

T-Light™ LCU LoRaWAN Light Control Unit

The **T-Light LCU LoRa**, or luminaire control unit, is a principal component of the T-Light LoRaWAN system. It is easily installed inside the luminaire (LCU Internal); or externally (LCU External), utilizing either a standard (twist and lock) NEMA socket, or conduit configuration. The LCU controls its LED driver or electronic ballast to provide On/Off and dimming functionality. The LCU provides various comprehensive energy measurements, luminaire parameters and maintenances statuses.

The LCUs receive commands individually or as a group from the Data Communication 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).

LoRaWAN networks are laid out in star topology in which gateways relay messages between end-devices and the central network server at the backend. Gateways are connected to the network server via standard IP connections while the end-devices use single-hop LoRa™ communication to one or many gateways.



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.

Functional Specifications

- 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
- Two types of external configuration enclosures - NEMA: ANSI C136.41, 7pin; or conduit configuration
- Dual backup protection – autonomous operation based on a pre-programmed scenario; built in light sensor (in external configuration), no dayburn
- Supports over the air firmware upgrade
- Data and settings preserved in case of power failure
- LCU stores history of measured parameters for at least a week to allow for data extraction
- Dual functionalit controls the luminaire and operates as a repeater
- MTBF > 1,000,000 hours
- Controlled Auxiliary Output (optional)

T-Light™ Smart Lighting System

T-Light™ LCU LoRaWAN Light Control Unit

Technical Characteristics

Remote continuous and gradual dimming from 0-100%	
Ballast Communication Protocols:	DALI or 0-10V
Input Voltage:	90 - 305V AC @50-60Hz
Load Current:	10A
Surge Protection:	350J (10kA)
Operating Temperature:	-40°C to +72°C
Safety:	IEC60950-1:2005
Isolation:	3kVac/5mA/5Sec

Mechanical Characteristics

LCU Internal configuration:	165 x 55 x 32mm
LCU External configuration:	Ø 89 x 108mm
Protection: LCU internal	IP66
	LCU external IP66

Rf Characteristics T-Light™ LoRaWAN

Frequency:	US915: 902-928MHz (US)
	EU868: 863-870MHz (EU)
	AS923: 920-925MHz (SG, TW, HK)
	KR920: 920-923MHz (KR, VT)
Network Protocol / Security:	LoRaWAN™ Class A/C
Output Transmit Power:	EU: Up to +14dBm
	US: Up to +20dBm
Compliance with FCC CFR47 PART 15	
Compliance with ETSI EN 300 220-1	

Installation

The LCU Internal is easily installed inside the light fixture or light column, next to the light unit ballast or LED driver.

The LCU External is easily installed on top of the lighting fixture utilizing a NEMA socket or conduit configuration.

T-Light LoRaWAN System Architecture



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