



**Badger Meter**

## ORION® Fixed Network (SE) Network Gateway Transceiver

### DESCRIPTION

The Badger Meter ORION Fixed Network (SE) network gateway transceiver (“gateway”) receives and reports water metering data from surrounding ORION SE endpoints, operating in either mobile priority or fixed network priority mode of operation via a cellular data network or LAN backhaul.

### OPERATION

**Overview:** Using frequency hopping to nullify interference, the gateway communicates with ORION SE water endpoints in the FCC regulated 902...928 MHz frequency band. Additionally, gateway firmware checks and upgrades can be performed locally via a programming harness.

**Communication:** The gateway listens for metering consumption and exception data from the system’s smart metering endpoints. The gateway then automatically sends the requested information via the network backhaul to the utility reading data management software based on endpoint mode of operation. Two communication antennas are used for diversity to optimize radio signal reception and transmission. The ORION SE system engages in “active diversity” whereby only one antenna is active at a time to avoid interference, and switching between antennas occurs on a regular basis.

**Reading Data Management (RDM) Software:** Gateway configurations can support Dynamic Host Configuration Protocol (DHCP) or can be assigned to a static IP address (LAN). With public networks such as CDMA or HSPA+, a dynamic IP address, provided by the network provider, is supported. Depending on how the network is set up, the RDM software must be assigned a static public or private IP address. All gateway configuration interfaces use a secure authentication algorithm and support the 128-bit Advanced Encryption Standard.



### INSTALLATION

The light and compact design of the gateway makes system installation easy for the utility. The modular design of the backplate accommodates a variety of mounting options. Standard mounting hardware is included for mounting to a 1-1/4...2-1/2 inch outside diameter pole. Banding hardware is also available for mounting to larger sized poles.

### REMOTE MOUNT ANTENNAS

The communication antennas and, if applicable, the cellular backhaul antenna can be mounted separately from the gateway enclosure. For further information and mounting requirements, refer to the *ORION Fixed Network (SE) Network Gateway Transceiver Installation Manual* which is available at [www.badgermeter.com](http://www.badgermeter.com).

### FCC COMPLIANCE

This device complies with Part 15 of the FCC rules. Any changes made by the user and not approved by Badger Meter can void the user’s authority to operate the equipment. No license is required to operate an ORION meter reading system.

## SPECIFICATIONS

Size/Weight/Wind Loading Area		Height	Width	Depth	Weight	Wind Loading Area
<b>Direct Mount Antennas</b>	Assembly (includes network gateway transceiver enclosure, communication antennas, cellular backhaul antenna and mounting brackets)	43.8 in.	15.5 in.	6.5 in.	23.2 lb	1.5 ft <sup>2</sup>
<b>Remote Mount Antennas</b>	Network gateway transceiver enclosure with mounting bracket	10.3 in.	14.5 in.	6.5 in.	17.5 lb	1.0 ft <sup>2</sup>
	Communication antennas with mounting bracket	21.3 in.	15.5 in.	2.9 in.	4.8 lb	0.8 ft <sup>2</sup>
	Cellular backhaul antenna with mounting bracket	16.6 in.	4.2 in.	2.1 in.	0.9 lb	0.2 ft <sup>2</sup>
<b>Mounting Hardware</b>	V-Block mounting kit 1.25...2.5 in. outside diameter pole mount: aluminum V-blocks				1.6 lb	
	Banding mounting kit 2.5...24 in. outside diameter pole mount: BAND-IT® mounting bands				1.0 lb	
<b>Enclosure</b>	Sealed, metallized fiberglass reinforced polyester (FRP)					
<b>Color</b>	Silver/gray					
<b>Operating Temperature</b>	-30...60° C (-22...140° F)					
<b>Storage Temperature</b>	-40...60° C (-40...140° F)					
<b>Backhaul Options</b>	CDMA with LAN 802.3 HSPA+ with LAN 802.3 LAN 802.3 LAN PoE 802.3af and 802.3at					
<b>Battery Backup</b>	5 hours of receive operation					
<b>Capacity*</b>	For endpoints operating in fixed network priority mode: 60 days of hourly metering and exception data for up to 3600 endpoints For endpoints operating in mobile priority mode: metering data for up to 10,000 endpoints					
<b>Power Supply</b>	DC voltage, 24V DC (AC adapter provided) PoE alternative available for LAN Solar can be used if it meets DC requirements					
<b>Programming</b>	Local via programming harness					
<b>Approvals</b>	FCC certified IC certified SCT certified					

\*Capacity of gateway transceiver is dependent on endpoint density.

## Making Water Visible®

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[www.badgermeter.com](http://www.badgermeter.com)

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