



Natural Gas Solutions

100G Series Gas ERT Module Installation Guide, Remote Mount

Identification

100G Series Gas ERT Module Installation Guide, Remote Mount

24 June 2016 TDC-0824-014

100G, 100G DL, 100G DLN, 100G DLS, 100G DLT remote mount gas ERT modules

ERT module part numbers:

100G remote mount ERT module: ERG-5000-501, ERG-5000-502, ERG-5000-503

100G Datalogging remote mount ERT module: ERG-5002-501, ERG-5002-502, ERG-5002-503, ERG-5002-505

100G Datalogging FN remote mount ERT module: ERG-5003-501, ERG-5003-502, ERG-5003-503, ERG-5003-505

100G DLS Datalogging remote mount ERT module: ERG-5006-501, ERG-5006-502, ERG-5006-503, ERG-5006-505

100G DLT Datalogging remote mount ERT module: ERG-5007-501, ERG-5007-502, ERG-5007-503, ERG-5007-505

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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

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 Innovation, Science and Economic Development Canada (ISED) 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, the 100G series remote 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 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 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.



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

Contact

- Internet: www.itron.com
- E-mail: support@itron.com
- Phone: 1 877 487 6602

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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 tips 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 the task without suffering any adverse consequences.

Document Purpose

This installation guide provides step-by-step instructions for installing the 100G Series remote gas ERT module on a wide variety of meters and instruments. This installation guide refers to all models of the 100G remote ERT module as the 100G series remote gas module. Mechanical and electrical installation procedures are identical. For more information about ERT to meter compatibility, see the [100G Series Remote ERT Module Meter Compatibility List](#) on page 4.

About the 100G Series Gas ERT Module

Itron 100G series remote ERT modules are radio-frequency (RF) devices designed to transmit meter data to an RF meter reading device within transmission distance of the remote ERT module. The 100G remote gas ERT module was designed with a higher output power than earlier Itron remote gas ERT modules to achieve an increased RF transmission distance. The 100G series remote gas ERT modules have greater output power to meet Itron mobile and fixed network requirements. The first generation 100G remote gas ERT module offered high transmit power capability which increased operational efficiency and reduced infrastructure costs. The 100G Datalogging remote 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) remote gas ERT module added improved network performance through a higher transmit power, accomplished using increased antenna efficiency and more robust optimized messaging structures. The 100G DLS remote gas modules brings increased efficiency in SCM+ messaging and adds enhanced network security. SCM+ messages expand the data fields within our standard consumption message to offer added value. The enhancement of secure communications provides greater protection for bubble-up and two-way messaging to prevent unauthorized users from gaining access to the system.

The 100G DLT Datalogging gas ERT module (100G DLT) is a hybrid in the Itron line of 100 Series radio frequency (RF) gas meter modules. The 100G DLT combines the circuit board hardware of the 100G DLS module with the SCM messaging used in the 100G DLN module. This allows utilities currently using the SCM messaging in the 100G DLN can upgrade to the 100G DLT without the upgrades required for programming, enhanced security, or meter reading. The 100G DLT does not offer the optional ISM enhanced security capability or extended tamper information available in the 100G DLS.

The 100G remote module features tilt and cut cable-tamper reporting and security seals to indicate physical tampering and minimize theft. Cut cable is reported when the cable is cut or disconnected from the meter, instrument, or ERT module. 100G ERT module circuitry senses an electrical current *break* to report a cut cable tamper event.

Transmission Modes

The 100G series remote gas module can be set to transmit in fixed network, mobile and handheld, hard to read mobile and handheld, or cellular solutions mode (fixed network applications only).

- **Fixed Network Mode.** The 100G series remote gas module 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 series remote gas module 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 series remote gas module 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 series remote gas 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.

- **(Optional) Hard to Read Mobile and Handheld Mode.** The 100G series remote gas module 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).
- **Itron Cellular Solutions (ICS) Mode.** The 100G DLS module is compatible with the Itron Cellular Solution and can be programmed for optimum operation with FDM Endpoint Tools Enhanced. In ICS mode, the 100G DLS transmits a high-powered RF network interval message (NIM) every five minutes. Output power in this mode is 500 milliwatts or +27 dBm. Interspersed in the high power NIM, the 100G transmits a medium power RF message at 10 milliwatts or +10 dBm every 60 seconds; expected battery life is 20 years.

Note ICS mode is for fixed network application only. ICS is optimized to work with the ICS communications module in Itron's electric meter. The 100G DLS must be in a full security mode to work with ICS. This is not part of the ICS mode, but is a system level requirement.

An FCC license is not required to read 100G series remote gas module.

100G DLS ERT Module and Itron Security Manager

The 100G DLS ERT module is a component of Itron's ChoiceConnect system. ChoiceConnect system enhanced security, provided by Itron Security Manager (ISM), applies to the RF communications between the handheld computer, Mobile Collector, or Fixed Network system and the ERT module. ISM is available in the 100G DLS module only.

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

- **Authentication.** Authentication is the process of confirming that an artifact is genuine or valid. Authentication in the 100G DLT remote gas 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 ChoiceConnect solution, the 100G DLT remote gas ERT module supports the security model found in the ChoiceConnect solution for both reading and programming. If the 100G DLT remote gas ERT module modules are shipped without ChoiceConnect enhanced security enabled (ready to secure), the utility can—at a later date—configure the ERT modules for ISM enhanced security.

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

Enabling 100G DLS ERT Module Security

When 100G DLS 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 100G DLS 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 100G DLS ERT module for security, see the *FDM Endpoint Tools Mobile Application Guide* (TDC-0934).

100G Series Gas ERT Module Specifications

Functional Specifications	Description
Power Source 100G	Two "A" cell lithium batteries
100G Datalogging 100G Datalogging FN 100G DLS Datalogging 100G DLT Datalogging	One "A" cell lithium battery
Tamper Detection	Tilt and cut cable
FCC Compliance	Part 15 certified
Innovation, Science and Economic Development Canada (ISED)	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	Frequency Hopping Spread spectrum 903 to 926.85 MHz in the ISM band
Data Integrity	Verified in every data message
NIM Message	FM modulation; all other messages are AM modulated

Related Documents

Document Title	Document Part Number
<i>100G Series Gas ERT Module Installation Guide, Direct Mount</i>	TDC-0823-XXX
<i>100 Series Modules and CENTRON Bridge Meter Tamper Reference Guide</i>	TDC-1028-XXX
<i>100 Series Gas and Telemetry Module Technology Guide</i>	TDC-0825-XXX
<i>Gas and Telemetry Module Meter Compatibility List</i>	PUB-0117-002
<i>Gas and Telemetry Module Ordering Guide</i>	PUB-0117-001
<i>100G DLS Gas ERT Module Specification Sheet</i>	Publication 101274SP-XX
<i>100G DLN Gas ERT Module Specification Sheet</i>	Publication 100941SP-XX
<i>100G DLT Gas ERT Module Specification Sheet</i>	Publication 101365SP-XX
<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.

100G Series Remote ERT Module Meter Compatibility List

The following table lists meter types compatible with the 100G series remote gas module. Due to continuous research, product improvements and enhancements, Itron reserves the right to change product or system specifications without notice.

Eagle Research

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
MPplus Volume Corrector	Pulses with 70mS on and 500mS off timing.	100G Datalogging FN Remote	ERG-5003-502	
		100G DLS Datalogging Remote	ERG-5006-502	
		100G DLT Datalogging Remote	ERG-5007-502	
XARTU-1	Pulses with 70mS and 100ms on and 500mS off timing.	100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5006-503 ERG-5007-503	

Elster American (Canadian)

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
10 Metric (10B)	Originally manufactured by Metric Metal Works	100G Remote	ERG-5000-501	
		100G Datalogging Remote	ERG-5002-501	
		100G Datalogging FN Remote	ERG-5003-501	
		100G DLS Datalogging Remote	ERG-5006-501	
		100G DLT Datalogging Remote	ERG-5007-501	
Rotary RPM Series TC, STD CTR (pulse output connection)	Must have factory-installed pulser with connector output. Purchase correct cable interface from manufacturer.	100G Remote	ERG-5000-503	
		100G Datalogging Remote	ERG-5002-503	
		100G Datalogging FN Remote	ERG-5003-503	
		100G DLS Datalogging Remote	ERG-5006-503	
		100G DLT Datalogging Remote	ERG-5007-503	

Galvanic

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
GasMicro Electronic Volume Corrector	Must select 2 pulses/second from pulse output-output frequency menu.	100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5003-503 ERG-5006-503 ERG-5007-503	ERT module cut cable requires customer-supplied cable capable of terminating the ERT module white and blue wires at the meter interface.

GE Oil & Gas/Dresser Meters

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
D800/D1000	Pulse width must be set greater than 100 ms. Firmware version must be 1.71 or earlier.	100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5003-503 ERG-5006-503 ERG-5007-503 ERG-5003-505 ERG-5006-505 ERG-5007-505	ERG-500X-503 and -505 modules interface with this meter
B3/LMMA Pulse output	Rotary meters equipped with Weigand/Wire solid state pulsers. Meter must have factory-installed pulser with connector output. Purchase correct cable interface from GE. Pulser must be version 17 or higher to be compatible.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-503 ERG-5002-503 ERG-5003-503 ERG-5006-503 ERG-5007-503	

About the 100G Series Gas ERT Module

GE Oil & Gas/Dresser Meters

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
Integral Micro Corrector IMC/W2	Electronic volume corrector for Series A (LMMA) and Series B rotary meters. Must be meter firmware version 1.94 or earlier. Pulse width must be set for 125ms. Pulse output must be at 100CF (CM) or higher.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-505 ERG-5002-505 ERG-5003-505 ERG-5006-505 ERG-5007-505	
Integral Micro Corrector MC2	Electronic volume corrector for Series A (LMMA) and Series B (rotary meters). Must be firmware version 1.93 or earlier. Pulse width must be set for 125 ms. Pulse output must be at 100CF (CM) or higher.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-505 ERG-5002-505 ERG-5003-505 ERG-5006-505 ERG-5007-505	
Series 3 ES3 Electronic TC	Electronic TC with mechanical backup. ES3 pulse width must be set greater than 100ms. Firmware version 1.71 or earlier.	100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-503 ERG-5000-505 ERG-5002-503 ERG-5002-505 ERG-5003-503 ERG-5003-505 ERG-5006-503 ERG-5006-505 ERG-5007-503 ERG-5007-505	Both ERT modules are compatible with this meter model.
Electronic Temperature Compensator (ETC)	Electronic TC with no mechanical backup. ETC pulse width must be set greater than 100 ms. Firmware version 1.71 or earlier.	100G Datalogging FN Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote 100G DLT Datalogging Remote	ERG-5003-503 ERG-5003-505 ERG-5006-503 ERG-5006-505 ERG-5007-503 ERG-5007-505	Both ERT modules are compatible with this meter model.

Honeywell Mercury Instruments

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
Electronic Correctors: EC-AT Mini-P Mini-AT Mini-Max	Pressure and temperature electronic volume instruments. Instruments must have a Form A board, Form C is NOT supported. Item #56 Pulse Scaling Factor must be 2.0. Item #96 Cor Vol Display must be 7, 6, 5, or 4 digits (1, 2, 3, or 4 blanks). Item #115 Output Pulse Code must be set at 1, 2, or 4. For 100G connection to Mini-Max only, Item #115 must be set at 1 or 2. Item 124 wake up setting on Honeywell corrector must be set to 1. Compatible corrector firmware versions are 2.5020 and 2.73.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-502 ERG-5002-502 ERG-5003-502 ERG-5006-502 ERG-5007-502	

About the 100G Series Gas ERT Module

Honeywell Mercury Instruments

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
Electronic TC index: TCI	Temperature Compensating Index. TCI must have a Form A board, Form C is NOT supported. Item #56 Pulse Scaling Factor must be 2.0. Item #96 must be 7, 6, 5, or 4 digits (1, 2, 3, or 4 blanks). Item #1014 set to the preset "Itron 100G" selection in the drop-down menu. Compatible TCI firmware versions are 1.06, 1.07, and 1.10.	100G Datalogging Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote 100G DLT Datalogging Remote	ERG-5002-502 ERG-5002-503 ERG-5003-502 ERG-5003-503 ERG-5006-502 ERG-5006-503 ERG-5007-502 ERG-5007-503	

Itron (Actaris, Schlumberger, Sprague)

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
1A	Flat-face meter where meter body and 1A adapter plate have interference fit issue causing direct mount solution to be non-compatible.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-501 ERG-5002-501 ERG-5003-501 ERG-5006-501 ERG-5007-501	
305	#2 flat-face meter	100G Remote 100G Datalogging Remote 100G Datalogging RN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-501 ERG-5002-501 ERG-5003-501 ERG-5006-501 ERG-5007-501	
400	#3 flat-face meter	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-501 ERG-5002-501 ERG-5003-501 ERG-5006-501 ERG-5007-501	
675, 1000	Front-mount index	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-501 ERG-5002-501 ERG-5003-501 ERG-5006-501 ERG-5007-501	Requires a thicker gasket for magnet hub to clear index box. 1-hole gasket: FAB-0014-001 2-hole gasket: FAB-0014-002 3-hole gasket: FAB-0014-003
Dattus III fM1, fM2, fM3	For all meter types, pulse width must be set to .050 seconds. Meter type 11M or smaller must have pulse weight minimum of 10 cubic feet or 1 cubic meter. Meter type 16M or greater must have pulse weight minimum of 100 cubic feet or 1 cubic meter.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-502 ERG-5002-502 ERG-5003-502 ERG-5006-502 ERG-5007-502	

National (Lancaster)

Meter Model	Meter Notes	100G Module Type	Itron Part Number	Gas Module Notes
All Meters	Where direct mount solution is not compatible.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-501 ERG-5002-501 ERG-5003-501 ERG-5006-501 ERG-5007-501	

Romet

Meter Model	Meter Notes	100G Module Type	Iron Part Number	Gas Module Notes
RM Series STD CTR 600—56000 TC 2000—23000	Meter must have factory-installed pulser with connector output. Purchase cable interface from manufacturer.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-503 ERG-5002-503 ERG-5003-503 ERG-5006-503 ERG-5007-503	
RM Series Electronically compensated meter ECM2 600—56000	Meter must have connector pin with factory-installed pulse output. Purchase correct cable interface from Romet. ECM2 must be configured for 750ms "off-time" between pulses. The ECM2 must have firmware version J or later.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-503 ERG-5002-503 ERG-5003-503 ERG-5006-503 ERG-5007-503	
AdEM [®] Series Correctors including AdEM [®] -S, AdEM [®] -T, and AdEM [®] -PTZ	Must be configured for 750ms "off time" between pulses	100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5006-503 ERG-5007-503	


Sensus (Invensys/Equimeter/Rockwell/EMCO)

Meter Model	Meter Notes	100G Module Type	Iron Part Number	Gas Module Notes
Sonix Pulse Output 12, 16, 25, 57 (Metric) 600, 880, 2000 (Cubic foot)	Sonix meters are pulse output registers which are programmed by Sensus software. Proper pulse output options and display options must be selected.	100G Remote 100G Datalogging Remote 100G Datalogging FN Remote 100G DLS Datalogging Remote 100G DLT Datalogging Remote	ERG-5000-503 ERG-5002-503 ERG-5003-503 ERG-5006-503 ERG-5007-503	

Installation Prerequisites

The following tools are required to install, program, and check the remote 100G series remote gas module. Some specific tools may be required dependent on meter or instrument type.

- Medium flat-blade screwdriver
- Small flat-blade screwdriver
- Medium Phillips screwdriver
- Hand pliers
- Side-cutting pliers
- 1/4-inch nut driver or similar blunt tool
- One-inch width putty knife
- Adjustable wrench
- 3M Scotchlock E-9Y crimping tool, 3M Scotchlock E-9C cartridge tool, or similar crimping tool
- All-weather electrical tape
- Mounting screws (for more information about mounting screws, see [Mounting Screw Specifications](#) on page 9)
- Size T-15 Torx screwdriver

- 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
-  **Note** The FDM version required is dependent upon the 100G ERT module model in use.



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.

Mounting the 100G Series Gas ERT Module




This chapter provides the instructions to mount the 100G series remote gas module on a pipe or other flat vertical surface (wall).

Installation Options

Mount the remote ERT module using the pipe mount or wall mount (flat vertical surface) procedure.

- Pipe Mount.** Pipe mounting is used in conjunction with the Pipe Installation Kit (Itron part number CFG-0005-003). The pipe mount option places the module on a pipe near the meter or instrument (not on a wall surface). This option requires a meter manufacturer's cable to connect the module to the meter or instrument.
- Flat Vertical (Wall) Mount.** Installation using the wall mount option places the module on a wall or other vertical surface. A cable connects the module to the meter or instrument.

Mounting Screw Specifications

Application	Itron Part Number		Description
To mount adapter plates on pipe brackets	575-9930-016		8-16 x 1/2-inch length, type 8 slotted pan-head tapping screw, corrosion-resistant steel
To mount remote modules on adapter plates	575-9930-032		8-16 x 1-inch type 8, slotted pan-head tapping screw, corrosion-resistant steel
To mount remote modules on sheet metal surfaces (to mount modules to wood surfaces, a comparable wood screw is required)	SCR-0009-001		10-16 x 1 1/2-inch type AB thread for sheet metal, Phillips pan-head tapping screw, corrosion-resistant steel

Mounting Installation Considerations

Select a proper mounting location. Itron recommends mounting the 100G series remote gas module in close proximity to the meter or instrument. Some applications may require an extended cable-length. The 100G series remote gas module supports cable lengths up to 300 feet with a recommended one-splice limitation.

Mount the 100G series remote gas module in a vertical position with the ERT label directional arrow pointed upward.



Caution Upright vertical positioning is very important because:

- 100G series remote gas modules are designed with the antenna in a vertical direction so the antenna is parallel to the reading device (which has a vertical antenna). Matching antenna polarity can greatly affect RF performance and enable easy ERT module reading.
- 100G series remote gas modules are designed so the tilt tamper is vertical. It is important to maintain vertical positioning in the field to enable tilt tamper stability.





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.

Do not mount the 100G series remote gas module in an orientation other than vertical (remote ERT module label arrow pointed upward). Violating the mounting orientation requirements may void the product warranty

Mounting the Remote ERT Module on a Pipe

The following items are required to mount the 100G series remote gas module on a pipe or vertical flat surface (wall):

Itron Part Number	Description	
ERG-500X-501 ERG-500X-502 ERG-500X-503 ERG-500X-505	100G series remote gas module	 (ERG-5006-501 shown)
CFG-0005-003	Pipe Mount Kit Kit includes: (2) two band clamps (2) two tamper seals pipe bracket cable ties adapter plate Screws: (2) 1/2-inch, to attach the adapter plate to pipe bracket (2) 1-inch, to attach the ERT module to the adapter plate (3) 1 1/2-inch, to attach the ERT module to a vertical surface (wall)	



Warning Install the 100G series remote gas module in an upright position. Any position other than upright, may negatively affect radio performance and reduce battery life.

To mount the pipe bracket on a vertical pipe

Caution A vertical mounting position is important to maximize RF performance. Mount the ERT module with the module's label arrow pointing up. *The module's arrow must never point to either side or upside down.* The module's tilt tamper functionality is designed to operate with the module installed vertically.

1. Remove the pipe bracket and band clamp from the Pipe Mount Installation Kit (Itron part number CFG-0005-003).



2. Loosen the band clamp screw until the end of the band releases.



3. Push the end of the clamp's band through the holes in the pipe bracket. The pipe bracket must be oriented as shown below.



4. Place the band clamp around the pipe. The band will loosely wrap around the pipe.
5. Push the end of the band through the band clamp screw assembly. Turn the band clamp's screw assembly to fit into the pipe bracket opening. Tighten the clamp screw until the band clamp is secure on the pipe.



Caution The pipe bracket must fit firmly against the pipe to prevent slippage.

Adapter Plate Mounting Positions

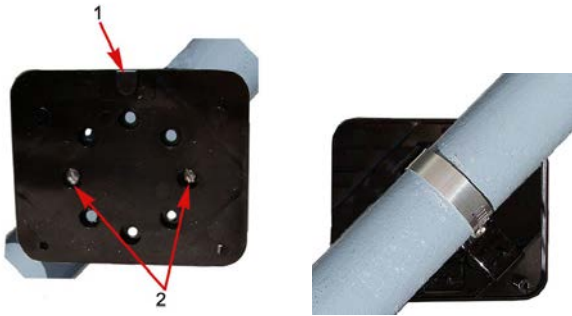
The following pictures show adapter plates mounted on horizontal or 45-degree angle pipes.



Caution Regardless of the pipe's direction, the adapter plate mounting lug must always be at the top.

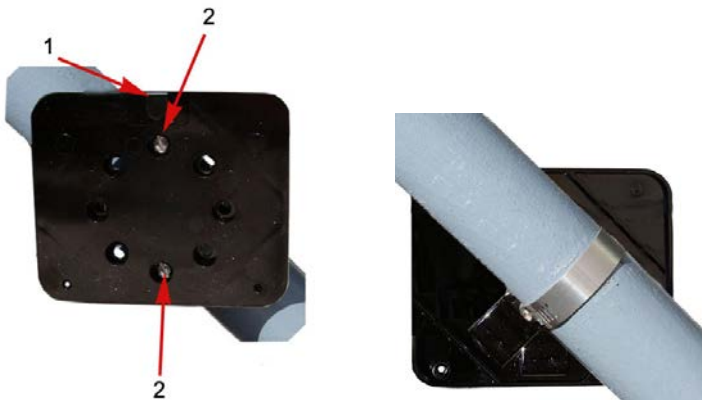
Mounting the 100G Series Gas ERT Module

If the pipe is a 45 degree angle up to the right, install the adapter plate as shown below.



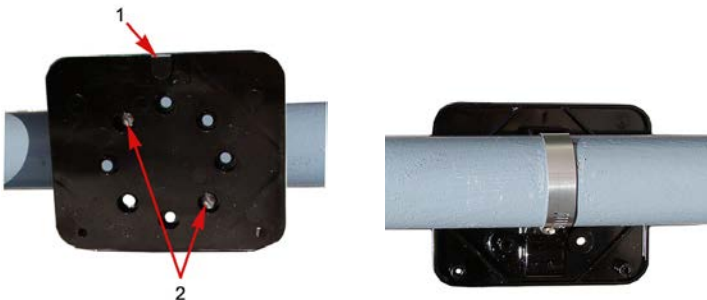
Typical module mounting **Mounted adapter plate**

If the pipe is a 45 degree angle up to the left, install the adapter plate as shown below.



Typical module mounting **Mounted adapter plate**

If the pipe is horizontal, install the adapter plate as shown below.



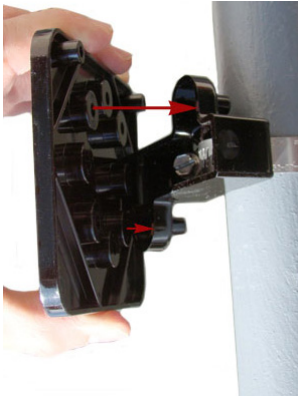
Typical module mounting **Mounted adapter plate**

To mount the adapter plate on the pipe bracket

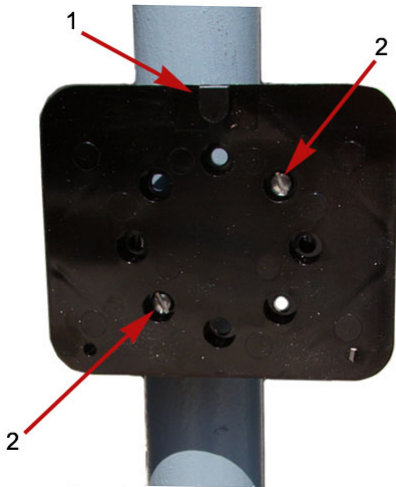
Caution Vertical mounting position is important to maximize RF performance. Mount the 100G series remote gas module with the module label arrow pointing up. The module's arrow must never point to either side or upside down. The module tilt tamper functionality is designed to operate with the module installed vertically.

Mounting the 100G Series Gas ERT Module

1. Place the adapter plate on the pipe bracket with the mounting lug at the top or bottom. The adapter plate screw bosses fit into the pipe bracket recess.



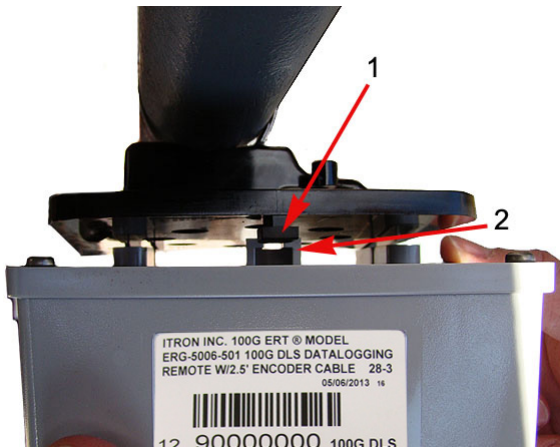
2. Ensure the adapter plate is positioned as shown below with the mounting lug (1) at the top or bottom. To install the adapter plate on a vertical pipe, use the two shortest (1/2-inch) adapter plate mounting screws (2) from the installation kit. Place the mounting screws (2) in the holes shown below.



3. Tighten both screws securely in an alternating pattern. Tighten to 9 - 12 inch-pounds torque.

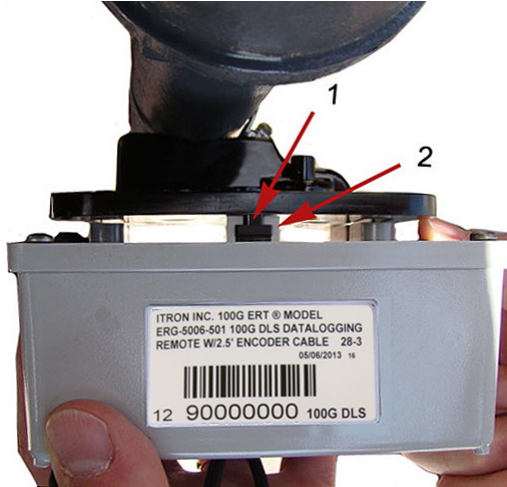
To mount the 100G series remote gas module on the adapter plate

1. Using the ERT module and the two one-inch mounting screws from the Pipe Installation kit, place the back of the remote ERT module against the face of the adapter plate. The adapter plate mounting lug (1) must be positioned just above the ERT module mounting lug recess (2).

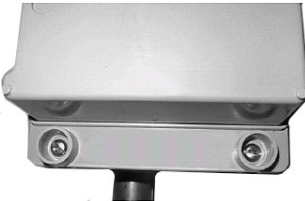


Mounting the 100G Series Gas ERT Module

2. Push up on the module until the adapter plate mounting lug (1) is as far as possible inside the module mounting lug recess (2).



3. Align the ERT module backplate mounting holes with the pipe mount adapter plate holes. Install the two one-inch ERT module mounting screws from the installation kit.



4. Tighten the module mounting screws evenly in an alternating fashion. Tighten to 9 - 12 inch-pounds of pressure.

To install tamper seals and cable ties

1. Place the new tamper seals from the Pipe Installation Kit over the 100G series remote gas module mounting screws.



2. Firmly push both tamper seals all the way into place with a 1/4-inch nut driver or similar blunt tool.



Note A tamper seal is fully seated when the top of the tamper seal is approximately 1/16-inch below the top of the screw recess.

Mounting the 100G Series Gas ERT Module

3. Gather any excess ERT module cable. Loop a cable tie around the pipe and excess module cable.



4. Insert the chiseled end of the cable tie into the locking end and pull the cable tie tight. Cut off and properly dispose the excess cable tie.



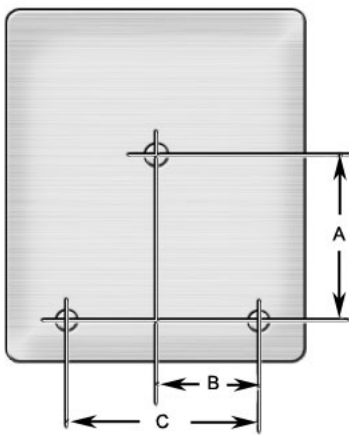
100G series remote gas module pipe mount installation is complete.

Mounting the Remote Gas Module on a Wall or Other Flat Vertical Surface

Carefully select a mounting location free from electrical wires. The mounting location must have the proper clearance to accommodate the 1-1/2-inch module mounting screws so nothing is damaged by the drill or mounting screws.



Note For easier installation, drill three pilot holes in the mounting surface (use the correct size drill bit to accommodate the module mounting screws [see the drilling template below]). The drilled pilot holes for the two bottom screws must be on a horizontal line. To mount the module on a sheet metal surface, use the mounting screws included with the Remote Mounting kit. Use a comparable wood screw to mount the module on a vertical wood surface.



Remote module drilling template

A 3 inches

B 1-11/16 inches

C 3-3/8 inches

To mount the remote gas module on a wall or other flat vertical surface

1. Using one of the three 1-1/2-inch mounting screws from the Pipe Mount Kit, turn the mounting screw for the mounting lug (top of module) part way into the mounting surface.



2. Place the 100G series remote gas module mounting lug recess (on the top of the module backplate) just under the screw head.
3. Slide the module upward until the screw head fits completely inside the mounting lug recess. Several adjustments may be necessary to properly position the screw for module mounting.

Mounting the 100G Series Gas ERT Module



4. Install the bottom two mounting screws. Fasten the screws in an alternating pattern until fully tightened to secure the module firmly in position.



To install tamper seals and cable ties

1. Place a new tamper seal (from the Pipe Installation Kit) over each ERT module mounting screw.



2. Firmly push both tamper seals into place with a 1/4-inch nut driver or similar blunt tool.

Note A tamper seal is fully seated when the top of the tamper seal is approximately 1/16-inch below the top of the screw recess.

3. To reduce the risk of cable damage, secure the excess module cable with the cable ties from the Pipe Mount Installation Kit. Pull the cable tight. Remove and properly dispose the excess cable tie.



100G series remote gas module installation on a vertical flat surface or wall is complete.

CHAPTER 3

Rotary Meter Installation

This chapter provides the instructions to install the 100G series remote gas module on rotary gas meters. Reference the [100G Series Remote ERT Module Meter Compatibility List](#) on page 4 for rotary meters compatible with the 100G series remote gas module.



GE Dresser series B3 meter



GE Dresser series LMMA rotary meter



GE Dresser series D800/D1000 meter



GE Dresser ES3



GE Dresser ETC



American rotary meter



Romet Imperial series RM meter



Romet Imperial ECM2 meter

Required Installation Materials Available from Itron

The materials in the following table are required to install the remote ERT module.

Itron Part Number

ERG-500X-503
ERG-500X-503

Note this remote ERT module comes standard with 12-inch lead wires and may be shipped directly to the meter manufacturer for a factory-installed cable (interface). The interface cable must be purchased directly from the meter manufacturer.




Important You must purchase the interface cable directly from the meter manufacturer.

CFG-0005-003
Pipe Installation Kit



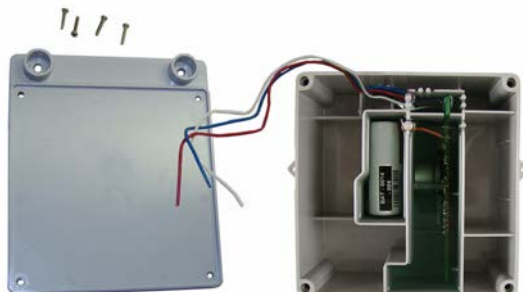
Connecting the 100G Series Gas ERT Module to the GE Dresser Rotary Meter Cable

You may ship the Itron 100G series remote gas module directly to GE Dresser for a factory-installed cable. If you connect the module to the meter using an existing cable purchased from GE Dresser, complete the following cable installation procedure.

 **Caution** The purchased cable must have a mating connector compatible to the meter receptacle. GE Dresser cables may be wired in different configurations for specific applications. If necessary, contact GE Dresser for wiring diagrams for your specific application.

To connect the module to the rotary meter cable

1. Remove the backplate (4 screws) from the module and expose the module lead wires. The backplate and screws will be re-installed on the ERT module later in this procedure so store them (temporarily) in a safe, secure place.



Rotary Meter Installation

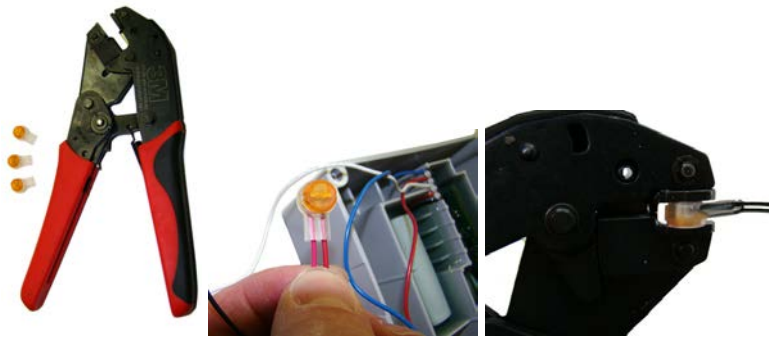
2. Insert the lead wires from the module into new 3M gel connectors (Itron part number CON-0023-001) together with the same colored lead wire from the meter cable (see the wiring table below) and crimp using a 3M hand-held crimping tool.

Rotary Meter to Remote ERT Module Wire Table

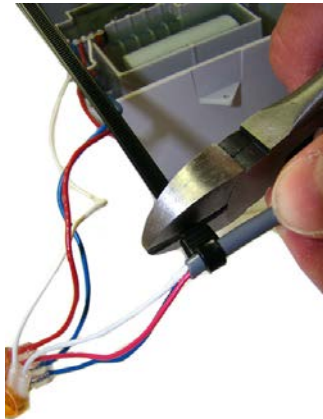
Rotary meter wire	Remote ERT module wire
Red	Red
White	White
Blue	Blue

Important Use a crimping tool compatible with gel-connectors. *Do not* use a standard pliers for crimping gel connectors. The crimping tool provides an even pressured crimp to make a secure connection. Apply pressure for three seconds until the gel connector is fully crimped (collapsed) to allow time for the low viscosity silicone-based gel to flow (3). If the silicone gel flows out of the crimped connector, avoid touching the gel. Gel flowing from the connector provides environmental protection for the connection.

Note Do not strip lead wire prior to inserting the wire in the gel connector.

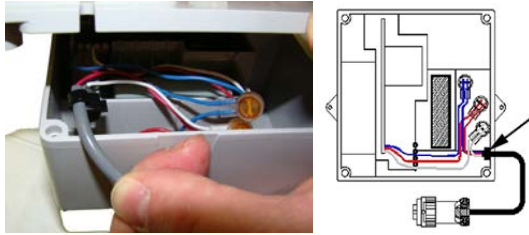


3. After completing the wiring connections, install a cable tie to the meter cable just below the exposed colored lead wires on the cable insulation. Remove the excess cable tie using a hand-held side-cutter pliers. The cable tie performs as a cable strain relief to mitigate the risk of destructive tension on the lead wires.



Rotary Meter Installation

4. Tuck the three gel connectors and cable tie inside the module housing, as shown in the following placement schematic illustration.



5. Install the 100G series remote gas module backplate using the four screws previously removed from the module and a Torx T-10 screwdriver.

Important Verify the cable tie and gel connectors are inside the module housing and the cable extends out of the slot in the backplate. Torque the backplate mounting screws to 9 to 12 inch-pounds.

6. Install the module on the wall or a pipe using the Pipe Installation Kit (Itron part number CFG-0005-003). For mounting instructions, see Mounting the 100G Series Gas ERT Module.



Connecting and Installing the GE Dresser D800/D1000 Meter

Meter manufacturers may provide ERT mounting kits and installation procedures. If GE Dresser's 100G series to GE Dresser D800/D1000 meter installation procedure is not available, follow this procedure.

Installing the ERT module to the meter requires the following customer-supplied materials.

Requirement	Description
D800 or D1000	GE Dresser meter
ERG-500X-503 ERT modules include a cable tie for strain relief and tamper seals.	100G remote ERT module
Phillips-head screwdriver	
Torx screwdriver	T-15
Screws	(1) 8-32 x 1/2" (2) 8-32 x 3/4"
Kep® nuts	(3) 8-32"
3M UR2	3-wire gel connector

To prepare the GE Dresser D800/D1000 meter for the ERT module installation

1. Loosen and remove the two screws holding the mounting brackets to the meter.



After the brackets are removed, the pulse output cable is visible.



2. Loosen the cable gland and pull the cable out until it extends 7.5 to 8" out of the cable gland.



3. Tighten the cable gland. Do not use a plier or wrench to tighten the cable gland.

Rotary Meter Installation

4. Rotate one bracket. Route the meter cable through the holes located at the bend of the mounting brackets.



5. Attach the brackets to the meter using the previously removed screws.



To connect the 100G ERT module to the meter

Important Use a crimping tool compatible with gel-connectors. Do not use a standard pliers for crimping gel-connects. The crimping tool provides an even pressured crimp to make a secure connection. Apply pressure for three seconds until the gel cap is fully crimped (collapsed) to allow time for the low viscosity silicone-based gel to flow (3). If the silicone gel flows out of the crimped connector, avoid touching the gel. Gel flowing from the connector provides environmental protection for the connection.



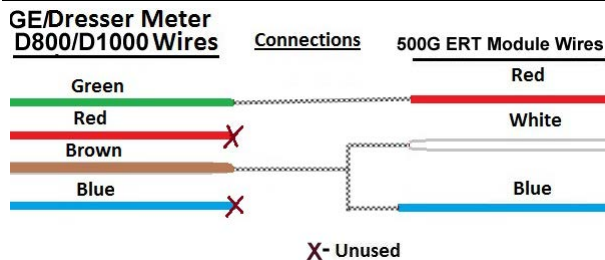
Note Connecting the D800 or D1000 to the 100G remote module requires 3M gel cap connectors. Itron supplies the two-wire gel cap connectors. Users who want to complete three-wire connections must supply the 3M UR2 connectors.

Rotary Meter Installation

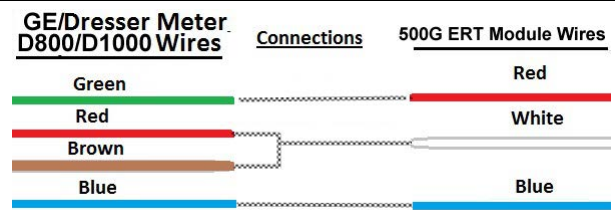
- Splice the meter pulse output wires to the ERT module wires using gel cap connectors. Follow the wire connections in the D800/D1000 to 100G ERT module wire connections table.

Pulse Outputs	D800/D1000 wire	Pulse output 1 only	Pulse output 2 only	Pulse output 2 with fault (pulse out 3)	Pulse output 2 with fault (pulse out 3)
Pulse output 1+	Brown	White and Blue		White	
Pulse output 1-	Green	Red		Red	
Pulse output 2+	White		White and blue		White
Pulse output 2-	Black		Red		Red
Pulse output 3+ (Fault)	Red			White	White
Pulse output 3- (Fault)	Blue			Blue	Blue

Pulse Output 1 Only



Pulse Output 1 and Fault

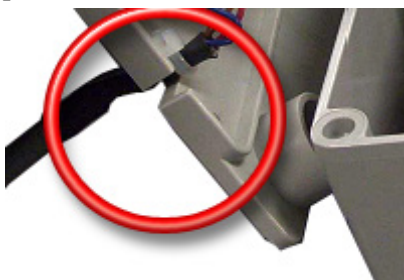


Note See GE Dresser documentation for detailed information about pulse outputs 1 and 2. See the [100G Series Remote ERT Module Meter Compatibility List](#) on page 4 for pulse requirements and compatibilities.

- After the wiring connections are completed, install the cable tie approximately 1/8" from the end of the cable insulation as shown.



- Position the portion of the cable with the cable tie (strain relief) into the slot on the ERT module's back plate.



- Carefully fold the ERT module wires into the ERT module housing. Be careful not to pinch the wires or gel connections between the housing and the back plate.

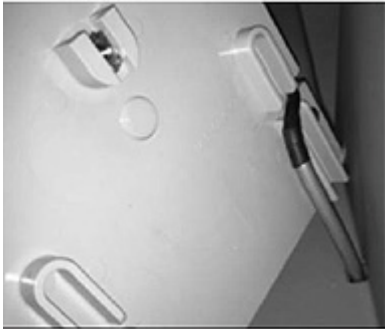
Rotary Meter Installation

5. Install the ERT module back plate using the T-15 Torx screws supplied with the ERT module.



To mount the ERT module on the D800 or D1000 meter

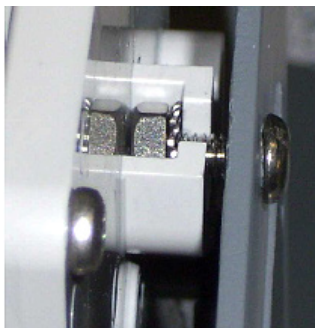
1. Route the cable through the channel in the backplate standoffs.



2. Insert the 8-32 x 1/2" screw into the top hole in the meter mounting bracket and thread one of the Kep nuts loosely onto the end of the screw.



3. Tilt the bottom of the ERT module away from the mounting bracket and slide the notched mounting hub onto the screw and Kep nut. Do not tighten the screw.



Rotary Meter Installation

4. Install the bottom two mounting screws and Kep nuts. Tighten the three mounting screws in an alternating pattern.



5. Install the supplied red tamper seals over the bottom mounting screws on the ERT module.



Connecting and Installing the 100G Series Module to the GE Dresser ES3 or ETC

Meter manufacturers may provide ERT mounting kits and installation procedures. If GE Dresser's 100G series to GE Dresser ES3 or ETC device installation procedure is not available, follow this procedure.



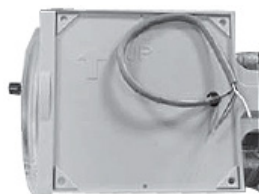
Note You must purchase the ES3 or ETC device as AMR Ready from GE Dresser. A successful installation requires an AMR Ready ES3 or ETC. Reference the GE Dresser MeterWare software manual for configuration information.

To prepare the GE Dresser ES3 or ETC for the ERT module installation

1. Score (cut) the cable jacket surrounding the ES3 or ETC wires.



2. Carefully remove the cable jacket to expose the ES3 or ETC wires.



To connect the ES3 or ETC and 100G ERT module wires

Important Use a crimping tool compatible with gel-connectors. Do not use a standard pliers for crimping gel-connects. The crimping tool provides an even pressured crimp to make a secure connection. Apply pressure for three seconds until the gel cap is fully crimped (collapsed) to allow time for the low viscosity silicone-based gel to flow (3). If the silicone gel flows out of the crimped connector, avoid touching the gel. Gel flowing from the connector provides environmental protection for the connection.



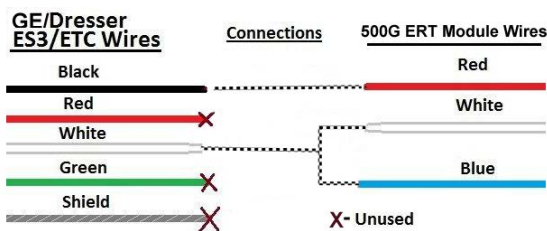
Note Connecting the ES3 or ETC to the 100G remote module requires 3M gel cap connectors. Itron supplies the two-wire gel cap connectors. Users who want to complete three-wire connections must supply the 3M UR2 connectors.

1. Splice the meter wires to the ERT module wires using gel cap connectors. Follow the wire connections in the following wire connection tables.

Wire connections

Pulse Outputs	ES3/ETC Wire Color	Pulse output 1 only	Pulse output 1 with fault (pulse output 3)
Pulse Output 1+	White	White and Blue	White
Pulse Output 1-	Black	Red	Red
Pulse Output 3+ (Fault)	Red		White
Pulse Output 3- (Fault)	Green		Blue

Pulse Output 1 Only



Pulse Output 1 and Fault



Note See the [100G Series Remote ERT Module Meter Compatibility List](#) on page 4 for pulse requirements and compatibilities.

Caution If alarm functionality is not required, at a minimum, you must tie the white and blue ERT module wires together. Wiring the white and blue ERT module wires together, eliminates the possibility of the ERT module falsely incrementing cut cable tamper.

2. Clip off the unused green, red, and shield wires from the ES3 cabling.
3. Tuck all of the wires into the module's housing.

Rotary Meter Installation

- Align the ERT module mounting holes with the ES3 or ETC bracket mounting holes. Use a T15 Torx screwdriver to insert and tighten the mounting screws. Tighten the screws in an alternating pattern.



To confirm the correct ERT module mounting

Important Regardless of the meter orientation (side or top inlet), the 100G ERT module must always be mounted in a vertical position with the arrow on the front label and the meter mounting bracket arrow pointing up. Vertical positioning ensures the tilt/tamper switch in the module is in the correct position.

- The 100G ERT module is in the correct vertical mounting position when the arrow on the front label is pointed upward.

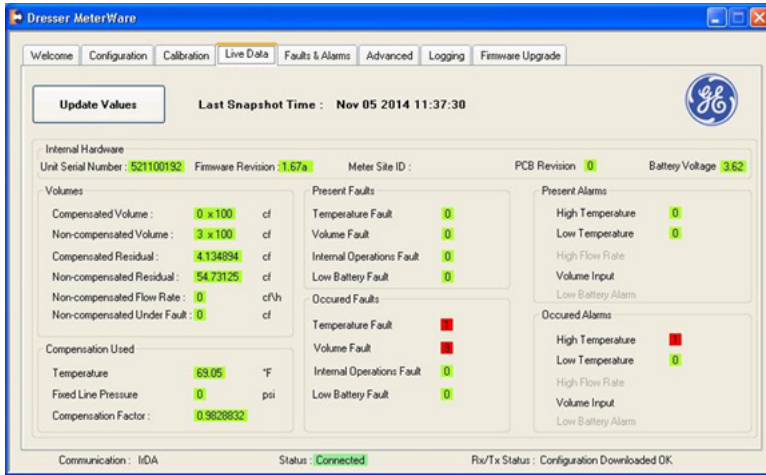


Configuring Index Settings Using the GE Dresser MeterWare Software

GE Dresser MeterWare software is used to configure the ERT module's index settings.

- Important** This information is subject to change without notice. Refer to the GE Dresser MeterWare product documentation to verify the most current information about programming and configuring the corrector for use with the 100G series remote ERT module.

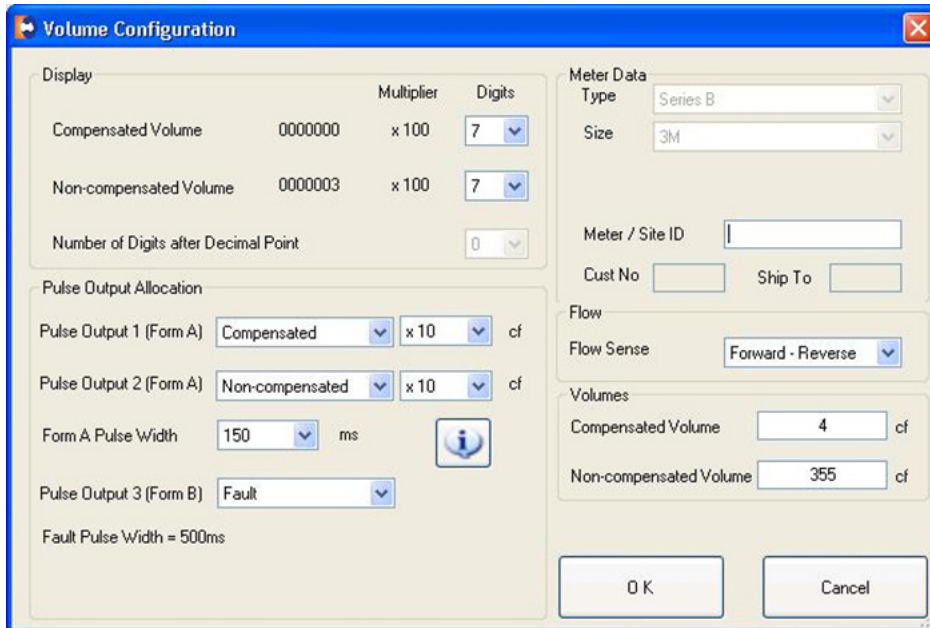
To change ERT module index settings



1. Open the GE Dresser MeterWare software.
2. Select the **LiveData** tab.
3. Confirm the firmware version and current index settings.
4. If you change a variable, click **Update Values** to complete the change.

To view the volume configuration

1. Select the **Configuration** tab.



2. Confirm the volume configuration and pulse width settings.
3. Use the drop down lists to change a variable.
4. Click **OK** to complete the change.

Programming the Remote ERT Module for GE Dresser Rotary Meters

To program 100G series remote gas modules for use with GE Dresser rotary meters, use the meter drive rates from the drive rate table in this section.

B3, LMMA & S3A CTR/TC Meter Drive Rates for Remote ERT Module Programming



Caution Do not use these meter drive rates to program residential direct-drive or commercial direct-drive modules. Use the information in the following tables to program ERT modules connected to GE Dresser rotary meters.

B3, LMMA, S3A CTR/TC Meter Drive Rates			
B3 CTR Meter Size		B3 CTR Meter Pulse Rate	
8C		10	
11C		10	
15C		10	
2M		10	
3M		10	
5M		10	
7M		10	
11M		10	
16M		100	
23M		100	
38M		100	
56M		100	
Meters built 1/99 and beyond		Meters built prior to 1/99	
B3 TC Meter Size	B3 TC Meter Pulse Rate	B3 TC Meter Size	B3 TC Meter Pulse Rate
8C	10	8C	50
11C	10	11C	50
15C	10	15C	50
2M	10	2M	50
3M	10	3M	50
5M	10	5M	50
7M	10	7M	50
11M	10	11M	50
16M	100	16M	500

Rotary Meter Installation

LMMA CTR Meter Size	LMMA CTR Meter Pulse Rate	LMMA TC Meter Size	LMMA TC Meter Pulse Rate
1.5M	10	1.5M	10
3M	10	3M	10
5M	10	5M	10
7M	10	7M	10
11M	10	11M	10
16M	100	16M	100
23M	100		
38M	100		
568CM	100		
102M	100		
S3A CTR Meter Size	S3A CTR Meter Pulse Rate	S3A TC Meter Size	S3A TC Meter Pulse Rate
1.5M	10	1.5M	10
3M	10	3M	10
5M	10	5M	10
7M	10	7M	10
11M	10	11M	10
16M	100	16M	100

Connecting the Remote ERT Module to the Romet Electronically Compensated Meter (ECM2®)



The Romet ECM2® meter has three Form "A" outputs that can be configured at the factory to provide any combination of the following three outputs:

- Uncorrected volume (UNC VOL)
- Corrected volume (COR VOL)
- Alarm

The pulse weight for the volumetric outputs is configured in *SetUp Mode* at **Menu items > SET UNC OUT** and **Menu items > SET COR OUT**. Since Setup Mode is fully configurable, the ECM2® module is universally adaptable to all Romet TC meter bodies. Reference the Romet technical manual for specific details on the ECM2®.

Wiring the 100G Series Gas ERT Module to the Romet ECM2® Meter

Connect the correct interface wirings and set the output pulse spacing to complete 100G series remote gas module installation with the Romet ECM2® meter. See the ECM2® interface wiring table below to complete wire connections.

Function		(+)UC	(-)UC	(+)CC	(-)CC	(+)ALM	(-)ALM	(+)Aux.CC	(-)Aux.CC
ERT Module wire		White and Blue	Red	White and Blue	Red	White and Blue	Red	White and Blue	Red
Pin location for Cannon Connector Part Number	34-125-20	C	B	A	B	E	D		
	34-125-40	A	B	C	D	E	F		
	34-125-41	A	B	C	D	E	F		
	34-125-42	E	F	A	B	C	D		
	34-125-43			A	B	E	F	C	D
	34-125-44							A	B
	34-125-45	A	B	E	D	C	F		
	34-125-50	3	1	2	5	6	4		
	34-125-51	3	1	2	5			6	4



Caution Set the ECM2® output pulse spacing to 750ms for operation with the 100G series remote gas module. Output spacing represents an *off-time* between pulses.

Mounting the 100G Series Gas ERT Module

Select an appropriate mounting location on adjacent piping close to the meter. Using the pipe bracket, mounting plate and band clamps from the Pipe Installation Kit (Itron part number CFG-0005-003), secure the 100G series remote gas module. Use the cable ties from the kit to secure any excess wire to the piping (see [Mounting the Remote ERT Module a Pipe](#) on page 10).



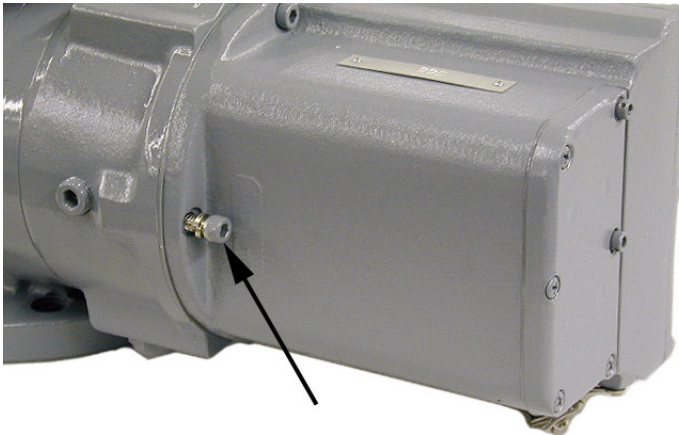
Romet ECM2/100G Series Gas ERT Module Mounting Option

This mounting procedure requires the Romet ECM2/ERT Mounting Kit (Romet part number 34-444-1-KIT).



To mount the 100G series remote gas module on the Romet ECM2 meter

1. Remove the module screw from the back of the ECM2 meter and discard.

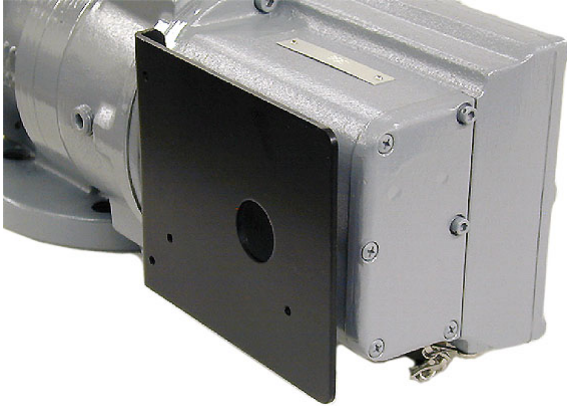


2. Insert the mounting screw fitted with the three lock washers. Two lock washers are used as spacers as shown.



Rotary Meter Installation

3. Attach the mounting plate to the meter. Insert the mounting screw where the module screw was removed. Torque the mounting screw to 5-7 ft.lbs. to secure the plate to the Romet meter.



4. Mount the 100G series remote gas module using the pre-drilled holes on the mounting plate and the module mounting screws.
5. Place new tamper seals over the two screws. Press tamper seals into place using an 11/32-inch nut driver or similar blunt tool.
6. Connect the module to the meter using the previously installed cable interface.



Installing the Remote ERT Module to the Elster American Meter RPM Series Rotary Meter

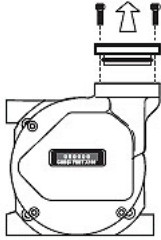
Some meter manufacturers provide ERT mounting kits and installation procedures for their meters. If 100G series remote gas module to Elster American RPM meter installation instructions are not available, follow the installation procedure in this section.



Elster American Meter RPM Series Rotary Meter

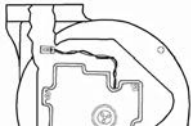
To install the 100G series remote gas module on an Elster American RPM series meter

1. Remove the meter's top plate by removing the two 5mm screws and carefully prying up on the plate. The plate is secured with an o-ring seal. Remove the O-ring from the plate.

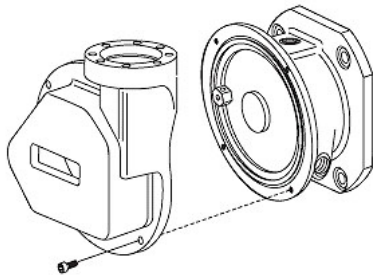


Caution If the O-ring is damaged during removal, obtain a replacement from Elster American Meter Co.

2. Look into the meter tower and find the meter switch lead and connector (4-pin).

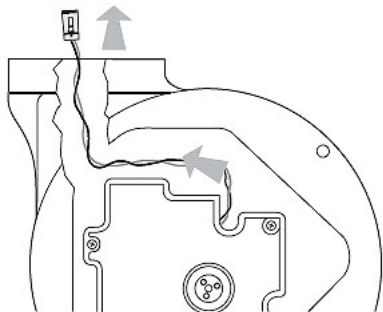


3. If the lead and connector are not visible or cannot be found, remove the four 5mm mounting screws and the register cover. The meter switch lead and connector will be visible inside the cover.



4. Feed the lead and connector into the register cover tower.

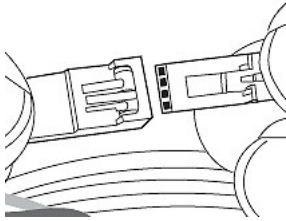
Note Save any meter tags. You will re-install them later in the installation process.



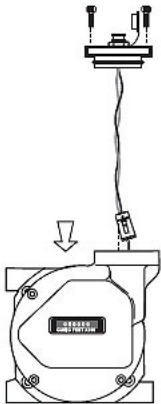
5. If you removed the register cover, replace the cover using the four (4) 5mm mounting screws.

Rotary Meter Installation

6. Attach the 4-pin male connector on the Elster American Meter adapter plate to the 4-pin female connector inside the meter's tower. The connectors will slide together and latch.



7. Carefully push the connectors and wires into the meter tower housing.

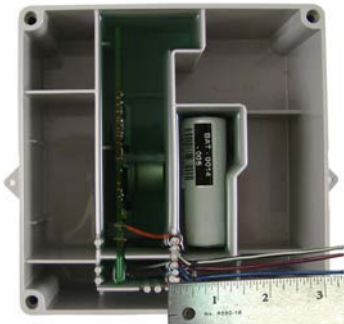


8. Lubricate the O-ring with O-ring lubricant and install the O-ring on the adapter plate. Insert the adapter plate into the tower and tighten the two 5 mm screws.

To connect the manufacturer cable to the ERT module

Note Connection to an Elster American Meter requires a cable interface compatible to an Elster American Meter RPM rotary meter.

1. Trim the ERT module wires to 3.5 inches.



2. Carefully strip the insulation covering from the meter cable (purchased from the meter manufacturer) approximately 1-1/2-inches from the end.

Caution Do not cut through the individual wire insulation.

3. Separate the meter cable's black, white, and red wires for connection to the 100G series remote gas module. Cut off the unused wires even with the outer covering (insulation).

Caution Do not strip the individual wires.

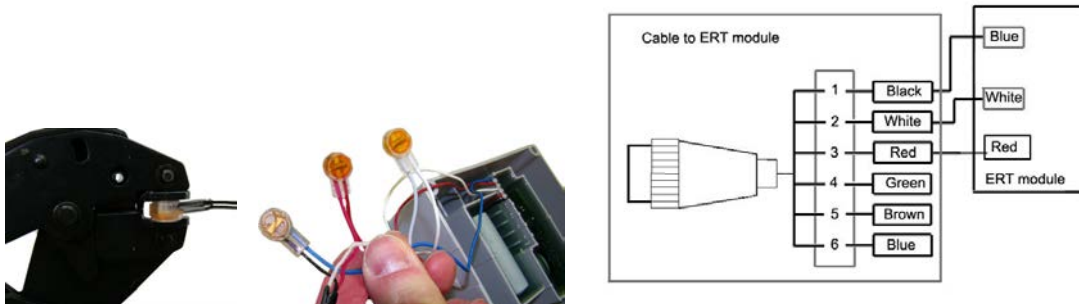
Rotary Meter Installation

4. Connect the meter cable to the 100G series remote gas module using 3M gel-cap connectors. Follow the wire connection table and wiring diagrams below. See [Installation Prerequisites](#) on page 7 for appropriate 3M crimping tools.

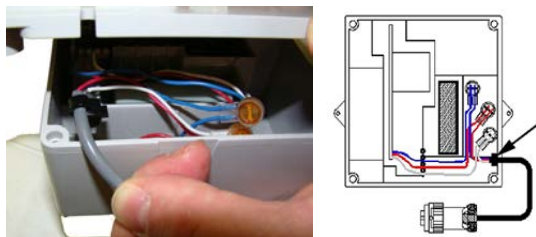
Important Use a crimping tool compatible with gel-connectors. *Do not* use a standard pliers for crimping gel-connects. The crimping tool provides an even pressured crimp to make a secure connection. Apply pressure for three seconds until the gel cap is fully crimped (collapsed) to allow time for the low viscosity silicone-based gel to flow. If the silicone gel flows out of the crimped connector, avoid touching the gel. Gel flowing from the connector provides environmental protection for the connection.

American RPM Meter to the 100G series remote gas module Wire Connections

American RPM Meter wire	ERT module wire
Black	Blue
White	White
Red	Red



5. Insert the meter cable through the slot on the ERT module backplate. Install a cable tie to the meter cable wire below the meter cable insulation to provide strain relief.



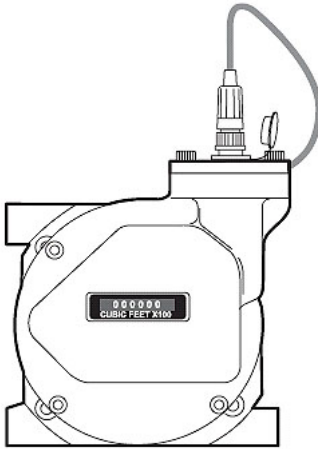
6. Tuck the connectors and cable tie into the ERT module housing. Place backplate on the assembly and tighten the four backplate screws using a size T-10 Torx screwdriver.

Important Verify the cable tie and gel connectors are inside the module housing and the cable extends out of the slot in the backplate. Torque the backplate mounting screws to 9-12 inch-pounds.



To install the 100G series remote gas module cable

1. Insert the plug on the cable connected to the ERT module into the receptacle on the meter adapter plate.



2. Tighten the threaded collar on the plug onto the American Meter interface receptacle. Verify the connection is hand-tight.

Programming the Remote ERT Module

 **Caution** You must program the 100G series remote gas module before use.

Program the **100G**, **100G DL**, **100G DLN**, and **100G DLT** ERT modules 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.

The 100G DLS ERT modules support enhanced security with the Itron Security Manager. Enabling command or enhanced security requires additional programming.

Program the **100G DLS** ERT modules using:

- An FC200SR handheld computer with Field Deployment Manager (FDM) software version 3.3 or higher or
- An FC300 with SRead handheld computer with Field Deployment Manager (FDM) software version 3.3 or higher or
- A 900MHz Belt Clip Radio with Field Deployment Manager (FDM) software version 3.3 or higher and a customer-supplied laptop. The Belt Clip Radio connects to the user-supplied laptop using a USB cable or Bluetooth.

Rotary Meter Installation

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

To program the remote ERT module

- Program the meter drive rate into the 100G series remote gas module using a handheld computer or Belt Clip Radio and laptop computer.
- For all programming and **Check Endpoint** operations using a handheld computer, hold the handheld as close to vertical as possible. For best success, keep the handheld within six feet of the target ERT module.
- 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 programming device. During programming, the 100G series remote gas 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.

- **Read** or **Check** the 100G series remote gas module using the handheld computer or Belt Clip Radio.
 - If the read result is higher than the number programmed in step 1, the 100G series remote gas module is counting correctly.
 - If the read result is not higher than the number programmed in step 1, replace the 100G series remote gas module.

CHAPTER 4

Electronic Instrument Installation

This section provides the instructions to install the 100G series remote gas module on:

- Honeywell Instruments Mini-P, Mini-AT, Mini-Max, and EC-AT volume correctors
- Honeywell Instruments Temperature Compensated Indexes (TCI)
- GE Dresser IMC/W2 and MC2 Micro Correctors
- Galvanic Gas Micro volume Corrector
- Eagle Research MP plus volume corrector
- Romet AdEM® volume corrector



Mini-AT



Mini-Max



EC-AT



TCI



IMC/W2



MC2



Gas Micro



MPplus



XARTU-1



AdEM

Installation Prerequisites

100G series remote gas module installation to a volume corrector or instrument requires:

- 100G series remote gas module ERT module compatible to a volume corrector or instrument (see the [100G Series Remote ERT Module Meter Compatibility List](#) on page 4).
- Volume corrector or instrument compatible with the remote ERT module.
- Proper tools and devices for installation and programming (see [Installation Prerequisites](#) on page 7).



Installation Overview

Installing the 100G series remote gas module to a volume corrector or instrument involves five tasks:

1. Programming the volume corrector or instrument. See the manufacturer's documentation for specific corrector or instrument parameters.
2. Installing corrector or instrument manufacturer retrofit parts (if necessary).
3. Attaching the ERT module to a pipe or vertical flat surface (wall) (see [Mounting the 100G series remote gas module](#) on page 9).
4. Connecting the ERT module to the volume corrector or instrument (see [To wire the 100G series remote gas module to the Honeywell Instrument](#) on page 43), Honeywell Instrument Temperature Compensating Index (TCI), GE Dresser Micro Corrector (IMC/W2 or MC2), Galvanic Gas MPplus Micro Corrector, or Eagle Research MPplus corrector.
5. Programming the 100G series remote gas module (see [Programming the Remote ERT Module](#) on page 38).

Programming the Honeywell Instrument Parameters

Item Code Settings

Instrument	Pulse Output Options	Channel A Corrected Volume		Channel B Uncorrected Volume		Channel C		Pulse Output Spacing			Terminal Board Connections/Wiring	
		#56	#93	#57	#94	#58	#95	#115	#1014	#1015		
ECAT	Pulse Board Ver-2(3) Form-A	2	Cor Vol	2	Unc Vol	2	Cor Vol	1 = 1.0 sec 2 = 2.0 sec			Red ERT wire goes to K Blue and White ERT wires go to Y Connection must be on same terminal board channel (for example, Ka/Ya; kb/Yb; Kc/Yc) Ka, Ya = Channel A Kb, Yb = Channel B Kc, Yc = Channel C	
	Pulse Board Ver-3(2) Form-C1 Form-A					2	Cor Vol	or 4 = 0.5 sec				
Mini with Form A Main board	Main Board Type-2*	2	Cor Vol									
Mini-AT	JB29, JB30 & JB31 Jumpered for Form-A*	2	Cor Vol	2	Unc Vol							
Mini-Max	All main boards	2	Cor Vol	2	Unc Vol			1 = 1.0 sec or 2 = 2.0 sec				
TCI	Form A main board	2	Cor Vol	2	Cor Vol				Iron 100G	Iron 100G	Channel A	
											ERT	TCI
											White	Orange and Brown
											Red	Yellow
											Blue	Blue (Alarm)
											Channel B	
											ERT	TCI
White and Blue	White											
Red	Green											

Module does not support Form-C pulse output board.

100G modules do not support 8 digits (0 blank) configurations (Item #96 and Item #97)

*For optional SPA Board, jumper must be installed on J1-B as indicated in the Mercury Quick Reference Guide (page 148) for Form A.

Item #90 is used to set unit of measure for corrected volume.

Item #92 is used to set unit of measure for uncorrected volume.

Item #98 is used to set drive rate for the corrector. Should be the same as the plate above the uncorrected dials and the same as the plate on the index drive of the meter.