



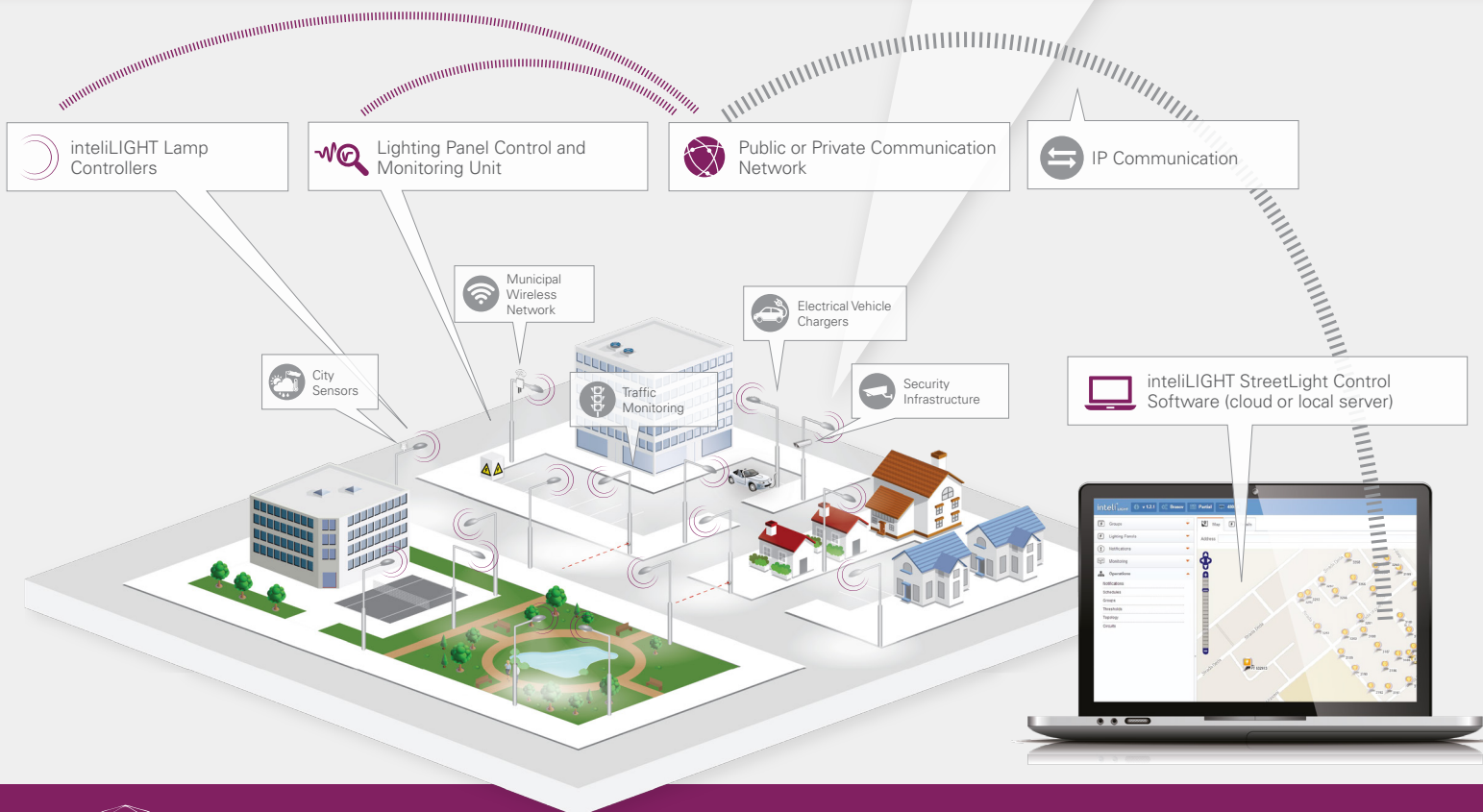
# LoRaWAN compatible smart street lighting

FRE-220-M-L embedded luminaire controller- data sheet | 03/11/21 | v1.32

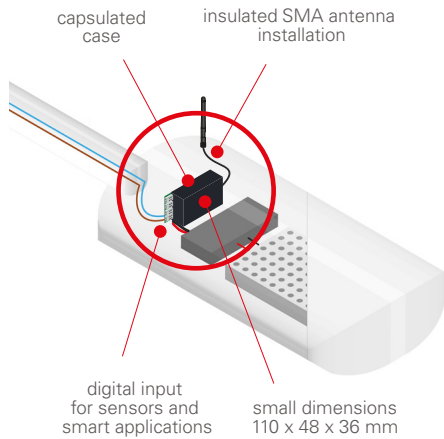
## FRE-220-M-L - LoRaWAN compatible, embedded luminaire controller

Designed to minimize occupied space, the controller can be embedded into most luminaire designs, allowing any producer to offer smart lighting fixtures.

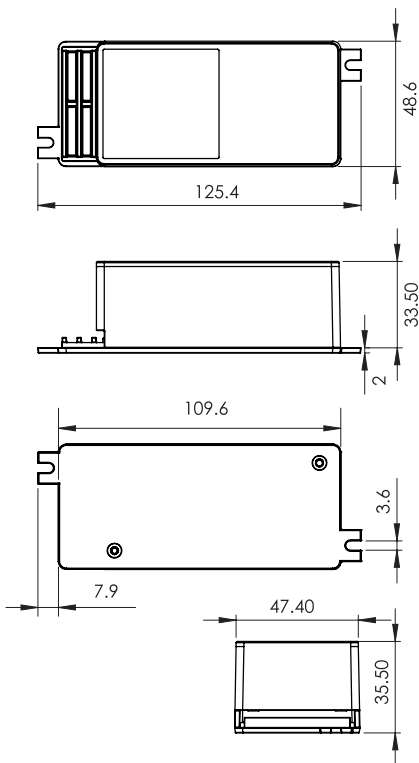
- › Enables individual remote management of streetlight lamps with electronic driver up to 400W (ON/ OFF/ Dimming).
- › Specially designed and optimized for LPWA networks.
- › Autonomous operation based on predefined schedules and digital input (light level sensor and adaptive lighting).
- › Adaptive lighting capabilities based on digital input for motion sensing.
- › Bandwidth efficient with minimal communication requirements.
- › Secure communication based on encryption keys.
- › Wide range of electrical parameters monitoring: V, W, A, VAR, Wh, VARh and PF.
- › Advanced data synchronization and notification mechanism.
- › Internal precision Real time clock (RTC) with backup battery.
- › Infrared interface for local configuration.
- › Dry contact digital input (for PIR sensor, photocell sensor, open door sensor etc.).
- › Over The Air (OTA) firmware update.
- › Designed lifetime: 10+ years.



**FLASHNET**  
An ENGIE company



### DIMENSIONS (mm):



FRE-220-M-L	
Lamp Type	LED, CF, HID with electronic driver
Maximum lamp power	400W (optional up to 750W) *
Functions / Operation mode	ON / OFF / Dimming
Dimming range	1%-100% (depending on lamp control gear)
Control interface	0-10V/ 1-10V, DALI
Power supply	85- 260VAC / 50Hz-60Hz
Local interface	infrared
Network interface	LoRaWAN (Class C or Class A)
RF spectrum	868MHz / 915MHz / 923MHz
Inter-node mesh communication	Optionally available, with motion sensor add-on
Firmware update	IR (infrared) / OTA (over the air)
GPS	No
Security	Encrypted communication based on security keys
Surge protection	10kA
Internal scheduling memory	128 events (daily / weekdays / weekends / fixed date / exceptions)
Average power consumption	0.5W
Maximum power consumption	2W
Precision RealTime Clock (RTC)	Battery operated
Real-time lamp operation	Yes
Digital input	1x dry contact (for PIR sensor, photocell sensor, open door sensor etc.)
IP rating	IP20
Operating temperature range	-25°C to +65°C
Operating humidity	95% non-condensing
Weight	125 ± 5 g
Dimensions (length x width x height)	110 x 48 x 36 mm
Mounting	embedded in lamp
Compliant standards	CE, RoHS, EN 61000-3-2(2014), EN 61547(2009), EN 60068-2-1(2007), EN 60068-2-2(2007), Prequalified according to ETSI EN 300 220
Certifications	CE, FCC- in progress

\* The controller can be used for luminaires over 750W together with an external contactor, and with limited functionalities (no dimming, no measurements).

### MEASURED PARAMETERS:

- › Lamp power
- › Line voltage
- › Current
- › Active power
- › Reactive power
- › Apparent power
- › Power factor
- › Energy consumption (active/reactive)
- › Lamp / controller- running hours counter
- › Lamp On / Off cycles counter

### CONFIGURABLE PARAMETERS:

- › Astronomical calendar scheduler
- › Predefined scheduler
- › Start state (Input / Schedule / Manual)
- › ON/OFF power threshold
- › Over/ under voltage threshold
- › Over/ under current threshold
- › Strike retry count
- › Fade time
- › Lamp warming time
- › Lamp cooldown time
- › Data transmission setup
- › Alert priority setup

### ALARMS MONITORED:

- › Over/ under voltage detection
- › Over/ under current detection
- › Lamp or driver fault detection
- › Device failure

### ELECTRICAL CONNECTIONS:



### OPTIONAL ANTENNAS:

ANT-824



ANT-601

