



# **UL2033**

# LoRaWAN® Zhaga® 18 Luminaire Controller **3rd GENERATION**

The Zhaga® 18 Luminaire Controller is a wireless remote control device designed for LED luminaires equipped with the Zhaga book 18 compliant connector. The device is easily installed through plug-and-play, making it an excellent fit for various street lighting modules. It can be used for outdoor installations and is suitable for use with existing lighting infrastructure and third-party solutions. The controller communicates control commands to and from a dedicated application through a LoRaWAN® network, as well as NB-IoT and LTE-M networks\*. The controller uses the DALI or DALI-2 interface to control the luminaire. Its modern and compact design is ideal for slim LED fixtures.

\*different product series













#### **Product Features**

- Control up to 8 DALI drivers independently
- D4i Energy registers reported for each driver
- External D4i Control devices\*
- Astronomical calendar based profiles
- Time based profiles
- Real time clock to keep time after power loss
- Automatic device time synchronisation
- Light intensity sensor

- LSI input for e.g. motion sensor
- Remote control and configuration
- Multicast control and configuration
- Configuration app LumaLink™ (iOS & Android)

#### **Measured parameters**

- Lamp / controller power\*
- Lamp / controller energy\*
- Line voltage\*
- Power factor\*
- Control gear temperature
- Energy consumption
- Lamp\* / controller operating hours

#### **Monitored parameters**

- Lamp fault
- Control gear faults

<sup>\*</sup>For each driver separately, as reported via D4i

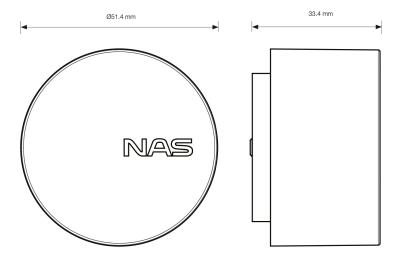


### **Technical Data**

Supply         24 VDC (min 21.6 VDC- max 26 VDC)           Peak power consumption         1W 8 24V           Surge protection         provided by DALI 2 control gear           Communication         LoRaWAN 1.1 Class C           RF Frequency         868MHz / 915MHz / 923MHz           Rk Sanshittly         -137 dBm 8 125Mtz BW SF12           Tx power         up to +22 dBm (depending on region)           Network security         Encrypted communication based on security keys (AES128-bit)           Firmware update         OTA (2.4 GHz)           Interfaces         Encrypted communication based on security keys (AES128-bit)           Interfaces         Up to +22 dBm (depending on region)           DALI PSU         Internal, auto-detects external supply           Logical Signal Input (LS)         Contiforus be all ballasts.           DALI PSU         Internal, auto-detects external supply           Logical Signal Input (LS)         Configurable elert, dim levels           Light sensor         Integrated. Configurable threshold.           Lamp Control         Logical Signal Input (LS)           Control interface         0%-100% (linear or logarithmic depending on control gear settings)           Control interface         DALI-2 / Dila (lEC 62386) / Dali / Philips SR           Metering         V. W. Wh, and PF, lamp-on time </th <th></th> <th></th>							
Peak power consumption IW @ 24V  Surge protection provided by DALI 2 control gear  Communication  Network interface LoPaWAN 1.1 Class C  RF Frequency 988MHz / 915MHz / 923MHz  Tx power 915 established by 924 (Appending on region)  Network security 101 care 101 car	Supply						
Surge protection provided by DALI 2 control gear  Communication  Network interface LoRaWAN 1.1 Class C  RF Frequency 888MHz / 915MHz / 923MHz Rx Sensitivity -137 dBm of 125MHz BW SF12 Tx power up to +22 dBm (depending on region)  Network security Encrypted communication based on security keys (AES128-bit)  Firmware update OTA (2.4 GHz)  Firmware update Ontrol Device Ocntrols up to 8 DALI ballasts.  DALI PSU Internal. auto-detects external supply  Logical Signal Input (LSI) Configurable alert, dim levels  Light sensor Interface Offigurable threshold.  Lamp Control  Thermal update Offigurable threshold.  Lamp Control interface DALI-2 / DIA (IEC 62386) / DAI / Philips SR  Metering  Defining range Official Control gear settings)  Ontrol interface DALI-2 / DIA (IEC 62386) / DAI / Philips SR  Metering  Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Ves, supercap backup  Environmental  Ingress protection IP66 (IEC 60589)  Impact protection ABS  Domensions S1.4 mm x 33.4 mm  Body material ABS  Compliance  Standards  EN 81347-2  EN 81347-2  EN 82388  EN 801489  EN 802388  EN 801499  EN 80249  EN 802498  EN 802499  EN 802588	Power supply	24 VDC (min 21.6 VDC- max 26 VDC)					
Communication           Network interface         LoRaWAN 1.1 Class C           RF Frequency         888MHz / 915MHz / 923MHz           RS Sensitivity         +137 dBm or 125MHz BW SF12           Tx power         up to +22 dBm (depending on region)           Network security         Encrypted communication based on security keys (AES128-bit)           Firmware update         OTA (2.4 GHz)           Interfaces           DALI Control Device           DALI PSU         Internal, auto-detects external supply           Logical Signal Input (LSI)         Configurable alert, dim levels           Light sensor         Integrated. Configurable threshold.           Lamp Control         DEMINIOR (linear or logarithmic depending on control gear settings)           Control interface         D84-12 / DIA (IEC 62386) / D41 / Philips SR           Metering         V.W. Wh. and PF, lamp-on time           Measurement accuracy         Depending on DALI control gear specifications           Timing           Pala Time Clock (RTC)         Yes, supercap backup           Environmental           Impact protection         IP66 (IEC 60529)           Impact protection         IP66 (IEC 60529)           Impact protection         ABS	Peak power consumption	1W @ 24V					
Network interface LoRaWAN 1.1 Class C RF Frequency B68MHz / 915MHz / 923MHz Rx Sensitivity -137 dBm @ 125kHz BW SF12 Tx power up to +22 dBm (depending on region) Network security Encrypted communication based on security keys (AES128-bit) Firmware update Traces  DALI Control Device Controls up to 8 DALI balliasts. DALI PSU Interface DALI PSU Internal, auto-detects external supply Logical Signal Input (LSI) Logical Signal I	Surge protection	provided by DALI 2 control gear					
RF Frequency Rx Sensitivity -137 dBm @ 125kHz BW SF12 Tx power up to +22 dBm (depending on region) Network security Encrypted communication based on security keys (AES128-bit) Firmware update OTA (2.4 GHz) Interfaces  DALI PSU Internal, auto-detects external supply Logical Signal Input (LSI) Configurable alert, dim levels Light sensor Integrated. Configurable threshold. Lamp Control Lamp Control  Daming range O%-100% (linear or logarithmic depending on control gear settings) Control interface DALI -2 Dink (IEC 62386) / D4I / Philips SR  Metering  Wetering  D4I reported parameters V, W, Wh, and PF, lamp-on time Measurement accuracy Depending on DALI control gear specifications  Timing Real Time Clock (RTC) Yes, supercap backup  Environmental Ingress protection IR09 (IEC 62262) Operating temperature -20°C+60°C  Mechanical  Weight 40g Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  EN 81347-1 EN 81347-2-11 EN 813	Communication						
Rx Sensitivity -137 dBm @ 125kHz BW SF12 Tx power up to +22 dBm (depending on region) Network security Encrypted communication based on security keys (AES128-bit) Firmware update OTA (2.4 GHz) Firmware update OTA (2.4 GHz)  Interfaces  DALI Control Device Controls up to 8 DALI ballasts.  DALI PSU Internal, auto-detects external supply Logical Signal Input (LSI) Configurable alert, dim levels Light sensor Integrated. Configurable threshold.  Lamp Control  Dimming range O%-100% (linear or logarithmic depending on control gear settings) Control interface DALI-2 / DiiA (IEC 62386) / D4i / Phillips SR  Metering  Wetering  V, W, Wh, and PF, lamp-on time Measurement accuracy Depending on DALI control gear specifications  Timing  Feat Time Clock (RTC) Yes, supercap backup  Environmental Ingress protection IP66 (IEC 60529) Impact protection IR98 (IEC 62262) Operating temperature -20°C +60°C  Mechanical  Weight 40g Dimensions 51.4 mm x 33.4 mm Body material ABS  Compliance  Standards  EN 61347-1 EN 61347-2-11 EN 61	Network interface	LoRaWAN 1.1 Class C					
Network security Encrypted communication based on security keys (AES128-bit)  Firmware update OTA (2.4 GHz)  Interfaces  DALI Control Device Controls up to 8 DALI ballasts.  DALI PSU Internal, auto-detects external supply  Logical Signal Input (LSI) Configurable alert, dim levels  Light sensor Integrated. Configurable threshold.  Lamp Control  Dimming range 0%-100% (linear or logarithmic depending on control gear settings)  Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering  D4i reported parameters V, W, Wh, and PF, lamp-on time  Measurement accuracy Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Yes, supercap backup  Environmental  Ingress protection IR66 (IEC 60529)  Impact protection IR69 (IEC 62262)  Operating temperature -20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards  EN 61347-2 - 11 EN 630220  EN 62479 EN 60581	RF Frequency	868MHz / 915MHz / 923MHz					
Network security Encrypted communication based on security keys (AES128-bit) Firmware update OTA (2.4 GHz) Interfaces  DALI Control Device Controls up to 8 DALI ballasts.  DALI PSU Internal, auto-detects external supply Logical Signal Input (LSI) Configurable alert, dim levels Light sensor Integrated. Configurable threshold.  Lamp Control  Dimming range O96-100% (linear or logarithmic depending on control gear settings) Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering  D4i reported parameters V, W, Wh, and PF, lamp-on time Measurement accuracy Depending on DALI control gear specifications  Timing  Environmental Ingress protection IR66 (IEC 60529) Impact protection IR69 (IEC 62262) Operating temperature -20°C +60°C  Mechanical  Weight 40g Dimensions 51.4 mm x 33.4 mm Body material ABS  Compliance  Standards  En 61347-1 EN 61347-2-11 EN 800220 EN 62489 EN 301449 EN 62489 EN 901449 EN 65581	Rx Sensitivity	-137 dBm @ 125kHz BW SF12					
Firmware update OTA (2.4 GHz)  Interfaces  DALI Control Device Controls up to 8 DALI ballasts.  DALI PSU Internal, auto-detects external supply  Logical Signal Input (LSI) Configurable alert, dim levels  Light sensor Integrated. Configurable threshold.  Lamp Control  Dimming range O%-100% (linear or logarithmic depending on control gear settings)  Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering  D4i reported parameters V, W, Wh, and PF, lamp-on time  Measurement accuracy Depending on DALI control gear specifications  Timing  Fend Time Clock (RTC) Yes, supercap backup  Environmental  Ingress protection IR66 (IEC 60529)  Impact protection IR69 (IEC 62262)  Operating temperature -20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards En 81347-1  EN 803220  EN 81349  EN 81499  EN 80581	Tx power	up to +22 dBm (depending on region)					
Interfaces   DALI Control Device   Controls up to 8 DALI ballasts.	Network security	Encrypted communication based on security keys (AES128-bit)					
DALI Control Device Controls up to 8 DALI ballasts.  DALI PSU Internal, auto-detects external supply  Logical Signal Input (LSI) Configurable alert, dim levels  Light sensor Integrated. Configurable threshold.  Lamp Control  Dimming range 0%-100% (linear or logarithmic depending on control gear settings)  Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering  D4i reported parameters V, W, Wh, and PF, lamp-on time  Measurement accuracy Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Yes, supercap backup  Environmental  Ingress protection IR66 (IEC 60529)  Impact protection IR69 (IEC 62262)  Operating temperature 2-20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards IR 61347-1 EN 61347-2-11 EN 61347-2-11 EN 61347-2-11 EN 61347-9 EN 65681	Firmware update	OTA (2.4 GHz)					
DALI PSU Internal, auto-detects external supply  Logical Signal Input (LSI) Configurable alert, dim levels  Light sensor Integrated. Configurable threshold.  Lamp Control  Dimming range 0%-100% (linear or logarithmic depending on control gear settings)  Control interface DALI-2 / DiiA (IEC 62386) / D4i / Phillips SR  Metering  Metering  D4i reported parameters V, W, Wh, and PF, lamp-on time  Measurement accuracy Depending on DALI control gear specifications  Timing  Environmental  Ingress protection P66 (IEC 60529)  Impact protection IK09 (IEC 62262)  Operating temperature -20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards En 61347-1 En 61347-2-11 En 61347-1 En 61347-2-11 En 61347-1 En 61	Interfaces						
Legical Signal Input (LSI)  Light sensor  Integrated. Configurable alert, dim levels  Light sensor  Note of the protection of the protecti	DALI Control Device	Controls up to 8 DALI ballasts.					
Light sensor Integrated. Configurable threshold.  Lamp Control  Dimming range 0%-100% (linear or logarithmic depending on control gear settings) Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering  D4i reported parameters V, W, Wh, and PF, lamp-on time Measurement accuracy Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Yes, supercap backup  Environmental  Ingress protection IP66 (IEC 60529) Impact protection IK09 (IEC 62262) Operating temperature -20°C +60°C  Mechanical  Weight 40g Dimensions 51.4 mm x 33.4 mm Body material ABS  Compliance  Standards EN 61347-1 EN 61347-2 EN 61347-2 EN 61347-2 EN 61347-2 EN 61348-2 EN 62368 EN 80301489 EN 62479 EN 50581	DALI PSU	Internal, auto-detects external supply					
Dimming range 0%-100% (linear or logarithmic depending on control gear settings) Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering D4i reported parameters V, W, Wh, and PF, lamp-on time Measurement accuracy Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Yes, supercap backup  Environmental Ingress protection IP66 (IEC 60529) Impact protection IK09 (IEC 62262) Operating temperature -20°C +60°C  Mechanical  Weight 40g Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards  EN 61347-1 EN 61347-2-11 EN 61347-9 EN 62479 EN 50581	Logical Signal Input (LSI)	Configurable alert, dim levels					
Dimming range 0%-100% (linear or logarithmic depending on control gear settings)  Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering  D4i reported parameters V, W, Wh, and PF, lamp-on time  Measurement accuracy Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Yes, supercap backup  Environmental  Ingress protection IP66 (IEC 60529)  Impact protection IK09 (IEC 62262)  Operating temperature -20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards EN 61347-1 EN 61347-2-11 EN 6130220 EN 62368 EN 301489 EN 62479 EN 50561	Light sensor	Integrated. Configurable threshold.					
Control interface DALI-2 / DiiA (IEC 62386) / D4i / Philips SR  Metering  D4i reported parameters V. W. Wh, and PF, lamp-on time  Measurement accuracy Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Yes, supercap backup  Environmental  Ingress protection IP66 (IEC 60529)  Impact protection IK09 (IEC 62262)  Operating temperature -20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards EN 61347-1 EN 63042-20 EN 62368 EN 3101489 EN 62368 EN 3101489 EN 62479 EN 50581	Lamp Control						
Metering  D4i reported parameters  V, W, Wh, and PF, lamp-on time  Measurement accuracy  Depending on DALI control gear specifications  Timing  Real Time Clock (RTC)  Yes, supercap backup  Environmental  Ingress protection  IR09 (IEC 60529)  Impact protection  IK09 (IEC 62262)  Operating temperature  -20°C +60°C  Mechanical  Weight  40g  Dimensions  51.4 mm x 33.4 mm  Body material  ABS  Compliance  Standards  EN 61347-1 EN 61347-2-11 EN 630220 EN 62368 EN 301489 EN 62479 EN 50581	Dimming range	0%-100% (linear or logarithmic depending on control gear settings)					
D4i reported parameters V, W, Wh, and PF, lamp-on time  Measurement accuracy Depending on DALI control gear specifications  Timing  Real Time Clock (RTC) Yes, supercap backup  Environmental  Ingress protection IP66 (IEC 60529)  Impact protection IK09 (IEC 62262)  Operating temperature -20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards EN 61347-1 EN 61347-2-11 EN 61347-2-11 EN 61347-2-11 EN 62368 EN 301489 EN 62479 EN 50581	Control interface	DALI-2 / DiiA (IEC 62386) / D4i / Philips SR					
Measurement accuracy  Depending on DALI control gear specifications  Timing  Real Time Clock (RTC)  Yes, supercap backup  Environmental  Ingress protection  IR09 (IEC 60529)  Impact protection  IK09 (IEC 62262)  Operating temperature  -20°C +60°C  Mechanical  Weight  40g  Dimensions  51.4 mm x 33.4 mm  Body material  ABS  Compliance  Standards  EN 61347-1 EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Metering						
Timing           Real Time Clock (RTC)         Yes, supercap backup           Environmental         Ingress protection         IP66 (IEC 60529)           Impact protection         IK09 (IEC 62262)           Operating temperature         -20°C +60°C           Mechanical         Weight         40g           Dimensions         51.4 mm x 33.4 mm           Body material         ABS           Compliance         EN 61347-1 EN 61347-2-11 EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	D4i reported parameters	V, W, Wh, and PF, lamp-on time					
Real Time Clock (RTC)  Fenvironmental  Ingress protection  Ingress protection  Inpact protection  Iko9 (IEC 60529)  Impact protection  Operating temperature  -20°C +60°C  Mechanical  Weight  40g  Dimensions  51.4 mm x 33.4 mm  Body material  ABS  Compliance  Standards  EN 61347-1 EN 61347-1 EN 61347-2-11 EN 61347-2-11 EN 61347-2-11 EN 61347-2-11 EN 61347-2-11 EN 61347-2-11 EN 62368 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Measurement accuracy	Depending on DALI control gear specifications					
Environmental           Ingress protection         IP66 (IEC 60529)           Impact protection         IK09 (IEC 62262)           Operating temperature         -20°C +60°C           Mechanical           Weight         40g           Dimensions         51.4 mm x 33.4 mm           Body material         ABS           Compliance           Standards         EN 61347-1 EN 61347-2-11 EN 61347-2-11 EN 630220 EN 62368 EN 301489 EN 62368 EN 301489 EN 62479 EN 50581	Timing						
Ingress protection IP66 (IEC 60529)  Impact protection IK09 (IEC 62626)  Operating temperature -20°C +60°C  Mechanical  Weight 40g  Dimensions 51.4 mm x 33.4 mm  Body material ABS  Compliance  Standards EN 61347-1 EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Real Time Clock (RTC)	Yes, supercap backup					
Impact protection   IK09 (IEC 62262)	Environmental						
Operating temperature         -20°C +60°C           Mechanical         40g           Dimensions         51.4 mm x 33.4 mm           Body material         ABS           Compliance         EN 61347-1 EN 61347-2-11 EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Ingress protection	IP66 (IEC 60529)					
Mechanical           Weight         40g           Dimensions         51.4 mm x 33.4 mm           Body material         ABS           Compliance           Standards         EN 61347-1 EN 61347-2-11 EN 300220 EN 62368 EN 3001489 EN 62479 EN 50581	Impact protection	IK09 (IEC 62262)					
Weight       40g         Dimensions       51.4 mm x 33.4 mm         Body material       ABS         Compliance         Standards       EN 61347-1 EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Operating temperature	-20°C +60°C					
Dimensions   51.4 mm x 33.4 mm	Mechanical						
Body material   ABS	Weight	40g					
Compliance  EN 61347-1 EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Dimensions	51.4 mm x 33.4 mm					
Standards  EN 61347-1 EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Body material	ABS					
EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479 EN 50581	Compliance						
Certifications CE, SR Signify	Standards	EN 61347-2-11 EN 300220 EN 62368 EN 301489 EN 62479					
	Certifications	CE, SR Signify					

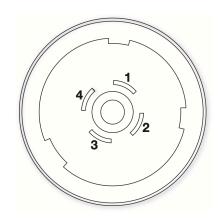


# **Mechanical Dimensions**



# Wiring Guide

1	+24V Auxiliary power supply
2	DALI - / Ground for +24V
3	DALI +
4	LSI





# **Ordering Info**

	Order code	UL2033	Α	#	Xv	#	0036	EU
LoRaWAN Region	n / SKU region							
EU			Α					EU
AU			В					AU
US			С					US
AS			D					AS
IN			ı					IN
Options								
Legacy FW 1.0.x					Χv			
Packing Quantity	1							
Sample							SS01	
Single packaging							0001	
Multipack 36pcs							0036	
Multipack 60pcs							0060	