ORION® Cellular HLB Water Endpoint

DESCRIPTION

The ORION® Cellular HLB endpoint is an innovative, two-way endpoint for smart water applications. The endpoint utilizes the existing IoT (Internet of Things) cellular infrastructure to efficiently and securely deliver meter reading data to the utility via the reliable cellular network.

Cellular endpoints are members of the time-tested ORION family of products from Badger Meter, designed for maximum flexibility. Since 2002, the ORION product family has provided comprehensive Advanced Metering Analytics (AMA) for interval meter reading and data capture using both one-way and two-way communications.

FUNCTIONALITY

Operation: The ORION system for interval data capture and two-way communication employs cellular endpoints, which leverage the public cellular network and require no proprietary gateways to operate. This dramatically reduces infrastructure requirements compared to a traditional fixed network, speeds installations and simplifies expansion as a system evolves. The ORION Cellular HLB endpoint communicates with the encoder and captures 15-minute interval read data and meter status information, and sends the information daily via the cellular network to BEACON® Software as a Service (SaaS).

Activation: All ORION Cellular HLB endpoints are shipped in an inactive, non-transmitting state. The Badger Meter IR Communication Device, programmed for the country deployed, can be used to activate the endpoints and verify the encoder connection. Successful endpoint function can be confirmed through a web app, demonstrating that communication has been verified to both the encoder and the network.

Broadcast Mode: ORION Cellular HLB endpoints broadcast fixed network reading data through the secure LTE-M cellular network within the service area where coverage is available. In areas where the LTE-M cellular network is not available, the endpoint will communicate on the NB-IoT cellular network. In areas where neither LTE-M nor NB-IoT cellular networks are available to the endpoint and 2G cellular networks are available, the endpoint will communicate on the 2G network.

Data Storage: The endpoint stores 42 days of 15-minute data.

Output Message: The ORION Cellular HLB endpoint broadcasts a unique serial number, meter reading data, and applicable status indicators. As an advanced data security measure, each message is securely transported to BEACON SaaS only via private network and never over the public internet.

APPLICATION

Configurations: ORION Cellular HLB endpoints are multi-purpose endpoints that can be deployed in indoor, outdoor and pit (non-metal pit lid) applications. The electronics and battery assembly are fully encapsulated in epoxy for environmental integrity. The endpoint is available with a connector assembly for ease of installation.

Meter & Encoder Compatibility: When attached to Badger Meter High Resolution Encoders, the ORION Cellular HLB endpoint is compatible with all current Badger Meter Recordall® Disc, Turbo Series, Compound Series, Combo Series and Fire Service meters and assemblies, and with E-Series® Ultrasonic, E-Series® Ultrasonic Plus, and ModMAG® Electromagnetic flow meters. In addition, while Badger Meter has not tested the endpoint's compatibility with competitive pulse meters, the endpoint is designed to be compatible with meters which have normally open (Type A) mechanical or solid state switches, a pulse width between 6 and 100 ms, and a maximum pulse frequency of 10 Hz.

ORION Cellular HLB endpoints are suitable for use with Badger Meter High Resolution Encoders as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date within 10 years of the current date as long as the encoder has three wires connected to it and is programmed into the three-wire output mode for AMR/AMI: Honeywell® (Elster/ABB) ScanCoder, evoQ4 meter with Sensus® protocol module; Master Meter® Octave® Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Mueller Systems 420 Solid State Register (SSR) LCD; Neptune® ProRead, E-Coder®, ARB-V®, and ProCoder; and Sensus iPerl®.

SPECIFICATIONS

Dimensions	130 mm (5.125 in.) (H) 44 mm (1.75 in.) Diameter at top 67 mm (W) x 73 mm (D) at base (2.625 in. (W) x 2.875 in. (D) at base)
Broadcast Network Cellular coverage through a contract partner is required for operation*	Primary: LTE-M cellular network Secondary: NB-IoT (Narrow Band Internet of Things) cellular network Tertiary: 2G cellular network
Operating Temperature Range	
• Storage, Meter Reading	–40…60° C (–40…140° F)
• Cellular Communications	–20…60° C (–4…140° F)
Humidity	0%…100% condensing
Battery	One (1) lithium thionyl chloride D cell (nonreplaceable)

*Contact your Badger Meter sales representative for details.

Construction: All ORION Cellular HLB endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. For long-term performance, the enclosure is fully potted to withstand harsh environments and to protect the electronics in flooded or submerged pit applications.

Wire Connections: The ORION Cellular HLB endpoint is available with an inline connector (Twist Tight®) for easy installation and connection to compatible encoders/meters. The endpoint is also available with flying leads for field splice connections. Other wire connection configurations may be available upon request.

FEATURES

Smart City Ready	Future-proof technology
Communication Type	Two-way
Application Type	Control/Monitor
Endpoint Communication	Daily
Reading Interval Type	15-minute
Encoder/Register Compatibility	See **Meter & Encoder Compatibility** page 1
Fixed Network Reading	✓
Cut-Wire Indication	✓
Encoder Error	✓
Low Battery Indication	✓
Remote Clock Synchronization	✓
Firmware Upgrades	✓

License Requirements: ORION Cellular HLB endpoints comply with Part 15, Part 22, Part 24, and Part 27 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system. This device complies with Industry Canada license-exempt RSS standard(s). 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.
The ORION Cellular HLB endpoint is constructed so that it can operate in at least one Member State without infringing applicable requirements of the use of radio spectrum (RED - Article 10.2). ORION Cellular HLB endpoints comply with the requirement regarding putting restrictions into service in Article 10.10 of Directive 2014/53/EU. The ORION Cellular HLB endpoint has no restrictions to put in service.

Transportation: **WARNING**: The operation of transmitters and receivers on airlines is strictly prohibited by the Federal Aviation Administration. As such, the shipping of radios and endpoints via air is prohibited. Please follow all Badger Meter return and/or shipping procedures to prevent exposure to liability.

Warning: To reduce the possibility of electrical fire and shock hazards, never connect the cable from the endpoint to any electrical supply source. The endpoint cable provides SELV low voltage limited energy power to the load and should only be connected to passive elements of a water meter register.

Caution: The endpoint batteries are *not* replaceable. Users should make no attempt to replace the batteries. Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

SMART WATER IS *BADGER METER*

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