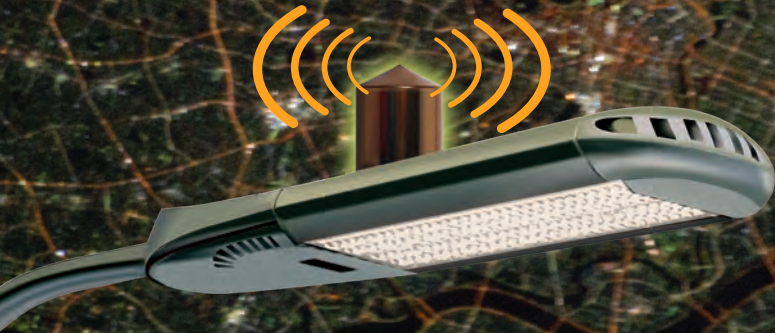


IPV6 NETWORK READY STREET LIGHT CONTROL



Sunrise Technologies OpenGrid Light Control™

The Sunrise Technologies OpenGrid Light Control™ Node enables the integration of the Sunrise Technologies street light controller with the Silver Spring smart street lighting solution. The Sunrise Technologies OpenGrid network ready streetlight control provides DC voltage and wireless IPv6 communications to the Silver Spring network.

The Sunrise Technologies OpenGrid Light Control™ Node includes KWH metering to provide power consumption data of the lighting load. The integral light sensor allows for independent dusk to dawn operation with the ability for the network to send override control commands including variable dimming.

System Benefits

OPERATIONAL COST CONTROL

- Failure detection
- Remote asset management
- Proven network management processes

ENERGY SAVINGS

- CMS maturity
- Dimming and runtime management
- Proven integration

VALUE GROWTH

- Reduced crime and public safety
- New applications with no additional network or security effort
- Rapid deployment of smart city services

Key Features

SUNRISE TECHNOLOGIES OPENGRID LIGHT CONTROL™ NODE

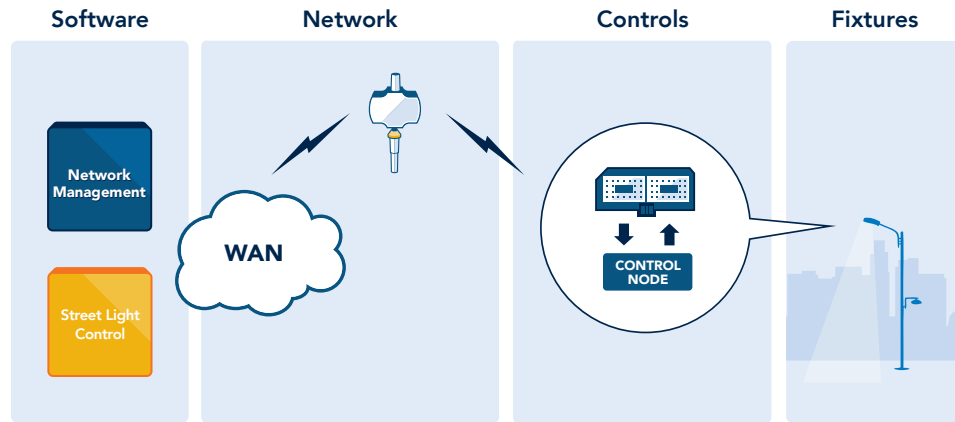
Meets or exceeds ANSI C136.10
ANSI C136.41 Dimming Capable
Meets ANSI C136.50 (pending), Meter accuracy of 2%
Light diagnostics
Power data measurements
AC Voltage / Current / Power
Power factor
Remote light diagnostics
Triac Assisted Relay
Heavy duty construction
Photosensor for independent local dusk to dawn operation

SILVER SPRING COMMUNICATIONS MODULE

IPv6 transport
50 to 300 kbps data rates
Full, two-way communications
1 Watt Transmitter
Frequency Hopping Spread Spectrum (FHSS)
Multi-layer security policy enforcement and monitoring
Automatic data routing with self-configuration, auto-healing and redundant uplinks
Dynamic network discovery and self healing
Continuous neighbor monitoring and route calculation
Over-the-air configuration and firmware upgrades

OpenGrid Outdoor Lighting Control

System Overview



Sunrise Technologies OpenGrid Light Control™ Node

Voltage input:	105 – 305 VAC
Load rating:	15,000 + operation at 1,000W/1800VA
Surge Protection:	380 Joule MOV
Housing:	UV stabilized impact resistant polycarbonate, IP67 available
Operating temperature:	-40°C to +70°C
Humidity:	0% to 95%, non-condensing
Base:	High temperature polycarbonate
Contact blades:	Meets ANSI C136.10 (3-prong), ANSI C136.41 (Dimming)
Gasket:	Cross linked polyethylene
Photosensor:	Encapsulated phototransistor
kWH Accuracy:	2.5 Watts Average

Silver Spring Communications Module

Platform	Processor:	ARM 7
	RAM:	8 MB
	Flash:	16 MB
NAN Network	Data rate:	50 to 300 kbps
	Frequency range:	902 – 928 MHz
	Spread spectrum:	Frequency hopping
	Transmitter output:	27 – 30 dBm (1 W) Set for 100MW
	Receiver sensitivity:	-98 dBm for 10% PER
	Protocol:	IEEE 802.15.4g
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
	Key storage:	Secure NVRAM with tamper detection and key erasure

