

# Relay



## Deploy advanced technologies all the way to the customer premise

- » Supports thousands of meters for cost-effective deployment
- » Provides multi-hop networking to extend the reach of utility networks
- » Installs easily
- » Integrates seamlessly with smart grid applications, such as Advanced Metering, Distribution Automation, and Demand Response

## Increase network reach, with ease

The Silver Spring Smart Energy Platform combines network infrastructure, software, and professional services to enable a range of smart grid applications. The Silver Spring Relay and Access Point work together to relay data from endpoints to the utility back office. The Relay enables utilities to extend network reach to more and more customers cost effectively. Silver Spring's highly reliable, standards-based RF network enables communications between the Access Point and smart grid endpoint devices, providing secure, real-time measurement and control.

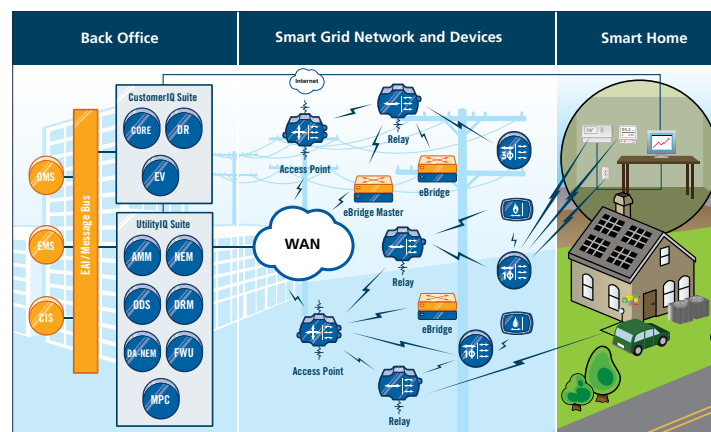
With a full set of advanced features and functions, the Relay supports a long list of value-added applications and services, including Advanced Metering, Demand Response, Outage/Restoration Management, and Distribution Automation.

## Built on a fully capable platform

At the heart of the Relay is the UtilOS® firmware, which provides multi-hop capability between Silver Spring-enabled intelligent endpoint devices and the Access Point, for seamless integration. UtilOS provides secure communications, automatic network discovery, network resiliency, and device authentication.

## Complete network management and control

The Silver Spring UtilityIQ® application suite provides integrated, end-to-end management and control of the smart grid. This feature-rich, reliable software collects and displays advanced metering and network management data, plus alarms from multiple sources including utility endpoints and in-premise devices. And it offers at-a-glance views into the health of the network, status of endpoints, and other business-critical indicators.



*The Silver Spring Relay enables utilities to simply and cost-effectively extend the network's reach.*

## 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](http://www.silverspringnetworks.com).

# Relay

## Features

- » Full, two-way 902-928 MHz FHSS communications
- » One-watt transmitter
- » Dynamic network discovery and self-healing
- » Robust built-in data security and device authentication
- » "Over-the-air" firmware upgrades
- » Simple installation and testing
- » Acts as packet relay for endpoint devices
- » Supports multi-hop relaying
- » Available adapter bracket for non-poletop installations
- » Battery backup for fault-tolerant operation

## Specifications:

Communications	Data Rate: 100 Kbps Frequency: 902-928 MHz Spread spectrum technology: FHSS Transmitter output: 30 dBm Output impedance: 50 ohms Receiver sensitivity: -97 dBm for 1% PER Modulation: GFSK									
Protocols/Security	Addressing: Internet Protocol version 6 (IPv6) Security: Secure Hash Algorithm 256 bit (SHA-256) RSA-1024 and/or ECC-256 Encryption: Advanced Encryption Standard (AES-128 or AES-256)									
Physical Interfaces	Antenna connector: N Type, Female Antenna: J-Pole or High-Gain Directional, N-type, Female									
Power	Input range: 96 to 277 VAC, 50 to 60 Hz Power consumption: <table border="1"> <tr> <td></td> <td>Idle</td> <td>Maximum</td> </tr> <tr> <td>Relay</td> <td>2.5 W</td> <td>7 W</td> </tr> <tr> <td>Relay with battery</td> <td>2.5 W</td> <td>8 W</td> </tr> </table> Battery backup option: > 8 hr operation		Idle	Maximum	Relay	2.5 W	7 W	Relay with battery	2.5 W	8 W
	Idle	Maximum								
Relay	2.5 W	7 W								
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Environmental	Operating temperature: -40°C to +85°C (-40°F to +185°F) Humidity: 0% to 95%, non-condensing									
Mechanical	Dimensions: 23 cm (9") L x 20 cm (8") W x 10 cm (4") H Weight: 1.37 kg (3 lbs.) Enclosure: IP65, white, aluminum									
Approvals	FCC: Part 15.247 Industry Canada: RSS-210 Others: IEC/UL 60905, IEC 61000-4									