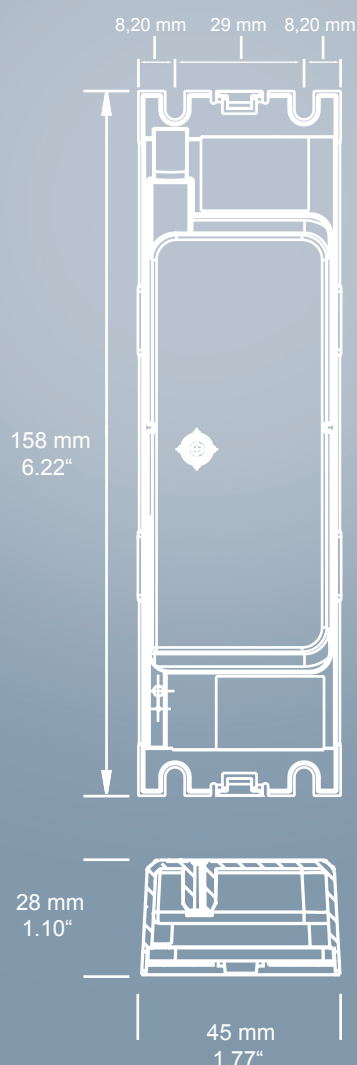




Lumen Controller NXP with Power Supply



Product Information

General Description

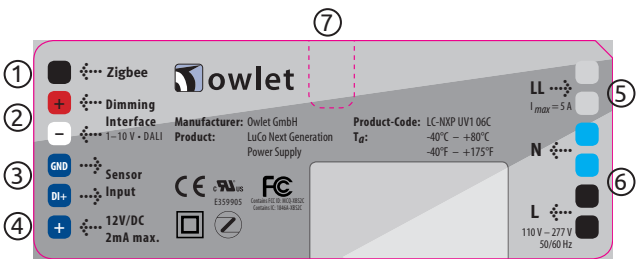
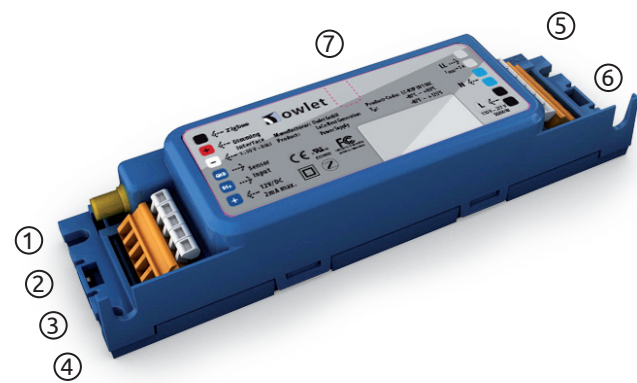
The Lumencontroller LuCo-NXP is a luminaire-based controller that monitors and controls luminaires based LED-Drivers or HID-Ballasts. The controller controls the driver/ballast by switching the mains and by the means of either DALI or 1-10V interfaces. A built-in utility grade meter offers the highest metering accuracy available on the market today, better than 1% over the complete diming range.

The LuCo-NXP offers as well a sensor power supply and input, compatible with the dry contacts of a wide range of presence, movement or traffic detectors to adjust the light levels on demand and the patent-pending LightSync™ technology ensuring dusk/dawn operation in unswitched power grids, as a failsafe function in case of disruption of the control network or the dusk/dawn switching in un-commissioned installations. The controller monitors and stores electrical characteristics from the Led-Driver/Ballast. In addition to the above it offers driver / ballast independent energy saving algorithms, Constant Lumen Output CLO which compensates the luminance depreciation over time and VPO which equalizes wattage jumps in a luminaire range to prevent over lighting.

Based on the wireless industry standard ZigBee, the LuCo-NXP forms together with Segment Controller SeCo a robust and reliable mesh network which ranges from a couple of luminaires to tens of thousands of luminaires.

Application

The LuCo-NXP controls LED-Driver/Ballast units according to the wiring diagrams below. It is designed for use inside outdoor luminaires for residential, road and urban applications including Ambiance, Sport, Industry and Campus.



1	ZigBee SMA antenna connection
2	Dimming interface 1-10V/DALI
3	Sensor input (dry contact)
4	Sensor Power Supply (12 Vdc / 2 mA max.)
5	Switched Power Output, 110 V - 220 V 50/60 Hz
6	Power Supply, 110 V - 220 V 50/60 Hz
7	LightSync connector

General operation

The LuCo-NXP is designed to perform four major tasks.

1. Controlling and sensing

The LuCo receives the incoming commands (group commands, manual override, detection events) from the segment controller SeCo or sister controllers in the mesh network and acts accordingly to regulate the light output of the luminaire using its 1-10V/DALI interface (ON, OFF, 0..100% Light). In case of a sensor attached to the sensor input the LuCo sends a detection event to RF mesh net and all to the event associated light points will act accordingly to the event and idle dim profile stored in the LuCo’s.

Fail-safe

In case of a disrupted RF communication the LuCo falls back to dusk/dawn switching based on astronomic sunset/sunrise calculations. With the optional LightSync™ attached the fallback scenario can be extended to dusk/dawn switching based on ambient light conditions.

2. Energy Saving

The LuCo firmware has two inbuilt remote configurable energy savings algorithmtms:
Contant Lumen Output CLO compensates the luminance depreciation over time according to the maintance factor of the luminaire/lamp/LED assembly and VPO equalizes wattage jumps in a luminaire range to prevent over lighting.

3. Monitoring

The monitoring function in the controller measures mains voltage, current, power factor, burning hours and accumulative energy consumption of the connect lamp/LED driver assembly and transmits its value on request to the SeCo.

4. Reporting

Based on these measurements and/or the information received through DALI the controller determines if the luminaire/lamp/LED assembly is operating in the configured threshold. Violations of these thresholds will be reported to the SeCo and an alarm will be created. This includes as well the energy consumption measurements.

The LuCo-NXP is able to drive up to eight DALI or 1-10V drivers with a maximum load current of 5 A (550VA@110V, 1,2kVA@240V, 1,38kVA@277V). An un-commisioned LuCo-NXP will switch ON its output at max. level on power up. If the optional LightSync™ is attached an un-commised LuCo-NXP will operate in dusk/dawn switching based on ambient light conditions.

Shark-Fin-Antenna LightSync™ (optional)

horizontal vertical

Mounting informations

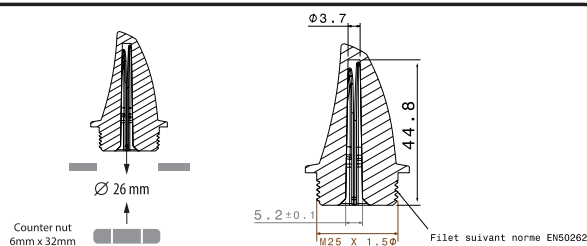
The LuCo-NXP is designed to fit into the gear compartment of the luminaire. The general released antenna position in combination with the Sharkfin Antenna is on top of the luminaire to provide optimum conditions for wireless communication. The COAX antenna cable must be guided such that at no point it has a bending radius less than 10 mm. Once damaged, the Antenna (and cable) needs to be replaced. Only one LuCo controller per Luminaire is allowed.

1. Antenna Installation

Connector Type : RP-SMA

Installation only
by technical staff.

Shark Fin



2. Luminaire Controller Installation

horizontal

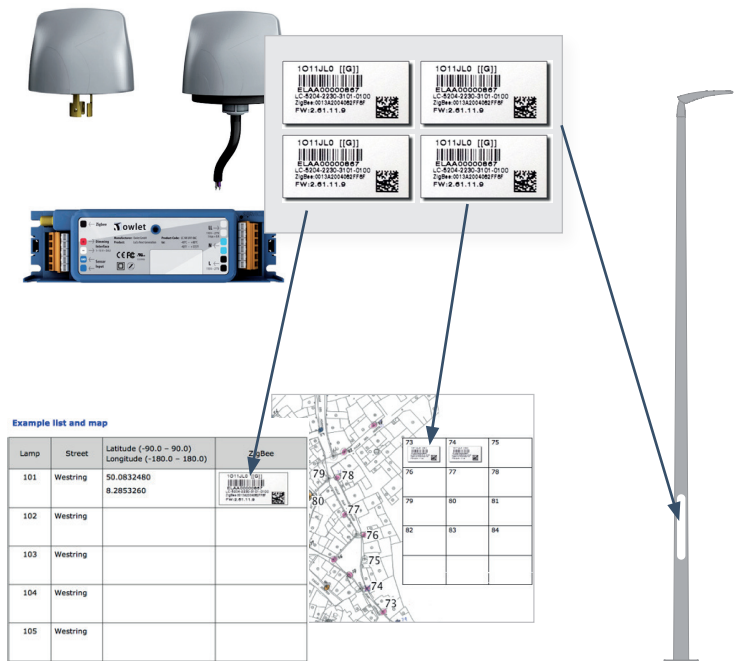


vertical



ZigBee/IEEE address

The LuCo-NXP will become a node in a large mesh network of nodes, all controlled from one or multiple SeCos. To represent the controller in a map and address it individually, the SeCo need to know the geographic position and the unique ZigBee address. This address is printed on four barcode labels on the controller. After installation on-site, the barcode must be scanned during configuration of the system.



Operating conditions

Ambient temperature (ta)	-40°C to +80°C -40°F to 175 °F
Relative humidity	10% to 90%
Max. housing temp.	(tc) 80°C

Non-operating conditions

Temperature	-30°C to +80°C -22°F to 175 °F
Relative humidity	5% to 90%

Mains connection

Mains voltage	110-277VAC ±10%
Mains frequency	50/60 Hz ± 5%
Maximum load current	5 A
Maximum power at 8A	(550VA@110V, 1,2kVA@240V, 1,38kVA@277V)
Required external fuse	≤ 10A

Power consumption

Stand-by wattage	< 0,7W
Operating wattage	< 0,8W
Accuracy integrated powermeter	1% (between 0% and 100% dimming)

DALI output Interface

DALI Compliant to IEC62386 part 101, 102, 201, 203, 207	
Load capacity	8 DALI lampdrivers
Protection	Interface is short circuit proof
DALI voltage	11.5 to 20.5Vdc
DALI current	16 mA

Installation terminal

- Tension clamp connection with a 135° outlet direction
- lever for simple opening of terminal point
- Solid, flexible 0.13-2.5mm2(IEC)/26-14AWG(UL) with wire end Ferrule DIN 46228 pt 1 min 0,25mm2 – 1,5mm2 stripping length 6mm

1-10V interface

Compliant to 1-10VDC IEC60929 (Annex E)

Load capacity	eight 1-10V lampdrivers
Load current	Interface is current sinking max 16mA

Sensor Power Supply

12 Vdc ± 0,5 V, 2 mA max.

Radio Frequency

Protocol	IEEE802.15.4 / ZigBee Pro Meshnet
Frequency band	2,4 GHz (2400,0...2483,5 MHz)

Housing

Material	PPE+PS, RESIN: SABIC NORLYL N300X
Protection class	IP20 (installed condition) provides insulation Class II

Standards & Legislation

Approvals:	UL 916 (E359905) R&TTE directive 1999/5/EC EMC directive 2004/108/EC LV directive 2006/95/EC RoHS directive 2002/95/EC
	EN301489-17 EN61000-6-2 EN61000-6-3 EN55022
Conducted emission	FCC Part 15 (MCQ-XBS2C)
Radiated emission	FCC Part 15 (MCQ-XBS2C)
Safety:	EN60950-1 / EN 61347-2-11

