100W + Leak Sensor

The American Society of Civil Engineers estimates that seven billion gallons of water go unaccounted for every day in the U.S. alone. This can be attributed, in part, to the accuracy of the water meters in older systems. But more commonly, a good portion of this unaccounted for water is the result of leaking pipes and aging infrastructure.

With Itron's 100W ERT® module + Leak Sensor, utilities now have a new approach to distribution system maintenance at their fingertips. The 100 ERT module, when deployed with an integrated Leak Sensor, monitors the utility's entire distribution system around the clock, acoustically surveying the integrity of the system. The 100W + Leak Sensor helps utilities find small leaks before they become large, costly leaks for the utility.

Integrated Technology

The 100W ERT module offers advanced capabilities such as full two-way communications to the meter and time-synchronized interval meter data. Itron's data collection technology provides utilities with absolute flexibility, whether deployed in an Advanced Metering Infrastructure (AMI) environment, an Automated Meter Reading (AMR) environment, in walk-by situations or in environments where a hybrid solution makes the most sense depending on what best fits the utilities business needs.

The 100W ERT module connects to a Leak Sensor via an in-line connector and is completely waterproof. Leak detection data can be gathered using either an FC300SR for walk-by downloading of data, Mobile Collector 3 (MC3) or Mobile Collector Lite (MCLite) for mobile AMR, or via Itron AMI fixed networks.

The level of flexibility with the 100W + Leak Sensor means it can be used as a stand-alone leak detection system unattached to a water meter in either AMI fixed network, or AMR mobile environments.

knowledge to **shape your future**

Leak Data

The 100W ERT module collects and stores the data from the Leak Sensor. The Leak Sensor samples the pipe conditions every 22.5 minutes or 64 times daily. The 100W stores the eight quietest analyses daily and will hold 20 days worth of data. This data is picked up during normal meter reading operations and seamlessly transfers the data to our hosted Web-based solution, mlogonline.

Revenue Protection

Implementing a Water Loss Program gives a utility the ability to find revenue that is lost through leaks in their system. Finding and repairing these leaks provides real revenue savings by reducing the amount of water the utility either has to pump or buy.

With the 100W + Leak Sensor system, utilities can protect their water revenues, with the potential to save hundreds of thousands of dollars each year.

Water Meter Compatibility

The 100W + Leak Sensor is compatible with industry-leading water meters from Itron–as well as those from all major manufacturers, enabling water utilities to consolidate all their water meters under a single system.

Superior Performance

The 100W + Leak Sensor utilizes 120 radio channels in fixed network mode and 50 radio channels in mobile and handheld modes, randomly selecting one channel for each data message. The 100W ERT module will transmit the Fixed Network consumption messages at peak radiated power greater than 1 Watt.

Reliability

100W ERT modules feature a circuit assembly and battery pack that are fully encapsulated within a specially-formulated potting material to completely protect internal components from water, contaminants, corrosion, rough handling and temperature cycling.

Lower Cost of Ownership

100 Series devices feature industry-leading 20 year battery life, ensuring your meter data collection investment achieves substantially better financial returns than competing products with batteries that typically last only 10 or 12 years.

BENEFITS

The 100W + Leak Sensor solution delivers unprecedented leak detection capabilities including:

» Advanced acoustic leak detection monitoring and meter data collection in a compact form for easy field installation and lower cost of ownership

» Automated capture and data transmission of actual vibration recordings to the utility for advanced analysis and applications, rather than simple yes/no flags

» Historical leak detection data for interpretation, prioritization and leak mitigation

100W SPECIFICATIONS

100 Series ERT Module

The 100W ERT module is available in two housing designs, supporting both water pit and remote installations.

» 100W is to be utilized with encoder registers in a pit environment

» 100WP for pulser registers in a pit environment

» 100W-R for encoder registers in remote applications

» 100WP-R for with pulser registers in remote applications

Functional

» Power Source: Two "AA" cell lithium batteries warranted for 20 years

» Maximum meter register pulse frequency (pulse version only): 4 Hertz

» Operating temperature:
  • -40°C to+70°C for remote applications
  • -20°C to+60°C for pit applications

» Storage temperature: -40°C to + 75°C for maximum of 1,000 hours

» Humidity limits: 0 to 100% (submersible)

» Maximum register cable dimension: 300 feet with Itron-approved cable and splice connectors

» Meter compatibility: See Water Endpoint Meter Compatibility Guide (PUB-0063-002)

Transmission Parameters

» Data message:
Multiple RF channel transmissions of meter register value, cut cable and or communication error tamper(s), reverse flow (encoder version only) and system leak status messages, as well as low battery indicator is transmitted every nine seconds in mobile mode. All this information and last seven time synchronized consumption intervals are transmitted every five minutes along with a contingency SCM (Standard Consumption Message) every 60 seconds in fixed network mode.

» Transmitter frequencies:
  • 908–924 MHz (Standard Power) in mobile mode
  • 923–926.8 MHz (High Power) in fixed network mode
  • Operates in bubble-up mode and does not require a license from the Federal Communications Commission (FCC) or Industry Canada (IC)
    – FCC Part 15.247
    – Industry Canada RSS-210

Approved Reading Devices for Collecting Datalogging Reads

» Network system: Itron Fixed Network 100 Collectors and Repeaters (CCU 100 and Repeater 100) which offer full two-way communication capability

» Drive-by system:
  • MC3 with MV
  • RS v8.0 or higher and FCS with v2.2 or higher
  • MCLite with MV
  • RS v8.1 or higher and FCS with v2.3 or higher

» Walk-by system:
  • FC300 with SRead handheld computers with MV-RS v8.1 or higher and FCS with v2.3 or higher
  • FC200SR (part number FC2-0005-004 or FC2-0006-004 will support datalogging) handheld computer with MV-RS v8.1 or higher and FCS with v2.3 or higher

Approved Reading Applications

Multi Vendor Reading System (MV-RS) version 8.1 or higher software can read the 100W Standard Consumption Message (SCM) and Datalogging with the following reading devices:

» MC3 version 3.3 or higher

» Multi Vendor Reading System (MV-RS) version 8.2 or higher software can read the 100W Standard Consumption Message (SCM) and Datalogging with the following reading devices: MC3 version 3.3 or higher, FC200SR, FC300SR and MCLite

» Field Collection System (FCS) version 2.2 or higher software

» 900 MHz Belt Clip Radio with Field Deployment Manager (FDM) version 1.1 or higher software

Approved Programming Devices

» FC200SR with Field Deployment Manager (FDM) version 1.1 or higher software

» FC300SR with Field Deployment Manager (FDM) version 1.1 or higher software

» 900 MHz Belt Clip Radio Field Deployment Manager (FDM) version 1.1 or higher software

The 100W encoder version does not require any programming—it automatically detects the register type within one hour of being connected. 100W ERT modules do not require a FCC license.

Programmable Mode Options

» Mobile/Handheld Mode

- This is the standard mode in which all 100W ERT modules will be shipped. This mode should be utilized when mobile or handheld meter reading will be the primary method of collecting the Standard Consumption Message (SCM) or datalogging reads

- The SCM will bubble-up in this mode every 9 sec. at standard power optimized for mobile read rate performance

- The battery life for this mode is 20 years

» Fixed Network (FN) Mode

- This mode is to be utilized when fixed network will be the method of meter data collection

- A high power Network Interval Message (NIM) will be transmitted every 5 minutes with a contingency SCM message transmitted every minute at standard power

- FN mode can be programmed at the factory, during installation with an approved handheld device or through mobile application after initial installation and programming

- The battery life for this mode is 20 years

» Hard-to-Read Mobile/Handheld Mode

- This mode should only be used when communication modules are installed in difficult to read locations where standard mobile mode is not sufficient for satisfactory reading performance

- This mode will bubble-up an SCM at 30 seconds with high power output to optimize performance of these unique applications

- The battery life of this mode is greater than 10 years

» High Power Mobile Mode

- This mode should be used when communication modules are installed in difficult to read environments where there is a high concentration of unfriendly RF and where standard mobile mode is not sufficient for satisfactory reading performance

- This mode will bubble-up and SCM at 60 seconds with a higher power output to optimize performance of these unique applications

- Battery life for this mode is 20 years

100W & 100WP Pit Dimensions

» Height: 4.5 inches

» Maximum diameter:
- Lower: 3.90 inches
- Upper: Approx. 1.70 inches

» Weight: Approx. 9.6 oz.

» Module cable length without integral connector: 5 feet and 20 inches (for register direct mounting)

» In-line connector register cables: 5 feet and 25 feet (ordered separately)

» Pit models can be installed up to 300 Ft from meter

100WR & 100WP-R Remote Dimensions

» Height: 4.5 inches

» Width: 5.05 inches

» Depth: 1.47 inches

» Weight: Approx. 9.6 oz.

» Module cable length 10 inches

» Remote models can be installed up to 300 ft. from meter

100W & 100WP Mounting Options

The 100W and 100WP models have a compact housing and features specifically designed for water pit mounting options.

» Direct-mount for Badger, Elster and Hersey meters

» Rod-mount on a ½ inch diameter fiberglass or other non-metallic rods

» Shelf-mount for pit lid manufactures that contain recessed cavity on the underside of the pit lid

» Through-the-lid mounting with a pre-drilled 1.75 inch hole and up to 2.5-inch maximum lid thickness

» Direct-mount to any flat surface with screw kit

» The 100W-R and 100WP-R models are designed for remote mounting applications

» Wall-mount for installation to the side of residence or building using screw kit

» Pipe-mount for installation on pipe sizes from ¾ inch up to 4 inch

» Direct-mount for Badger and Elster meters

*Hardware/Software upgrades/updates may be required

Leak Sensor

LEAK SENSOR SPECIFICATIONS

Sensing

» Sensitivity: 1V/g

» Range: Up to ±300 linear feet of pipe

» Bandwidth: 10Hz – 1,000Hz Power

» Source: Powered by the 100W ERT module

100W Functional Specifications

» 100W Power Source: Two "AA" cell lithium batteries warranted for 20 years

» Maximum meter register pulse frequency (pulse version only): 4 Hertz

» Operating temperature:
  - -40°C to +70° C for remote applications
  - -20°C to +60° C for pit applications

» Storage temperature: -40°C to + 75°C for maximum of 1,000 hours

» Humidity limits: 0 to 100% (submersible)

» Maximum register cable dimension: 300 feet with Itron-approved cable and splice connectors

» Meter compatibility: See Water Module Meter Compatibility Guide (PUB-0063-002)

Leak Sensor

» Operating temperature: -10° to +50° Celsius

» Operating humidity: Up to 100% relative humidity

» Product identification: Numeric and bar-coded serial number

» Exposure rating: Sealed, water proof and submersible IP68

» Housing: Molded glass-filled polycarbonate

» Weight: 1.5 ounces (45g)

» Dimensions: 1.2 x 1.5 (diameter) inches (3.0 x 3.8 cm)

» Installation options: Sensor is installed permanently either indoors or outdoors on the water service pipe, usually near a water meter on the service line with a u-bolt, back plate and wing nuts

» Can be mounted on service lines up to 2" in diameter

Itron is a global technology company. We build solutions that help utilities measure, manage and analyze energy and water. Our broad product portfolio includes electricity, gas, water and thermal energy measurement and control technology; communications systems; software; and professional services. With thousands of employees supporting nearly 8,000 utilities in more than 100 countries, Itron empowers utilities to responsibly and efficiently manage energy and water resources.

Join us in creating a more resourceful world; start here: **www.itron.com**

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