Owlet Wireless Outdoor
LuCo-P7 (Luminaire Controller)
Datasheet

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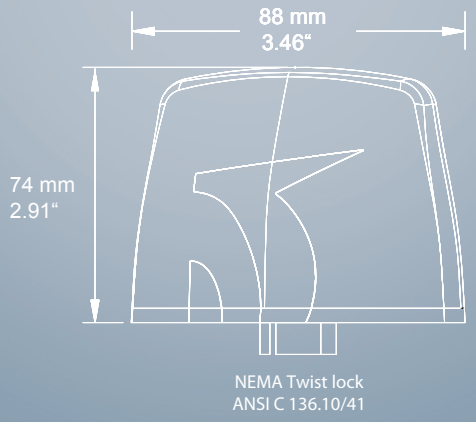
Luminaire Controller Photocell NEMA



General Description

The LuCo-P7 (luminaire controller) monitors and controls LED drivers or HID ballasts. Due to its built-in GPS module the LuCo-P7 supports auto-commissioning.
The LuCo-P7 incorporates a sensor power supply and input that is compatible with a wide range of presence, movement or traffic detectors to adjust the light levels on demand.

The LuCo-P7 controls the driver/ballast through either a DALI or 1-10V interface.
A built-in utility grade meter offers the highest metering accuracy available on the market today, better than 1% for the complete dimming range.
The LuCo-P7 offers ambient light detection ensuring dusk/dawn operations in unswitched power grids as a failsafe in case the control network is disrupted or if the installation has not been commissioned yet.

Due to an built-in sensor input, the LuCo-P7 is able to activate light-on-demand after detection from a wide range of presence, movement or traffic detectors.
If a sensor is attached, the LuCo-P7 is able to share the event information through the RF mesh net.

The LuCo-P7 monitors and stores electrical characteristics from the LED driver or ballast.
The LuCo-P7 replaces the standard photocell using a standard NEMA twist-lock receptacle (ANSI C136.10/136.41).

Based on the ZigBee wireless protocol standard, the LuCo-P7 together with the SeCo (segment controller) creates a robust and reliable mesh network which can incorporate a couple of luminaires to tens of thousands of luminaires.

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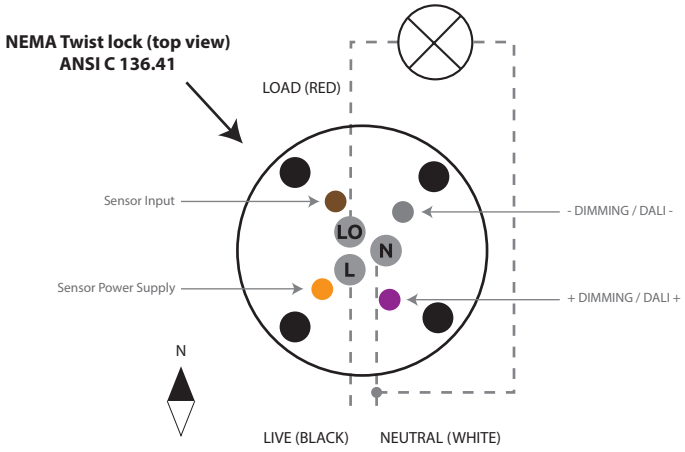
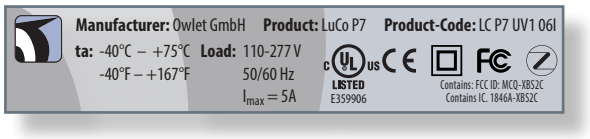
Applications

The LuCo-P7 controls LED drivers and ballasts as per the wiring diagrams below.
It is designed to be used in outdoor luminaires for residential, road and urban applications and to replace the standard NEMA twist-lock photocell.



NEMA Socket is not supplied with LuCo P7



General operation

The LuCo-P7 is designed to perform four major tasks.

1. Control and detection

The LuCo-P7 receives incoming commands (group commands, manual override, detection events) from the SeCo segment controller, neighbour controllers in the mesh network or the local connected sensor and acts accordingly to adapt the light output of the luminaire using its 1-10V/DALI interface (ON, OFF, 0 - 100% light).
If a sensor is attached to the LuCo-P7, it will share the event information through the RF mesh network.

Fail-safe

In case of disrupted RF communication, the LuCo-P7 will revert to dusk/dawn switching based on ambient light conditions.

2. Generate Energy Savings

The LuCo firmware has two built-in remotely configurable energy saving algorithms:
i. Constant Light Output (CLO) which compensates for the depreciation of the luminous flux over time according to the maintenance factor of the luminaire/lamp/LED assembly.
ii. Virtual Power Output (VPO) which equalises wattage steps in a luminaire to prevent excess lighting.

3. Monitoring

The monitoring function measures the mains voltage, current, power factor, burning hours and cumulative energy consumption of the connected lamp/LED driver assembly and transmits the data to the SeCo on request.

4. Reporting

Based on these measurements and/or information received through the DALI interface, the LuCo-P7 determines if the luminaire/lamp/LED assembly is operating within the expected limits.

The LuCo-P7 is able to drive up to eight DALI or 1-10V drivers with a maximum load current of 5A (600VA@120V, 1.2kVA@240V, 1.38kVA@277V).
An un-commissioned LuCo-P7 will operate in dusk/dawn switching based on ambient light conditions.

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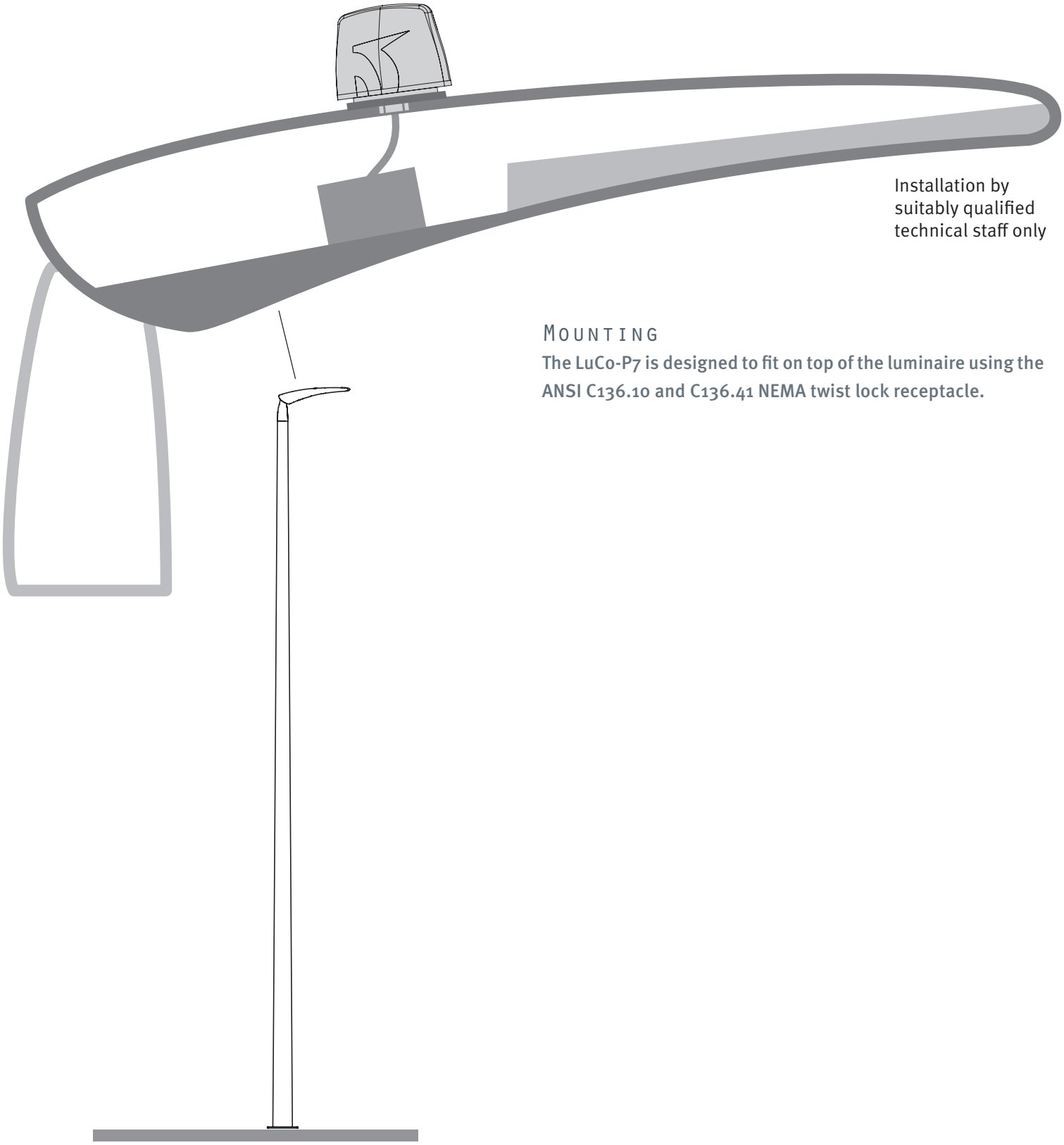

Installation by suitably qualified technical staff only

Mounting

The LuCo-P7 is designed to fit on top of the luminaire using the ANSI C136.10 and C136.41 NEMA twist lock receptacle.

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LuCo-P7 Auto-commissioning

Due to its built-in GPS module, the LuCo-P7 supports auto-commissioning.
Owlet controllers with GPS will automatically be imported and located in the Nightshift system. The ZigBee address and GPS location are automatically detected and allocated to a SeCo.
If the LuCo-P7 nodes have been pre-configured, this data is also applied.

Operating conditions	
Ambient temperature (ta)	-40°C to +75°C -40°F to 167 °F
Relative humidity	10% to 90%

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	5A
Maximum power at 5A	600VA@120V, 1.2kVA@240V, 1.38kVA@277V
Required external fuse	≤ 10A

Power consumption	
Stand-by wattage	< 0.8W
Operating wattage	< 0.9W
Accurancy integrated power meter	1% (between 0% and 100% dimming)

Radio frequency	
Protocol	IEEE802.15.4 / ZigBee Pro Meshnet
Frequency band	2.4 GHz (2400,0...2483.5 MHz)

Housing	
Material	PC, UV stabilized
Colour	RAL 7042 translucent light grey
Protection class	IP 66 (installed condition for controller only in combination with TE PN: 2213362)

Standards & Legislation	
Approvals	R&TTE directive 1999/5/EC EMC directive 2004/108/EC LV directive 2006/95/EC RoHS directive 2002/95/EC
EMC	EN 301 489-17 V2.2.1:2012-09 EN 301 489-1 V1.8.1:2008-04 EN 301 489-3 V1.6.1:2013-08 FCC part 15B, ICES-003
Radio	EN 300 328 V1.8.1:2012-06 EN 300 440-2 V1.4.1:2010-08 FCC 47 CFR Part 15 Subpart B
Safety	IEC 61347-1 IEC 61347-2-11 EN 60950-22:2006+AC:2008 EN 60529:1991+A1:2000+AC:1993+A2:2013 UL 773 (E359906) UL 244A C22.2 No. 182.2-M1987 CSA C22.2 No. 205-12
Receptacle	ANSI C136.41, ANSI C136.10

DALI interface	
DALI Compliant to IEC62386 part 101, 102, 201, 203, 207	
Load capacity	8 DALI drivers
Protection	Interface is short circuit protected
DALI voltage	12.0 to 20.5Vdc
DALI supply current	Max. 16mA

1-10V interface	
Compliant to 1-10VDC IEC60929 (Annex E)	
Load capacity	8 1-10V drivers
Load current	Interface is current sinking, Max. 16mA

GPS capabilities
Supports GPS system (L1C/A signals provided at 1575.42 MHz)
Supports SBAS, Satellite Based Assist System
Position accuracy up to 2.5m (with > 6 satellites)

Sensor power supply
12 Vdc ± 0.5 V, 2mA max.

c UL us LISTED
E359906

Contains: FCC ID: MCQ-XBS2C
Contains IC. 1846A-XBS2C

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