Modbus Protocol

GS07 CO$_2$ 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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