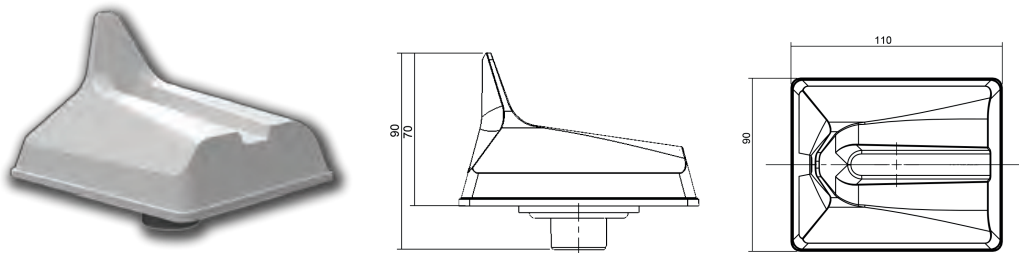


Chatfeed

Wireless Sensor
Network Management

CHATFEED LMU LIGHT MANAGEMENT UNIT



WIRELESS MESH NETWORK

The **Chatfeed network** architecture uses the **wireless sensor network (WSN)** technology, standardized at international level to manage thousands of distributed nodes, without the need for cabling.

The hardware module with radio on board that constitutes the primary node of the **Chatfeed network** will be identified as LMU (Light Management Unit).

It also acts as a signal repeater & may have various types of sensors on board such as metering, temperature, pressure, accelerometer, etc. The WSN provides a mode of operation ad hoc, in which the nodes comprising the **Chatfeed network** have continuous exchange of messages but can independently determine the best link to cooperate and communicate the data recorded at the control center.

Various nodes of the network cooperate with each other to transport and to make routing of the various transmissions in progress with multi-hop strategies. This means, if two nodes exchange data but are not able to achieve directly (because they are too far away or there is an obstacle that prevents the different transmission), they will use other intermediate nodes as communication link.

The philosophy behind this decentralized network topology is that there cannot be a single point of failure. If one node can no longer operate, the others can still communicate with each other, directly or through one or more intermediate nodes.

Each node of the network is embedded with a GPS receiver and an astronomic clock. This enables the node, when it is completely isolated (standalone) & the network is under maintenance, it will follow the profile that has been previously

programmed. Thus, the problem of day burners of luminaire powered off during the night can be resolved.

Specifications

- Operating voltage; 85 ~ 285 Vac @ 50/60Hz
- Idle consumption; < 0.5W
- Overvoltage, overload, & thermal protection
- Wireless mesh network 868/916 MHz
- Maximum radio transmission power: 20dBm
- Short-circuit and open-circuit protection
- Autonomous operation redundancy
- Antenna integrated
- Metering embedded
- GPS embedded; outdoor only
- Dimming interface; 1-10V
- IP66
- Analog input sensors availability; 3ADC 0-30V
- Temperature: Storage: -40° / +120°, Operating: -25° / +70°

CHATFEED Gateway

Data Control Unit



The Chatfeed Gateway monitors, controls & manages all connected LMUs. It functions as the gateway for the connected LMUs to the IT world.

Specifications

Designed to withstand the toughest environments, the WRAP-BOX outdoor enclosure is a small, light, yet very solid wireless outdoor enclosure.

The WRAP-BOX is rated IP67 providing complete protection against ingress of dust as well as protection against immersion in water.

- Die-Cast Aluminum, NEMA 67 rating
- 1, 2, 4 waterproof N-type Antenna options
- Waterproof, quick disconnect RJ-45 connector
- Pole-top and wall-mount mounting options

- Operating voltage; 85 ~ 285 Vac @ 50/60Hz
- Idle consumption; < 10W
- Overvoltage, overload, & thermal protection
- Wireless mesh network 868/916 MHz
- Maximum radio transmission power: 20dBm
- Autonomous operation redundancy
- Antenna integrated
- Temperature: Storage: -40° / +120°, Operating: -25° / +70°



System Features

Energy Savings

- Light dimming
- Control ON/OFF
- Autonomous programming slots (time on, time off) with defined dimming percentage
- Defining different weekly profiles
- Light off during maintenance

Operating Cost Optimization

- Optimization of maintenance activities
- Improvement of logistics operations
- Forecasting through end-of-life alerts
- Warehouse optimization and better management of vehicles
- Improvement in troubleshooting

Troubleshooting and Fault Reporting

- Luminaire burned out
- No input current
- Flickering luminaire
- Overvoltage or under voltage power Smart Lighting Programs
- Time slots defined on the profile of each luminaire or group of luminaires
- Sunset and sunrise time calculated automatically
- Input from external sensors

Measurements

- Supply voltage
- Active power
- Active energy
- Current consumption
- External analog sensors (temperature, humidity, etc.)

Wireless Mesh Network

- Auto mesh networking between LCUs
- Low latency communication with response <1 second, thousands of luminaires could be turned on in a few milliseconds
- Message priority (QOS), messages with high priority are delivered and goes through the network before others
- Same platform for street lighting-industrial-indoor

Plug and Play GPS Mapping

- LCUs embedded with GPS, automatic geolocation of each light point
- Real time clock on each LCU directly synchronized with GPS satellites
- Sunset and sunrise time is automatically calculated from the GPS coordinates directly in LCU
- Autonomous operation with weekly profile considering GPS coordinates and astronomical clock

Real Time Control, Metering and Alerts

- Real time control of each luminaire
- Dimming for exact consumption
- Real time measurements of consumption
- Real time alerts provide information on luminaire failure, tracking abnormal energy use
- Detailed working time counters

Installation Features

- Possibility to use a portable device to turn on/off/dim manually a certain area of nodes for diagnostics or installation purposes
- Factory default profile with autonomous weekly program
- External input sensors (3 ADC 0-30V dynamic range)

- Controlled auxiliary output (for advertisement displays)

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