



OL-Z1D603D1-NBGTF-1 Zhaga Light Controller

User Manual

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ORing Industrial Networking Corp.



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1 OVERVIEW

1.1 Information on this Manual

This manual describes the procedure for operating of the following Zhaga Windows Utility tool

1.2 Product Description

OL-Z-NB series is smart lighting series managed wireless controllers are designed for Smart Streetlight applications. Thanks to cellular-based, licensed-band LPWA communication technologies, they can use the advantages to operate securely and stable in large group being at the same time economic and energy saving.

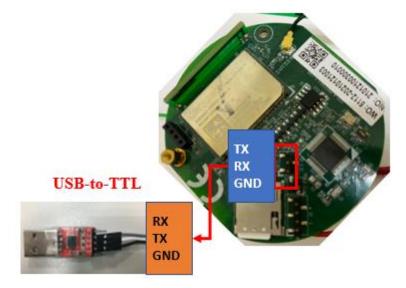
It compliant with the Zhaga Book 18 guidelines. It incorporates the multifunctional control unit which implements the DALI2 protocol to communicate with the smart driver. It can read the electrical parameters from the street lamp.



2 OPERATION

2.1 How to Start

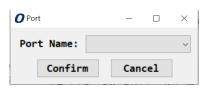
i. Plug in the USB-to-TTL Console to turn the device.



ii. Connect to your PC and use GUI tool to set up

ZHAGA GUI Tool ver.1.9.01

iii. Choose COM Port



iv. Click the COM PORT CONNENT to connecting





2.2 Network setting

i. MQTT Configuration setup.

O ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1	.9.01		- 🗆 X
ORING COM PORT DEVICE STATUS	DEVICE MODEM DEFAULT OTA	COM PORT: CLOSE VICE STATE: UNKNOWN	BASE STATION: DISCONNECT MQTT BROKER: DISCONNECT
Network WLAN System Lamp Report			step
MQTT Configuration Edit	Apply MQTT URL:	Refresh Infor	console [Startup] ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01
MQTT Port:	MQTT Port:		
Client ID:	Username:		
Username:	Password:		
Password:			
Clean session:	Clean session: 0 🗸		
Keep Alive:	Keep Alive:		
	☑ Keep Alive Enat	ble v	

Setting	Description	
MQTT URL	Enter the MQTT Server IP address for receiving the message.	
MQTT Port Enter the MQTT Server port number for receiving the message.		
Client ID	Enter the Client ID.	
Username Enter the username for connecting MQTT Server.		
Password	Enter the password for connecting MQTT Server.	
Clean session	Continuous MQTT session (Follow the ORing streetlight controller	
	MQTT API document)	
Keep Alive	When MQTT Server does not receive the message from the specified time, it	
	will be identified as disconnected. Note: When running simulation, the message	
	may be delayed, but the delay will not exceed the [Keep alive].	
Apply	Apply MQTT information into device	



ii. OTA Configuration setup.

O ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01			– 🗆 X
	VICE MODEM DEFAULT OTA START RESTART CONFIG TRIGGER	COM PORT: CLOSE DEVICE STATE: UNKNOWN	BASE STATION: DISCONNECT MQTT BROKER: DISCONNECT
Network ULAN System Lamp Report		^	step
OTA Configuration Edit OTA URL:	Apply OTA URL:		console [Startup] ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01
Client ID: Username: Password:	Username:		

Setting	Description
OTA URL	Enter the OTA Server IP address for Firmware Over-The-Air
Client ID	Enter the Client ID.
Username	Enter the username for Firmware Over-The-Air
Password	Enter the password for Firmware Over-The-Air
Apply	Apply OTA information into device



2.3 WLAN setting

O ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1	.9.01	- 🗆 X
ORing COM PORT DEVICE STATUS		COM PORT: CLOSE BASE STATION: DISCONNECT DEVICE STATE: UNKNOWN MQTT BROKER: DISCONNECT
Network WLAN System Lamp Report		step
WLAN Configuration Cancel APN: RAT: ALL RAT Sequece: AUTO	Apply APN: RAT: ALL RAT Sequece: AUTO	Refresh Infor console [Startup] ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01
Band GSM: Band M1: Band	select all select	r all clear all z B1 2100MHz z B3 1800MHz z B3 1800MHz z B4 1700MHz B5 850MHz B12 700MHz z B13 700MHz z B13 700MHz z B13 700MHz z B18 8500MHz

Setting	Description
APN	Enter APN
RAT	Select radio access technologies
RAT Sequence	Setup radio access technologies priority
Band GSM	Select the GSM Band
Band M1	Select the M1 Band
Band NB	Select the NB Band
Apply	Apply WLAN information into device



2.4 System setting

Follow the ORing streetlight controller MQTT API document

i. System configuration

ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01			- 🗆 X
	DEM DEFAULT OTA TRIGGER	COM PORT: CLOSE DEVICE STATE: UNKNOWN	BASE STATION: DISCONNECT MQTT BROKER: DISCONNECT
Network WLAN System Lamp Report			step
System Configuration		· · · · · · · · · · · · · · · · · · ·	
Cancel	Apply		console
Cyclic Report (CL):	Cyclic Report (CL):		[Startup] ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01
session:	session: 0	~	
NW delay:	NW delay: 0	~	
Shutdown Time Shift:	Shutdown Time Shift:		
Shutdown Time [UTC]:	Shutdown Time [UTC]: 00	ð ~ 00 ~	
		showdown disable	
			v _

Setting	Description
Cyclic Report(CL)	Setup device report time. Default 60 minutes
Session	Select session
NW delay	Use IMEI last number multiply nwdelay configuration to avoid lot
	of concurrent MQTT and SIM card log-in.
Shutdown Time shift	Time offset from sunrise at the specified location and date to
	perform software shutdown.
Shutdown Time[UTC]	Select Shutdown Time
Apply	Apply System information into device



ii. Alarm configuration

O ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.0	и	– 🗆 ×
	DEVICE MODEM DEFAULT OTA COM PORT: CLOSE	BASE STATION: DISCONNECT
CONNECT STATUS Network WLAN System Lamp Report Alarm Configuration Cancel Alarm Cyclic Report:		MQTT BROKER: DISCONNECT step console [Startup] ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01
Light Current [A]:~ Tilt Range [degree]:~ Roll Range [degree]:~	Light Current [A]: ~ Tilt Range [degree]: ~ Roll Range [degree]: ~	~
Setting	Description	
Alarm cyclic report	Setup cyclic report time for alarms. Defau	lt 60 minutes
Driver Voltage[V]	Setup the alarms range for driver voltage	
Driver Frequency[HZ]	Setup the alarms range for driver frequence	cy
Light Voltage[V]	Setup the alarms range for Light Voltage	

Setup the alarms range for Light Current

Setup the alarms for accelerometer tilt angle

Setup the alarms for accelerometer roll angle

Light Current[A]

Tilt Range [degree] Roll Range [degree]



2.5 Lamp setting

Follow the ORing streetlight controller MQTT API document

ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01	- 🗆 X
ORing COM PORT CONNECT DEVICE STATUS DEVICE RESTART MODEM RESTART DEFAULT CONFIG OTA TRIGGER COM PORT: CLOSE	BASE STATION: DISCONNECT MQTT BROKER: DISCONNECT
Network WLAN System Lamp Report	step
Light Control Cancel Apply	console [Startup] ZHAGA-Streetlight Controller(Overseas) GUI Tool ver.1.9.01
Scenario (LS): 0 - Based on lux v	
Light (LI):	
lx_0:	
lx_1:	
Sunrise Time Shift:	
Sunset Time Shift:	
Schedule [UTC]:	

Setting	Description	
Scenario (LS)	Select Lamp scenario	
	0- based on the sensor lux	
	1- Manually control	
	2- time of sunrise / sunset	
	3- Time of UTC	
Light (LI)	Setup lighting percentage for scenario 1	
Lx_0	Setup external light level at which the lamp turns on and off for scenario	
T 1	- 0.	
Lx_1	x - 1(on) or 0 (off).	
	lx_0 must bigger than lx_1.	
Sunrise Time Shift	Timers are valid for scenario 2. Time shift in minutes. The value can be	
Sunset Time Shift	negative or positive	
Schedule [UTC]	Setup device light off time everyday for scenario 3	

Technical Specifications

ORing Lighting Model	OL-Z SERIES
Connection Socket	
Type and Pin Define	Zhaga (Book 18)
Control Interface	
ON/OFF/Dimming	DALI2 (IEC 62386) compliant
Measured Parameters	V, A, W, Wh, Hz, PF
Network Interface	
Working Mode	NB-IoT / CAT M1 / 2G fallback (optional)
SIM Card Type	Nano SIM Card or Chip eSIM
Network Parameters	
NB-IoT	Frequency Band:
	B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B71/B85
	max. Data Rate DL / UL:
	Cat.NB1 : 27 kbps / 63 kbps
	Cat.NB2 : 124 kbps / 158 kbps
Cat.M1	Frequency Band:
	B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B71/B85
	max. Data Rate DL / UL: 300 kbps/ 1.1 Mbps
2G (optional)	Quad-band 850/900/1800/1900 MHz
Electrical Specification	
Input Voltage	24Vdc=0.6A
Power consumption	Maximum 9.3W/24V@GSM, 2.2W/24V@CatM1, 1W/24V@NB
Physical Characteristic	
Dimensions	Ф80 x 70mm
Weight(g)	100g
IP Ratings	IP66
IK Ratings	IK08
Protection / Certification	
ENAC (Electromognetic	EN 301 489-1,EN 301 489-52
EMC (Electromagnetic	EN 61000-3-2,EN 61000-3-3
Compatibility)	EN55032/35
ESD (Electro Static Discharge)	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
RF (radio frequency)	EN 301 511 2G
	EN 301 908-1 (NB IOT, Cat M1)



	EN 303 413	
SAR (Specific Absorption Rating)	EN 62311	
	EN 62368-1,	
SFT	EN 61347-1, EN 61347-2-11	
	EN 60950-22	
Environmental		
Storage Temperature	-40℃ to +80℃	
Operating Temperature	-30℃ to +70℃	
Operating Humidity	0 to 95%	
Additional Sensor Support Feature		
Accelerometer	Static g-force measurement for tilt/roll angle	
Light Sensor	Detection Range: 0.001 lx to 100k lx	
Warranty	5 Years*	