



# 100W

## Water Communication Module

The 100W ERT® communication module is the latest addition to Itron's portfolio of advanced metering devices for water utilities. Featuring a compact design, industry-leading battery life and technology designed to adapt and grow with your business, the 100W module can help you streamline your operations and maximize your resources today and into the future.

100W ERT modules are available in two housing designs, supporting both water pit and remote installations. The different 100W ERT modules are identified as follows:

- » 100W is to be utilized with encoder registers in a pit environment
- » 100WP for pulser registers in a pit environment
  - All new 100W ERT modules for pit applications will come standard with a red integral connector port to utilize the optional 100W Through-The-Lid (TTL) antenna

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

These modules offer advanced two-way meter data collection designed specifically for Itron collection systems using handheld, mobile, fixed network and combination hybrid solutions. 100W ERT modules differentiate themselves from other devices on the market by providing true two-way

communications capabilities. Engineered from the ground up to leverage the benefits of ChoiceConnect™ collection systems, 100W ERT modules enable easy migration from mobile to fixed network operations as your business needs evolve. With Itron's complementary communications technology, fixed and mobile network systems can be deployed side-by-side in hybrid configurations to ensure maximum efficiency and reliability in both high and low-density meter populations.



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### Water Meter Compatibility

The 100W ERT module is compatible with industry-leading water meters from Itron—as well as those from all major manufacturers such as Badger, Elster AMCO, Hersey, Master Meter, Neptune and Sensus—enabling water utilities to consolidate all their water meters under a single reading system. Powered by proven, advanced lithium battery technology; the module is designed for 20 years of battery life in both fixed network and mobile modes.

### Data Logging

The 100W ERT module stores 40 days of hourly consumption information, which can be collected by the fixed network system to leverage real time data collection or can be read by mobile or handheld systems. This data is presented in four basic use cases:

- » Any hourly reading within the last 40 days
- » A set of 24 consecutive hourly readings
- » A set of 40 daily readings
- » A set of 40 days of hourly interval data are available even in mobile mode

### Superior Performance

The 100W ERT module utilizes 120 radio channels in Fixed Network and 50 radio channels in mobile and handheld modes, randomly selecting one channel for each data message. This multi-channel approach delivers higher read integrity over competing products by reducing the effect of interfering signals from other radio frequency (RF) signals in the area. 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. With their straight forward, rugged design, 100W ERT modules use substantially fewer components than most competing products, resulting in greater reliability. The advanced, integrated antenna operates effectively in a wide range of meter box installations. The 100W ERT module offers peace of mind with a 20 year limited warranty.

### Lower Cost of Ownership

100W ERT module devices feature industry-leading battery life, ensuring your meter data collection investment achieves substantially better financial returns than competing products with batteries that typically last only ten or twelve years. When one considers the advancements in leak, reverse flow (absolute encoder version only) and tamper detection, 100W modules necessitate fewer field investigations and substantially lower expenditures for installation, meter reading, customer service and field service. And with a low battery alarm, these modules help utilities better plan and manage the replacement of units in the field.

### Leak Management

Water loss management is critical to any water utility's success. 100 Series modules can be paired with Itron's advanced acoustic Leak Sensor. The Leak Sensor collects and analyzes changes in pipe acoustics that indicate probable leaks in the distribution system environment to detect both new and pre-existing leaks automatically. Leak Sensor technology, coupled with the module's internal customer-side leak detection algorithm and the option to use data from groups of 100W ERT modules (District Metering) provide the utility with a highly accurate picture of the overall health of the water distribution system.

### Leak Data

The 100 Series 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 100 Series stores the 8 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).



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## 100W ERT MODULE SPECIFICATIONS

### Functional

- » Power Source: Two “A” 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)

### 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 7 time synchronized consumption intervals is 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
  - 903 – 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
  - MC Lite 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) v8.1 or higher or FCS v2.2 or higher software can read the 100W ERT module Standard Consumption Message (SCM) and Datalogging with the following reading devices: MC3 v3.3 or higher
- » Multi Vendor Reading System (MV-RS) v8.2 or higher can read the 100W ERT module Standard Consumption Message (SCM) and Datalogging with the following reading devices: MC3 v3.3 or higher, FC300SR, FC200SR, and MCLite

### 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

#### 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

#### Regulatory and Standards

- » FCC Part 15.247
- » Industry Canada RSS-210



At Itron, we're dedicated to delivering end-to-end smart grid and smart distribution solutions to electric, gas and water utilities around the globe. Our company is the world's leading provider of smart metering, data collection and utility software systems, with over 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water.

To realize your smarter energy and water future, start here: [www.itron.com](http://www.itron.com)

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