron factory, each module contains a Utility Factory key. The presence of this Utility Factory key does not enable security. The installer must enable security by injecting keys into the 100G DLS using an Itron programming device and programming commands. Initial key exchange commands are secured using the Utility Factory key. For more information, see the *Field Deployment Manager Endpoint Tools Mobile Application Guide* (TDC-0934) programming guide.

100G Series Gas ERT Specifications

Functional Specifications	Description
Power Source	
100G	Two "A" cell lithium batteries
100G Datalogging	One "A" cell lithium battery
100G Datalogging FN	
100G DLS	
Tamper Detection	Tilt tamper and magnetic tamper
FCC Compliance	Part 15 certified
Industry Canada Compliance	RSS-210 certified
Intrinsically Safe per	UL Class I, Division 1, Groups C and D
Product Identification	Numeric and bar coded ERT type and serial number
Construction Materials	Gray polycarbonate housing and back plate with encapsulated electronics

Operational Specifications	Description
Operating Temperatures	-40° to 158° F (-40° to +70° C)
Operating Humidity	5 to 95 percent relative humidity
Program Frequency	908 MHz
Transmit Frequency	Spread spectrum 908 to 924 MHz ISM band
Data Integrity	Verified in every data message

Related Documents

Document Title	Document Part Number
<i>Gas Module Meter Compatibility List</i>	PUB-0117-002
<i>Gas Module Ordering Guide</i>	PUB-0117-001
<i>100G DLS Gas ERT Specification Sheet</i>	Publication 100941SP-XX
<i>100G DLS Gas ERT Installation Guide, Remote Mount</i>	TDC-0824-XXX
<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
<i>100W and 100G ERT Tamper Reference Guide</i>	TDC-1028-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.

100G Series Gas ERT Module Meter Compatibility List

The following table lists meter types compatible with 100G series gas ERT modules. 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	100G Module Type	Itron Part Number	Gas Module Notes
W75AL	Aluminum case	100G	ERG-5000-001	
		100G Datalogging	ERG-5002-001	
		100G Datalogging FN	ERG-5003-001	
		100G DLS	ERG-5006-001	
AC-175	Aluminum case	100G	ERG-5000-001	
		100G Datalogging	ERG-5002-001	
		100G Datalogging FN	ERG-5003-001	
		100G DLS	ERG-5006-001	
AL-175	Aluminum case	100G	ERG-5000-001	
		100G Datalogging	ERG-5002-001	
		100G Datalogging FN	ERG-5003-001	
		100G DLS	ERG-5006-001	
ALC-175	Aluminum case	100G	ERG-5000-001	
		100G Datalogging	ERG-5002-001	
		100G Datalogging FN	ERG-5003-001	
		100G DLS	ERG-5006-001	

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
AT-175	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AT-210	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AL-225	Aluminum case, Canada only	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
5B-225	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	Must cut 1/16" off the end of the module wriggler drive post which will make the module incompatible with other 2-ft. drive meters.
10 Metric B	Originally manufactured by Metric Metal Works	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	ERT module with 2.5' cable
AC-250	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AL-250	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AM-250	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AR-250	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AT-250	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AL-350	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AL-425	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AC-630	Aluminum case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
AL800	Top mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
AL1000	Top mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
AL1400	Top mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
AL2300	Top mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
AL3000	Top mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
AL5000		100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
35B	Iron case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
60B	Iron case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
80B	Iron case, must have front-reading index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
250B	Iron case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
500B	Iron case	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	
RPM Rotary	CTR, TC (No pulser, no instrument drive) Use Elster American kit numbers 93179K002, 003, 004, or 005 to modify the meter with an adapter to attach the residential module.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-003 ERG-5002-003 ERG-5003-003 ERG-5006-003	

GE Oil & Gas/Dresser Meters (ROOTS)

Meter Model	Meter Notes	100G 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 AMR adapter kit, install Dresser AMR adapter kit, P/N 059599-000.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
Series A (LMMA) 1.5M—5M CTR (No pulser, No instrument drive)	To attach an Elster American AMR adapter kit, install Dresser AMR adapter kit, P/N 058530-610.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
Series A (LMMA) 7M—16M CTR (No pulser, No instrument drive)	To attach an Elster American AMR adapter kit, install Dresser AMR adapter kit, P/N 058531-610.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
Series A (LMMA) 1.5M—5M TC (No pulser, No instrument drive)	To attach an Elster American AMR adapter kit, install Dresser AMR adapter kit, P/N 058224-610.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
Series Z 5C/8C15	To attach an Elster American Dresser AMR adapter kit, install Dresser AMR adapter kit, P/N 059224-847	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-001 ERG-5002-001 ERG-5003-001 ERG-5006-001	
Instrument drive B3: CTR TC, 8C—11M LMMA: CTR TC: 1.5M—11M	Instrument platform with mechanical drive.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007 ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	

Itron (Actaris, Schlumberger, Sprague)

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
175	2-hole index cover 3-hole index cover	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
175 Combination	3-hole index cover integrated regulator 2-hole index cover	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
175RM	Flat-face meter regulator on back of meter	100G Datalogging FN 100G DLS	ERG-5003-009 ERG-5006-009	
175WC	3-hole index cover	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-006	Requires index boxes with 3 mounting holes

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
210		100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
240		100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
240	Flat-face meter 1-hole index cover	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	Module requires Itron 1A Adapter Kit, P/N CFG-0015-001.
240	2-hole index cover	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
240 Combination	Integrated regulator	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
250		100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
250WC	Integrated regulator	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
METRIS 250	Slant-face	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	A longer mounting screw may be required when retrofitting to some vintage METRIS meters. Longer mounting screw is Itron P/N 010626.
1A	Flat-face meter includes 3-dial, 2 cf indexes.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	Installation requires Itron 1A Adapter Kit, P/N CFG-0015-001.
305 Combination	Integrated regulator	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
400	Slant-face meter	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	
400A	Slant-face meter	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-005 ERG-5002-005 ERG-5003-005 ERG-5006-005	

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
675A	Top-mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	Requires Itron (Actaris) adapter P/N 8005901-001. Purchase from Itron.
800A	Top-mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	Requires Itron (Actaris) adapter P/N 8005901-001. Purchase from Itron.
1000A	Top-mount index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	Requires Itron (Actaris) adapter P/N 8005901-001. Purchase from Itron.

National (Lancaster)

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
175	National meter indexes with bow-tie shaped wrigglers cannot be used.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-006 ERG-5002-006 ERG-5003-006 ERG-5006-006	Actaris/Schlumberger/Sprague direct read (odometer) indexes cannot be used.
U175 UL175	National meter indexes with bow-tie shaped wrigglers cannot be used.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-006 ERG-5002-006 ERG-5003-006 ERG-5006-006	Actaris/Schlumberger/Sprague direct read (odometer) indexes cannot be used.
250	National meter indexes with bow-tie shaped wrigglers cannot be used.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-006 ERG-5002-006 ERG-5003-006 ERG-5006-006	Actaris/Schlumberger/Sprague direct read (odometer) indexes cannot be used.

Romet

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
Instrument drive	RM series. Standard index drive and no instrument	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-007 ERG-5002-007 ERG-5003-007 ERG-5006-007	

Sensus (Invensys/Equimeter/Rockwell/EMCO)

Meter Model	Meter Notes	100G Module Type	Iron Part Number	Gas Module Notes
RT-100	18-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-004 ERG-5002-004 ERG-5003-004 ERG-5006-004	24- and 30-tooth gears are not compatible.
S-110	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
T-110	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
S-120	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
T-120	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
R-175	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
S-175	18-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-004 ERG-5002-004 ERG-5003-004 ERG-5006-004	24- and 30-tooth gears are not compatible.
S-190	18-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-004 ERG-5002-004 ERG-5003-004 ERG-5006-004	24- and 30-tooth gears are not compatible.
R-200	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
RT-200	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
S-200	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
RC-225	11-tooth (Canadian only)	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
RT-225	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
RC-230	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
RCM-230 (RC-230 Metric)	16-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-003 ERG-5002-003 ERG-5003-003 ERG-5006-003	24- and 30-tooth gears are not compatible.

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
RT-230	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
250	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
R-275	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
MR-8 (R-275 Metric)	16-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-003 ERG-5002-003 ERG-5003-003 ERG-5006-003	24- and 30-tooth gears are not compatible.
RT-275	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
S-275	11-tooth (side connections)	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
MR-5 (S-275 Metric)	16-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-003 ERG-5002-003 ERG-5003-003 ERG-5006-003	24- and 30-tooth gears are not compatible.
310	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	
R-315	11-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-002 ERG-5002-002 ERG-5003-002 ERG-5006-002	24- and 30-tooth gears are not compatible.
MR-9 (R-315 Metric)	16-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-003 ERG-5002-003 ERG-5003-003 ERG-5006-003	24- and 30-tooth gears are not compatible.
RT-360	18-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-004 ERG-5002-004 ERG-5003-004 ERG-5006-004	
415	18-tooth. Older meters may have gas module to meter mounting hole variations that can make them incompatible.	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-004 ERG-5002-004 ERG-5003-004 ERG-5006-004	
MR-12 (415 Metric)	16-tooth	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-003 ERG-5002-003 ERG-5003-003 ERG-5006-003	24- and 30-tooth gears are not compatible.

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
750	Vertical index only	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
1000	Vertical index only	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
1600	Vertical index only	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
3000	Vertical index only	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
5000	Vertical index only	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
10000	Vertical index only	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
750, 1000, 1600, 3000, 5000, 10000	Aluminum box direct reading (VDR) index	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
EMCO	#2-1/2	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
EMCO	#3	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
EMCO	#4	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
EMCO	#4-1/2	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	
EMCO	#5	100G 100G Datalogging 100G Datalogging FN 100G DLS	ERG-5000-008 ERG-5002-008 ERG-5003-008 ERG-5006-008	

Installation Prerequisites

Prior to installation, verify you have the following items:

- 100G gas ERT module designed for your specific brand of residential or commercial gas meters (ERTs include new tamper seals).
- A compatible meter (see the [100G Series Gas ERT Module Meter Compatibility List](#)).
- A compatible index. Itron 100G DLS gas ERT modules are compatible with standard dial and direct-read (odometer) indexes. Exceptions are noted on the [100G Series Gas ERT Module Meter Compatibility List](#).
- Installation tools (provided by installer or customer).
 - Small and medium flat-blade or Phillips screwdrivers.
 - Side-cutting plier/wire snips.
 - Small putty knife, residential meters.
 - 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 version 1.1 or higher
or
 - FC300 with SRead with Field Deployment Manager (FDM) software version 1.1 or higher
or
 - 900 MHz Belt Clip Radio with Endpoint-Link version 5.5 or higher or Field Deployment Manager (FDM) software version 1.1 or higher and a customer-supplied laptop

- Replacement screws:

Replacement Screws				
Meter	To mount the 100G DLS gas ERT module on the meter:	Itron Part Number	To mount the index on the 100G DLS gas ERT module housing:	Itron Part Number
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 Sprague/Schlumberger 175 RM	10 - 24 x 5/8" slotted, Fillister head 10 - 24 x 1/2-inch, slotted Fillister head	SCR-0175-002	10 - 24 x 1/4" slotted, Fillister head	
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

Replacement Screws				
Commercial Meter	To mount the 100G DLS commercial ERT on the meter:	Itron Part Number	To mount the index (and index assembly, if applicable) on the 100G DLS commercial ERT housing:	Itron Part Number
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/Rockwell	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
Sensus/Rockwell	For Aluminum Box Direct Reading (VDR) index only			

Installation Overview

Installing the 100G DLS gas ERT module on a meter involves four tasks:

1. Removing the index cover and index from the meter.
2. Assembling the 100G DLS and index.
3. Programming the 100G DLS assembly.
4. Attaching the 100G DLS to the meter.

CHAPTER 2

Elster American Meter Installation

This chapter provides the instructions to install the 100G DLS gas ERT module on an Elster American Meter.



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

Removing the Meter Index

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

To remove the index from the meter

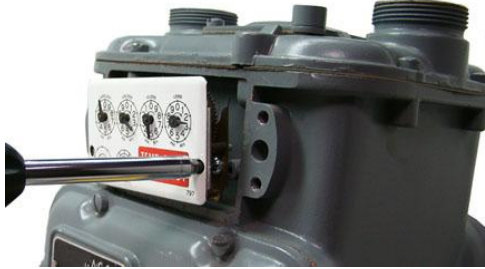
1. Remove the four index cover screws and the index cover from the Elster American meter. Alternate screw removal following the numbered pattern in the photo.



2. Examine the mounting screws. If they are 5/8-inch long and not corroded, keep them to re-attach the 100G DLS assembly. 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. Do not leave materials on customer premises.

3. Unscrew 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.



Set the index aside where it will not be damaged or fill with dirt, rain or snow. The index will be mounted to the ERT 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 before you install the 100G DLS gas ERT module.



Assembling the ERT Module and Index

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

To assemble the 100G DLS gas ERT module and index

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



- 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

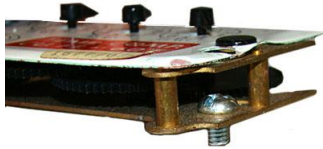


Index with mounting slots



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 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 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 wiggler. Verify positive engagement.



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

- 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.



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



Programming the 100G DLS Gas ERT Module Assembly

Program the 100G DLS using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 1.1 or higher
or
- A FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 1.1 or higher
or
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 1.1 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

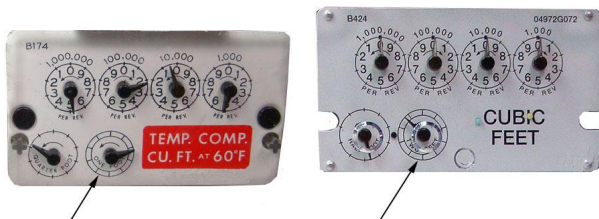
See the *Field Deployment Manager Endpoint Tools Mobile Application Guide (TDC-0934)* for more complete programming information.



FC200SR FC300 with SRead 900MHz Belt Clip Radio

 **Caution** You must program the 100G DLS gas ERT module before use.

The ERT 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 100G DLS gas ERT module

- Program the meter drive rate into the 100G DLS gas ERT module using the endpoint programming device.
- For all programming and *Check Endpoint* operations, hold the handheld programmer as close to vertical as possible. For best success, keep the handheld programmer within 6 feet of the target ERT.
- Verify you have the correct programming mode (Fixed Network Mode, Mobile High Power Mode, Mobile/Handheld Mode, or Hard to Read Mobile/Handheld Mode) for your application.

Programming parameters are based on the configuration file loaded into the ERT module programming device. During programming, the 100G DLS gas 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 assembly will read to the nearest cubic foot.

Attaching the 100G DLS Gas ERT Module Assembly to the Meter

After programming the 100G DLS gas ERT module, attach the ERT assembly to the Elster American Meter.

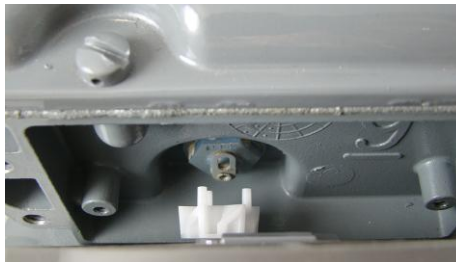
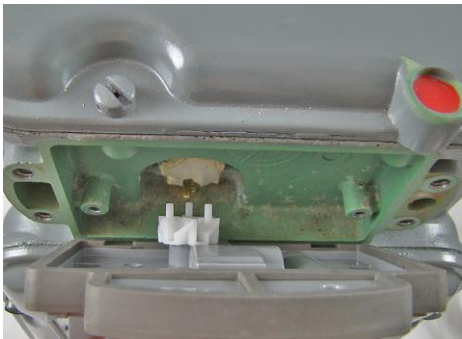


Warning For 5B Meters only: If you are installing the 100G DLS on a 5B-225 aluminum meter, cut 1/16-inch off each ERT wiggler post to prevent the wiggler from rubbing on the face of the nut holding the meter drive dog in place. Trimming the drive post may make the module incompatible with other 2-ft. drive meters.



To attach the 100G DLS gas ERT module to the meter

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



- For one-foot meters: Align the ERT assembly wiggler perpendicular to the meter drive post.

- For two-foot meters: Align the ERT assembly wiggler perpendicular to the meter drive slot. The pin on the ERT wiggler may be installed inside or outside the meter drive slot. For easy assembly, Itron recommends installing the pin on the 100G DLS wiggler 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 wiggler is not correctly aligned with the meter drive slot. Remove the 100G DLS assembly and repeat the alignment procedure. You must engage ERT module wiggler in the meter drive dog.

2. Carefully align the ERT's four screw holes with the holes on the meter. Attach 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). Tighten in an alternating, diagonal pattern as shown in the photo:

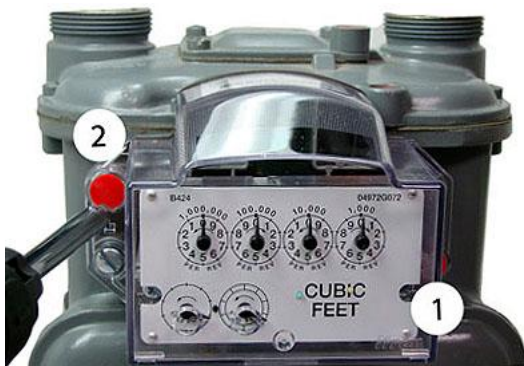


- Insert first screw and tighten 1/4 to 1/2 turn after the screw contacts the meter connection.
- Insert the second screw and tighten 1/4 to 1/2 turn after contact with the meter connection.
- Insert the third screw and tighten 1/4 to 1/2 turn after contact with the meter connection.
- Insert the last 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.

3. 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.



4. Complete necessary paperwork and verify all excess materials are removed from the customer premises. 100G DLS gas ERT module installation on the Elster American meter is complete.



CHAPTER 3

Sensus (Invensys, Equimeter, Rockwell) Meter Installation

This chapter provides the instructions to install the 100G DLS Gas ERT Module on a Sensus/Rockwell Meter. These instructions apply to 11-tooth, 16-tooth, and 18-tooth Sensus 100G DLSs.



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



100G DLS gas ERT module



Sensus 11-tooth



Sensus 16-tooth



Sensus 18-tooth

Removing the Meter Index

Begin the ERT 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 illustration.



2. Examine the mounting screws. If they are 5/8-inch long and not corroded, keep them to attach the 100G DLS gas ERT module assembly. 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. Do not leave materials on the customer premises.

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 later in this procedure. 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](#) on page 12.)
5. 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 100G DLS.



Assembling the ERT Module and Index

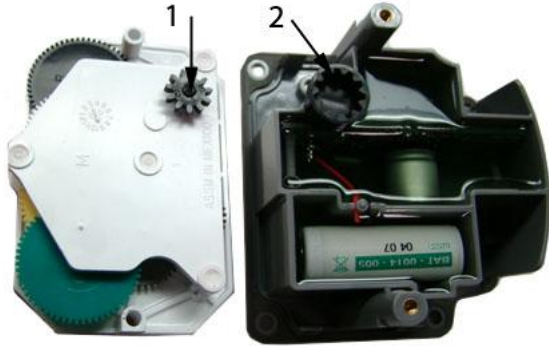
Continue ERT module installation by assembling the ERT module and index.

To assemble the 100G DLS gas ERT module and index

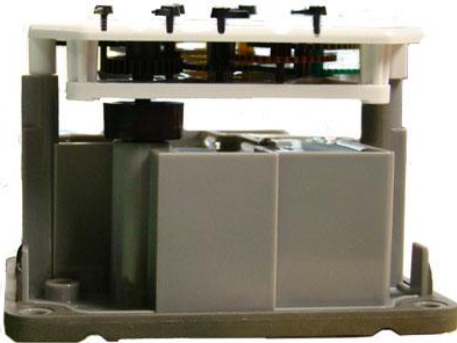
1. Separate the ERT module housing from the clear cover by pulling the cover straight out from the housing. Set the ERT cover aside where it will not be damaged or fill with rain, dirt, or snow. You will replace the cover later in this installation procedure.



- Place the index drive gear (1) in the housing wiggler gear cup (2) of the ERT. The example shows an 11-tooth drive gear. Your index may be a 16- or 18-tooth gear. Use the appropriate 100G DLS gas ERT module for your specific meter. See the [Meter Compatibility List](#) on page 3 for more information.



- After the drive gear is aligned with the wiggler gear, the mounting holes will line up.



Warning Indexes have varying drive mechanism styles. Failure to align the ERT wiggler 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 housing, 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.

- 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 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.

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



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



Programming the 100G DLS Gas ERT Module Assembly

Program the 100G DLS using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 1.1 or higher
or
- A FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 1.1 or higher
or
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 1.1 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

See the *Field Deployment Manager Endpoint Tools Mobile Application Guide (TDC-0934)* for more complete programming information.

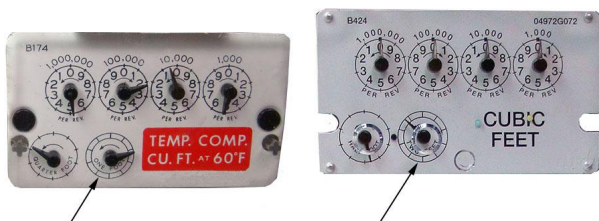


FC200SR FC300 with SRead 900MHz Belt Clip Radio



Caution You must program the 100G DLS gas ERT module before use.

The ERT 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 100G DLS gas ERT module

- Program the meter drive rate into the 100G DLS gas ERT module using the endpoint programming device.
- For all programming and *Check Endpoint* operations, hold the handheld programmer as close to vertical as possible. For best success, keep the handheld programmer within 6 feet of the target ERT.
- Verify you have the correct programming mode (Fixed Network Mode, Mobile High Power Mode, Mobile/Handheld Mode, or Hard to Read Mobile/Handheld Mode) for your application.

Programming parameters are based on the configuration file loaded into the ERT module programming device. During programming, the 100G DLS gas 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 assembly will read to the nearest cubic foot.

Attaching the 100G DLS gas ERT module Assembly to the Sensus Meter

After 100G DLS gas ERT module programming is complete, attach the ERT assembly to the Sensus meter.

To attach the 100G DLS gas ERT module to the meter

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

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 100G DLS assembly and repeat the alignment procedure. You must engage ERT module wriggler in the meter drive dog.



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 12).
 - Align the top right mounting screw hole on the meter with the top right screw hole on the ERT.
 - Insert the top right cover mounting screw and tighten the screw enough to hold the ERT assembly in place. Do not completely tighten the screw.
 - Rotate the ERT assembly counterclockwise until the remaining three ERT screw holes line up with the holes in the meter.

3. Install the remaining three mounting screws and tighten in the pattern shown in the following illustration. Tighten each mounting screw evenly.



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

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.

100G DLS installation on the Sensus meter is complete.



CHAPTER 4

Itron (Sprague) Meter Installation

This chapter provides the instructions to install the 100G DLS Gas ERT Module on an Itron (Sprague) meter.



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

Removing the Meter Index

Begin the ERT 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 (Sprague) meter. Examine the mounting screws. If they are 5/8-inch long and not corroded, keep them to re-attach the 100G DLS assembly. If the screws are not the correct length or if the screws are corroded, discard.



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. Do not leave materials on customer premises.

2. 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.



3. 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 later in this procedure.
4. 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 12).
5. 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 100G DLS.

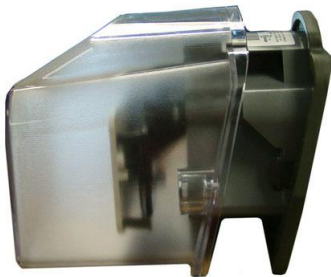


Assembling the ERT Module and Index

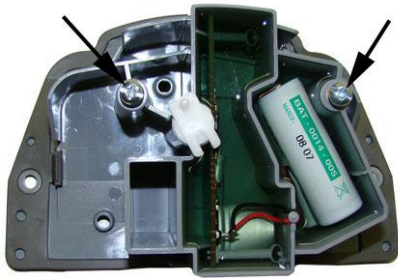
Continue ERT module installation by assembling the ERT module and index.

To assemble the 100G DLS gas ERT module and index

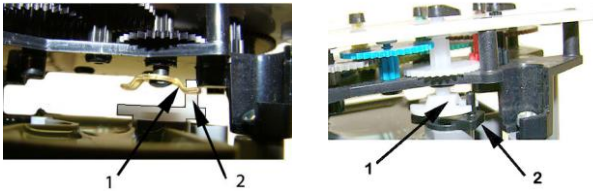
1. Separate the 100G DLS housing from the cover by pulling the cover straight out from the housing. Set the ERT cover aside where it will not be damaged or fill with rain, dirt or snow. You will use the cover later in this installation procedure.



2. Insert the 10 - 24 x 1/4-inch screws into the index mounting posts two turns. Do not tighten the screws.



3. Align the index wriggler (1) with the ERT drive post (2). Carefully slide the index onto the mounting screws.



4. Verify the 100G DLS housing drive post makes positive engagement with the index wriggler.

Warning Indexes have varying drive mechanism styles. Failure to align the ERT wriggler 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 housing, spin the wriggler one clockwise rotation, then one-counterclockwise rotation. Do not spin the wriggler more than one complete rotation. The wriggler should spin freely, with little or no resistance.

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



Warning Verify the index is correctly positioned all the way to the right on the index mounting screws before you tighten the index mounting screws. Failure to properly mount the index on the index mounting screws may cause binding and meter failure.

6. Install and tighten the mounting screws evenly.

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



Programming the 100G DLS Gas ERT Module Assembly

Program the 100G DLSs using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 1.1 or higher
or
- A FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 1.1 or higher
or
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 1.1 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

See the *Field Deployment Manager Endpoint Tools Mobile Application Guide* (TDC-0934) for more complete programming information.



FC200SR

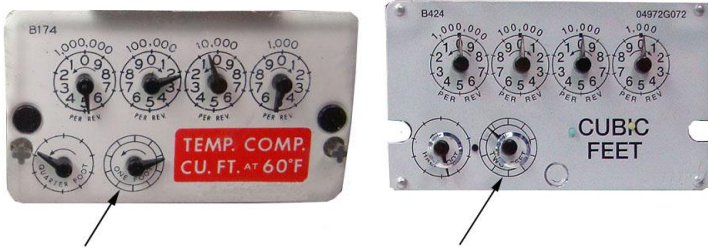
FC300 with SRead

900MHz Belt Clip Radio



Caution You must program the 100G DLS gas ERT module before use.

The ERT 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 100G DLS gas ERT module

- Program the meter drive rate into the 100G DLS gas ERT module using the endpoint programming device.
- For all programming and *Check Endpoint* operations, hold the handheld programmer as close to vertical as possible. For best success, keep the handheld programmer within 6 feet of the target ERT.
- Verify you have the correct programming mode (Fixed Network Mode, Mobile High Power Mode, Mobile/Handheld Mode, or Hard to Read Mobile/Handheld Mode) for your application.

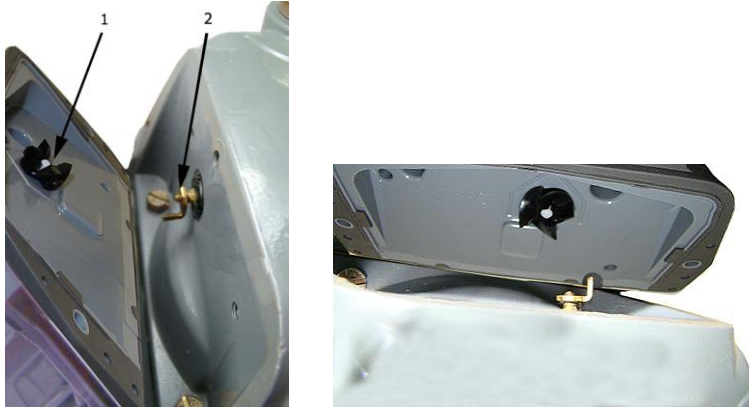
Programming parameters are based on the configuration file loaded into the ERT module programming device. During programming, the 100G DLS gas ERT module is set to the nearest 100 cubic feet; the last two digits (tens and units) are programmed as zeros (0). After programming is complete, the ERT assembly will read to the nearest cubic foot.

Attaching the 100G DLS Gas ERT Module Assembly to the Meter

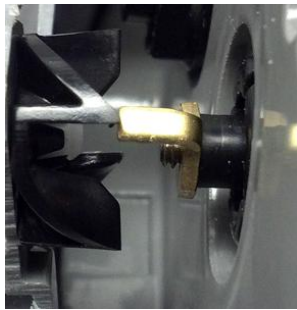
After you program the 100G DLS gas ERT module, attach it to the Itron meter.

To attach the 100G DLS gas ERT module to the meter

1. Align the ERT 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's fin 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 fin of the ERT module is *dead headed* against the meter drive dog.



Remove the 100G DLS assembly and repeat the alignment procedure. You must engage the meter drive dog in the ERT module wiggler fin.

2. Place the 100G DLS on the meter.
 3. 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 100G DLS 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 12.)



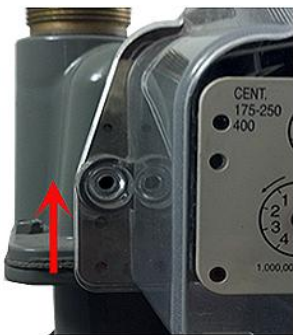
- Slightly lift the left side of the ERT (the module will rotate on the right screw) until the left ERT mounting hole is approximately 1/4-inch above the left meter mounting hole.



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



- Rotate the ERT up to align the left mounting holes.



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



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

9. 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.



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

100G DLS gas ERT module installation on the Itron meter is complete.



Attaching the 100G DLS Gas ERT Module Assembly to Flat-faced Sprague Meters

100G DLS gas 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 100G DLS gas ERT module assembly to Flat-faced Sprague meters

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.



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 The meter drive dog shaft is surrounded by a gasket. 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.

3. Attach the adapter plate to the meter with the gasket against the meter face. Secure with the two adapter plate mounting screws in an alternating fashion. Tighten each adapter plate screw evenly.
 - 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.

Note The 100G DLS must be assembled, programmed, and attached to the meter following the instructions in [Assembling the 100G DLS Gas ERT Module and Index](#) on page 30, [Programming the 100G DLS Gas ERT Module Assembly](#) on page 18, and [Attaching the 100G DLS Gas ERT Module to the Meter](#) on page 33. Use the module mounting screws shipped with the Sprague 1A Adapter Plate Kit to mount the 100G DLS.

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.

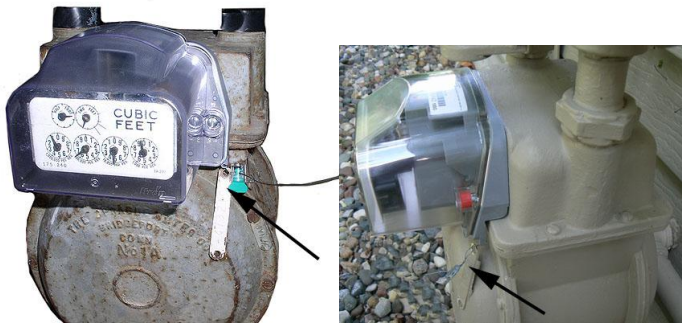


Mount brass meter tags using one of three Itron-approved methods.

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 100G DLS 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 100G DLS gas ERT module mounting hole

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 100G DLS installation procedure described in Step 1 of [Attaching the 100G DLS Gas ERT Module to the Meter](#) on page 33.

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

Method 3

1. Remove the 100G DLS gas ERT module index cover.

2. Place the meter tag inside the ERT assembly for optimal meter tag security. (See [To assemble the 100G DLS gas ERT module and index](#) on page 30.)



Method 3: Place the brass meter tag inside the 100G DLS assembly

Attaching the 100G DLS gas ERT module Assembly on Sprague 175RM Meters

This section provides the information to install the 100G DLS on a Sprague 175RM meter.

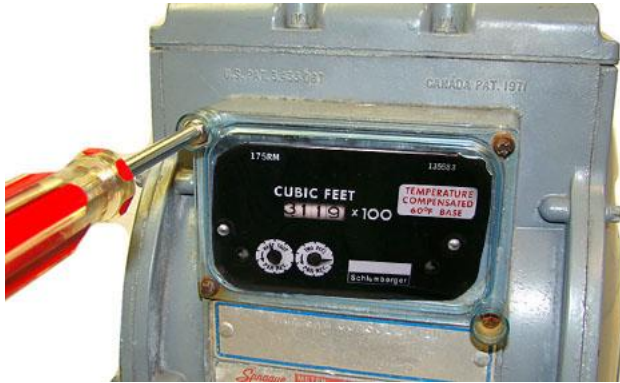


Removing the Meter Index

Begin the ERT 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.



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.

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 12).
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 100G DLS.



Assembling the ERT Module and Index

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

To assemble the 100G DLS gas ERT module and index

1. Separate the 100G DLS 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.



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

