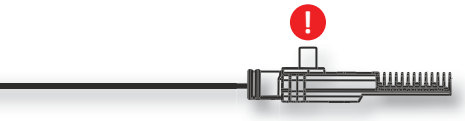
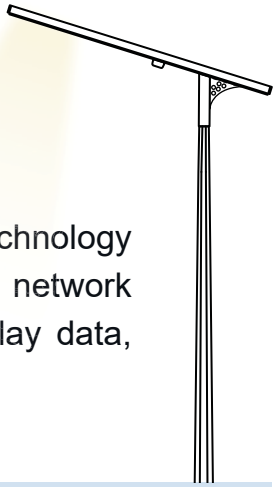
ZigBee





ZigBee system is a low-power, short-range wireless communication technology designed for IoT and smart control applications. It uses a mesh network architecture, allowing devices to communicate with each other and relay data, which improves network reliability and coverage.

ZigBee AC Powered LED Street Lighting

- Short-range wireless mesh network to control and monitor mains-powered street lights.
- Each luminaire is equipped with a Zigbee controller that enables remote on/off switching, dimming, and status monitoring.
- The mesh network allows lights to relay data between each other.

ZigBee DC Powered LED Solar Street Lighting

- The Zigbee controller manages lamp operation and monitors battery and system status through a low-power wireless mesh network
- Supports reliable communication, reduced energy consumption, and convenient remote management, making it ideal for intelligent solar street lighting applications.

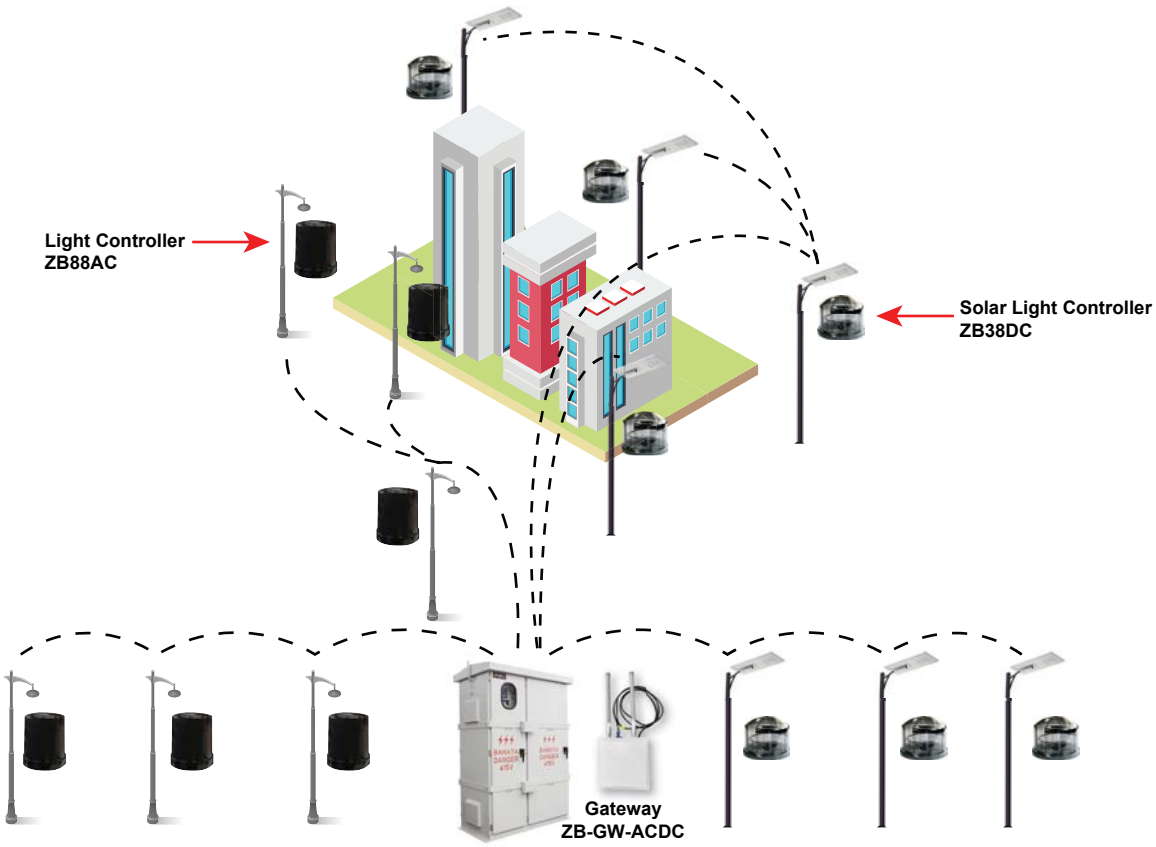
ZigBee Devices

- Gateway (ZB-GW-ACDC)
- Street Light Controller (ZB88AC / ZB38DC)

Area of Application

- Compound Area
- Residential Area
- Highway

Connector Diagram



Light Controller
ZB88AC

SolarLight Controller
ZB38DC

Zigbee Gateway
ZB-GW-ACDC

Each street light is equipped with a Zigbee Light Controller, which manages on/off switching, dimming, and monitors the operating status of the lamp. The controllers communicate with each other using a Zigbee wireless mesh network, allowing stable and flexible data transmission across the lighting area.

All Zigbee controllers connect to a central gateway. The gateway collects data from multiple street lights and transmits it to the central management platform for monitoring and control.

Features

Zigbee Gateway

ZB-GW-ACDC

Gateway
ZB-GW-ACDC

High-Speed WAN Interface
10/100/1000 Mbps Ethernet, 4G SIM, built-in Wi-Fi & GPS

Network Backup & Auto Switching
Intelligent wired/wireless failover with data buffering and recovery

Zigbee Master Function
2.4 GHz ISM band Zigbee master station

Protocol Support
Transparent transmission with MODBUS RTU, TCP/IP & MQTT

Modbus Data Collection
Active polling, protocol parsing, and direct platform reporting

Industrial-Grade Design
Metal enclosure for stable 24/7 operation in harsh environments

Wide Voltage Input
AC 110–277V power supply

Specifications Zigbee Gateway (ZB-GW-ACDC)

Interface Definition

Interface	Description	Remarks
Power Supply	AC110~277V Power Input / DC 9-24V (optional)	Do not reverse polarity
SIM Card Slot	nano-SIM card *chip side downward, notch side inward	Pull out the SIM card module, insert SIM card and press to lock
WAN	10/ 100/ 1000Mbps, waterproof connector	
Wi-Fi	Built-in	
GPS	Built-in	
RST	Reset button, long press 10s to restore factory settings	
4G	4G antenna port	
ZigBee	ZigBee antenna port	

Product Specification

Interface	Description	Remarks
Product Model	ZB-GW-ACDC	Outdoor Base Station
Network Type	WAN port	10/100/1000Mbps Adaptive network port
	4G	Selective 4G module for targeted country
Power Supply	Power supply range	AC110 ~ 277V / DC 9-24V (optional)
Others	Dimensions	205MM(L) × 205MM(W) × 74MM(H)
	Working Temperature	-40 ～ +80ºC
	Storage Temperature	-40 ～ +85ºC
	Relative humidity	≤ 95%RH（No condensation）

Specifications Zigbee Gateway (ZB-GW-ACDC)

Product Specification

Interface	Description	Remarks
4G	Working Frequency	FDD LTE: B1/B3 TDD LTE: B38/B39/B40/B41 TDSCDMA: B34/B39 CDMA2000 1x/EVDO: BC0 GSM: 900/1800MHz
	Transmission Rate	LTE-FDD: Max 100Mbps (DL) Max 50Mbps (UL) LTE-TDD: Max 61Mbps (DL) Max 18Mbps (UL) SCDMA-TD: Max 4.2Mbps (DL) Max 2.2Mbps (UL) CDMA: Max 5.4Mbps (DL) Max 14.7Mbps (UL) GPRS: Max 85.6Kbps (DL) Max 85.6Kbps (UL)
	Transmission Power	FDD LTE: 23dbm±2db TDD LTE: 23dbm±2db TDSCDMA: 24dbm +1/-3db GSM 900Mhz: 33dbm±2dbm GSM 1800Mhz: 30dbm±2dbm
	Receiving sensitivity	FDD B1: -97dBm (20M) FDD B3: -96dBm (20M) TDD B38: -94dBm (20M) TDD B39: -94dBm (20M) TDD B40: -94dBm (20M) TDD B41: -93.5dBm (20M) TDSCDMA B34: -110dbm TDSCDMA B39: -110dbm CDMA BC0: -108dbm GSM 900: -110dBm GSM 1800: -109dBm
System	CPU	MIPS1004Kc, dual-core, main frequency 880MHz
	RAM	256MB
	eMMC	8GB
ZigBee Frequency	Frequency band	2.4GHz

Features

Light Controller

ZB88AC

Switching & Dimming Control
Remote on/off and dimming control

Electrical Monitoring
Current, voltage, power, runtime & dimming value

Lamp Status & Alarms
Real-time monitoring with fault alerts

Smart Control Modes
Time schedule, location-based & photocell control

Zigbee Wireless Communication
2.4 GHz ISM band with 16 channels

Large Network Capacity
Supports up to 65,535 nodes per network

Industrial Temperature
Operates from 40°C to +85°C

Easy Installation
Fast response to central commands

Specifications Light Controller (ZB88AC)

Parameters	Value
Antenna Frequency Band	2.4G
Antenna Gain	3dB
Antenna VSWR	≤1.5
Antenna Type	Built-in

Parameters	Value
IP Code	IP66
Wireless Frequency	2.4G
Dimming Type	0-10V PWM
Transmission Distance	400M

Features

Light Controller

ZB38DC

Zhaga Book 18 Interface
Standard plug-and-play connection

DC 5V Input | RS485 Output
Designed for solar lighting control

Wireless Monitoring
Real-time remote monitoring and control

Switching & Dimming
Remote on/off control with battery & load parameter setting

System Status Monitoring
Solar panel, battery, load & controller status

Fault Alarm
Automatic fault detection and reporting

GPS Location (Optional)
Supports fault location tracking

Industrial Temperature
Operates from -40°C to +85°C

Wireless Communication
Zigbee 2.4 GHz ISM band
LoRa: 470 / 868 / 915 / 923 MHz

Easy Installation
Fast response to central commands

Specifications Light Controller (ZB38DC)

Parameters	Value
IP Code	IP66
Output Interface	RS485
Data Collection	U, I, P, Q, COSΦ
Wireless Frequency	2.4GHz

Parameters	Value
Antenna Type	Built-in
Antenna Gain	3dB
Antenna VSWR	≤1.5
Transmission Distance	400M *Gateway to node under normal road condition *Each ZigBee node can act as a relay with a maximum of 16 hops