

Communications Module

for GE I-210+™/+c™ Singlephase Meter



Pairing advanced communications with leading price/performance

- » Offers one-watt transmitter to provide full, two-way wireless NAN communications
- » Supports 2.4 GHz HAN communications
- » Fits easily under the glass of the I-210+/-c
- » Enables over-the-air firmware upgrades and Communications Modules programming to reduce expenses
- » Supports advanced metering and demand response functions
- » Provides full security and encryption to meet rigorous industry standards
- » Offers compact, cost-effective construction to save space and simplify installation and handling
- » Provides large, easy-to-read LCD display to minimize reading errors

Add real-time, two-way communications between your utility and your customers

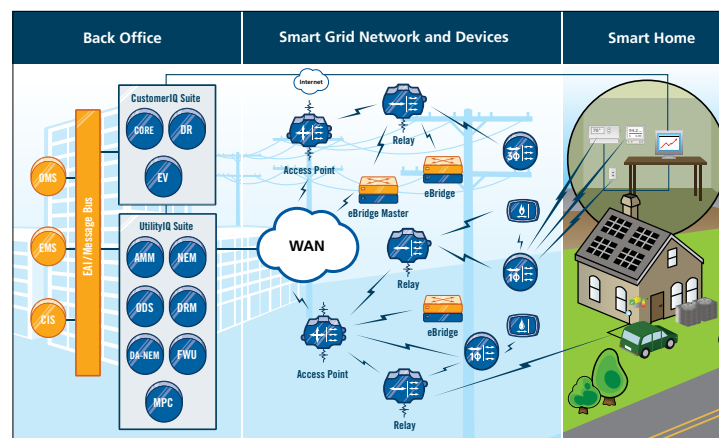
The Silver Spring Smart Energy Platform combines network infrastructure, software, and professional services to enable a range of smart grid applications. Communications with next-generation electricity meters is a fundamental building block of the smart grid.

The Communications Module is an option board that easily installs inside the GE I-210+ or I-210+/-c Singlephase Meter to provide internal wireless networking Advanced Metering capability. This meter module can then become part of a standards-based, two-way information and control network—the smart grid network. With the combination of the I-210+/-c and the Silver Spring Communications Module, utilities can step up to a network that ensures greater efficiency, more reliable service

delivery, improved customer satisfaction, and a scalable platform for adding advanced services—both today and tomorrow.

Greater efficiency, reliability, and accuracy—by design

The I-210+/-c Singlephase Meter is an electronic watt-hour meter that measures energy consumption in single-phase services, delivering outstanding operational efficiency and reliable measurement. With its innovative, simplified sensor design and mechanical construction, it provides high-quality, solid-state measurement performance, accuracy, and reliability—and dramatically reduces total cost of ownership for the life of the meter. It meets or exceeds GE's operation standards, at temperatures from -40°C to $+85^{\circ}\text{C}$. And it's available in all popular meter forms-in 2-wire or 3-wire transformer-rated or self-contained residential or commercial single-phase services.



An advanced, IP-based network enables the smart grid—from the data center to the customer premise.

About Silver Spring Networks

Silver Spring Networks is a leading Smart Grid solution provider that enables utilities to achieve operational efficiencies, reduce carbon emissions and empower their consumers with new ways to monitor and manage their energy consumption. Silver Spring provides the hardware, software and services that allow utilities to deploy and run multiple advanced solutions, including Smart Metering, Demand Response, Distribution Automation and Distributed Generation, over a single, unified network. The Silver Spring Smart Energy Platform is based on open, Internet Protocol (IP) standards, allowing continuous, two-way communication between the utility and devices on the grid. Silver Spring has numerous deployments with leading utilities in the US and abroad, including Florida Power & Light, Pacific Gas & Electric, Pepco Holdings, Inc., Jemena Electricity Networks Limited and United Energy Distribution, among others. For additional information, please visit www.silverspringnetworks.com.

Communications Module for GE I-210+™/+c™ Meter

Communications Module features

- » Full, two-way 902-928 MHz FHSS communications
- » Dynamic network discovery and self healing
- » Scheduled and on-demand meter reads
- » One-watt transmitter
- » Over-the-air firmware upgrades and meter programming
- » Robust security and encryption
- » Alarm detection and clearing
- » Time synchronization and management
- » Support for a wide range of meter forms
- » Continuous link monitoring and route calculation
- » "Under glass" design
- » Low meter burden
- » Power outage and restoration notification

GE I-210+/-c Meter features

- » Simplified sensor design and mechanical construction for reliability
- » Low starting watts captures energy consumption at levels typically not registered by electromechanical meters
- » Low burden minimizes utility system losses
- » Registers energy when meter inverted
- » Compatible with existing I-70 cover stock to minimize utility cover inventory
- » Compatible with existing utility operational practice

Specifications: Communications Module

NAN Communications	Data rate: 100 kbps Frequency: 902-928 MHz Spread spectrum technology: FHSS Transmitter output: 30 dBm Receiver sensitivity: -97 dBm for 1% PER
HAN Communications	Protocol: ZigBee Smart Energy Profile 1.0 Data rate: 250 Kbps Frequency: 2.4 GHz ISM Band Spreading technology: Direct Sequence PHY/MAC: 802.15.4 Transmitter output: 20 to 23 dBm (200 mW) Receiver sensitivity: -97 dBm for 1% PER Power, Transmit: 1.6 W (1.8 W max.)
Environmental	Operating temperature: -40°C to +85°C (-40°F to +185°F) Humidity: 0% to 95%, non-condensing
Protocols / Security	Addressing: IPv6 Encryption: Advanced Encryption Standard (AES-128 or AES-256) Security: Secure Hash Algorithm 256-bit (SHA-256) and RSA-1024 or ECC-256
Approvals	FCC Part 15.247 Industry Canada: RSS-210 ANSI: C12.20

Specifications: GE I-210+/-c Singlephase Meter

Available forms	ANSI Form 1S, 2S, 3S, 4S, 9S, 12S, 16S, 36S, 45S
Available forms with Service Switch	ANSI form: 1S, 2S, 12S
Operating voltage	120 VAC or 240 VAC, +15% to -20%
Operating temperatures	40°C to +85°C (-40°F to +185°F)
Standards	ANSI C12.1, C12.10, C12.20, C37.90.1
Accuracy	ANSI C12.20 0.5 accuracy