

## FRE-24-Zhaga-NB1-M1 - NB-IoT, LTE-M compatible, luminaire controller

Plug-and-play upgrade for lamps compatible with Zhaga socket (book 18) with full lamp management and feedback functionality.

- › ZHAGA socket (book18).
- › Can control additional independent devices via DALI relay.
- › Enables individual remote management, ON / OFF / Dimming of streetlight lamps with DALI 2 / DiIa / Osram DEXAL / Philips SR control gear.
- › Specially designed and optimized for LTE networks.
- › Autonomous operation based on predefined schedules, light level sensor and adaptive lighting.
- › Adaptive lighting capabilities based on DALI digital input for motion sensing.
- › Bandwidth efficient with minimal communication requirements.
- › Secure communication based on encryption keys.
- › Electrical parameters monitoring (measured by DALI2 control gear): V, W, A, Wh, PF, frequency.
- › Advanced data synchronization and notification mechanism.
- › Internal precision Real time clock (RTC) with backup battery.
- › Infrared interface for local configuration.
- › Integrated light level sensor.
- › Over The Air (OTA) firmware update.
- › Designed lifetime: 10+ years.
- › TALQv2 certified solution.

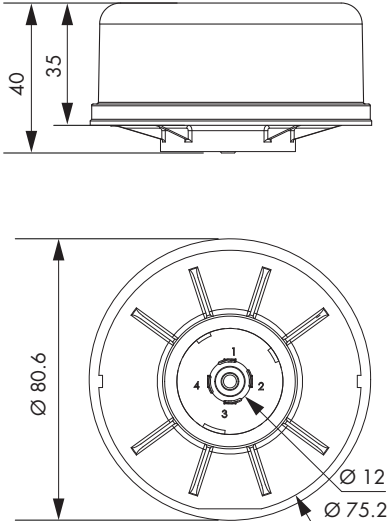




## FRE-24-Zhaga-NB1-M1

Lamp Type	LED, CF, HID with DALI 2 / DiiA / D4i / Osram DEXAL / Philips SR control gear
Maximum lamp power	Depending on the lamp control gear
Additional controlled devices	Yes, independent controlled via DALI relay
Functions / Operation mode	ON / OFF / Dimming
Dimming range	1%-100% (linear or logarithmic depending on control gear settings)
Control interface	DALI 2/ DiiA (IEC 62386)/ D4i/ Philips SR
Power supply	24 VDC (min 21.6 VDC - max 30 VDC)
External interface	infrared
Network interface	NB-IoT / LTE-M
LTE supported frequencies	worldwide
Internet protocol version	IPv4/IPv6
Inter-node mesh communication	Optionally available, with motion sensor add-on
Last gasp	Optional
Firmware update	IR (infrared) / OTA (over the air)
GNSS	Optional- Geolocation and precision time (GPS, GLONASS)
Security	Encrypted communication based on security keys (AES128-bit) provided by DALI 2 control gear
Surge protection	128 events (daily / weekdays / weekends / fixed date / exceptions)
Internal scheduling memory	Depending on control gear specifications
Measurement accuracy	0.5W/ 24V
Average power consumption	5W/ 24V peak power according to DiiA
Maximum power consumption	Yes, battery operated
Precision Real Time Clock (RTC)	10 years +
Battery operation time	Yes
Real-time lamp operation	1x dry contact (for PIR sensor, photocell sensor, open door sensor etc.)
Digital input	Festive lighting or another occasional consumer (if it is a Dali Bus device)
Output	Optional (configurable threshold for tilt & roll)
Tilt sensor	Integrated. Configurable threshold.
Light sensor	IP66 (IEC 60529)
Ingress protection	IK09 (IEC 62262)
Impact protection	-25°C to +70°C
Operating temperature range	80 ± 5 g
Weight	80 x 40 mm
Dimensions (diameter x height)	Zhaga (book 18)
Mounting	• RED Directive: LVD Directive & protection of health (EN IEC 62368-1, EN IEC 62479), EMC Directive (ETSI EN 301 489-1, ETSI EN 301 489-52), Efficient use of radio spectrum (ETSI EN 301 908-1, ETSI EN 301 908-13, ETSI EN 303 413) • RoHS Directive • Environmental Testing: EN 60068-2-1, EN 60068-2-2 CE, SR Signify
Compliant standards	
Certifications	

### DIMENSIONS (mm):



### CERTIFICATIONS:



### MEASURED PARAMETERS:

(depending on the lamp control gear)

- › Lamp power
- › Line voltage
- › Current
- › Active power
- › Reactive power
- › Apparent power
- › Power factor
- › Frequency
- › Control gear temperature
- › Energy consumption (active/ reactive)
- › Lamp / controller- running hours counter
- › Lamp On / Off cycles counter
- › Dimming level at the moment of interrogation (optional). It needs to be specified before product shipping.

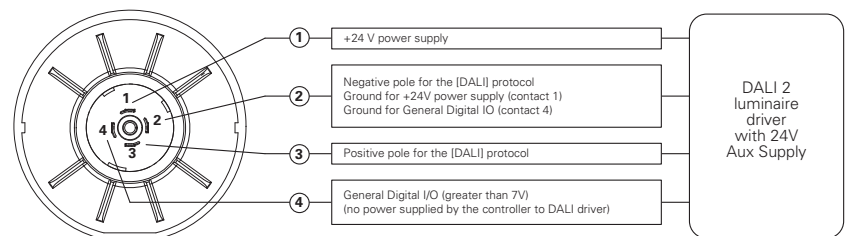
### CONFIGURABLE PARAMETERS:

- › Astronomical calendar scheduler
- › Predefined scheduler
- › Start state ( Photocell / Schedule / Manual)
- › Over/ under voltage threshold
- › Over/ under current threshold
- › Fade time
- › Lamp warming time
- › Lamp cooldown time
- › Light level threshold
- › Data transmission setup
- › Alert priority setup
- › Use of necessary light flux (Adjustable Lighting Output)- Only ON/OFF based on photocell value
- › Maintaining of constant light flux (Constant Lumen Output)- depending on the control gear

### ALARMS MONITORED:

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

### ELECTRICAL CONNECTIONS:



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