gridDOT-Radar

Data Sheet

Description

The gridDOT-Radar is an advanced Zhaga/SR module designed for adaptive streetlight fixture control. It monitors luminaires via the Zhaga/SR plug and communicates using the DALI/DALI-2 interface. With an integrated radar sensor, the module detects pedestrians, cyclists, and vehicles, enabling precise motion-based control. Unlike PIR sensors, radar technology ensures reliable detection in all temperatures and provides 360° coverage and requires no maintenance for dirt, smog or snow. The gridDOT series is developed for GridLight™, offering essential functionality for optimized and safe streetlight management, including adaptive dimming based on movement patterns and traffic density.

The module supports communication over LTE networks, allowing connectivity to the central GridLight™ server. It also features RF Low Energy and Wi-Fi for local configuration via smartphone and enables inter-fixture communication for coordinated, activity-based operation.

The gridDOT-Radar module collects and transmits data related to activity detection, fixture status, failures, and power consumption. Software updates can be applied remotely via the network or locally through a smartphone. Configuration settings are centrally managed through the GridLight™ server and stored on the module itself, allowing it to execute predefined dimming schedules and on/off control autonomously. Integrated GPS positioning ensures precise time synchronization for streetlight operation, even in cases where LTE connectivity is unavailable or the central server cannot be reached.

To ensure uniform streetlight control, the gridDOT-Radar module supports a centralized light sensor. The light level signal can be received from the GridLight™ server based on input from a gridCPU or AmsCPU(-IO) module with an integrated light sensor, providing consistent and efficient lighting management.

Functionality

Topic	Comments
Alarms	statusOfControlGear (OK or one or more underlaying errors) lampFailure (Lamp should be on by fault) lampArcPowerOn (Lamp on) limitError (Expected dimming level not supported) fadeRunning (Fading program) powerFailure (DALI bus power failure) LTE network failures Radar failures WiFi failures RF Low Energy failures
Communication	LTE (various options). Wifi. RF Low Energy. DALI/DALI2/D4i
Time-sync	The gridDOT-LTE module has a calendar and uses positioning services (GNSS) for time syncronization. GNSS precision is typically <0.1 sec.
Lamp schedules	Fully compatible with GridLight Advanced Programming Schedules: * Twilight calculation from longitude/lattitude - with user defined offset * Multiple dimming levels and dimming hours * Multiple on/off/dimmed fixed schedules for events, ie. earth hour * Central light sensor activation through LTE * Traffic based dynamic dimming * Adaptive lighting capabilities based on input from radar sensing * Automatic on after power outage (especially for cabinet control)

Technical Specifications

Operational specifications

Storage temp.	-40°C to +85°C
Operating temp.	-30°C to +85°C
IP grade	IP67
Input voltage	24V DC (through Zhaga)
Power consumption	Typical < 0,8 W

Standards

Zhaga book 18 | SR (System ready)

2004/108/EC, EMC Directive

2002/95/EC, RoHS Directive

IEC 60598-1

RoHS CE 0682

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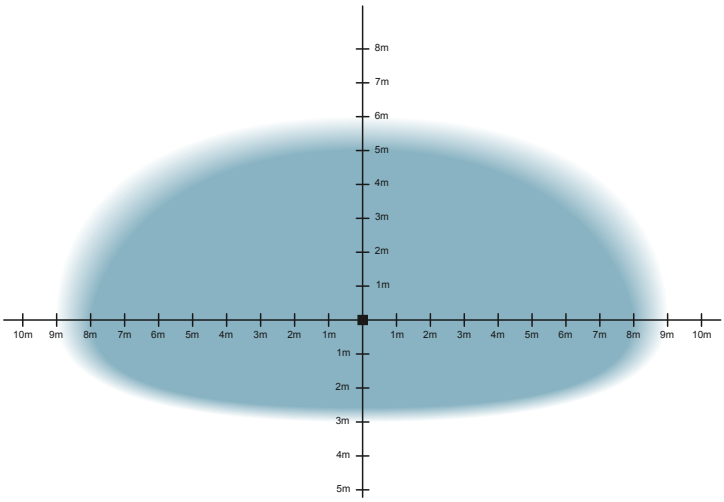
Radar Detection Area



Mounting height: 5m (based on default settings)

Physical Specifications

Weight	65 g
Diameter	80 mm
Height	40 mm
Top part	Polycarbonate (Customer specific colors on request)
Base part	PBT
Coating	Conformal coated
Mounting	Zhaga book 18 / SR

Radar Specifications

Decsription	Radar-based motion detection of pedestrians, bikes and vehicles
Speed range	Moving objects from 1 to 65 km/h
Detection area	Elliptical detection area below the sensor
Mounting height	Recommended luminaire height: 4 to 8 m
DALI Device Type	Occupancy Sensor (Input Device) acc. to DALI Part 303 Device Type B acc. to DALI Part 351

Connections

I/0	Comments
Zhaga book 18/SR	Open standard connector used by all leading LED manufacturer for outdoor streetlighting
GNSS	Location networks GPS, GLONASS, BeiDou, Galileo and QZSS supported. Used for time syncronization when communication is out to ensure precise light schedule programs even when communication is down.
WiFi	IEEE802.11b, 802.11g, 802.11n
RF	RF Low Energy
Power supply	24VDC - as specified in the Zhaga book 18 standard.
DALI	DALI master. Supports SR/DALI/DALI 2/D4i through the Zhaga (Book 18) socket. Supports up to 4 DALI slaves.
SIM	4FF Nano SIM card, 1,8V - SIM socket option, not included in all variants. Contact Amplex for details.
eSIM	MFF (MFF1 and MFF2) standard sized eSIM can be mounted directly on PCB during production. Contact Amplex for details.
LTE communication	**Cat NB2+Cat M1**: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B71/B85 **EGPRS(2G fallback)**: 850/900/1800/1900 MHz
Radar	Radar sensor, 24 GHz

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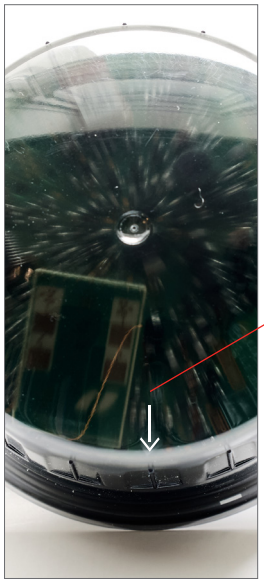
Reliability & Maintainability

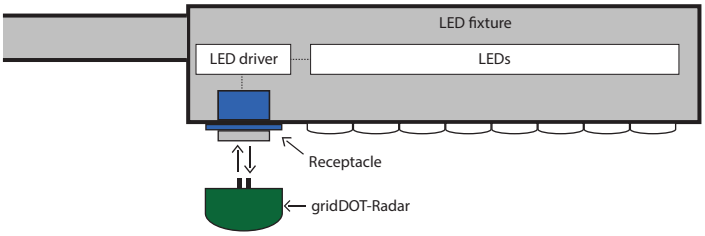
Topic	Comments
Software upgrade	The software on the gridDOT module can be updated remotely from GridLight Field Tool app using RF Low Energy/WiFi. Remote software updates through LTE network.
Multi-layer system health	Various internal processes ensure that the system is up and running at all times. In case a process is stalled, it is restarted without disturbing other processes.
Configuration and programs	New configuration and program schedules are transferred without interrupting the normal functionality of the gridDOT module. When the software has been transferred, the integrity of the configurations is checked and then reconfigured.
Self-test	A built-in self-test (BIST) is performed after power-up.

Installation Guide

The gridDOT module can be connected to any GridLight™ v7.5+ server through the LTE mobile network. The module should be compatible with any Zhaga book 18 socket (SR socket). Using the GridLight Field Tool™ app for iPhone and Android, the gridDOT is easily configured and added to the server.



When the Zhaga sensor has been locked in place, the white arrow must point towards the street.



Zhaga book 18 defines a standardized interface between an outdoor LED luminaire and a sensing/communication module that sits on the outside of the luminaire. The module connects to the LED driver and control system, and typically can provide sensory inputs while also communicating with the LTE mobile network. Because of the radar the sensing/communication module must point downwards.

Ordering Information

Product	Order number
gridDOT-Radar (NB-IoT+LTE-M1, 2G fallback)	150-30-040

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All specifications are subject to changes