



Modbus Protocol

GS07 CO₂ Transmitter(RS-485)



eYc GS07



Modbus Communication Protocol

Thank you for choosing our product! Please take note the followings before powering up the sensor.

Introduction :

The GS07 is designed for measuring the ambient carbon dioxide concentration and provide measurement information for monitoring or control. The state-of-the-art NDIR sensing technology ensures accurate and stable measurements. It is perfect for building climate control, greenhouse, mushroom farming and other processes where CO₂ measurement and control would be required. By controlling the ventilation of an air-conditioned space based on actual demand, it helps to balance between energy consumption and indoor air quality.

Wiring connection :

Wire Colours	Terminal	Description
Red	G+	Power Supply +24V ac or dc
Black	G0	Power supply & shielding ground, GND
White	B	RS-485 data (-)
Yellow	A	RS-485 data (+)

Note : In order to avoid any sensor damage or hazard, do not power the sensor when wiring.

Sensor ID :

The default sensor ID or sensor address is 104. When there would be more than one sensor on the same RS-485 network, make sure that the sensor IDs are changed such that each sensor has its unique sensor ID or address.

Changing sensor ID :

The sequence should be as follows :

1. Write new address

Master send : <FE> <41> <00> <20> <01> <New Modbus address> <crc> <crc>

Sensor reply : <FE> <41> <crc> <crc>

2. Write " Copy to EEPROM "

Master send : <FE> <41> <00> <60> <01> <02> <crc> <crc>

Sensor reply : <FE> <41> <crc> <crc>

3. Reset sensor

Master send : <FE> <41> <00> <60> <01> <FF> <crc> <crc>

Sensor reply : <FE> <41> <crc> <crc>

Note that :

- 1.<FE> is a broadcast address command and only be used when RS-485 network has only one GS07. The broadcast address (<FE>) can also be replaced with the particular sensor ID to be changed.
- 2.The sensor ID can also be changed with SenseAir UIP software. Please refer to UIP5 for further details.

CO₂ read sequence :

The sensor is addressed as " Any address " (0xFE). For specific address, <FE> should be changed to the sensor ID and the CRC should be changed accordingly.

Master send : <FE> <04> <00> <03> <00> <01> <D5> <C5>

Sensor reply : <FE> <04> <02> <CO₂_H> <CO₂_L> <crc> <crc>

Disable ABC function :

For installation space that does not stabilize at fresh-air background CO₂ level, the ABC function should be dis-able. We can do this by setting ABC_PERIOD to 0.

Master send : <FE> <06> <00> <1F> <00> <00> <AC> <03>

Sensor reply : <FE> <06> <00> <1F> <00> <00> <AC> <03>

Enable ABC function :

We can enable the ABC function by setting ABC_PERIOD to some value other than 0. In this example, we set it to 7.5 days.

Master send : <FE> <06> <00 <1F> <00> <B4> <AC> <74>

Sensor reply : <FE> <06> <00> <1F> <00> <B4> <AC> <74>

Background calibration sequence :

The sequence to perform a background calibration by issuing commands is as follows.

a) Clear acknowledgement in holding register

Master send : <FE> <06> <00> <00> <00> <00> <9D> <C5>

Sensor reply : <FE> <06> <00> <00> <00> <00> <9D> <C5>

b) Write command to start background calibration.

Master send : <FE> <06> <00> <01> <7C> <06> <6C> <C7>

Sensor reply : <FE> <06> <00> <01> <7C> <06> <6C> <C7>

c) Wait at least 2 seconds for standard sensor with 2 sec lamp cycle.

d) Read acknowledgement register.

Master send : <FE> <03> <00> <00> <00> <01> <90> <05>

Sensor reply : <FE> <03> <02> <00> <20> <AD> <88>

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