

---

# INSTRUCTION MANUAL

**ILLUMINANCE**

**TYPE RS485**

**JXBS-3001-Illuminance**

**VER1.1**

---

# I BRIEF INTRODUCTION

## 1.1 Product Overview

This product adopts high sensitivity photosensitive probe, the signal is stable and the precision is high. It has the characteristics of wide measurement range, good linear degree, good waterproof performance, convenient use, easy installation and long transmission distance.

## 1.2 Primary Parameters

### 1.2.1 Basic Parameters

PARAMETERS	TECHNICAL SPECIFICATIONS
POWER SUPPLY	12-24V DC
POWER	≤0.15W (@12V DC 25°C)
LIGHT INTENSITY ACCURACY	±5%(25°C)
LIGHT INRENSITY	0-65535Lux/0-200000 Lux
LONG-TERM STABILITY (LIGHT INRENSITY)	≤5%/y
OUTPUT SIGNAL	RS485 Modbus
WORKING PRESSURE RANGE	0.9-1.1atm

### 1.2.2 Illumination Parameters

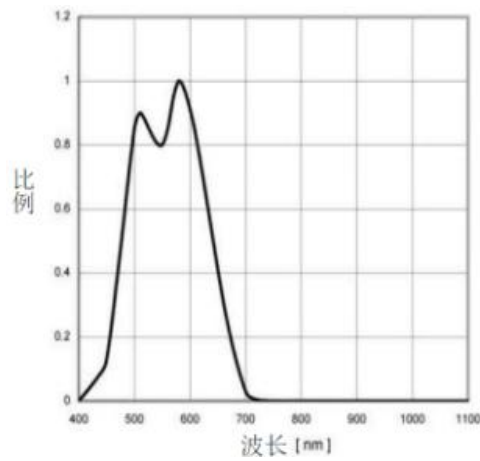


Figure 1. Effect of different wavelengths on illuminance

As shown in Figure 1, the wavelength is the most accurate around 580nm and the scale factor is 1.

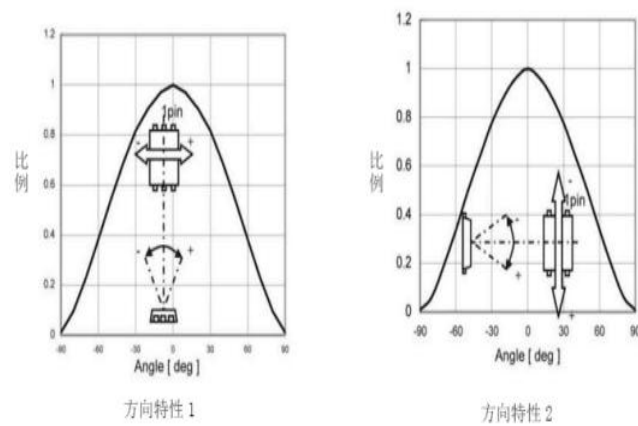


Figure 2. Influence of light angle Schematic

As shown in Figure. 2, the angle has a great influence on the illumination accuracy, and the user should pay attention to the change of the angle when using it. Just above the irradiation standard.

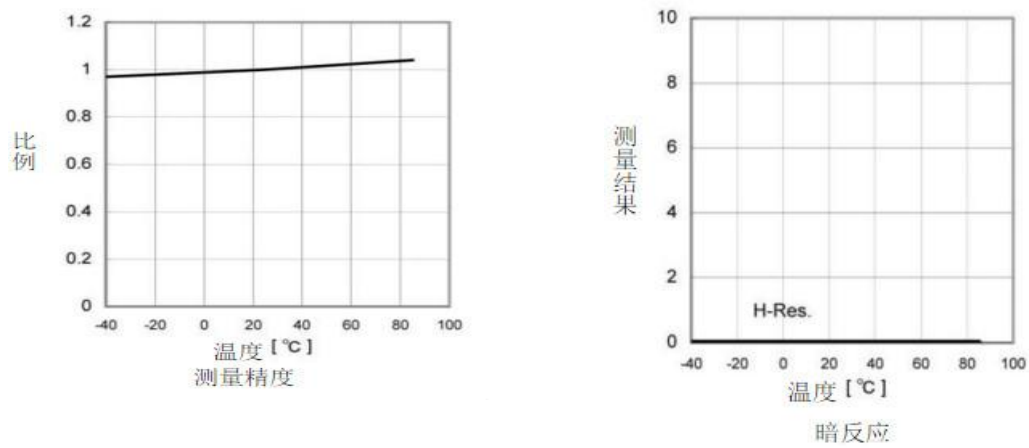


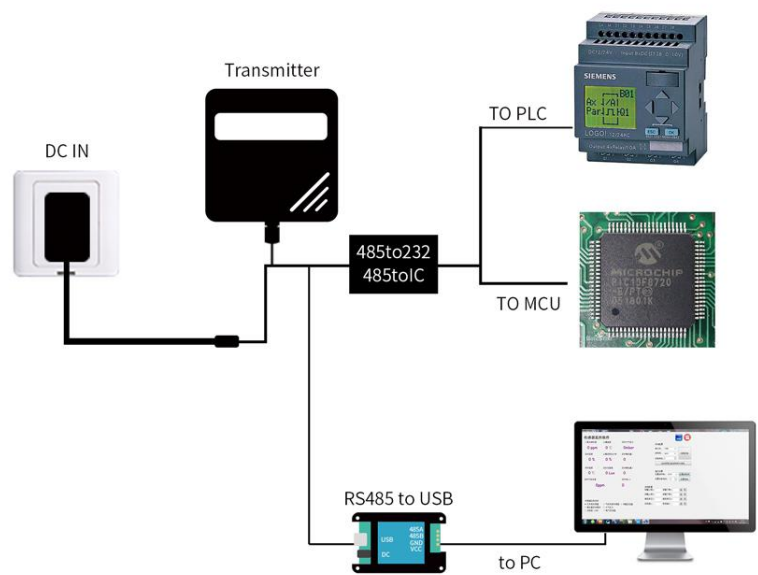
Figure 3. Schematic diagram of different temperature effects

As shown in the above figure, the temperature has little effect on the light module, and the temperature has the highest accuracy at around 20 degrees Celsius, and changes linearly with the gradual increase (decline) of the temperature.

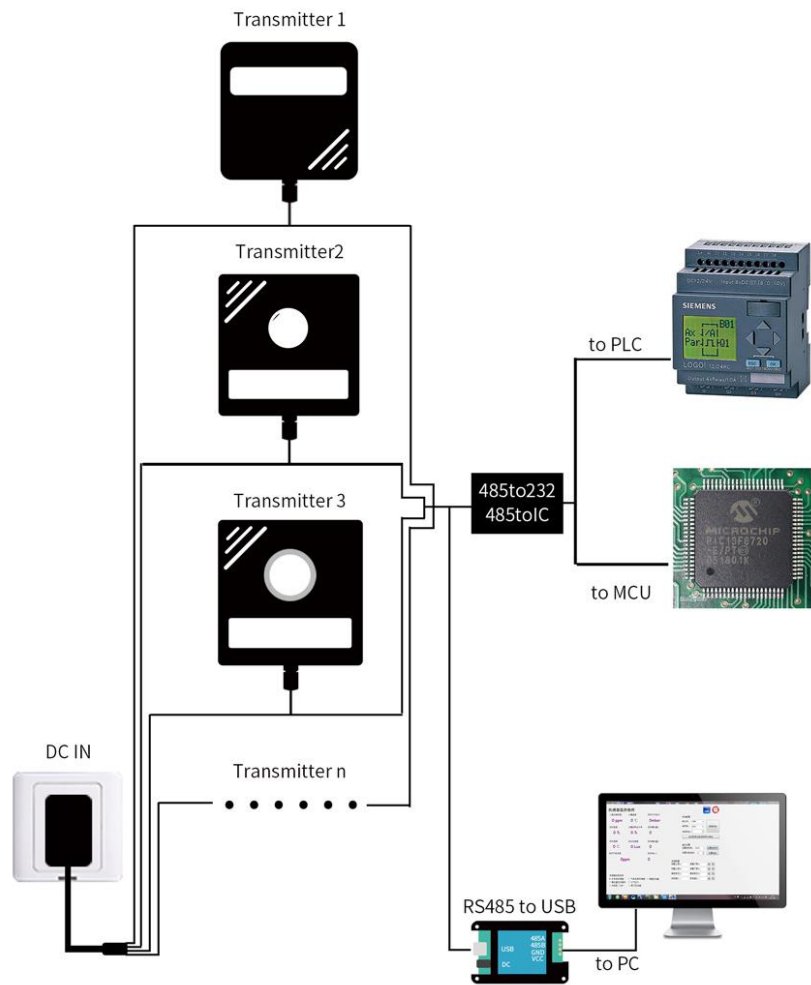
### 1.3 Probe Parameters And Selection

NO.	RANGE	Scope of application	Resolution
20W	200000Lux	Outdoor sunlight intensity measurement	1Lux
6W	65535Lux	Indoor light intensity measurement	1Lux

### 1.4 System Frame Diagram



**FIGURE 4 SINGLE-ENDED**



**FIGURE 5 MUTIPLE-ENDED**

## II HARDWARE CONNECTIONS

### 2.1 CHECKING BEFORE INSTALLATION

Check the list of devices before installation:

**TABLE 1 List of Devices**

Name	Number
THE SENSOR DEVICE	1
12V POWER ADAPTER (Optional)	1
THE USB TO 485 DEVICE (Optional)	1
WARRANTY CARD / CERTIFICATE	1

## 2.2 Interface Description

Before you wiring and use, please read this article in detail, Improper use may result in irreversible damage to the product.

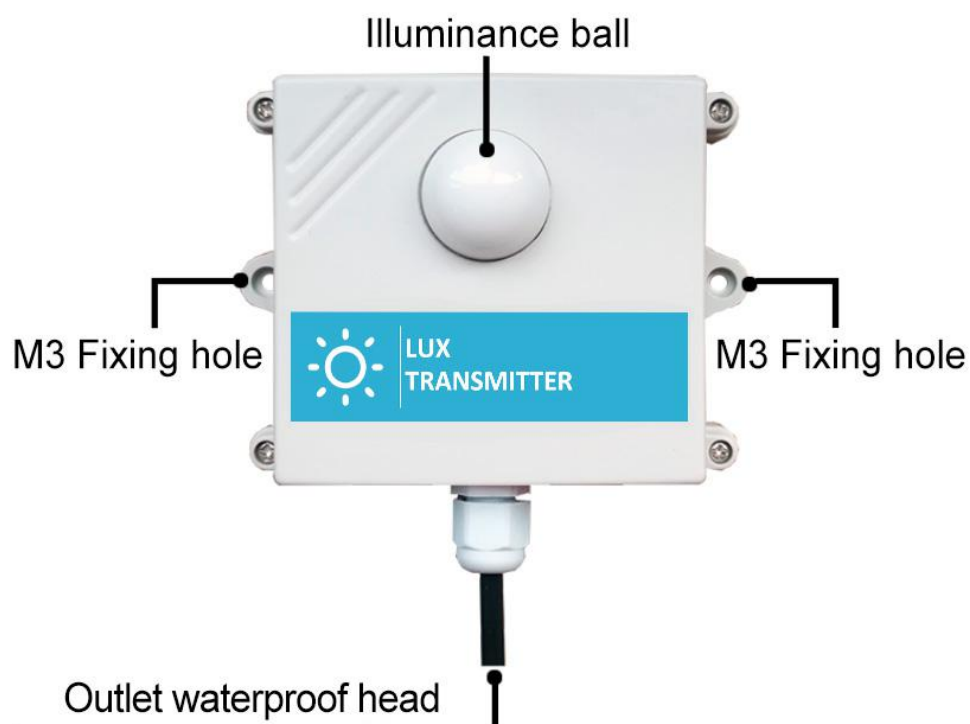


FIGURE 6 PHYSICAL PICTURE

TABLE 2 Wiring Sequence

Line Color	Description
------------	-------------

---

Power	Brown	Power supply Positive ( 12-24V DC )
	Black	Power supply Negative
Communication	Yellow ( Gray )	485-A
	Blue	485-B

---

We provide default cable length of 0.6 meters, you can extend the cable yourself according to your needs.

## 2.3 Installation Description

The equipment needs to be placed in an environment where there is no wind and no rain. The equipment needs to be installed vertically. The device has two fixed holes with a spacing of 105mm. The size of each fixing hole is 3mm.

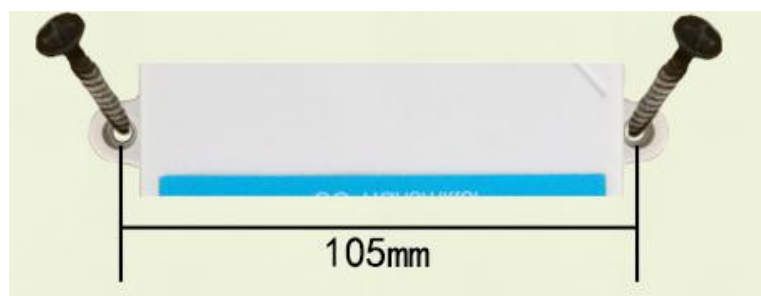


FIGURE 7 HOW FIXTURES

## III CONFIGURATION TOOL INSTALLATION AND USE

We provide **CONFIGURATION TOOL** , which can be easily used to test our sensor device.

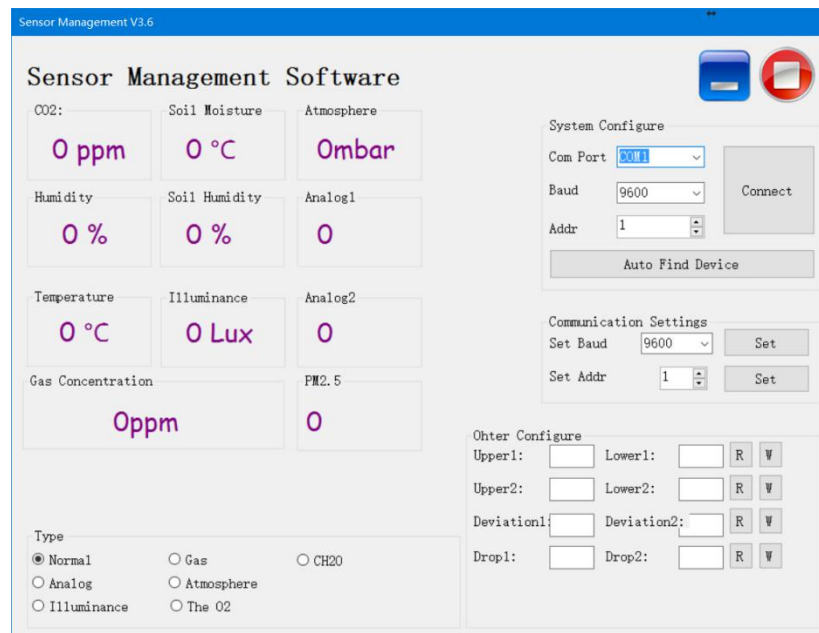


---

## 3.1 Sensor Access Computer

Transmitter can be connected to PC with the RS485 to USB adapter. You can check the COM port number through Device Manager (right click My Computer).

## 3.2 How To Use Configuration Tool



Please note that this software can only test one device at the same time. After connecting the physical device, click the **CONNECT** button to read the information. In the UNCONNET state, you can modify BAUD and ADDR in COMMUNICATION SETTINGS.

Under the software, different check boxes can be selected according to different situations. For example, you can choose the GAS option to test the RS485 OXYGEN SENSOR , you can choose the NORMAL option to test the RS485 TEMPERATURE AND HUMIDITY SENSOR .

---

## IV COMMUNICATION PROTOCOL

### 4.1 Communication Basic Parameters

**TABLE 3    Communication Basic Parameters**

PARAMETERS	CONTENT
Protocol	Modbus RTU
Data bits	8 bit
Parity bit	No
Stop bit	1 bit
Error checking	CRC (redundant loop code)
Baud rate	2400 bps/ 4800 bps/ 9600 bps can be set factory defaults to 9600 bps

For more information about **MODBUS RTU** please visit the website"[www.modbus.org](http://www.modbus.org)

".

### 4.2 Register Address

Register Address	Plc Configuration Address	Content	Operation
0007H	40008	Illumination (high byte) (unit: 1 Lux)	Read-Only
0008H	40009	Illumination (low byte) (unit: 1 Lux)	Read-Only
0100H	40101	Device Address (0-252)	R/W

0101H	40102	Baud Rate (2400/4800/9600)	R/W
-------	-------	----------------------------	-----

**TABLE 4 Register Address**

## 4.3 Communication example

### 4.3.1 Read Device Address 0x01's Device Address Illuminance Value

**TABLE 5 Inquiry Frame**

Address Code	Function Code	Start Address	Data Length	CRC_L	CRC_H
0x01	0x03	0x00	0x00	0x75	0xCA
		0x07	0x02		

**TABLE 6 Answer Frames**

( For example, the reading is 132854Lux )

Address Code	Function Code	Returns to The Number Of Valid Bytes	Data Area	CRC_L	CRC_H
0x01	0x03	0x04	0x00 0x02	0xD8	0x15
			0x06 0xF6		

Illuminance:

000206F6 H ( hexadecimal ) =132854=> Illuminance =132854Lux