ORION®
Mobile Automated Meter Reading Solutions

ORION® Water Endpoints

ME Endpoint

DESCRIPTION

The ORION® ME endpoint is a two-way water endpoint for mobile applications.

In addition to providing the current and snapped daily reading, the endpoint two-way functionality allows users to capture data profile information wirelessly, without having to directly access the endpoint, during the normal reading process.

The ORION ME endpoint is a member of the time-tested ORION family of products from Badger Meter, designed for maximum flexibility.

FUNCTIONALITY

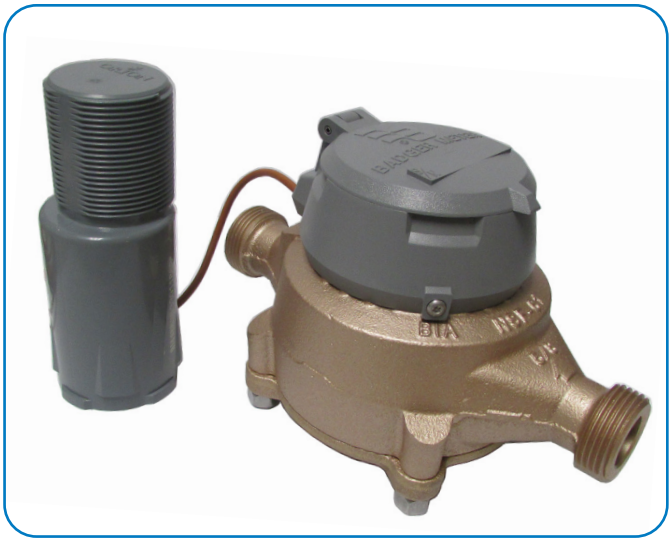
Operation: The endpoint continuously monitors the encoder circuit. At predetermined intervals, the endpoint broadcasts the totalized reading value along with other meter data to the mobile collection devices.

Activation: The endpoints offer a Smart Activation feature. All ORION endpoints are shipped in an inactive, non-transmitting state. After the endpoint is installed, it begins broadcasting data when the encoder senses the first usage of water. No field programming or tools are required to activate the endpoint.

Broadcast Mode: Once activated, the endpoints begin transmitting in mobile priority mode. After installation, using the endpoint two-way communication, an endpoint transmits its meter data every six seconds.

Data Profiling: The endpoints store up to 90 days of hourly historical interval meter data within nonvolatile memory.

Output Message: The endpoint broadcasts its unique serial number, current meter reading, daily snapped meter reading and applicable status indicators for mobile reading collection.



APPLICATION

Configurations: Available in integral, remote or endpoint-only configurations, the endpoint can be deployed in indoor, outdoor and pit applications. The endpoint electronics and battery assembly are fully encapsulated in epoxy for environmental integrity.

Meter Compatibility: When attached to a Badger Meter encoder, the 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 and ModMag® Electromagnetic flow meters.

Encoder Compatibility: The endpoint is suitable for use with all Badger Meter encoders as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date of 2000 or newer, are programmed into the AMR/AMI three-wire output mode and have three-wires connected: Elster C700 Digital, InVISION and ScanCoder® encoders and evoQ4 meter (encoder output); Hersey® Translator; Master Meter® Octave® Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Mueller Systems 420 Solid State Register (SSR) LCD; Neptune® ProRead, E-Coder® and ARB-V®; and Sensus® Electronic Register encoder (ECR) and ICE.

SPECIFICATIONS

Dimensions	5.125 in. (H); 1.75 in. (W) at top; 2.125 in. (W) at bottom
Broadcast Frequency MHz Band	FCC regulated 902–928 MHz frequency hopping modulation
Operating Temperature Range **Storage and Meter Reading**	-40 to 60 °C (-40 to 140 °F) based on storage and meter reading. RF output may be reduced by extremely low temperatures. The water meter should not be subjected to temperatures below freezing.
Humidity	0–100% condensing
Battery	One (1) lithium thionyl chloride C cell (nonreplaceable)
Battery Life	20 years (calculated)

Construction: All ORION ME endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. To assure 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: ORION ME endpoints are available with in-line connectors (Twist Tight or Nicor®) for easy installation and connection to compatible encoders/meters. The endpoints are also available with flying leads for field splice connections. Other wire connection configurations may be available upon request.

Range: Transmission reception depends on a number of factors: topographical features, a building's construction materials and obstacles such as buildings, trees, vegetation and fences. Temporary conditions, such as a vehicle parked near the endpoint or heavy rain or snow, could also affect reception. These factors need to be considered when installing and communicating with the endpoint using a handheld or mobile reading system. For a more in-depth discussion, see the white paper, *Understanding RF Propagation of AMR/AMI Systems*, available at *www.badgermeter.com*.

FEATURES

Communication Type	Two-Way
Application Type	Control/Monitor
Reading Interval Type	Midnight/Now
Encoder Compatibility	Absolute/Incremental
Mobile Reading	✓
Premise Leak Detection	✓
Cut-Wire Indication	✓
Reverse Flow Indication (Absolute Encoder)	✓
No Usage Indication	✓
Encoder Error (Absolute Encoder)	✓
Low Battery Indication	✓
Remote Programming	✓
Remote Clock Synchronization	✓
Firmware Upgrades	✓

License Requirements: ORION ME endpoints comply with Part 15 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system.

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: 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.

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