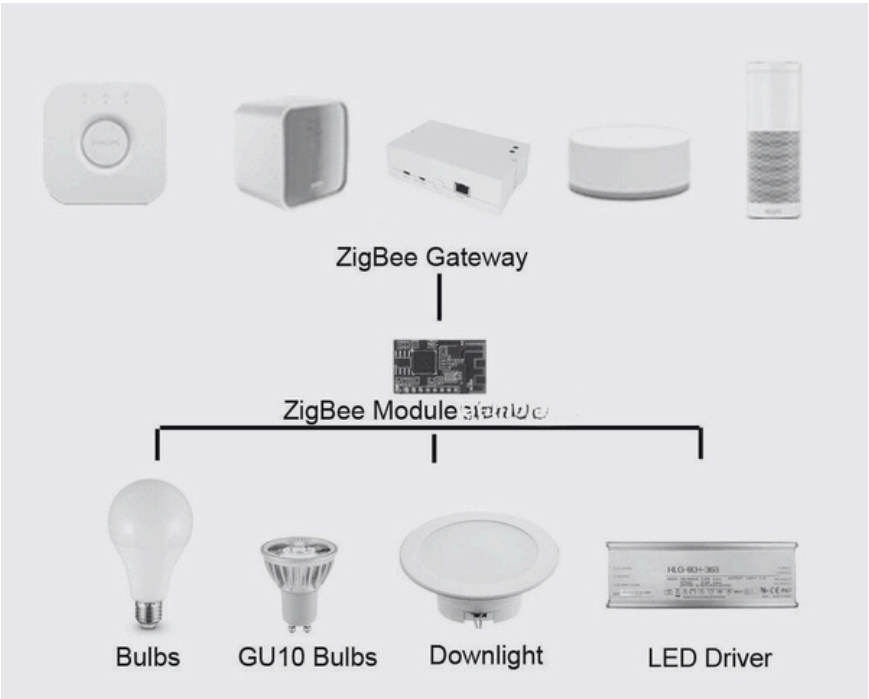
TheoryLight

TLM931-Z-XX-IA-OTA-3.0

TLM931 Module is kind of ZigBee modules with low cost, low consumption and wide working voltage based on IEEE 802.15.4 standard and works on 2.4GTL. It can be embedded on SC/ CT/ RGB/ RGBW/ RGBCW build-in power supply of bulbs or downlights, and LED driver for different light fixtures.

With ZigBee 3.0 protocol, TLM931 Module makes fixture compatible with ZigBee standard gateways such as Philips Hue, IKEA Tradfri and Echo plus.

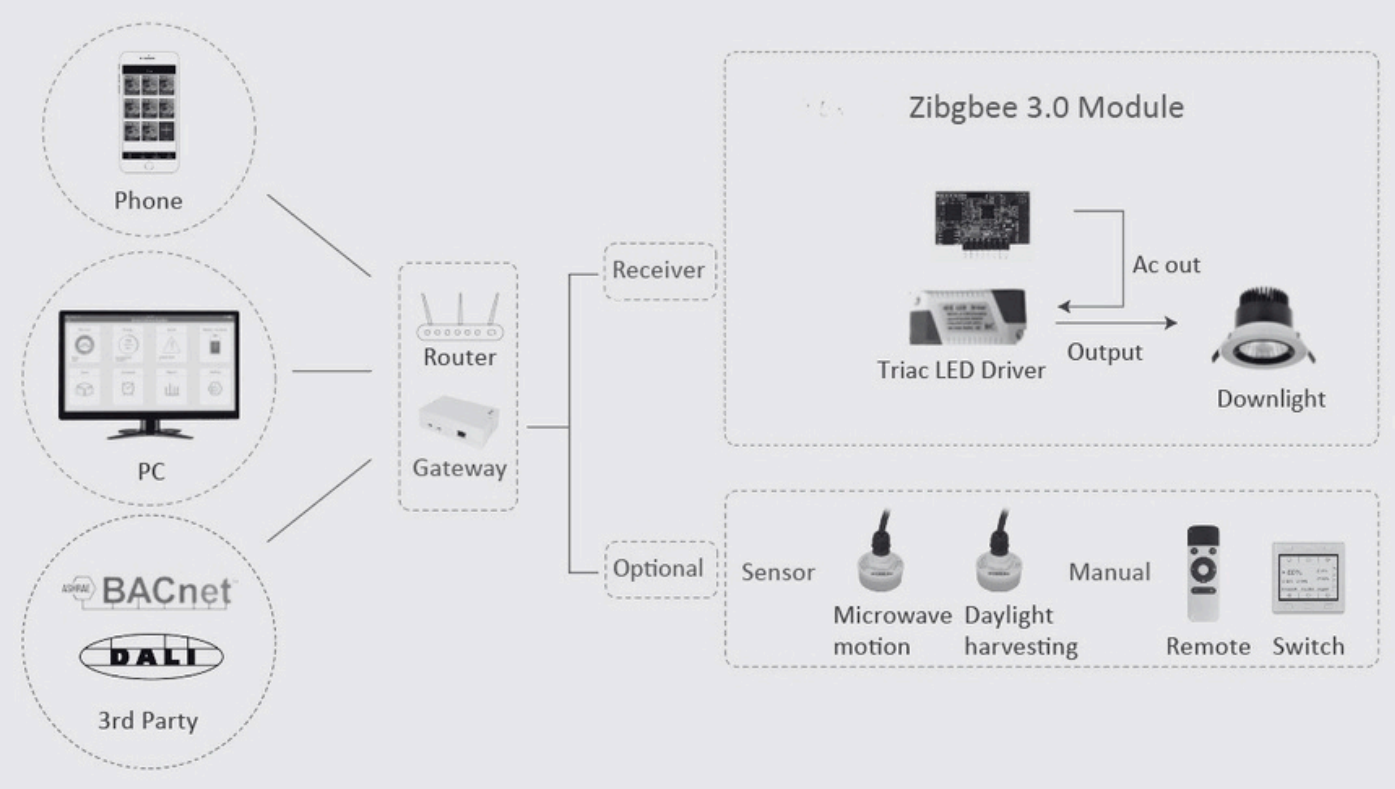
It works with Theorylight's ZigBee lighting control system to achieve long-distance controlling led lights by Mobile Phone, Tablet, PC, Wall Switch, Remote Control, Daylight Sensor and Motion Sensor. The module is used in DIP or SMT mode, which is reliable and convenient.



Part no. TLM931-Z-XX-IA-OTA-3.0

HSSA18	project name/ index		
Z	ZigBee		
XX	Dimming option	SC	Single color
		CT	Color temperature
		RGB	RGB color mode
		RGBW	RGBW color mode
		RGBCW	RGBCW color mode
IA	internal antenna		
OTA	over the air upgrade		
3.0	ZigBee 3.0 protocol		

System Diagram



Parameter

Model	TLM931-Z-XX-3.0
Input voltage	3-3.6V
Current	11mA(Peak current 180mA)
Frequency	2.4GTL
PA	19dBm
Control Range	30m
Working Temperature	-40℃ to 105℃
PWM Frequency	4K
PWM logic	Normal or Reverse

Pin Definition

SMP hardware interface

Index	PIN	TLM931-Z- SC-3.0	TLM931-Z- CT-3.0	TLM931-Z-RGB-3.0	TLM931-Z-RGBW-3.0	TLM931-Z-RGBCW-3.0
1	PB01	-	-	-	-	-
2	PA00	-	-	-	-	-
3	PA03	-	-	-	-	-
4	PA04	-	-	-	-	-
5	PA05	-	-	-	-	-
6	PA06	-	-	-	-	-
7	PD00	-	-	-	-	-
8	PD01	-	-	-	-	-
9	3.3V	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6
10	3.3V	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6
11	GND	Ground	Ground	Ground	Ground	Ground
12	GND	Ground	Ground	Ground	Ground	Ground
13	PC05	On/Off output	On/Off output	On/Off output	On/Off output	On/Off output
14	PC00	-	-	-	-	Cool PWM output
15	PC01	PWM output	Cool PWM output	R PWM output	R PWM output	R PWM output
16	PC02	-	Warm PWM output	G PWM output	G PWM output	G PWM output
17	PC03	-	-	B PWM output	B PWM output	B PWM output
18	PC04	-	-	-	W PWM output	Warm PWM output
19	3.3V	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6
20	PD02	UART_TX	UART_TX	UART_TX	UART_TX	UART_TX
21	PD03	UART_RX	UART_RX	UART_RX	UART_RX	UART_RX
22	PD04	-	-	-	-	-

DIP hardware interface

Index	PIN	TLM931-Z- SC-3.0 Ground	TLM931-Z- CT-3.0 Ground	TLM931-Z-RGB-3.0	TLM931-Z-RGBW-3.0	TLM931-Z-RGBCW-3.0
1	GND	On/Off output	On/Off output	Ground On/Off	Ground On/Off	Ground On/Off
2	PC05	-	-	output -	output -	output Cool
3	PC00					PWM output
4	PC01	PWM output	Cool PWM output	R PWM output	R PWM output	R PWM output
5	PC02	-	Warm PWM output	G PWM output	G PWM output	G PWM output
6	PC03	-	-	B PWM output	B PWM output	B PWM output
7	PC04	-	-	-	W PWM output	Warm PWM output
8	3.3V	VCC 3V–3.6V	VCC 3V–3.6V	VCC 3V–3.6	VCC 3V–3.6	VCC 3V–3.6
9	PD02	UART_TX	UART_TX	UART_TX	UART_TX	UART_TX
10	PD03	UART_RX	UART_RX	UART_RX	UART_RX	UART_RX
11	PD04	-	-	-	-	-

Software Operation

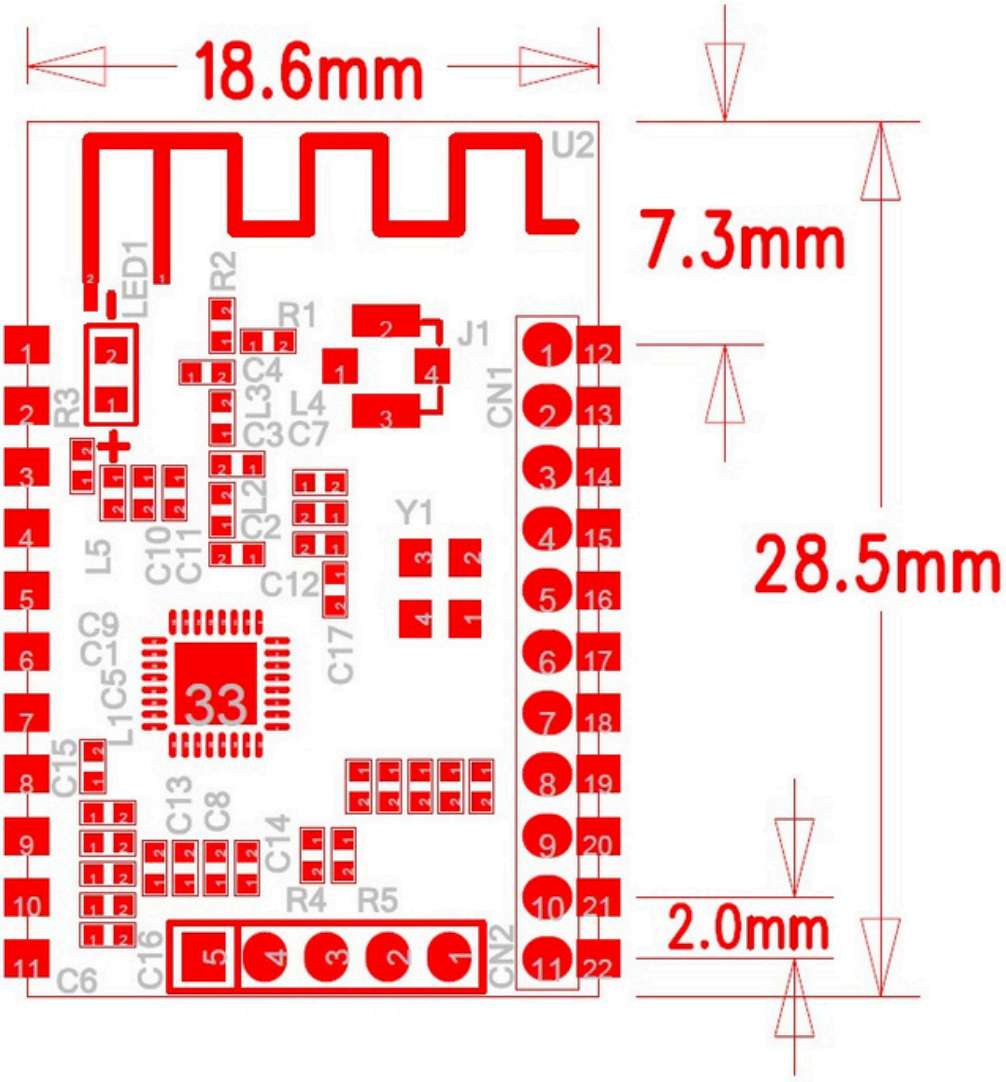
1. Initial states. When the ZigBee module is powered up, the LED of module will keep blinking. First 30 minutes.
2. The ZigBee module in initial state is searchable by the ZigBee gateway in the first 30 minutes after power up. Choose a gateway.
3. Power on the ZigBee gateway, open the App “Theorylight Pro”, select gateway from Settings/Add device. Add device. Click “Search” button.
4. The LED of module stops blinking and then stay ON after added.
5. Create a new area and add the ZigBee module into this area. On/off the bridge in this area. Binding.
6. Click “Binding Setting” on “Setting” page. Bind the ZigBee module with other device/group.
7. For more operating details please refer to user manual of gateway.

Initial States Setting

1. Soft reset: keep the device powered on and delete it on the “Theorylight Pro” App. Or,
2. Hard reset: power off the device and wait for > 3 secs, power on and wait for < 3 secs, power off power on, power off power on, 4 times in total.
3. If reset is successful, the LED of bridge will keep blinking. All data of the device is cleaned up.

Dimension(unit: mm)

Product



External antenna