GlobiLED
LED ΦΩΤΙΣΜΟΣ
We make light

Wireless Management Node

GlobiNode

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The Wireless Management Node of GlobiLED

The Wireless Management Node of GlobiLED, referred to as "GlobiNode" (GN), is an outdoor intelligent Gateway, with an integrated webserver, which serves as the connection gateway between the Light Management Software (LMS) and the LED Street Lights. It communicates in real time with the LMS and the Cloud via a 4G or 3G wireless interface (using dedicated APN and Private IP). It is controlled & upgraded remotely via LMS.

GlobiNode is able to communicate in real time with the intelligent LED Street Lights of GlobiLED with a IEEE 802.15.4 wireless radio link (ZigBee PRO profile). GlobiNode, configured as a ZigBee Coordinator, establishes and organizes a full mesh ZigBee network with the LED Street Lights (which are configured as Routers), that can be dynamically expanded. Due to the mesh capability of the ZigBee network, a GlobiNode may serve hundreds of LED Street Lights.

GlobiNode, via the Zigbee wireless interface, controls and monitors in real time the connected LED Street Lights via LMS and stores all their data (functional state, mode of operation, operating hours, energy consumption etc.) in a local database. The local database communicates the data with the Cloud Database and the LMS, which has the overview of all GlobiNodes of the LED Street Lights network. The control signals/commands transmitted to the LED Street Lights by the local controllers (GWCs).

When the Zigbee wireless interface is employed between the GlobiNode and the LED Street Lights, the user of the LMS may define a different mode of operation for individual LED Street Lights or groups of LED Street Lights. All the modes of operation, and the parameters of each mode can be defined, set and modified dynamically wirelessly by the operator of the LMS. The operator can select via LMS (tablet, desktop, smartphone) at least the following modes:

- Manual (real-time) On Mode : for individual LED Street Lights or groups of LED Street Lights via LMS
- Manual (real-time) Off Mode :for individual LED Street Lights or groups of LED Street Lights via LMS
- Photo-sensor mode (a photo-sensor can be located at the WMNs and the power lines switch on/off automatically with respect to a programmable threshold).
- Sunrise-sunset mode (i.e. switch on/off automatically at the sunrise/sunset time, respectively, on a daily basis).
- Fixed schedule mode. This (daily) schedule is comprised of up to 10 time-points and at each time-point the individual or group of LED Street Lights can be programmed to switch on or off automatically. The 10 time-points and the mode of operation at each time point (on or off) are dynamically configurable by the operator of the LMS.
- Dimming Mode : Manual (real-time) or scheduled dimming of individual or group of LED Street Lights in the prefered lighting level.
- Flash Mode : Real-time set of the LED Street Light in flashing mode, in order to indicate danger or alarm

GlobiNode stores the desired configuration and parameters and operates autonomously (using its Real Time Clock), without the need for direct, real-time 3G/4G connection with the LMS.

Cellular Network Wireless Interface

- 4G LTE (with fall-back to HSPA+) or 3G HSPA+ (with fall-back to GSM/GPRS/ EDGE)

Protocols of the Cellular Network Wireless Interface

- Network: TCP/IP, UDP/IP, DNS
- Routing: NAT, Host Port Routing, DHCP, PPPoE,VLAN, VRRP
- Application: SMS, Telnet/SSH, SMTP, SNMP, SNTP
- Security: IPsec, SSL, SSHv2, GRE VPN Client, Port Forwarding, HTTPS, IP and MAC Filtering, Private IP,I KE Encyption, AES 128

Wireless Interface for data exchange with the GlobiLED Wireless Controllers (GWCs)

- ZigBee technology (IEEE 802.15.4), capable for wireless mesh network topologies.
- Frequency band: 2.405-2.480Ghz (16 channels).
- Transmit-receive data rate: 250Kbps.
- Transmit power: 10mW (maximum transmit power 100mW/20 dBm)
- Integrated chip antenna or external antenna (with U.FL connector).
- Estimated range with external antenna, point to point communication: 4000 meters.
- Estimated range with external antenna, mess network >4000 meters.

GNSS (option)

- GPS supporting NMEA, TAIP and RAP

Other Interface (option)

- 10/100 Base-T RJ45 Ethernet
- USB

Embedded Sensors (option)

- Provision for one (1) photo-sensor (photodiode)
- Provision for connection with 2 extra sensors (analog or digital)

Enviromental

- Operating temperature: -30°C ~ +70°C
- Storage temperature: -40°C ~ +85°C
- Surge Protection: ≥1kV L-N and ≥2kV L,N - G
- Humidity: 10% ~ 95%
- Degree of protection: IP65
- Power consumption: 11 W
- Insulation Class: Class I
- UV protected
- Impact-resistant

Input characteristics

- Input voltage: 85 ~ 274 VAC or 120 ~ 370 VDC
- Input frequency: 47 ~440Hz
- Inrush current: 20A @ 110VAC and 40A @230VAC

Certificates

- ✓ (RED)Directive 2014/53/EU
- ✓ LVDirective 2014/35/EU
- ✓ EMC Directive 2014/30/EU
- ✓ RoHS Directive 2011/65/EU
- ✓ WEEE Directive 2012/19/EU
- ✓ EN 60950-1& EN 60590-22
- ✓ EN 55024 (EN 61000-4-2/3/4/5/6/8/11)
- ✓ EN 55032 & EN 55022
- ✓ EN 50385
- ✓ EN 61000-3-2
- ✓ EN 61000-3-3
- ✓ ETSI EN 301 489-1
- ✓ ETSI EN 301 489-3
- ✓ ETSI EN 301 489-7
- ✓ ETSI EN 301 489-17
- ✓ EN 61000-6-1
- ✓ EN 61000-6-3
- ✓ EN 61000-6-4
- ✓ EN 300 328

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