

Solar radiation sensor - Model RS485 Modbus



<https://shop.smart-maic.com/shop/product/usb-to-rs485-converter-236>

Use the USB to RS485 converter to configure your Modbus sensors before connecting it to the D105 device.

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To determine the required byte sequence, connect your Modbus sensor to your PC with this converter.

Using the RS485 Tool utility (https://smart-maic.com/download/rs485_tool.zip), send the byte sequence to the sensor and receive the result. When you get the correct result, transfer the byte sequence to the D105 settings in Modbus server mode.

Wiring

	Thread color	instruction
power supply	Brown	Positive power supply (7~30V DC)
	black	Power negative
Communication	green/yellow	485-A
	blue	485-B

Basic communication parameters

Code	8-bit binary
Data bit	8-bit
Parity bit	none
Stop bit	1 BIT
Error checking	CRC (Redundant Cyclic Code)
Baud rate	2400bit/s, 4800bit/s, 9600 bit/s can be set, the factory default is 4800bit/s

Read the current solar radiation value

Inquiry frame: read numerical function code 03/04

address code	function code	Register start address	Register length	Check code low bit	High bit of check code
0x01	0x03	0x00 0x00	0x00 0x01	0x84	0x0A

Solar radiation value: 0064(Hexadecimal) =100=> Solar radiation value=100W/m²

smart-MAIC D105 configuration

Modify current address Inquiry frame (modify the current address to 0x02)

address code	function code	Register start address	Register	Check code low bit	High bit of check code
0x01	0x06	0x07 0xD0	0x00 0x02	0x08	0x86

Reply frame will be the same string

Modify the current baud rate Inquiry frame (assuming to modify the baud rate to 9600)

address code	function code	Register start address	Register	Check code low bit	High bit of check code
0x01	0x06	0x07 0xD1	0x00 0x02	0x59	0x46

Reply frame will be the same string