

DAM-3025D

User Manual

V6.17



Preface

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Disclaimer that

Before ordering products, please check with the manufacturer or dealer to see if the product performance meets your needs.

Correct transportation, storage, assembly, installation, commissioning, operation and maintenance is the premise of product safety and normal operation. The company shall not be responsible for any direct, indirect, intentional or unintentional damages or hidden dangers caused by improper installation or use.

Use common sense for safety

1. Please read the product manual carefully before using the product;
2. For products not ready for installation and use, anti-static protection should be well done (preferably placed in the anti-static protection bag, do not take it out);
3. Before taking out the product, the hand should be placed on the ground metal object first, in order to release the static electricity in the body and hands, and wearing the electrostatic gloves and bracelet, to develop the habit of only touching the edge part;
4. In order to avoid electric shock to the human body or damage to the product, the power shall be cut off every time the product is unplugged or reconfigured;
5. Be sure to unplug the power supply before moving the product;
6. For the whole machine products, need to increase/reduce the board card, be sure to power;
7. Before you connect or unplug any device, make sure all power cords have been unplugged beforehand;
8. In order to avoid unnecessary damage to the product caused by frequent switching of the machine, after shutdown, should wait for at least 30 seconds before starting up.

Catalog

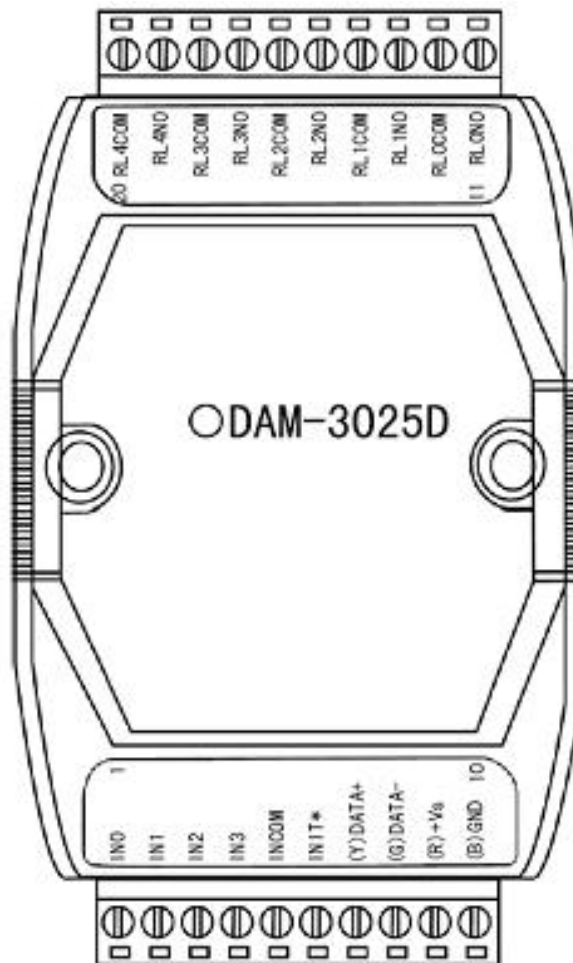
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1 Product Description

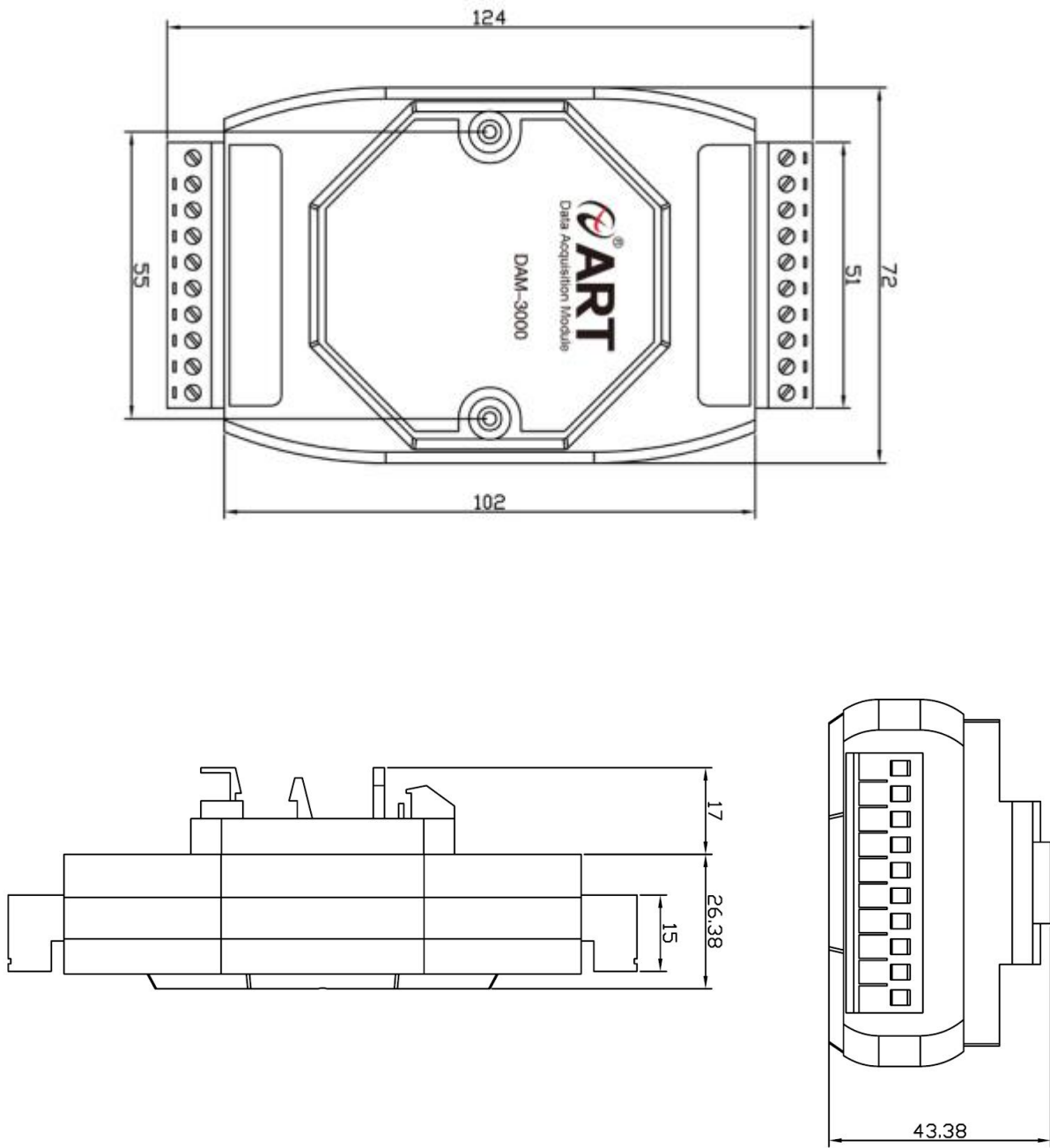
1.1 Overview

DAM-3025D is a 4-channel isolated digital input, 5-channel isolated digital output with LED module, RS485 communication, ModbusRTU protocol.

1.2 Terminal Definition



1.3 Dimension



1.4 Qualification

4-channel isolation digital input /5-channel relay output module

Digital input	
Input channel	4-channels single-terminal digital input (wet contact common cathode/common anode)
Digital input voltage	Wet contact: Logic level 0: 0 ~ +1V (maximum) Logic level 1: +4V ~ +30V
Working mode	DI input, low to high latch, high to low latch, counter
Digital output	
Output channel	5-channel AC SSR solid state relay output
Contact capacity	AC solid state relay - 240vac @1A
Relay on time	3ms
Relay off time	1ms
Other	
Isolation voltage	2500Vrms
Indicator light	LED indicates input/output status
Communication interface	RS485
Baud rate	1200~115200bps
Watchdog	Double watchdog
Power supply voltage	+10V~30VDC
Power protection	Power reverse protection
Power consumption	Rating 1.7W @ 24VDC
Operating temperature	-10°C ~ +70°C
Storage temperature	-20°C ~ +85°C

1.5 Instructions

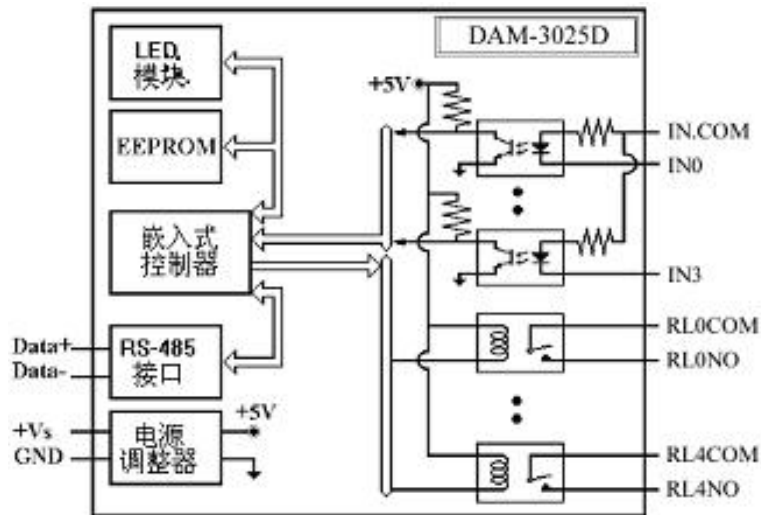
1、Terminal definition table

Table 1

Terminal	Name	Instructions
1	IN0	0th DI channel
2	IN1	Digital input 1th channel
3	IN2	Digital input 2th channel
4	IN3	Digital input 3th channel

5	INCOM	Digital input common terminal
6	INIT*	Reset end, which is connected with (B)GND pin and powered on to make the reset
7	(Y)DATA+	Rs-485 interface signal positive
8	(G)DATA-	Rs-485 interface signal negative
9	(R)+Vs	DC positive power input, +10~+30VDC
10	(B)GND	DC negative power input
11	RL0NO	Relay output 0th channel
12	RL0COM	Relay output 0th channel common terminal
13	RL1NO	Relay output 1th channel
14	RL1COM	Relay output 1th channel common terminal
15	RL2NO	Relay output 2th channel
16	RL2COM	Relay output 2th channel common terminal
17	RL3NO	Relay output 3th channel
18	RL3COM	Relay output 3th channel common terminal
19	RL4NO	Relay output 4th channel
20	RL4COM	Relay output 4th channel common terminal

2、Block diagram of internal structure of module



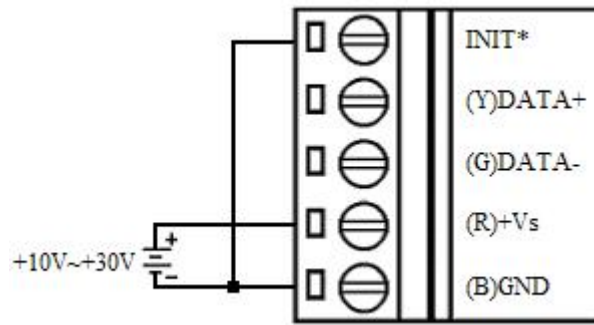
3、Reset instructions

Short the INIT* terminal to the GND terminal, and add +10~+30VDC voltage between the +Vs terminal and the GND terminal. After power-on, the module indicator flashes rapidly 3 times. After the indicator light flashes, the power is turned off. The INIT* terminal is disconnected from the GND terminal, and the module has been reset.

After successful reset, the factory default value of the module will be restored:

Module Address: 1

Baud Rate: 9600



4、 Power and communication line connection

As shown in the figure below, the maximum voltage of the input power supply and RS485 communication interface is 30V, exceeding the range may cause permanent damage to the module circuit.

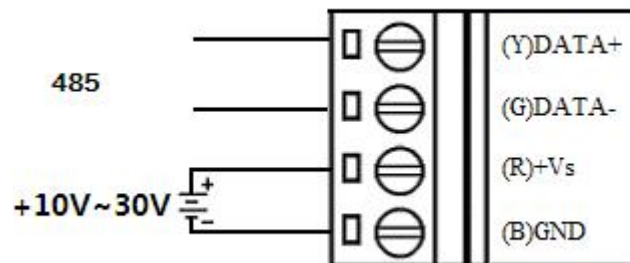


Figure 5

5、 light Indicator

The module has one operation indicator and nine input and output status indicators.

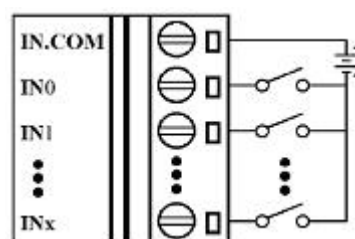
Operation indicator: when the power is normally on and no data is sent, the indicator will always be on; Indicator light flashes when data is sent. INIT short power on, the indicator light quickly flashing 3 times;

Input status indicator: four indicators correspond to four input channels.

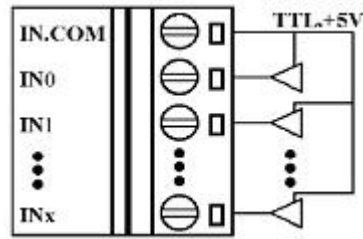
Output status indicator: five indicators correspond to five output channels.

6、 DI input and DO output connection

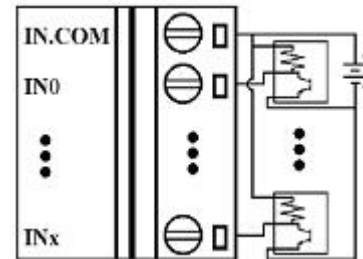
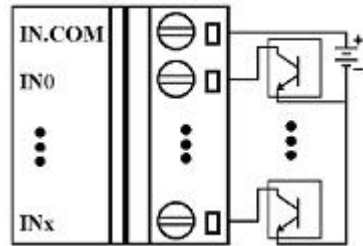
Wet contact signal input connection



TTL/CMOS signal input connection



Open collector signal input connection



2 Configuration instructions

2.1 Code Configuration Table

Baud Rate configuration code table

code	00	01	02	03	04	05	06	07
Baud rate	1200	2400	4800	9600	19200	38400	57600	115200

2.2 MODBUS Communication Notes

1、Read relay state

Function code: 01

Data start address: 00001~00032

Description: Read the status of the output relay

The data shows:

Address	Describe	Attribute	Description
00001	00th DO output status	Read and write	= 1 high level = 0 low level
00002	01th DO output status	Read and write	
00003	02th DO output status	Read and write	
00004	03th DO output status	Read and write	
00005	04th DO output status	Read and write	
Reserved			

2、Read switch quantity input

Function Code: 02

Data start Address: 10001~10032

Description: Read the status of the input switch

The data shows:

Address	Describe	Attribute	Description
10001	00th DI Input Signal	Read only	= 0 power off ; = 1 power on
10002	01th DI Input Signal	Read only	
10003	02th DI Input Signal	Read only	
10004	03th DI Input Signal	Read only	
Reserved			
10033	00th DI latch state	Read only	= 0 no latches = 1 with latches
10034	01th DI latch state	Read only	= 0 no latches = 1 with latches
10035	02th DI latch state	Read only	= 0 no latches = 1 with latches

10036	03th DI latch state	Read only	= 0 no latches = 1 with latches
Reserved			

3、Read holding register

Function code: 03

Data start address: 40001~40516

Description: Read the value of the holding register

Data Description: Reading is a 16-bit integer or no matching integer

Address	Describe	Attribute	Description
40001	00th pulse count prefabricated value	Read and write	Low 16 bit count value
40002	00th pulse count prefabricated value	Read and write	High 16 bit count value
40003	01th pulse count prefabricated value	Read and write	Low 16 bit count value
40004	01th pulse count prefabricated value	Read and write	High 16 bit count value
40005	02th pulse count prefabricated value	Read and write	Low 16 bit count value
40006	02th pulse count prefabricated value	Read and write	High 16 bit count value
40007	03th pulse count prefabricated value	Read and write	Low 16 bit count value
40008	03th pulse count prefabricated value	Read and write	High 16 bit count value
Reserved			
40129	Module name	Read only	For example: 0x30, 0x11 means dam-3011
40130	Module type suffix	Read only	For example: 0x42, 0x44 (HEX) means' BD '(ASC II)
40131	Module MODBUS protocol identification	Read only	For example: 0x2B, 0x20 (HEX) means' +'ASCII
40132	Module version	Read only	For example: 0x06,0x21 means version 6.21
40133	Module address	Read and write	Bit15_ Bit 8 must be entered as 0. Bit7_ Bit 0 module address, range 1~255. For example: 0x01 means address 1
40134	Baud rate	Read and write	For example: 0x03 means 9600bit/s (refer to 2.1 code

			configuration table for details)
40135	Check bit	Read and write	0x0: no check; 0x1: even check; 0x2: odd check; (currently only supported by DAM3014D)
Reserved			
40141	00th DI working mode	Read and write	Bit3- Bit0:DI module working mode 0: DI input 1: count 2: the latch Bit4: count or latch trigger mode 0: falling edge 1: rise along Bit15~Bit5: reserved, not processed
40142	01th DI working mode	Read and write	
40143	02th DI working mode	Read and write	
40144	03th DI working mode	Read and write	
Reserved			
40173	Input latch enable register	Read and write	Bit15~Bit0 correspond to 15~0 channels respectively, setting bit (1) as enable and clearing bit (0) as no-enable.
Reserved			
40177	Input count enable register	Read and write	Bit15~Bit0 correspond to 15~0 channels respectively, setting bit (1) as enable and clearing bit (0) as no-enable.
Reserved			
40181	Clear DI channel count	Just write	Bit15~Bit0 correspond to 15~0 channels respectively, set bit (1) as clear, and clear bit (0) as meaningless.
Reserved			
40183	Clear DI channel latches	Just write	Bit15~Bit0 correspond to 15~0 channels respectively, set bit (1) as clear, and clear bit (0) as meaningless.
Reserved			

40185	DO module power-on value is 16 bits lower	Read and write	
40186	DO module power-on value is 16 bits high	Read and write	
40187	DO module security value is lower 16 bits	Read and write	
40188	DO module security value is 16 bits high	Read and write	
Reserved			
40513	Watchdog control register	Read and write	Bit0=0 dog disable, 1 dog enable
40514	Watchdog overflow register	Read and write	Bit0=0 dog overflow, 1 dog overflow Set the address content to 1 to clear the overflow register
40515	Watchdog timing register	Read and write	
40516	Watchdog reset register	Just write	0x55AA
Reserved			

4、Read input register

Function code: 04

Data start address: 30289~30352

Description: Read input data

Data description: read a 16 - bit integer or non - conforming integer

Address	Describe	Attribute	Description
30289	00th DI pulse count	Read only	Low 16 bit count value
30290	00th DI pulse count	Read only	High 16 bit count value
30291	01th DI pulse count	Read only	Low 16 bit count value
30292	01th DI pulse count	Read only	High 16 bit count value
30293	02th DI pulse count	Read only	Low 16 bit count value
30294	02th DI pulse count	Read only	High 16 bit count value
30295	03th DI pulse count	Read only	Low 16 bit count value
30296	03th DI pulse count	Read only	High 16 bit count value
Reserved			

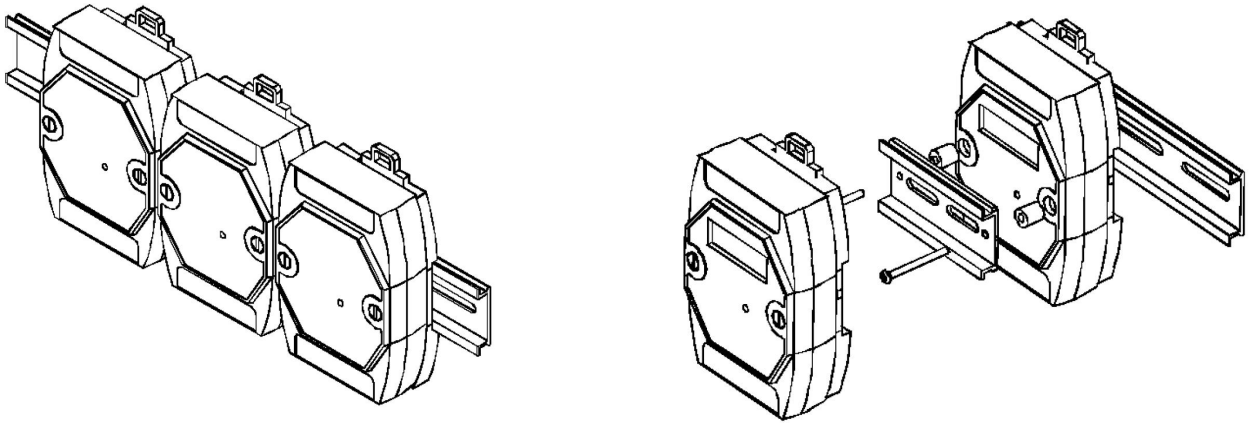
2.3 Factory Default Status

Module address: 1

Baud rate: 9600bps

2.4 Installation Mode

DAM-3025D series modules can be easily installed on DIN rails, panels (as shown in figure 1), or stacked together (as shown in figure 2) for user convenience. Signal connections can be easily installed, modified, and maintained by the use of plug-in screw terminals.



3 Software Instructions

3.1 Module Power Supply

Module power supply requirements: +10V— +30V

1) supply with 24V stabilized voltage source, "+Vs" is connected to the power supply, and "GND" is grounded.

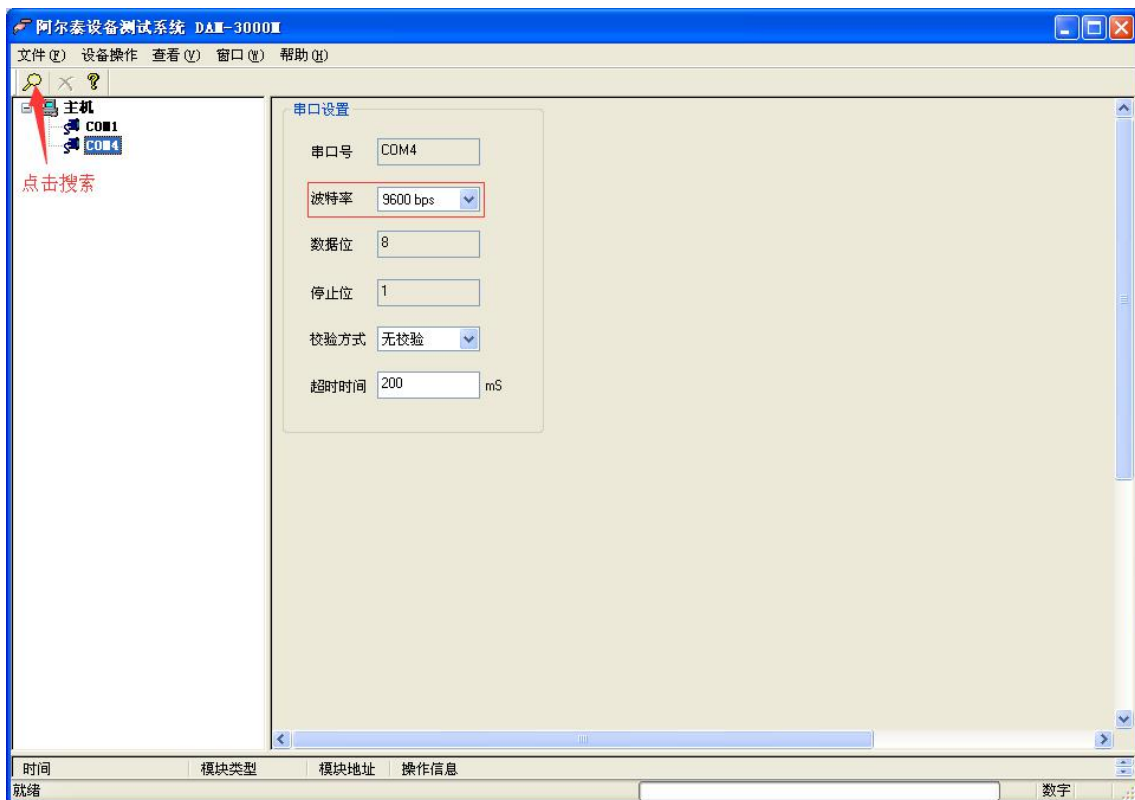
2) "DATA+" and "DATA-" are connected to "DATA+" and "DATA-" terminals of rs-232 / rs-485 conversion module (dam-3210) respectively;

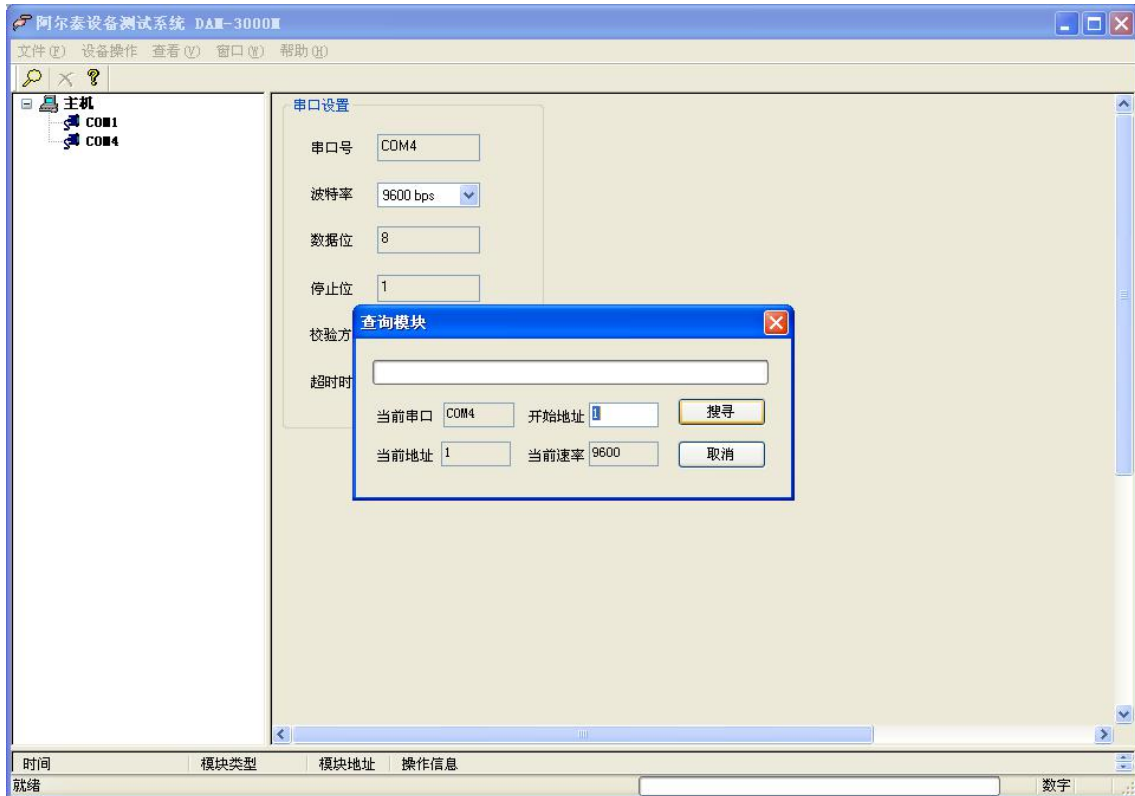
3.2 Reset

Short the 3 and 4 legs of J1; In case of power failure, "INIT*" end and "GND" end are short-circuited; Power up to the indicator light flashing stop, power off; Disconnect the "INIT*" end from the "GND" end, and the module has been reset.

3.3 Connection Module

Select baud rate 9600, other default, search module.





If the following configuration interface appears, it is normal. If no configuration parameters appear, the above steps need to be repeated.

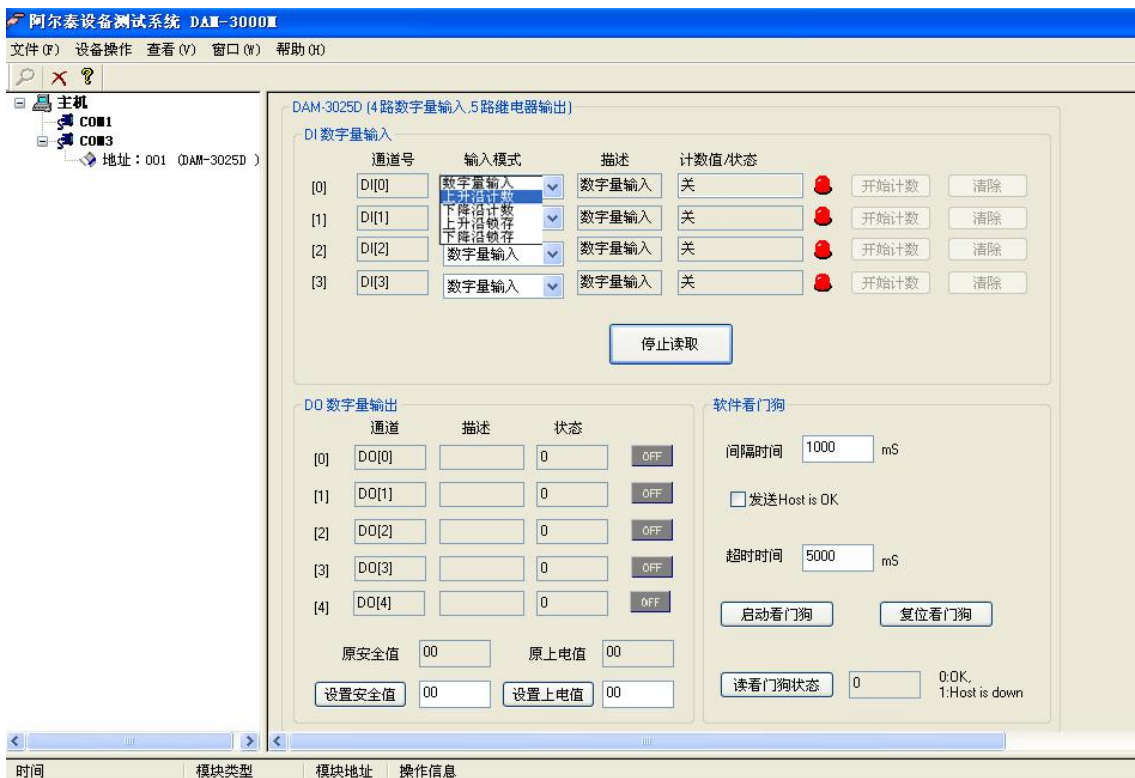


3.4 Set the Factory Default State

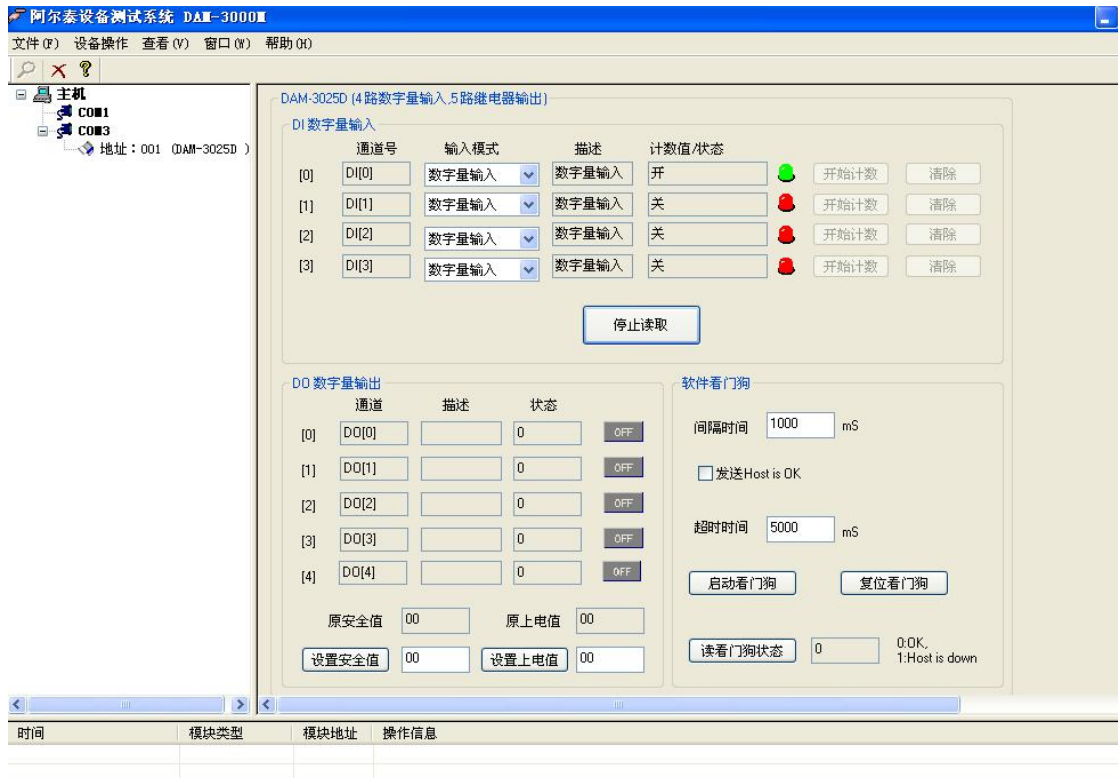
The module is set as the default state before leaving the factory. The module address: 1, the safety value: 0, the power value: 0, the watchdog: closed, and the baud rate is 9600bps

3.5 Input State

- Right click the module information is to appear the interface for configuration information, click the drop-down arrow appears input mode "digital quantity input, increase the counting, decrease the count, increase along the latches, decrease along the latch" five choices, choose test type configuration is completed, the module of four channel can be configured separately, can be configured to different types of samples.



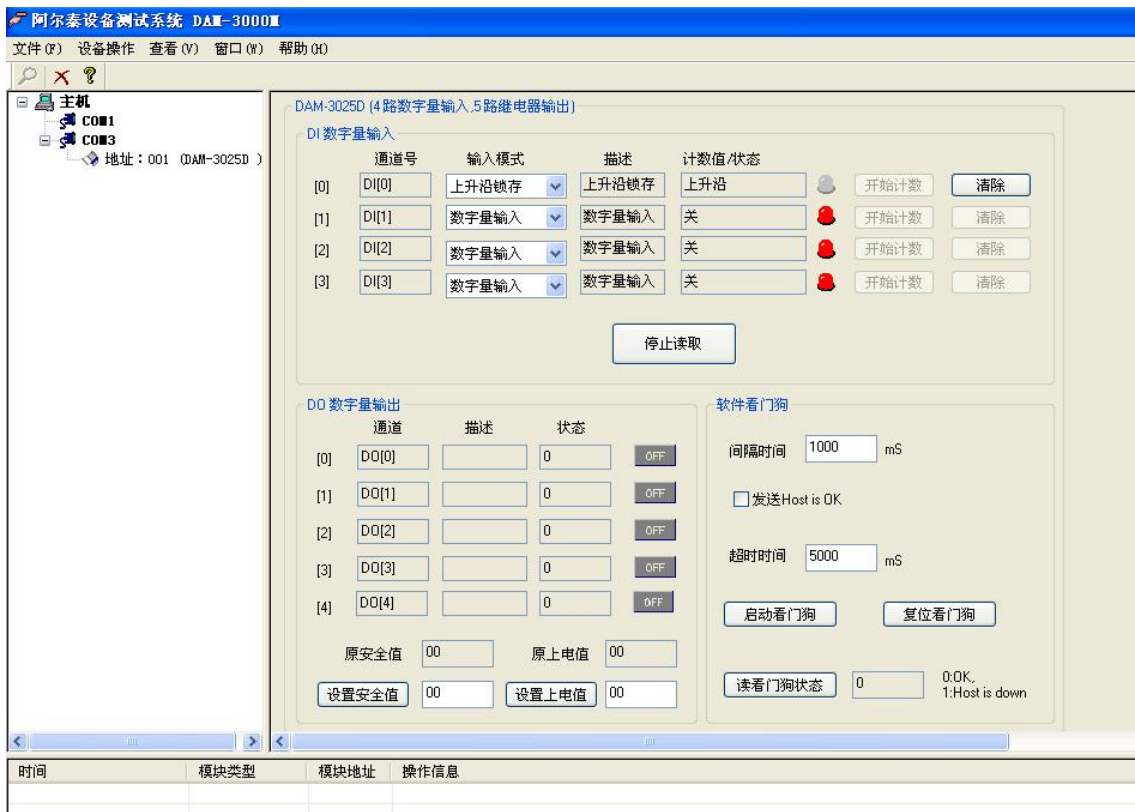
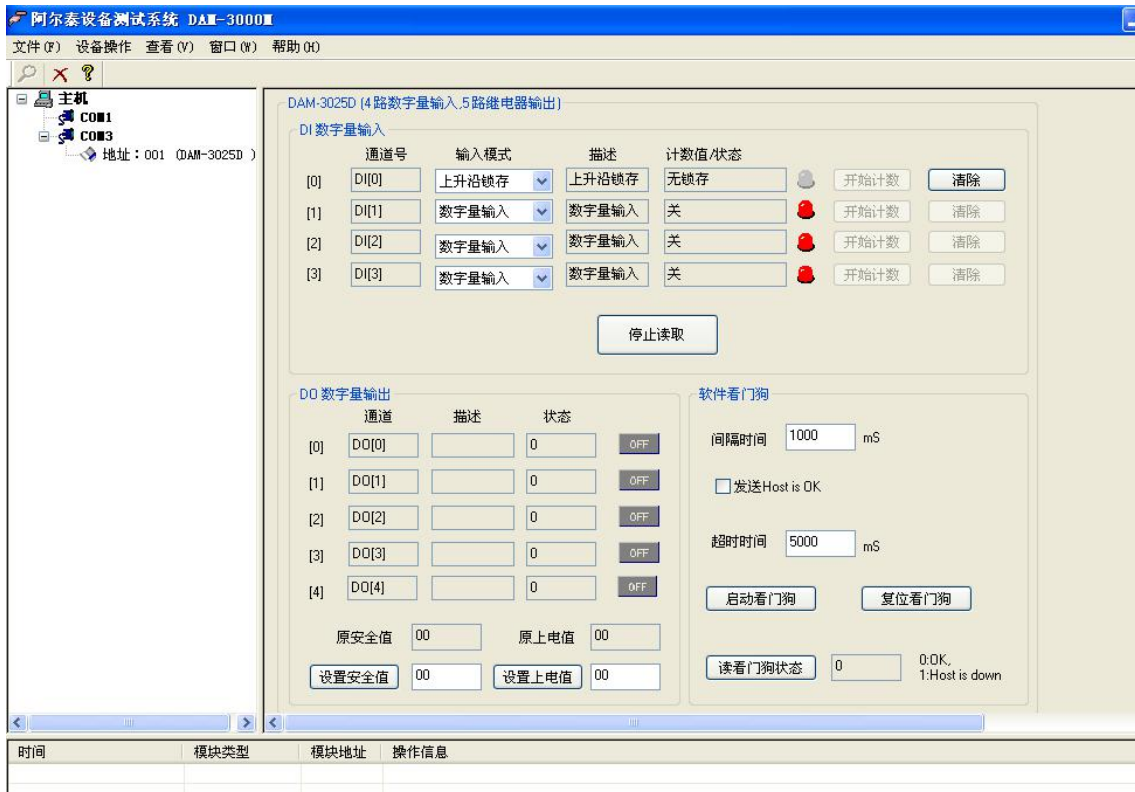
- After the default configuration options of the module, click the "start reading" button and the module will enter the sampling mode. The following samples are taken as examples of "digital quantity input", "rising edge count" and "rising edge latch".
- After selecting the configuration item of "digital input" in the module, click the "start reading" button, and the module enters the sampling mode. Low level is added between Inx and Incom at the input end, "count value/state" is "off", indicator light is off, high level is added between Inx and Incom at the input end, and "count value/state" is "on", indicating light is on.



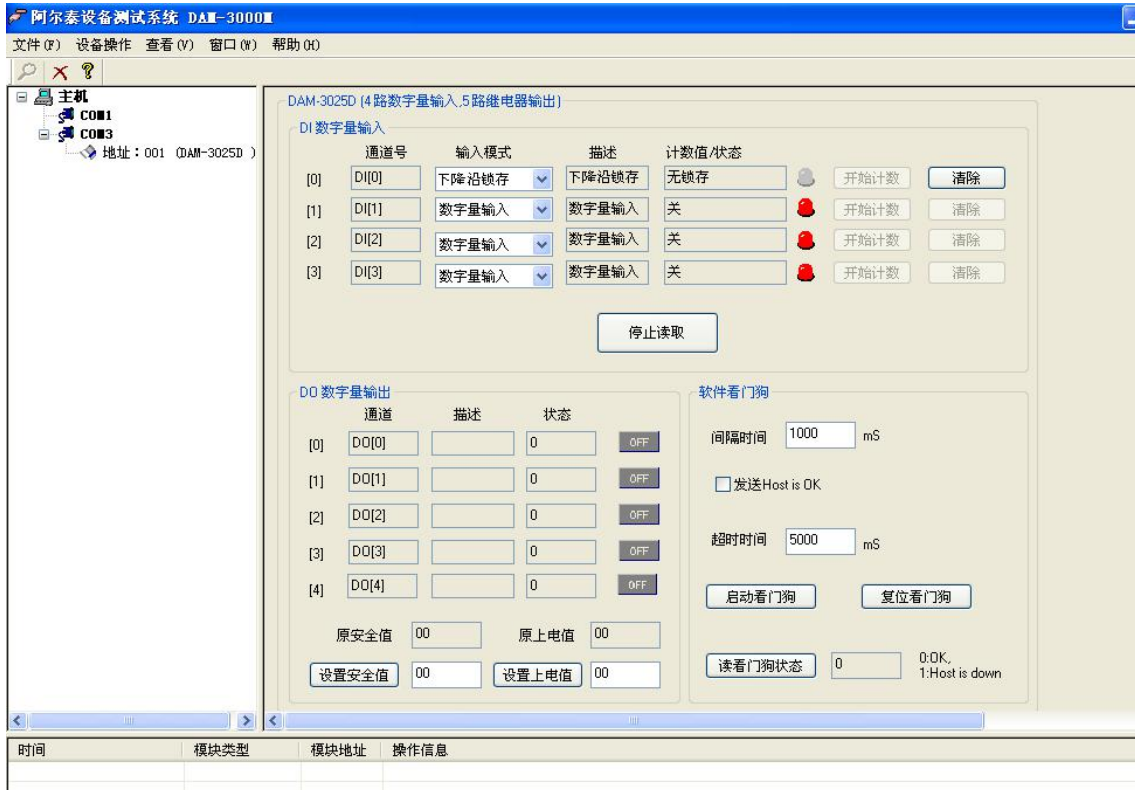
- 4) After the module selects the configuration item of "rising edge counting", before counting, "counting value/state" is "0". Click the "start reading" button, and the module will enter the sampling mode. After giving the digital square wave signal within 100HZ, the "count value/state" will display the count value.



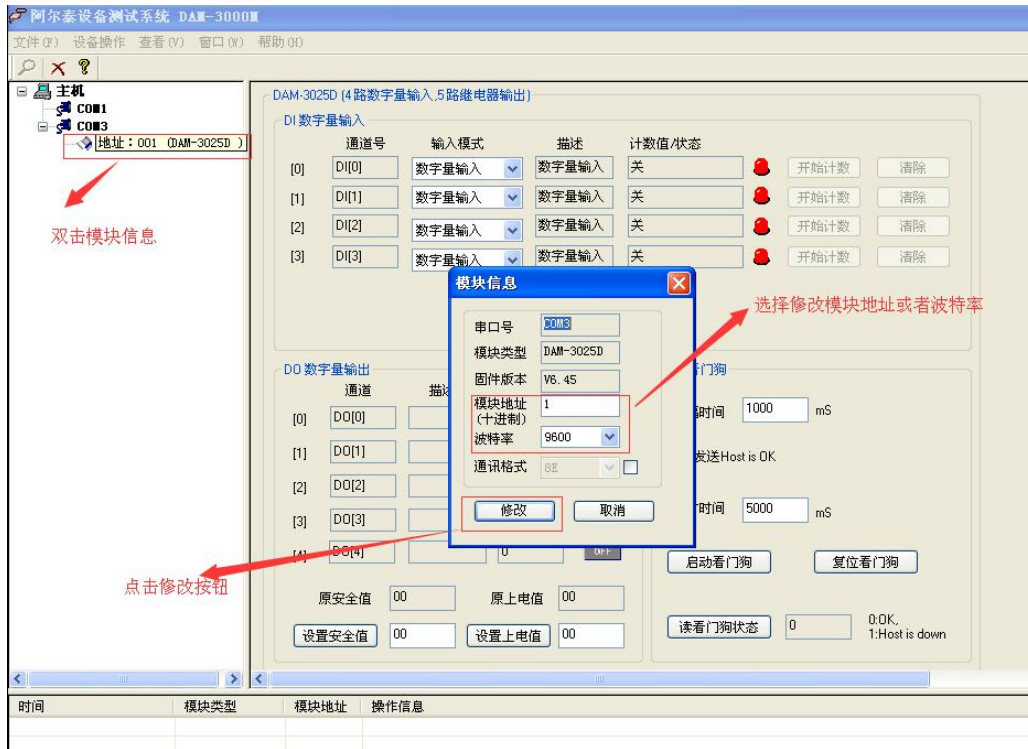
- 5) After the module selects the configuration item of "rising edge latch", before counting, "count value/state" is "no latch". Click the "start reading" button, and the module enters the sampling mode. After giving digital signals to the rising edge, "count value/state" is "rising edge".



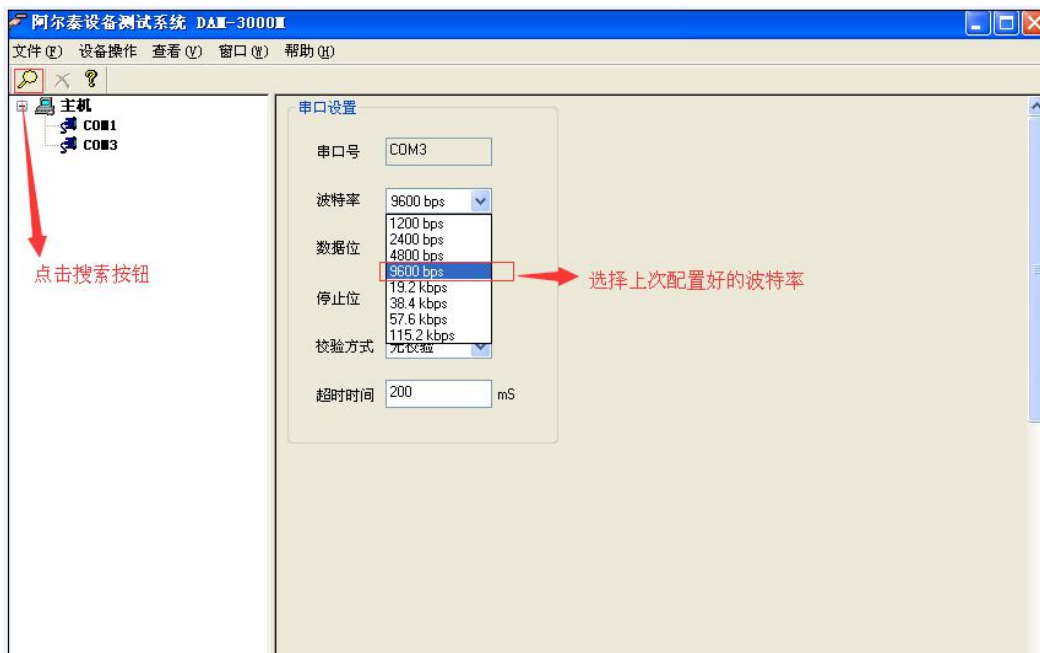
- 6) After the module selects the configuration item of "drop edge latch", before counting, "count value/state" is "no latch". Click the "start reading" button, and the module enters the sampling mode. After giving the digital signal to the rising edge, the "count value/state" is the "falling edge".

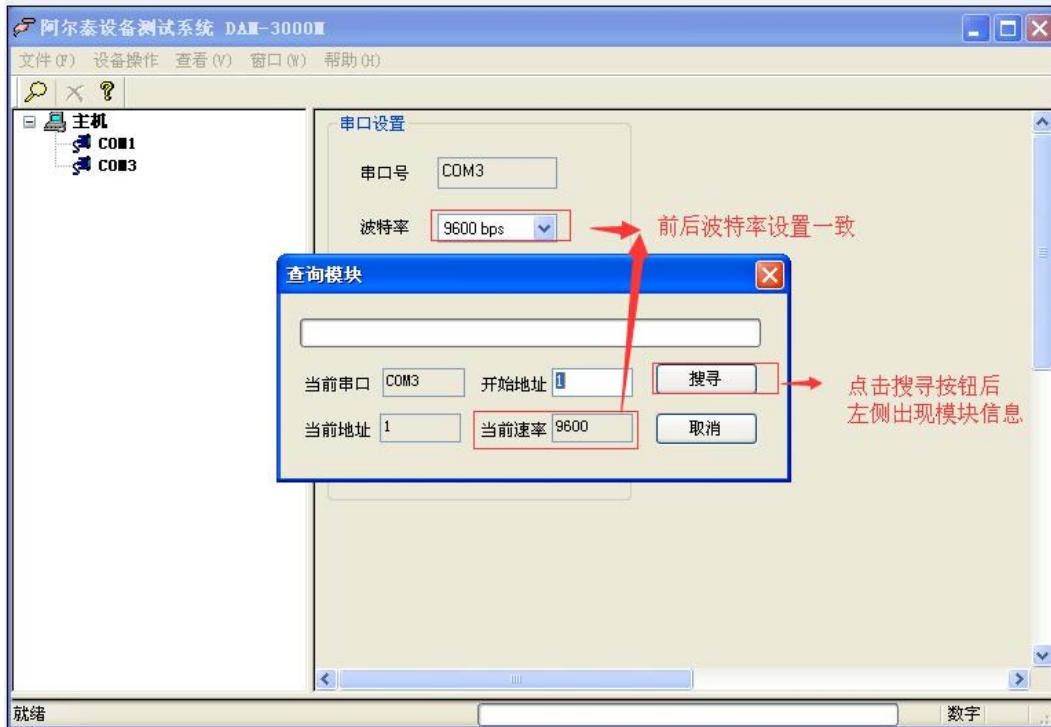


- 7) If the module information needs to be modified, double-click the module address information on the left, and the following interface will appear. The address or baud rate of the module can be changed. After the modification, click the delete button to reconnect the module.



- 8) Again after deleting the current connection, click on the current use of serial number, communication configuration screen, select the last change the baud rate, click on the search button in the search interface, click on the search success is a configuration module address information, note: query module interface in the "current rate" must "serial port Settings" interface baud rate of the consistent, otherwise can't query module.

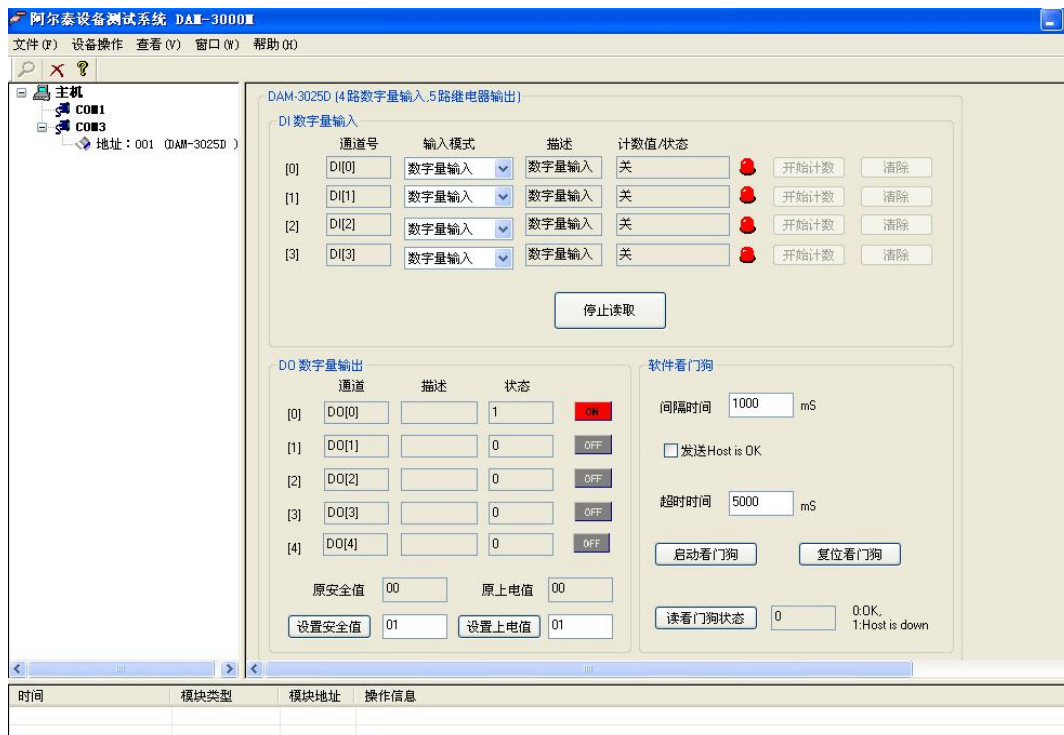




- 9) After the module search is successful, the module reset is completed and the normal sampling can be achieved by repeating the above steps.

3.6 Output State

- 1) Module connection, voltage U at both ends (in DO0 state: 0, $U=0$; When is 1, $U=$ voltage at the positive end of the signal, it is normal), and the display lamp is consistent with the software (state 0 corresponds to the lamp off; State 1 corresponding light is on);



- 2) If you need to set the module safety value and power on value, you can set it in the red mark in the figure below. After setting, the operation window will show that the setting is successful;



4 Product Notes and Warranty

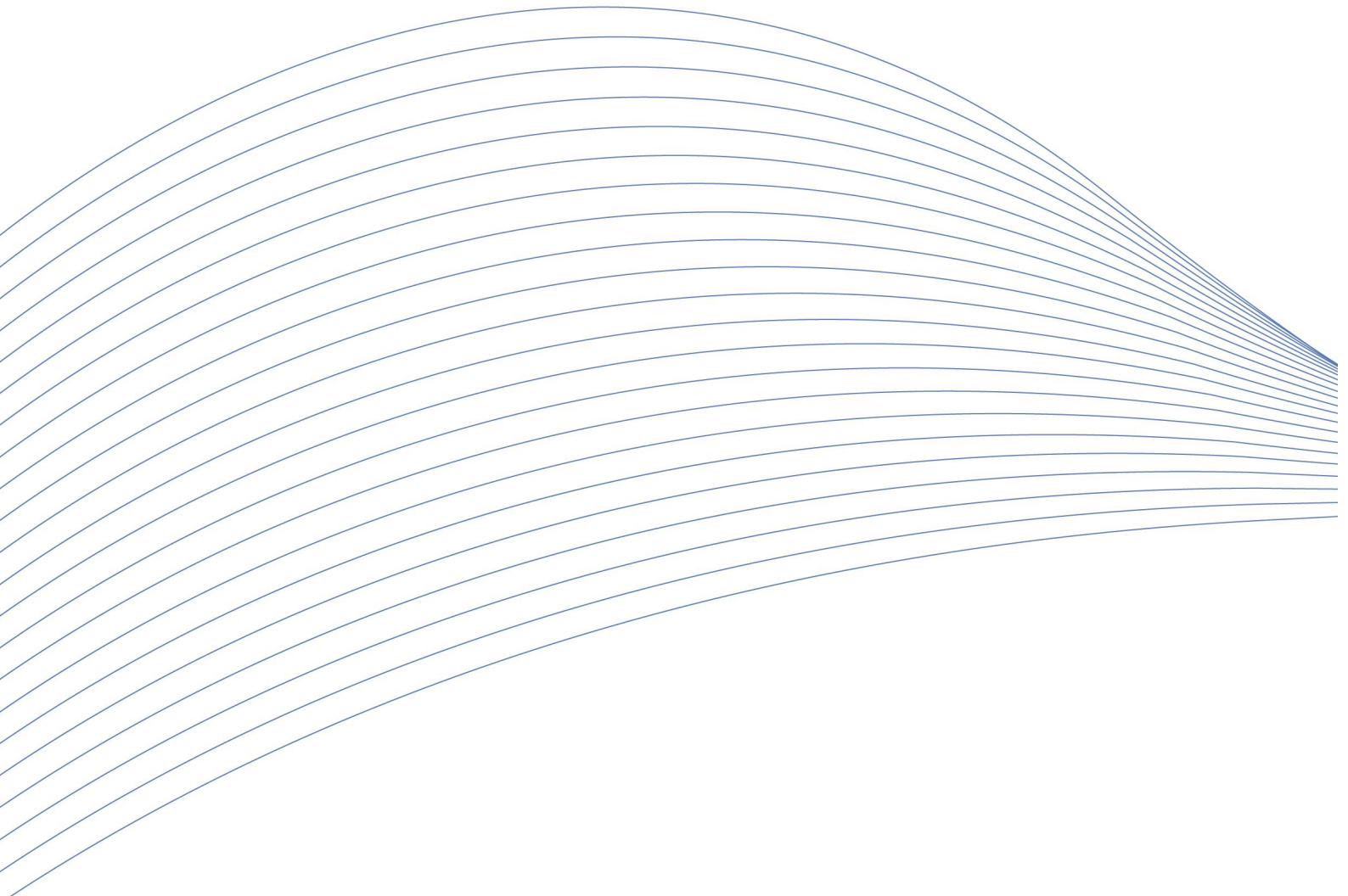
4.1 Matters Needing Attention

In the packaging of the products sold by the company, users will find the manual and dam-3025d, along with the product warranty card. The product quality assurance card must be properly kept by the user. When the product has problems and needs to be repaired, the user shall send the product quality assurance card together with the product to the company, so that we can help the user solve the problem as soon as possible.

When using dam-3025d, please be careful not to touch the IC chip on the front of dam-3025d to prevent the chip from being damaged by static electricity.

4.2 Warranty

DAM-3025D will be maintained free of charge within two years from the date of delivery, storage and use if the user complies with the transportation, storage and use rules and the quality is lower than the product standard.



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