

Industrial Temperature Sensor - Product Code



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WIN-SN-CO-M1

WIN-SN-CO-M is a compact, high-precision Carbon Monoxide sensor designed for applications requiring low power consumption and small form factor. It ensures reliable measurements over a wide range. Its RS485 communication interface simplifies integration into small, embedded systems, making it ideal for IoT, HVAC, and wearable devices. The sensor's long-term stability ensures consistent performance in harsh environments, making it a cost-effective solution for long-term deployment.

Measuring Parameter	Measuring Range	Operating Temperature
Carbon Monoxide	5PPM-5000PPM	0°C ~ 60°C.

Sensor Operation & Communication Details

The first step is to power up the sensor with the selected VDD supply voltage (range between 12V and 24V). After power-on, the sensor needs some time to reach the idle state and it is ready to receive commands sent by the host (MCU).

Default Configuration Settings

Communication Speed	9600 - 115200 (SW selectable)
Data Bits	8
Parity	None
Stop bit	1
CRC	Yes
Function code	0X03 (Read Holding Register)

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

Important Note:

Carbon monoxide concentration are provided in the multiple of 100, for the sake of higher resolution, you need to divide it by 100 to obtain the actual reading. Example. PPM $675/100 = 6.91$ PPM

Baudrate is provided in devises of 10. Example. Baudrate $960 * 10 = 9600$.

If wanted to change baud rate/ Slave Id/ Parity / Stop bit then refer below image. Please insert in Modbus table as shown in fig. Once updated reboot the sensor or press reset button on the PCB. And connect to MB Poll by updated setting.

Step by step Guide to set the desired Baud rate, Slave ID, Parity, Stop bit.

Tx = 200: Err = 0: ID = 1: F = 03: SR = 1000ms				
	Alias	00000	Alias	00010
0	CO IN PPM	675	Default Baud	960
1		0	Desired Baud	0
2		0	Default SlaveID	1
3		0	Desired SlaveID	0
4		0	Default Parity	3
5		0	Desired Parity	0
6		0	Default Stop	1
7		0	Desired Stop	0
8		0		
9		0		

Fig 1

Tx = 398: Err = 0: ID = 1: F = 03: SR = 1000ms				
	Alias	00000	Alias	00010
0	CO IN PPM	675	Default Baud	960
1		0	Desired Baud	11520
2		0	Default SlaveID	1
3		0	Desired SlaveID	0
4		0	Default Parity	3
5		0	Desired Parity	0
6		0	Default Stop	1
7		0	Desired Stop	0
8		0		
9		0		

Fig 2

Fig1 showing the default setting of the product that is baud rate 9600, Slave ID 1, Parity None, Stop bit 1.

- For changing baud rate from 9600 to 115200 Write 11520 at desired baud rate column as shown in fig2. Now press the reset button or restart the product.

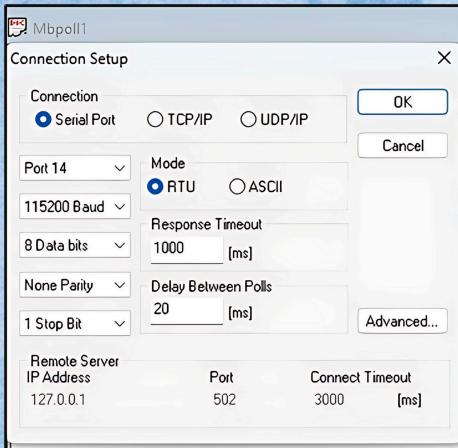


Fig 3

Tx = 646: Err = 12: ID = 1: F = 03: SR = 1000ms				
	Alias	00000	Alias	
0	CO IN PPM	675	Default Baud	11520
1		0	Desired Baud	0
2		0	Default SlaveID	10
3		0	Desired SlaveID	0
4		0	Default Parity	3
5		0	Desired Parity	0
6		0	Default Stop	1
7		0	Desired Stop	0
8		0		
9		0		

Fig 4

2. Now connect the Modbus by new baud rate as shown in fig.3. Once you click ok in fig 3 you will connect to Modbus with desired Baud rate of 115200. As shown in fig.4.

Tx = 536: Err = 4: ID = 1: F = 03: SR = 1000ms				
	Alias	00000	Alias	
0	CO IN PPM	675	Default Baud	11520
1		0	Desired Baud	0
2		0	Default SlaveID	10
3		0	Desired SlaveID	0
4		0	Default Parity	3
5		0	Desired Parity	0
6		0	Default Stop	1
7		0	Desired Stop	0
8		0		
9		0		

Fig 5

Tx = 715: Err = 12: ID = 1: F = 03: SR = 1000ms				
	Alias	00000	Alias	
0	CO IN PPM	675	Default Baud	11520
1		0	Desired Baud	0
2		0	Default SlaveID	10
3		0	Desired SlaveID	0
4		0	Default Parity	3
5		0	Desired Parity	0
6		0	Default Stop	1
7		0	Desired Stop	0
8		0		
9		0		

Fig 6

3. To change slave ID from 1 to 10, Write 10 at the Desired Slave ID column. Again press reset or restart the product. And once you connect with slave ID 10 you will connect to Modbus as shown in fig 6.

Tx = 646: Err = 12: ID = 1: F = 03: SR = 1000ms				
	Alias	00000	Alias	
0	CO IN PPM	675	Default Baud	
1		0	Desired Baud	0
2		0	Default SlaveID	10
3		0	Desired SlaveID	0
4		0	Default Parity	3
5		0	Desired Parity	0
6		0	Default Stop	1
7		0	Desired Stop	0
8		0		
9		0		

Fig 7

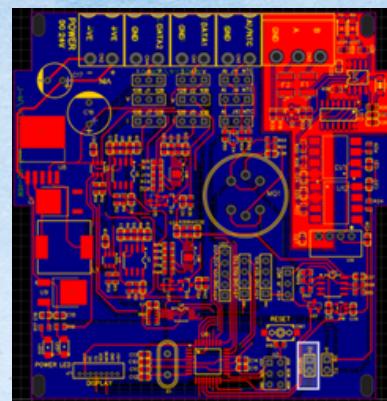


Fig 8

3. Now the Modbus is connected with desired Baud rate of 115200 and desired slave ID of 10. As shown in fig 7.

4. In case of forgetting changed slave ID, Changed baud rate you need to restore factory setting by removing jumper as shown in fig8. And press reset button. Product will be goes in default setting as shown in fig1.

Technical Support -

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