



# LoRaWAN™ compatible STREET LIGHTING REMOTE MANAGEMENT & SMART CITY PLATFORM



[FCRM - LoRaWAN™ compatible lighting panel control and monitoring unit - data sheet] November 14, 2019 Ver 1.4

## FCRMv4-L - LoRaWAN™ compatible LIGHTING PANEL CONTROL and MONITORING UNIT

Installed inside the feeder pillar, it is designed to provide autonomous operation for street lighting installations and to carry out three phase measurements and analysis of electrical parameters in street lighting grids.

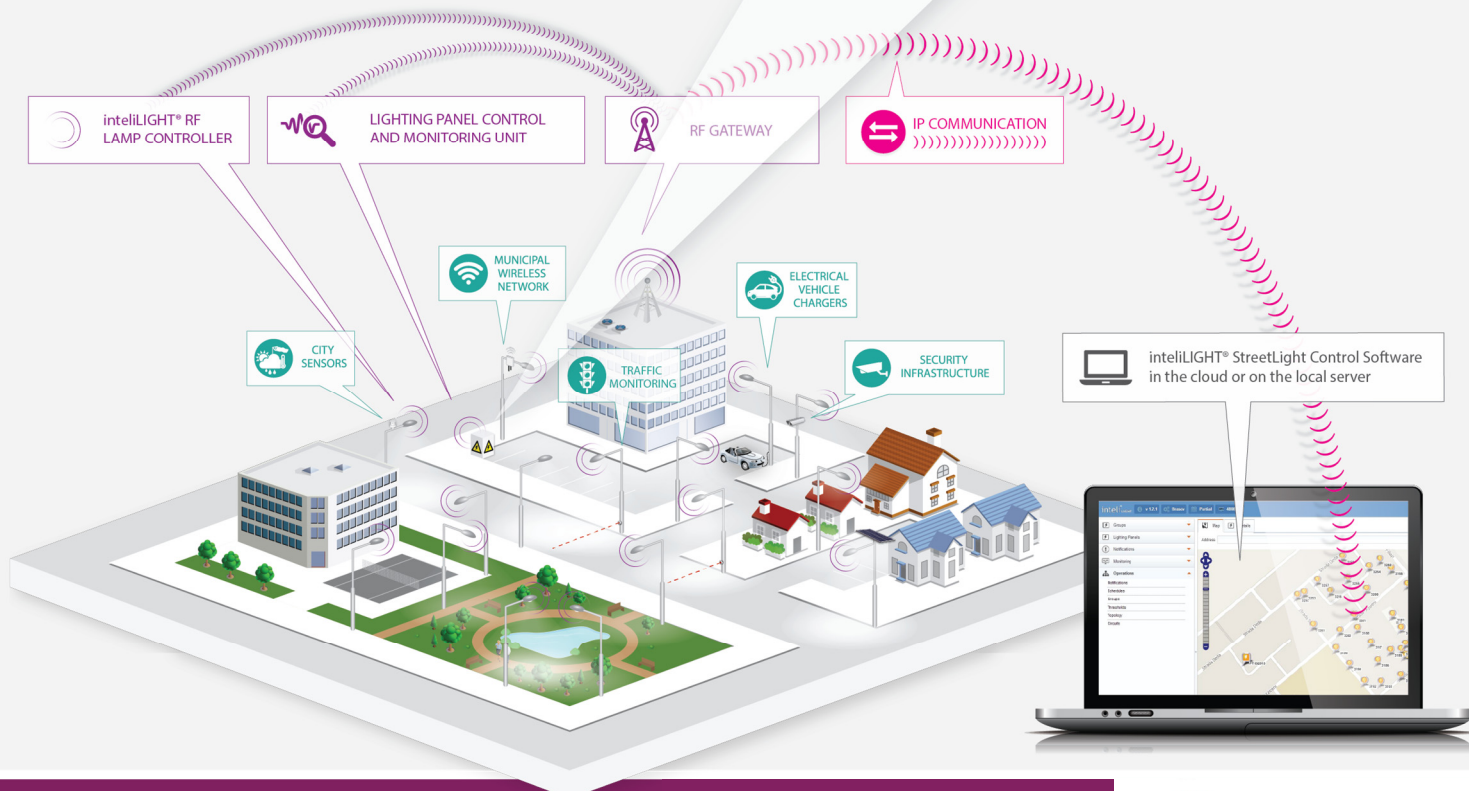


LoRaWAN™ Class A Compatible

LoRaWAN™ Class C Compatible

- › Specially designed and optimized for **LoRaWAN™** (long range RF wide area networks).
- › **VPN security** with AES128/256-bit encryption and key rotation.
- › **Bandwidth efficient** with minimal communication requirements.
- › **Autonomous operation** based on predefined astronomic calendar and/or external light level sensor (digital INPUT).
- › **Remote real-time ON/OFF control.**
- › **Remote monitoring** of grid parameters in street lighting grids: per phase voltage, current, frequency, power factor, active/ reactive/ apparent power, daily active/ reactive energy consumption.
- › **Configuration options** for: current transformer ratio, voltage/power thresholds and daytime/nighttime consumption thresholds.
- › **LCD** for displaying electrical parameters and device status.
- › **GPS** for exact location and time.
- › **Maintenance switch** for local manual override (AUTO/ON/OFF).
- › **Inputs:** 2 x Digital INPUT.
- › **Output:** 1 x Dry contact relay output (230V, max 12A).
- › Designed **lifetime: 10+** years.

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## FRCMv4-L - lighting panel control and monitoring unit

Product description	Street lighting panel control and monitoring unit
Power supply	Direct connection
Power consumption	Max. 10 W
Network interface	LoRaWAN™ (low power, long range radio frequency)
Communication protocol	LoRaWAN™: Class C or Class A
RF spectrum	868MHz / 915MHz / 923MHz
Security	AES128/256-bit encryption and key rotation per session
Voltage input range	0V - 265V / 45-65 Hz
Input	R, S, T voltage inputs R, S, T, N current inputs 2 x Digital input
Power network type	Three phase electric network and Neutral
Current transformers	Standard X:5, where X is user definable
Operating temperature	-25°C to + 80°C
Operating humidity	95% non-condensing
Connectors	Voltage (R,S,T,N), Current (R,S,T,N), RF / GPS / USB
Grid connectors	2.5 mm <sup>2</sup> terminals
Antennas	2 x SMA
Output	1 x Dry contact relay (230V, max 12A)
Display	LCD
Precision Real Time Clock (RTC)	Battery operated
Battery operation time	Up to 12 hours
GPS	Location and time
Dimensions (L x W x H)	138 x 90 x 47 mm
IP rating	IP20 (optional IP67 external housing)
Certifications	CE FCC ( in progress)



PLUG & PLAY  
ADAPTABLE  
to EXISTING  
STREET LIGHTING  
INFRASTRUCTURE

SCALABLE &  
IMMEDIATELY  
OPERABLE



up to  
**35%**  
ENERGY  
SAVINGS



up to  
**42%**  
MAINTENANCE  
COST REDUCTION

### MEASUREMENTS:

- › voltage
- › current
- › active power
- › reactive power
- › apparent power
- › active energy
- › reactive energy
- › power factor
- › frequency

### CONFIGURABLE PARAMETERS:

- › current
- › transformer ratio
- › voltage/power /  
current thresholds
- › daytime/  
nighttime  
consumption  
threshold

### GENERATED ALARMS:

- › over/ under voltage  
detection
- › over/ under power  
detection
- › over/ under current  
detection
- › unusual daytime/nighttime  
consumption
- › phase failure