T-Light™ LCU (Light Control Unit) NEMA

User Manual

Model: LCUN2PUS (North America)

Model: LCUN2PAU (Australia/NZ)

Revision 1.02, June 21, 2016

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1. About Telematics Wireless Products

Telematics Wireless products have been evaluated as Information Technology Equipment (ITE), which may be installed in Central Offices, Telecommunication Centers, offices, computer rooms, and similar commercial-type indoor or outdoor locations.

Telematics Wireless is an Associate Member of the TALQ Consortium, and its products are ELEXON-approved.

1.1. LCU NEMA Product Description

LCU NEMA is a luminaire control unit, easily installed on top of the luminaire utilizing a standard (twist and lock) NEMA socket. LCU NEMA is a principal component of the T-Light street light control Pro mesh network. The LCU NEMA controls its LED driver or electronic ballast to provide On/Off and dimming functionality. The LCU NEMA provides various comprehensive energy measurements, luminaire parameters and maintenances statuses.

The LCU NEMA units receive commands individually or as a group from the Data Control Unit (DCU) gateway; commands can be changed as and when needed. The T-Light network is easily controlled either automatically through the web-accessed T-Light CMS system (or a 3rd party management software).

Figure 2 - T-Light Pro Topology

1.2. Functionality

• On/Off and dimming functionality using automatic DALI/ 0-10 volt selection
• Luminaire power consumption measurement to 1% accuracy
• Analog and digital input for interfacing with external sensors
• Auto-commissioning with GPS or NFC chip
• Internal or external configurations
• Highly secure wireless communication utilizing AES-128 or AES- 256
• Enclosures - NEMA: ANSI C136.41, 7pin
• Dual backup protection – autonomous operation based on a pre-programmed scenario; built in light, no dayburn
• Supports over the air firmware upgrade
• Data and settings preserved in case of power failure
• LCU NEMA stores history of measured parameters for at least a week to allow for data extraction
• Controlled Auxiliary Output (optional)
• Includes the Telematics "Auto Detection and Verification" software that automatically detects and stores the ballast type (1-10V or DALI) in the LCU NEMA. The ballast type is then retrieved during the commissioning process, thereby eliminating the need to enter it manually into the CMS.

1.3. Reports

• Reports of events related to exceeding established parameter limits
• Aggregate energy and active power consumption
• Burning hours
• Number of On/Off cycles
• Failure reports
• Various luminaire dynamic parameters such as: instantaneous levels of ambient light, power consumption, voltage, current, power factor, temperature.

LCU NEMA

2. Specifications

Radio

Parameter	Value
Operating Frequency	902MHz – 928MHz US ISM band (North America) 869.5MHz (Europe) 915-928MHz band (Australia/NZ)
Data Rate	110 kbps
Modulation	2GFSK
Receiver Sensitivity	-102dBm@110kbps
Output Transmission Power	Up to +27dBm/ 500 mW max

Power and control Interface

Parameter	Value
Operating Input Voltage	110-277V AC @50-60Hz
Load Current – NEMA 5-pin	3A
Load Current – NEMA 7-pin	10A
Dimming – Ballast/Driver Communication Protocols	DALI Analog 0-10V, PWM

Wiring diagram for a NEMA receptacle with dimming pads

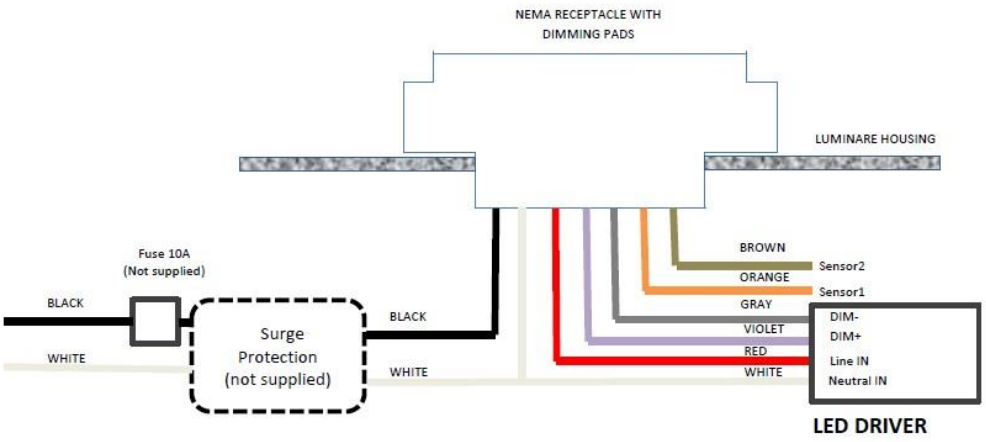
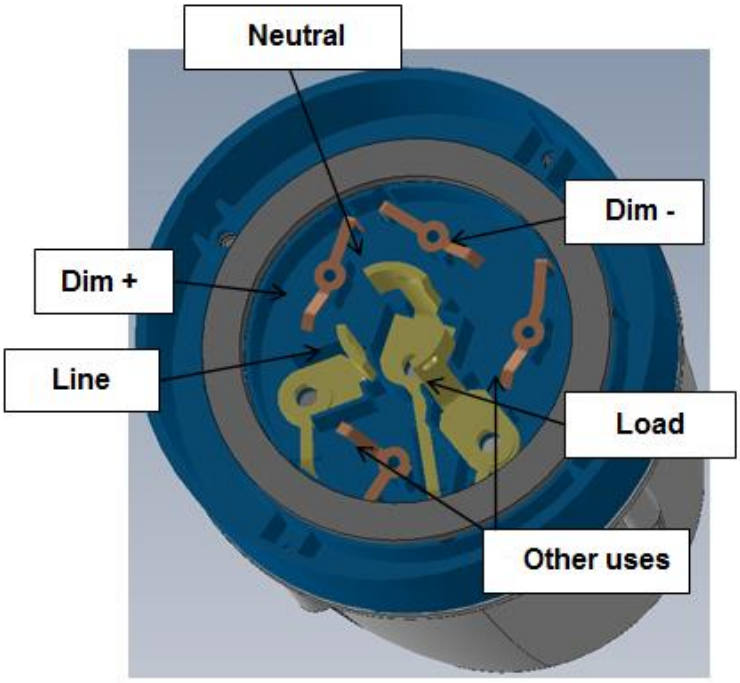


Figure 3 - NEMA Receptacle Wiring Diagram for LCU NEMA

#	Wire Color	Name	Purpose
1	Black	Li	AC Line In
2	White	N	AC Neutral
3	Red	Lo	AC Line Out: Load
4	Violet	Dim+	DALI(+) or (+)0-10V or PWM or RS485-A
5	Gray	Dim-	Common GND: DALI(-) or (-) 0-10V or RS485-B
6	Brown	Reserved 1	Digital IO or Analog In or RS485-A
7	Orange	Reserved 2	Digital IO or RS485-B

NEMA Contacts



Physical Specifications

Parameter	Value
Dimension	3.467 in D x 4.173 in H (88 mm D x 106 mm H)
Weight	225 g

Environment

Operation Temperature	-40° F to 161.6° F (-40° C to +72° C)
IP Rating	IP 66 per IEC 60529-1

Standards Compliance

Radio	USA	FCC 47CFR part 15 subpart C
	Canada	RSS 247
	Australia/NZ	AS/NZS 4268
	Europe	EN 300-220-2
EMC	USA	FCC 47CFR part 15 subpart B
	Canada	ICES-003
	Australia/NZ	AS/NZS CISPR 22, class B
	Europe	EN 301-489-1, EN 301-489-3
Safety	USA	UL 773A
	Canada	CSA C22.2 NO. 182.2.
	Australia/NZ	AS/NZS 60950.1
	Europe	EN 61347-1, EN 61347-2-11

3. Regulation Information

FCC Part 15 Regulation Class B device

The digital circuit of this device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

Industry Canada Class B Notice

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage;
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC interference Notice

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

FCC and Industry Canada Radiation Hazard Warning

The antenna used for this transmitter must be installed to normally provide minimum separation distance of at least 20 cm from all persons.

Le dispositif doit être placé à une distance d'au moins 20 cm à partir de toutes les personnes au cours de son fonctionnement normal. Les antennes utilisées pour ce produit ne doivent pas être situés ou exploités conjointement avec une autre antenne ou transmetteur.

4. Installation Requirements

4.1. Mandatory Customer-Supplied Equipment

System integrity for the LCU NEMA is ensured with the mandatory installation of customer-supplied voltage and current surge protection equipment.

Mandatory Voltage Surge Protection

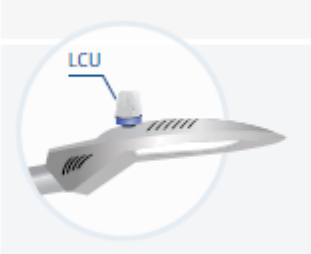
***Warning**: To prevent damage due to power network voltage surges, it is mandatory that you also provide and install a surge protection device to protect the LCU and the luminaire driver.*

Mandatory Current Surge Protection

***Warning**: To prevent damage due to power network current surges, it is mandatory that you also provide and install a 10 amp slow-blow fuse or circuit breaker to protect the LCU and the luminaire driver.*

4.2. Location

The LCU NEMA is installed on the top surface of the luminaire cover utilizing a standard (twist and lock) NEMA socket.



4.3. Post-Installation Commissioning

In order for the installed LCU NEMA units to be recognized in the Telematics Wireless Smart Lighting System, the serial numbers and GPS coordinates of the LCU NEMA units must be added to the CMS Equipment Inventory as part of the commissioning process. The level of automation in the Commissioning process depends on the optional equipment installed in the LCU NEMA:

- GPS – Commissioning is fully automated. Commissioning is complete after the CMS Administrator executes the relevant command.
- NFC – Commissioning is partially automated. The required serial number and GPS coordinates are obtained at the installation site with an Android smartphone and a Telematics app. Commissioning is complete after the CMS Administrator executes the relevant command.
- No GPS or NFC – Commissioning is a partially manual process:

- Installer obtains the GPS coordinates of the LCU NEMA with a handheld GPS device.
- Installer records the serial number and GPS coordinates.
- CMS Administrator imports the recorded values into the CMS Equipment Inventory, one by one or by batch.

5. Contact Details

Contact your local Telematics technical support representative, or contact us at:

Telematics Wireless, Ltd.

26 Hamelacha St., POB 1911

Holon 58117

ISRAEL

Phone: +972-3-557-5763

Fax: +972-3-557-5703

Sales: sales@tlmw.com

Support: support@tlmw.com

www.telematics-wireless.com