Philips remote monitoring and control systems

Starsense Segment Control Cabinet

Intelligent management for outdoor lighting

Starsense is a revolutionary telemanagement system for monitoring, controlling, metering and diagnosing outdoor lighting networks. Starsense Wireless is based on two-way wireless communication using the latest in mesh network technology.

Helping to improve energy management as well as related operating costs, the system enables individual light points to be switched on or off at any given time, continuously monitored for issues, and programmed for unique event or seasonal activity throughout the year. Moreover, the age and condition of each lamp in the system can also be monitored, and any failures will be reported by exact location. This offers the opportunity to significantly reduce maintenance costs through maximized lamp life and accurate scheduling of service calls. Starsense is designed for use in residential, street, and road lighting applications, including parking lots, ports, train stations, and industrial complexes.

Benefits and advantages

- Help customers by detecting, reporting and reducing lighting-related black-outs
- Enable the reduction of energy consumption via the accurate control of light times
- Save maintenance-related costs that are associated with lamp scouting and predictive maintenance

PHILIPS

General Description

The Starsense Control Cabinet (LFC7310) consists of all components required to monitor, control and manage Philips Outdoor Luminaire Controllers (OLC's). The Segment Controller (SC) contains:

A. RF Module
B. Power Supply
C. CPU w/Compact Flash
D. Wireless Antenna
E. Power Supply Cable
F. USB Cable
G. UTP Cable
H. Cellular Antenna
I. Wireless Modem/Router
J. Integrated SimCard

Applications

The Segment Control is designed to control and monitor OLC's and report back to the management and control software. It is designed for use in residential, street, and road applications, including parking lots, ports, and train stations. The design of the SC is optimized for mounting on a light pole or on a wall. Depending on the application, up to 4000 OLC's can be connected to one SC in a network.

Benefits and advantages

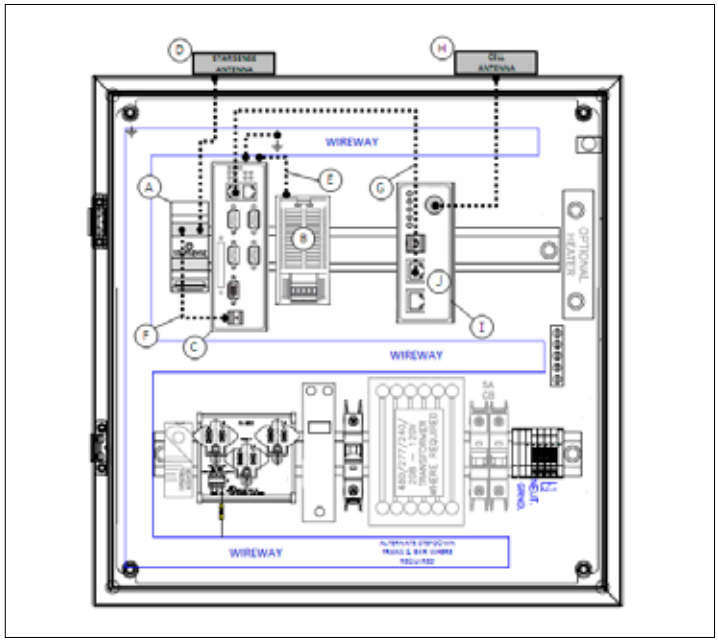
The major benefits and advantages of using the Starsense Wireless Telemanagement system include:

- Detect, report and reduce lighting related black-outs
- Reduce energy consumption through accurate control of light times
- Save costs on maintenance through reduced lamp scouting and improved predictive maintenance

Power Supply

The required supply voltage for the CPU (12-48V) is provided by the power supply. This power supply is specifically designed for outdoor circumstances, and has an efficiency of 86%. The power supply is also mounted on the DIN rail.

Power Supply



Starsense Segment Control Cabinet (LFC7310)

CPU

The Starsense CPU comes with Ethernet ports, digital input channels, USB hosts, and a Compact Flash socket. It is housed in a compact, IP40 protected, industrial-strength aluminum case that is mounted on the DIN rail. The patented "H-Type" heat dissipation design makes the Starsense CPU an ideal computing unit for applications in extremely hot field sites, since it can directly transmit heat from inside the housing to the surroundings. The dedicated Starsense software is running using an industrial grade, long life Compact Flash card. This card should not be removed from the CPU at any time.

Starsense CPU

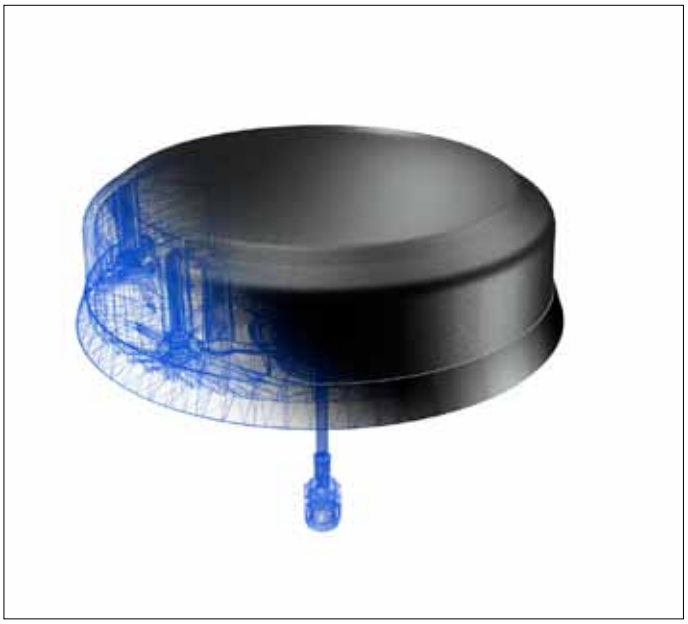
RF Module

The RF module is based on the same Radio Frequency (RF) technology as the OLC and is connected to the CPU via the USB cable. This connection transfers all commands and data to and from the RF module. For optimal communication the Smart Disc Antenna is connected to the RF module and mounted on the outside of the cabinet. The RF module of Starsense Wireless operates between 906 and 924Mhz (IEEE 802.15.4) and connects to the OLC's using mesh networking . It is designed and produced by Philips and is mounted on the DIN rail.

RF Module (LCN7330)

Smart Disc Antenna

The Smart Disc Antenna is a low profile antenna designed to meet the industrial demands on high RF performance with multi installation capabilities. Its' durable and robust design as well as its' low profile makes it ideal to use where a discrete and reliable installation is required. The Smart Disc Antenna is a ground plane independent antenna enabling a wide range of installations on different materials. The Smart Disc Antenna must be connected to the RF module. The antenna must be installed horizontally with a minimum height of 50 cm above ground level. For more information on the Smart Disc Antenna, visit www.smarteq.com.



Smart Disc Antenna

Technical Data

Operating conditions

Temperature	-30°C to +60°C
Relative humidity	20 to 90% RH

Non-operating conditions

Storage Temperature	-40°C to +85°C

Mains connection

Mains voltage (LLC7310)	120-480VAC ±10%
Mains frequency	50/60 Hz ± 5%

Power consumption

Typical	50W

Radio Frequency

Protocol	IEEE 802.15.4
Frequency band	906-924MHz
Range (maximum)	300m (OLC to OLC)
	50m (OLC to SC)

* **NOTE:** Multiple OLC's should be in range of the Segment Controller Controller.

Housing

Dimensions	508 x 508 x 254 mm

CPU

Dimensions	52 x 162 x 112.6mm
Weight	1kg

Power Supply (DNR30US24)

Input	120 VAC, 47-63 Hz, 800mA
Output	24 VDC, 30W
Dimensions	40.5 x 90.0 x 115mm
Weight	0.35kg

RF module (Philips part #LCN7330)

Dimensions	36.2 x 93.9 x 63.5mm
Weight	0.05kg
Material	NORYL HF185
Flammability	UL 94V-1 at 1.5mm
Glow wire test	650°C
Antenna connection	Gold plated SMA
USB connection	Gold plated mini B

Smart Disc Antenna

Dimensions Circular	90 mm (H) x 26 mm
Weight	0.19kg
Color	Black
Cable	2.5 meter RG 316

Packing Data

Type	Box dimensions (mm)	Qty	Material	Weight (Kg) net	gross
LFC7310	508 x 508 x 254	1	Cardboard	15.00	15.00

Ordering Data

Type	MOQ	Ordering number
LFC7310 Starsense Segment Controller	1	9137 012 47501
LRV7310 Outdoor Configuration Assistant	1	9137 003 44503
LLC7310/00 Starsense NEMA Intellivolt OLC (no dim)	30	9137 012 47601
LLC7315/00 Starsense NEMA Hi Voltage OLC (no dim)	30	9137 012 47702

* NOTE: Multiple OLC's should be in range of the Segment Controller

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