



GM4008

Ethernet Interface Eight-channel 0~24mA Acquisition Module

1. Product Information

GM4008 is an eight-channel 0~24mA acquisition module, it adopts the all-electric isolation scheme and completes the current measurement in a small volume, which coordinates with the high-performance MPU and eight-channel 12-bit ADC.

The module has the built-in high-performance power converter, and the power input voltage range is 7.5V~36V, and the efficiency is up to 90%. This feature provides protection for working a long time. The converter has a built-in 1500V dual isolation power supply module, which makes complete isolation among the power supply input, analog measurement circuits and communication interfaces. The feature provides guarantee for the measure precision, stability and commonality of the module.

The module has a 100M ethernet circuit which can complete 0~24mA acquisition function from a long distance. The communication of the module is stable, reliable and not dropped.

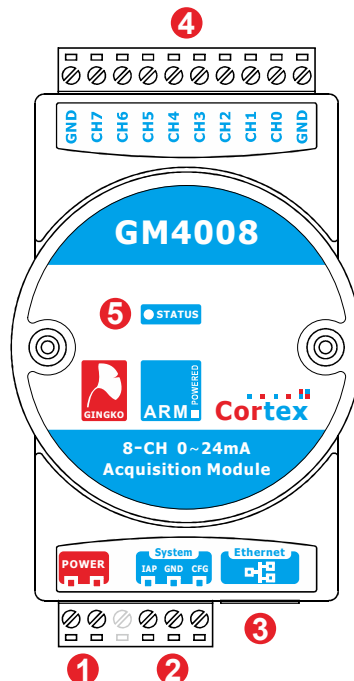
The module has a built-in 32-bit high-tech arm mcu. It can not only acquire the eight-channel 0~24mA current, but also support the functions of firmware upgrades which can provide technical guarantee for maintaining, updating and bug fixing.

2. Features

- ① The measurement accuracy is $\pm 0.1\%FS \pm 0.01mA$;
- ② Eight-channel measured current;
- ③ Input current range: 0~24mA, 0~20mA or 4~20mA;
- ④ Update rates of data collection: 10 times per second;
- ⑤ The range of the power input voltage: 7.5V~36V;
- ⑥ The module has the built-in high-performance power converter, and the efficiency is up to 90% with no heats;
- ⑦ The power supply, analog measurement channel and communication interface are all-electric isolation, which is safe and stable;
- ⑧ The module has the built-in 100M ethernet circuit with strong performance and high stability;
- ⑨ Communication interface calibration parameters are full-automation configuration with high intelligence;
- ⑩ Support browser conveniently and quickly access;
- ⑪ Standard Modbus-TCP protocol, and it is able to connect with PLC, HMI, etc;
- ⑫ Standard adam module with rail clip installation.

1

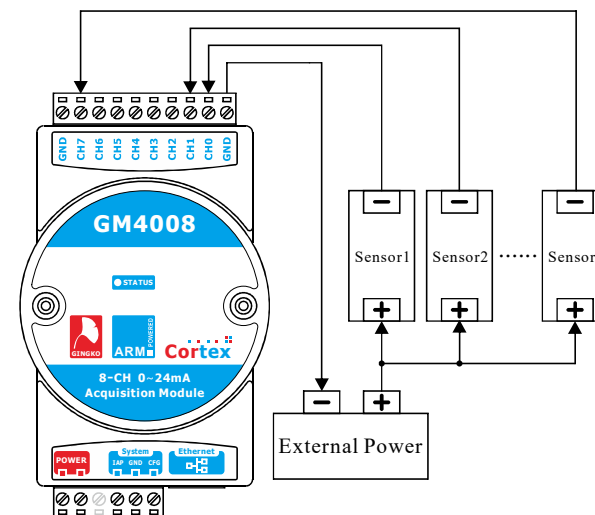
3. Interface Specification



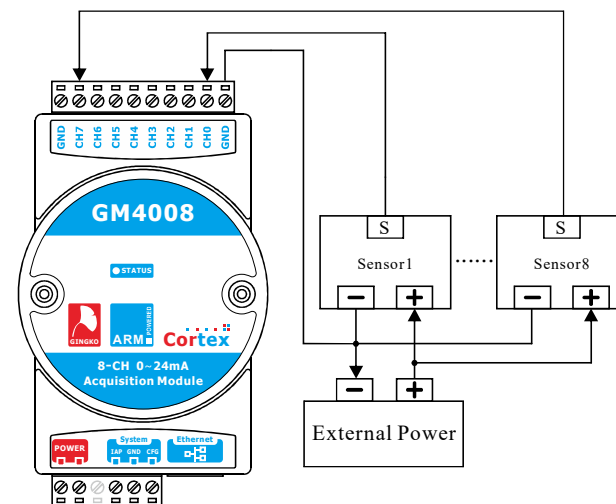
- ① POWER——power interface
Polarity-free power interface, the input DC voltage range is 7.5V~36V.
- ② System——system function interface
IAP: firmware upgrades, and short it with GND to boot into the firmware upgrades state.
CFG: configuration function, and short it with GND to boot into configuration state.
GND: ground signal.
- ③ Ethernet——100M ethernet interface
It can be connected to computers, network switches and wired routers (wireless routers), it's compatible with 10M and 100M network protocol.
- ④ Analog signal(current)input
The input signal is 0~24mA measured current, and the connector contains 8 input channels and 2 GND terminals. The two GND terminals connect together internally and CH0~CH7 are eight channels for current input, and the current always goes through one channel and the sample resistance, and flow from the GND port.
- ⑤ STATUS——LED direction
Three colour (red, green and blue) LED status indicator light.

2

4. Connect with the Two-Wire Sensor



5. Connect with the Three-Wire Sensor



3

6. Product Information and Default Parameter

Property	Performance indication
Input range	0~24mA
ADC parameter	8 channel, 12 bits
Measurement accuracy	±0.1%FS±0.01mA
Resolution	0.01mA
Switching speed	10SPS
Supply voltage	DC 7.5V~36V
Power consumption	about 1.2W
Isolation method	power, interface and measurement channel all isolation
Isolation voltage	1500VDC
Programmable interface	100M ethernet interface
Compatible speed	10/100M ethernet
Communication protocol	Modbus- TCP
Operating temperature	-40℃~85℃
Sample resistance	100 Ω
Dimensions	125mm x 70mm x 26mm
Weight	Net:95g; with pagage:185g
Installation mode	Standard DIN rail chip installation
Default parameters	IP address: 192.168.0.10 Submask: 255.255.255.0 Port number:502 Slave address:1

7. Modbus-TCP Registers Introductions

This module contains 24 registers, and every channel has 3 registers. They all map to the registers of Modbus protocol. The register list is shown below:

4

Address	Name	Type
40001	Channel 0 register A1	read only(R)
40003	Channel 0 register A2	read only(R)
40003	Channel 0 register B	read only(R)
40004	Channel 1 register A1	read only(R)
40005	Channel 1 register A2	read only(R)
40006	Channel 1 register B	read only(R)
.....	read only(R)
40024	Channel 7 register B	read only(R)

In order to facilitate the users, the module adapts two ways to express the measured value, as shown below:

① integer and decimal isolate mode

The register with address 40001 is the integer part of channel 0 measured value; The register with address 40002 is the fractional part of channel 0 measured value. You can get the measured value with the following equation:

$$\text{measured value(mA)} = \text{value}[40001] + \text{value}[40002] / 100$$

For example: if the value of 40001 register is 5 and the value of 40002 register is 60.

$$\text{measured value(mA)} = 5 + 60 / 100 = 5.6 \text{ mA}$$

② 100x magnification integer mode

The register with address 40003 is the other represent method of channel 0 measured value, which is mapped by 100-time-magnified analog signal and the stored values is signed integer. You can get the measured value with the following equation:

$$\text{measured value(mA)} = \text{value}[40003] / 100$$

The above formulas take examples of channel 0, which is similar to other channels. If you want to get more introductions, please refer to the user manual of GM4008.

8. Parameters Configuration And Firmware Upgrades

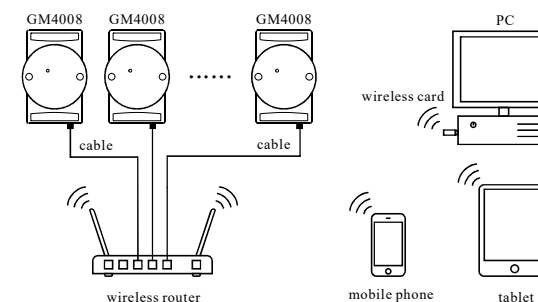
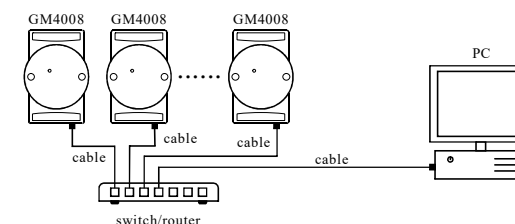
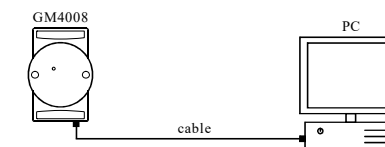
The module has the built-in function of parameters configuration and firmware upgrades, short the configuration pins with GND and re-power to boot into the parameters configuration or firmware upgrades state. Parameter configuration or firmware upgrade is completed by the browsers of computers, mobile phones, tablet computers and so on.

5

After entering the appropriate mode and networking, access the following address to complete the operation. Please refer to the user manual of GM4008.

<http://192.168.0.10>

9. Network Model



Official store : <http://iCore.taobao.com>
 Technology BBS: <http://www.eeschool.org>
 E-mail : gingko@vip.163.com
 Contact us : 0379-69926786 69926675

6