light intensity transmitter

light humidity temperature

RS485 Output

0-200000lux

Light Intensity Sensor Temperature And Humidity Analog/RS485 Transmitter Sensor

RS485 Output

DC power supply: 10-30VDC
Maximum power consumption: 0.4W
Accuracy:
Humidity: ± 3% RH (5% RH ~ 95% RH, 25C)
Temperature: ± 0.5C, (25C)
Light intensity: ± 7% (25C)
Light intensity range: 0-65535lux
Working temperature: -20 ~ 60C, 0% RH ~ 80% RH
Long-term stability:
Temperature: 0.1C / y
Humidity: 1% / y
Light intensity: 5% / y
Response time:
Temperature: 18S (1m / s wind speed)
Humidity: 6s (1m / s wind speed)
Light intensity: 0.1S
Output signal: RS485 output (Modbus protocol)

	Cable color	instruction
	Brown	10~30V DC power +
Power	Black	Power -
	yellow	485-A
communication	blue	485-b

The default baud rate is 4800bit/s, and the default address is 0x01.

1. communication protocol

Code	8 bit binary system
Data bits	8bits
parity check bit	NO
stop bit	NO
Error checking	CRC
baud rate	2400bit/s4800bit/s9600 bit/s 4800bits by default

2. Using Modbus-RTU communication protocol, the format is as follows:

The initial structure is more than 4 bytes of time
Address code = 1 bytes
Function = 1 bytes
Data area = N bytes
Error check = 16 bit CRC code
The end of the structure is greater than or equal to 4 bytes of time
Address code: the address of the transmitter, which is unique in the communication network (factory default 0x01).
Function code: the instruction function instruction from the host. The transmitter only uses the function code 0x03 (read register data).
Data area: data area is specific communication data, pay attention to 16bits data before the high byte!
CRC Code: two byte check code
Host query frame structure:

Address code	Function code	Register start address	Register length	check code low	Check code high
1 bytes	1 bytes	2 bytes	2 bytes	1 bytes	1 bytes

Slave transponder frame structure

Address code	Function code	effective byte	No 1 Data area	NO2 Data area	No N Data area	Check code
1 bytes	1 bytes	1 bytes	2 bytes	2 bytes	2 bytes	2 bytes

3.Register address

Register address	PLC or configuration address	content	operation
0000 H	40001	humidity	read-only
0001 H	40002	temperature	read-only
0002 H	40003	Illuminance 0~200000Lux use unit 1Lux	read-only
0003 H	40004	Illuminance 0~65535 unit 1 Lux ,0~200000 unit 100Lux	read-only
0006 H	40007		

4.Examples and explanations of communication protocols

4.1Read the temperature and humidity values of the device address 0x01

Query frame

Address code	Function code	Start address	Data length	check code low	Check code high
0x01	0x03	0x00 0x00	0x00 0x02	0xC4	0x0B

Response frames (for example, read the temperature of -10.1 degrees C and humidity of 65.8%RH)

Address code	Function code	effective byte	humidity	temperature	check code low	Check code high
0x01	0x03	0x04	0x02 0x92	0xFF 0x9B	0x5A	0x3D

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Temperature: when the temperature is below 0 degrees, it is uploaded in the form of complement

FF9B H (Hexadecimal) = -101 = -10.1 = > temperature c

Humidity:

292 H (Hexadecimal) =658=> humidity = 65.8%RH

4.2 Read the illumination value of the device address 0x01

(0~65535 reads in 1Lux or 0~200000 reads in a hundred Lux units)

Query frame

Address code	Function code	Start address	Data length	check code low	Check code high
0x01	0x03	0x00 0x06	0x00 0x01	0x64	0x0B

Response frames (for example, read illumination is 200000 Lux)

Address code	Function code	Returns the number of valid bytes	Data area	check code low	Check code high
0x01	0x03	0x02	0x05 0x30	0xBB	0x00

Illumination calculation description:

1) the product is 0~65535 range transmitter, the unit is 1Lux

0530 H (sixteen hex) = 1328=> illuminance =1328 Lux

2) the product is 0~200000 range transmitter, the unit is 100 Lux

0530 H (sixteen hex) = 1328=> illuminance =132800 Lux

4.3 Read the illumination value of the device address 0x01 (0~200000 is read as 1Lux)

Query frame

Address code	Function code	Start address	Data length	check code low	Check code high
0x01	0x03	0x00 0x02	0x00 0x02	0x65	0xCB

Response frames (for example, read illumination is 200000 Lux)

Address code	Function code	Significant bytes	High light intensity	low light intensity	check code low	Check code high
0x01	0x03	0x04	0x00 0x03	0x0D 0x40	0x0F	0x53

Illumination calculation description:
This protocol is only used under the 0~200000Lux range transmitter, 1Lux 30D40, H (sixteen hex) = 200000=>, illuminance =200000, Lux

4.4 Read the temperature, humidity, and illumination values of the address 0x01 of the device (0~65535 reads in 1Lux or 0~200000 reads in a hundred Lux units)

Query frame

Address code	Function code	Start address	Data length	check code low	Check code high
0x01	0x03	0x00 0x00	0x00 0x07	0x04	0x08

Response frames

Address code	Function code	Bytes	humidty	temperature**		Illuminance	Check code
0x01	0x03	0x0E	0x02 0x92	0x80 0x65	00 Fill	0x05 0x30	0xC4 0x33

4.5 Read the temperature, humidity, and illumination values of the address 0x01 of the device (0~200000 reads in 100 Lux units)

Address code	Function code	Start address	Data length	check code low	Check code high
0x01	0x03	0x00 0x00	0x00 0x04	0x44	0x09

Response frames

Address code	Function code	Bytes	humidty	temperature	Illuminance high	Illuminance low	Check code
		0x03					0x01
0x01	0x03	0x08	0x02 0x92	0x80 0x65	0x00 0x03	0x0D 0x40	0x6F

5. The device cannot connect to PLC or computer

Possible causes:

1) the computer has multiple COM ports, and the choice is incorrect.
2) device address error, or the existence of repeated address devices (factory default all 1).
3) baud rate, check mode, data bits, stop bit error.
4) The 485 bus is disconnected, or the A and B lines are reversed.
5) If the number of devices is too large or the wiring is too long, the power should be supplied nearby, add 485 booster, and increase the resistance of 120 terminal.
6) The USB to 485 driver is not installed or damaged.
7) Equipment damage.