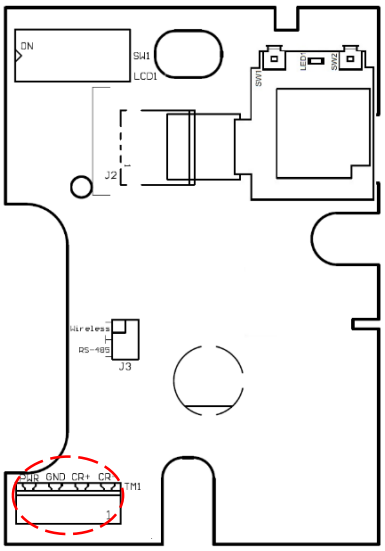
AEC-LX001 Lux Meter (Wireless&RS485) Instruction Manual

Thanks for choosing our product! Please read carefully and follow this instruction before using!

Introduction

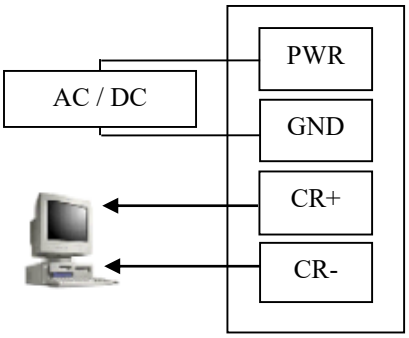
AEC-LX001 Lux meter is designed for indoor illumination detection. Using high accuracy sensing element and micro electronical circuit design, it features its high stability and reliability. This would be an efficient solution to measure illumination and send signal to monitoring center via RS485 Modbus RTU or LoRa wireless transmission. The perfect applications are for indoors, such as train station, library, food warehouse or food plant, school, training center, factory, commercial building and etc.

Wiring



1	PWR	DC 12 ~ 36V AC 24V (50/60Hz)
2	GND	System GND
3	CR+	RS-485(＋)
4	CR-	RS-485(－)
5	J2	Wireless module

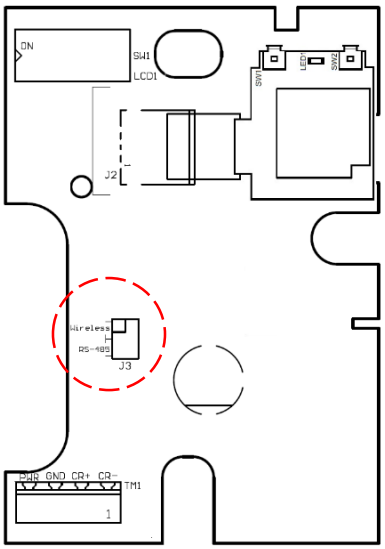
Connection



【Figure 1】

Notice: Please remove power from the unit before wiring, in order to avoid any damage or hazard.

Transmission Mode setting



Jumper setting:

Transmission Mode setting (Wireless/RS485)

Transmission Mode	J3
Wireless	
RS485	

3WIA-0B2520-208R

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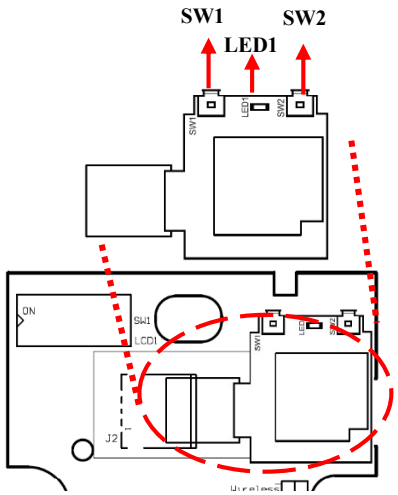
Join a wireless network (Only available for wireless version)



If the transmission mode is set as “Wireless”, please follow the steps as below to establish the connection between transmitter and receiver.

1. Please make sure the wireless receiver has been connected with PLC or with computer. (Please refer the manual of wireless receiver for the detail operation.)
2. Please press and hold the SW2 on wireless module until the LED1 (Green) is ON. And it will activate the pairing procedure and complete the connection within 60 secs.
3. When the LED1 switches off, the connection between the transmitter and receiver has been done. If the LED1 blinks every 5 secs, the connection fails. Then please press SW1 (Reset) and repeat the above-mentioned steps.

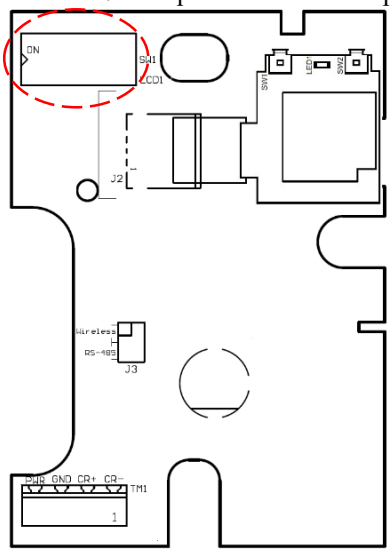
Notes: 15.19(a) (3) Regulations:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

RS485 Settings

Device ID：Setup device ID with dip switch; ON↑:1, OFF↓:0



Device ID (ON：1,OFF：0)					
1	0000 0001		127	0111 1111	
2	0000 0010		128	1000 0000	
⋮	⋮		⋮	⋮	
64	0100 0000		246	1111 0110	
65	0100 0001		247	1111 0111	

Protocol：

1. Baud Rate = 9600 (Default); Word Length = 8; Parity = none; Stop Bits = 1.
2. XXXX is the checksum for CRC-16(Modbus)

Data Reading Type

Device ID	Function	Address (High byte)	Address (Low byte)	Data Length (High byte)	Data Length (Low byte)	Checksum (High byte)	Checksum (Low byte)
By setting	0x03	0x00	0x00	0x00	0x01	0xXX	0xXX

Responding Data Type

Device ID	Function	Data byte	Data (High byte)	Data (Low byte)	Checksum (High byte)	Checksum (Low byte)
By setting	0x03	0x02	0x01	0xC2	0xXX	0xXX

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** **Remark**：

The unit of illumination data obtained is LUX.

The data obtained is hexadecimal. To get illumination value, convert hexadecimal 0x01C2 to decimal and the value is 450 LUX

Calibration

LUX to calibrate 450 to 400, the correction values is 400-450=-50, and convert the calibration value into 0xFFCE (hexadecimal).

Device ID	Function	Address (High byte)	Address (Low byte)	Data (High byte)	Data (Low byte)	Checksum (High byte)	Checksum (Low byte)
By setting	0x06	0x00	0x01	0xFF	0xCE	0xXX	0xXX

** **Remark**：The calibration range of LUX is ±70.

Baud rate setting

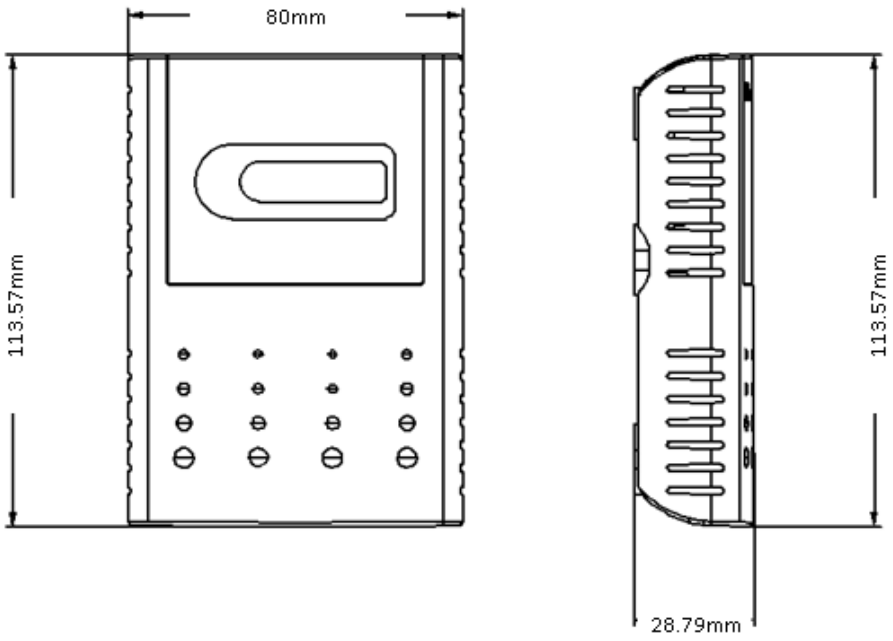
To change baud rate from 9600 to 19200, convert 16 into hexadecimal as “0x0010”.

Settings	Device ID	Function	Address (High byte)	Address (Low byte)	Data (High byte)	Data (Low byte)	Checksum
9600	By setting	0x06	0x00	0x02	0x00	-	XXXX
19200	By setting	0x06	0x00	0x02	0x10	-	XXXX
38400	By setting	0x06	0x00	0x02	0x20	-	XXXX
57600	By setting	0x06	0x00	0x02	0x30	-	XXXX
115200	By setting	0x06	0x00	0x02	0x40	-	XXXX
8／N／1	By setting	0x06	0x00	0x02	-	0x00	XXXX
8／N／2	By setting	0x06	0x00	0x02	-	0x01	XXXX
8／E／1	By setting	0x06	0x00	0x02	-	0x10	XXXX
8／E／2	By setting	0x06	0x00	0x02	-	0x11	XXXX
8／O／1	By setting	0x06	0x00	0x02	-	0x20	XXXX
8／O／2	By setting	0x06	0x00	0x02	-	0x21	XXXX

* Notice：If the transmission mode is set as “Wireless”, please set the baud rate as 9600 and the connection setting as 8／N／1.

* Remark: The connection setting format is Word length／Parity／Stop bits; Parity: N = None, E = Even, O = Odd

Dimensions



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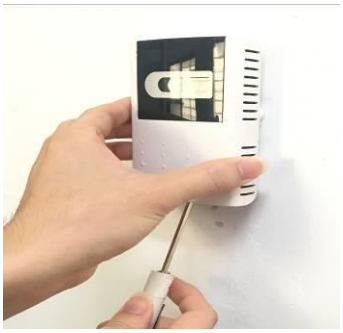
Installation

1. Please check if the transmitter, accessory pack and instruction manual are included in the package.
2. Please decide right position for installation.
3. Press tenon on top of the housing with a screw driver to remove the upper cover. (Please refer to the Figure 2 to Figure 4).
4. Fix the base with screws on the wall.
5. Please refer Figure 1 for wiring.

   Notice: Please remove power from the unit before wiring, in order to avoid any damage or hazard.
6. Replace and fix the upper cover back to the unit.

【Figure 2】



【Figure 3】

【Figure 4】

Notice for installation

1. Please install the transmitter near the ceiling and the height is around eye level.
2. Do not mount the transmitter near doors, opening windows, fans, air outlet or other known air disturbances. Install the transmitter at least 3 meters away from any air outlets.
3. Please avoid the waterish area
4. Do not install the transmitter on an unstable or shaking surface.
5. Please do not install the transmitter in areas with rapid temperature changes or with extreme ambient conditions.

Trouble shooting

Problem	Possible cause	Recommended solution
No response after wiring power supply	1. Insufficient power supply 2. The power wiring is disconnected.	1. Please make sure the power supply should be more than 0.1W(RS485)、1.2W(LoRa). 2. Check power wiring
RS485 connection fails	1. Incorrect device ID setting or incorrect connection settings. 2. RS485 wiring is disconnected.	1. Please verify the device ID and connection settings. 2. Check RS485 wiring.
High loss rate of packet for RS485	1. Signal interference 2. RS485 wiring is disconnected.	1. It is recommended to use 2 pair twisted shielded cable. 2. Check RS485 wiring.
Fail to pair with LoRa devices	1. The antenna is not fixed. 2. There is some interference around.	1. Please check if antenna is fixed. 2. Please relocate the LoRa devices to avoid the interference. 3. Use signal test software to choose a better location to install the LoRa devices.
The loss rate of packet is high		

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