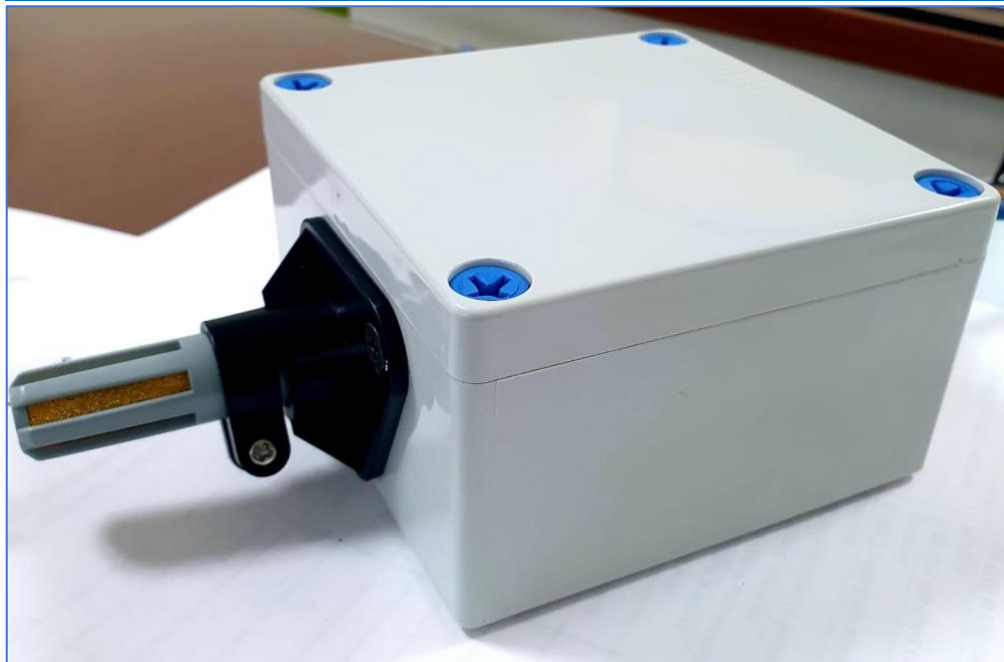


Technical Datasheet Temperature & Humidity Sensor with Modbus Rs485

This is a highly accurate grade Temperature and Humidity sensor that can be connected to DC power source of 12 V directly or a direct AC source. It's a probe-based sensor for temperature and humidity measurement. Additionally, it can be delivered with Modbus Rs485 interface or a Modbus TCP over WIFI interface to communicate to the IoT Gateway / PLC. The sensor would have an IP 40 casing and wall mountable.

Temperature Sensor Board: - (100mm x 100mm x 60mm)



The details of the enclosure and the probe are referred below.

Specifications

General –

I/O Connectors	2 Pin 5.08 mm pitch pluggable screw Terminal Block
Dimensions	100mm L x 100mm B x 50mm H
Power	Input Power – 12 V DC / AC input Optional Typical – 5 W
Operating Temperature	0 – 80° C (32 ~ 176°F)
Storage Temperature	-20 - 70° C (-4 ~ 158°F)
Storage Humidity	5 ~ 95 % RH, non – Condensing



Certifications

Sensor Details –

Temperature	- 40 to + 80° C
Accuracy @25°	± 0.3° C
Humidity	0 – 100% RH
Accuracy RH	± 2%
Communication	I2C

Communication Type: -

Communication Interface: **Modbus RS485**

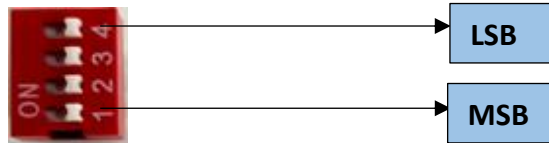
Configuration Settings: -

Communication Speed	9600 – 19200 Kbps (DIP SW Selectable)
Data Bits	8
Parity	None
Stop bit	1
CRC	Yes
Slave ID	1 – 15 (DIP SW Selectable)
Function Code Temp	0x03 Read Holding Registers
Function Code Humidity	0x03 Read Holding Registers
Register Address	0 and 1.

ID	Function Description	Register Description	Modbus Function Code	Protocol	Data Type
1	Temperature	40001	0X03	RS485	16 Bit Unsigned int
2	Humidity	40002	0X03	RS485	16 Bit Unsigned int

Note – The board also has a relay 10A / 230V which can be programmed for controlling a device.

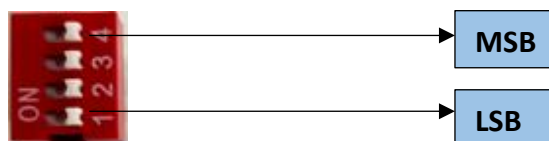
BAUD RATE DESCRIPTION



- For Baud rate Selection, DIP SW is used as per the diagram.
- Pulling up the switch will make Baud rate active.
- If no selection is made 9600 will be default Baud rate.
- When u change the Baud rate in the Module power 'ON' condition, please press the reset button to get Change to affect.

Baud Rate	DIP SWITCH			
	1	2	3	4
9600	OFF	OFF	OFF	OFF
19200	OFF	OFF	OFF	ON
38400	OFF	OFF	ON	OFF
57600	OFF	ON	OFF	OFF
115200	ON	OFF	OFF	OFF

SLAVE ID DESCRIPTION



For Slave ID Selection SW is used to Set The SLAVE ID .

For Slave ID DIP Switch **LSB is "1"** follow through **"4" is MSB**.

Slave ID Confirmed through below Device ID table .

IF Eg. Slave ID 1 is Needed to be selected Switch number 1 should pulled up other three should be selected down side. So"1 0 0 0" will be selected as Slave ID 1.

Slave ID	DIP SWITCH				OUTPUT (Binary)	OUTPUT (Decimal)
	1	2	3	4		

0	OFF(0)	OFF(0)	OFF(0)	OFF(0)	0 0 0 1	1
1	ON(1)	OFF(0)	OFF(0)	OFF(0)	0 0 0 1	1
2	OFF(0)	ON(1)	OFF(0)	OFF(0)	0 0 1 0	2
3	ON(1)	ON(1)	OFF(0)	OFF(0)	0 0 1 1	3
4	OFF(0)	OFF(0)	ON(1)	OFF(0)	0 1 0 0	4
5	ON(1)	OFF(0)	ON(1)	OFF(0)	0 1 0 1	5
6	OFF(0)	ON(1)	ON(1)	OFF(0)	0 1 1 0	6
7	ON(1)	ON(1)	ON(1)	OFF(0)	0 1 1 1	7
8	OFF(0)	OFF(0)	OFF(0)	ON(1)	1 0 0 0	8
9	ON(1)	OFF(0)	OFF(0)	ON(1)	1 0 0 1	9
10	OFF(0)	ON(1)	OFF(0)	ON(1)	1 0 1 0	10
11	ON(1)	ON(1)	OFF(0)	ON(1)	1 0 1 1	11
12	OFF(0)	OFF(0)	ON(1)	ON(1)	1 1 0 0	12
13	ON(1)	OFF(0)	ON(1)	ON(1)	1 1 0 1	13
14	OFF(0)	ON(1)	ON(1)	ON(1)	1 1 1 0	14
15	ON(1)	ON(1)	ON(1)	ON(1)	1 1 1 1	15

Note: -

For MODBUS communications, a **shielded and twisted pair cable** is used. One example of such cable is Belden 3105A.

Recommended Cable Electrical Characteristics: -

22 AWG Cable Shielded and twisted pair should be used.
Tinned Copper Recommended
Nominal Conductor DCR 14.7 ohm / 1000 ft
Nominal Capacitance 11 pf / feet (conductor to conductor)
High Frequency Non-Insertion Loss 0.5db / 100ft

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