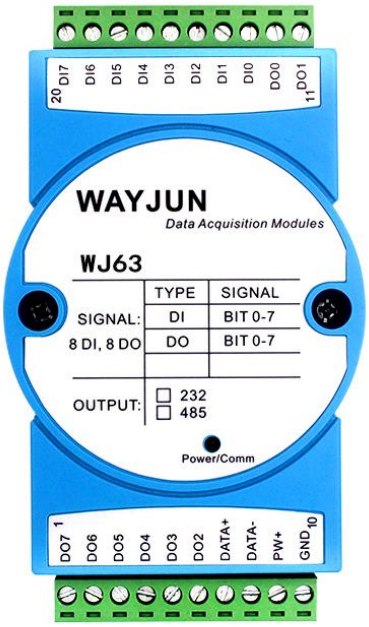
8-way DI high-speed counter, 8-way DO supports PWM output, Modbus RTU module WJ63

Product features:

- 8 switch inputs, 8 switch outputs
- Each DI channel can be used as a counter or frequency measurement
- Each DO channel can independently output PWM signals
- Both DI and DO support PNP and NPN switching functions
- The count value can be read through the RS-485/232 interface
- Supports setting PWM output for RS-485/232 interface
- Wide power supply range: 8~32VDC
- High reliability, easy programming, and easy application
- Standard DIN35 rail installation, convenient for centralized wiring
- Users can program module addresses, baud rates, etc
- Supports Modbus RTU communication protocol and automatic recognition protocol
- Low cost, small volume modular design
- Dimensions: 120mm x 70mm x 43mm



WJ63 module appearance **diagram**

Typical applications:

- Measurement of proximity switch pulse signal
- Flow meter pulse counting or flow measurement
- Production line product counting
- Counting the number of logistics packages
- LED lighting control or motor control
- External counter for industrial control computer
- Intelligent factory and industrial Internet of Things
- Measurement of Pulse Sensor Signal
- Industrial camera status monitoring and control

Product Overview:

The WJ63 product realizes signal acquisition between sensors and hosts, used for pulse signal counting and equipment control. The WJ63 series products can be applied in industrial automation control systems with RS-232/485 bus, photoelectric switch signal counting and measurement, PWM signal output and frequency measurement, etc.

The product includes signal isolation, pulse signal capture, signal conversion, and RS-485 serial communication. Each serial port can connect up to 255 WJ63 series modules, and the communication method adopts ASCII code communication protocol or MODBUS RTU communication protocol. The baud rate can be set by code and can be hung on the same RS-485 bus as control modules from other manufacturers, making it easy for computer programming.

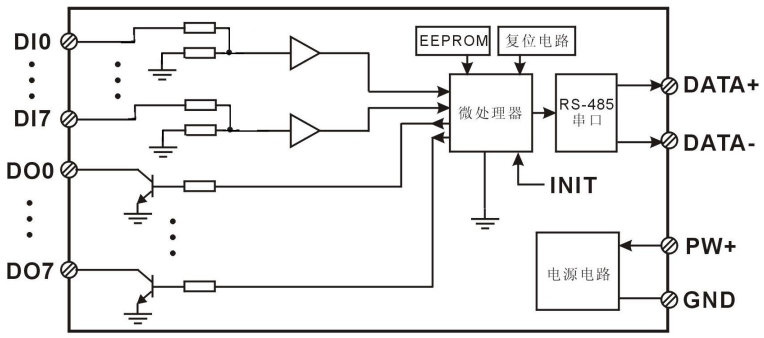


Figure 2 Internal Block Diagram of WJ63 Module

The WJ63 series products are intelligent monitoring and control systems based on microcontrollers. All user set configuration information such as address, baud rate, data format, checksum status, etc. are stored in non-volatile memory EEPROM.

The WJ63 series products are designed and manufactured according to industrial standards, with strong anti-interference ability and high reliability. The working temperature range is -45 ℃ to+85 ℃.

Function Introduction:

The WJ63 remote I/O module can be used to measure eight switch signals and has eight switch outputs. Can be used as an 8-channel counter or 8-channel frequency measurement,

It can also output 8 PWM signals.

1、 Switching signal input and output

8-channel switch signal input, capable of connecting dry and wet contacts. Please refer to the wiring diagram for details; 8-channel switch signal output with open collector output, or internal pull-up output.

2、 Communication Protocol

Communication interface: 1 standard RS-485 communication interface or 1 standard RS-232 communication interface, please specify when ordering and selecting.

Communication Protocol: Supports two protocols, the character protocol defined by the command set and the MODBUS RTU communication protocol. The module automatically recognizes communication protocols and can achieve network communication with various brands of PLCs, RTUs, or computer monitoring systems.

Data format: 10 digits. 1 start bit, 8 data bits, and 1 stop bit.

The communication address (0-255) and baud rate (2400, 4800, 9600, 19200, 38400, 57600, 115200bps) can be set; The communication network can reach a maximum distance of 1200 meters and is connected through twisted pair shielded cables.

High anti-interference design of communication interface, ± 15KV ESD protection, communication response time less than 100mS.

3、 anti-interference

Checksums can be set as needed. There is a transient suppression diode inside the module, which can effectively suppress various surge pulses, protect the module, and the internal digital filter can also effectively suppress power frequency interference from the power grid.

Product selection:

WJ63 - □

└ Communication interface

485: Output as RS-485 interface

232: Output as RS-232 interface

Selection Example 1: Model: **WJ63-232** indicates an output of RS-232 interface

Selection Example 2: Model: **WJ63-485** indicates output as RS-485 interface

WJ63 General Parameters:

(Typical @+25 ℃, Vs is 24VDC)

Input type: switch input, 8 channels (DI0~DI7).

Low level: Input<1V

High level: Input 3.5~30V

Frequency range 0-20KHz

Counting range 0-0xFFFFFFFF

Input resistance: 30K Ω

Output type: open collector output, voltage 0~30V, maximum load current 30mA, 8 channels (DO0~DO7).

To achieve a level output, an internal pull-up resistor with a resistance of 3K ohms can be turned on.

PWM frequency 1~65535Hz, duty cycle 0%~100%

Communication: RS-485 or RS-232 standard character protocol and MODBUS RTU communication protocol

Baud rates (2400, 4800, 9600, 19200, 38400, 57600, 115200bps) can be selected by software

The address (0-255) can be selected by software

Communication response time: 100 ms maximum

Working power supply:+8~32VDC wide power supply range, with internal anti reverse and overvoltage protection circuits

Power consumption: less than 0.5W

Working temperature: -45~+80 ℃

Working humidity: 10~90% (no condensation)

Storage temperature: -45~+80 ℃

Storage humidity: 10~95% (no condensation)

Dimensions: 120mm x 70mm x 43mm

Pin definition:

Pin	name	Description	Pin	name	Description
one	DO7	Channel 7 switch signal output terminal	**eleven**	DO1	Channel 1 switch signal output terminal
two	DO6	Channel 6 switch signal output terminal	**twelve**	DO0	Channel 0 switch signal output terminal
three	DO5	Channel 5 switch signal output terminal	**thirteen**	DI0	Channel 0 switch signal input terminal
four	DO4	Channel 4 switch signal output terminal	**fourteen**	DI1	Channel 1 switch signal input terminal
five	DO3	Channel 3 switch signal output terminal	**fifteen**	DI2	Channel 2 switch signal input terminal
six	DO2	Channel 2 switch signal output terminal	**sixteen**	DI3	Channel 3 switch signal input terminal
seven	DATA+	RS-485 signal positive terminal	**seventeen**	DI4	Channel 4 switch signal input terminal
eight	DATA-	RS-485 signal negative terminal	**eighteen**	DI5	Channel 5 switch signal input terminal
nine	PW+	Positive end of power supply	**nineteen**	DI6	Channel 6 switch signal input terminal
ten	GND	Negative terminal of power supply, signal ground	**twenty**	DI7	Channel 7 switch signal input terminal

Table 1 Pin Definition

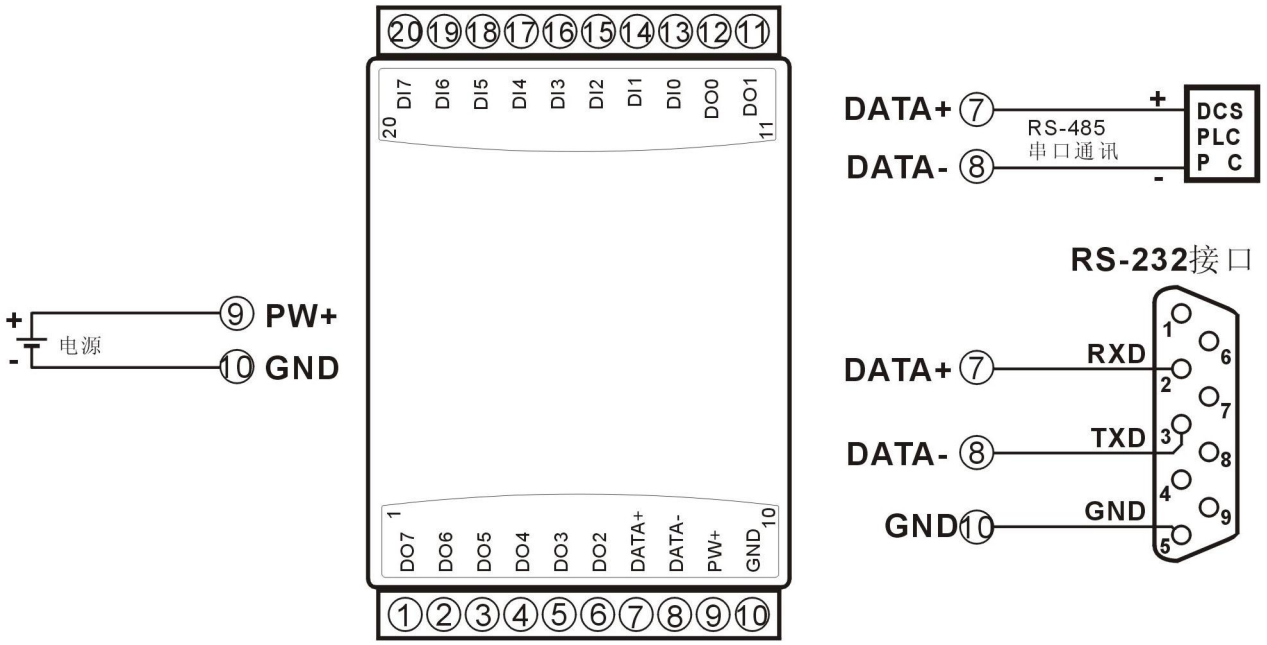
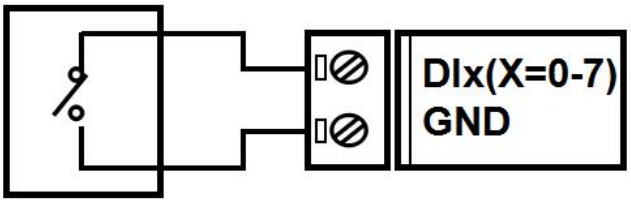
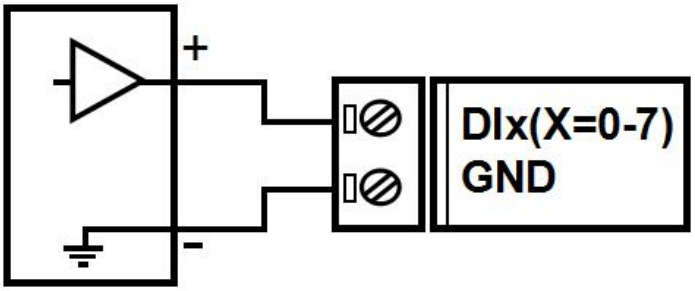
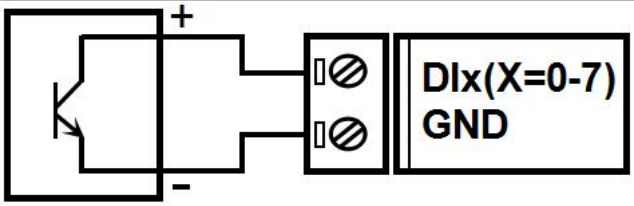


Figure 3 Wiring diagram of WJ63 module

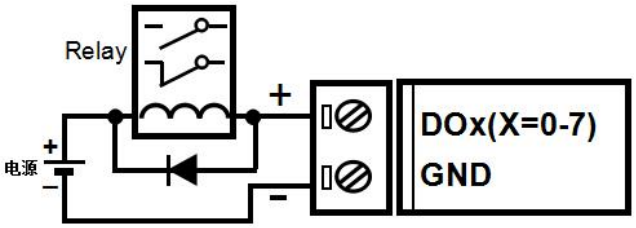
Wiring diagram for switch signal input

Dry contact input	TTL/CMOS level, 24V level input
	
Need to open the internal pull-up resistor, set the 40082 register to 1, or send the character command $01Q1X.	**Need to turn off the internal pull-up resistor, set the 40082 register to 0, or send the character command $01Q0X**
Open collector input	
	
Need to open the internal pull-up resistor, set the 40082 register to 1, or send the character command $01Q1X.	

Note: The factory default is to turn off the pull-up function

Wiring diagram for switch signal output

Drive relay (NPN)	Level output (NPN with internal pull-up)



External power supply can be selected from 5~30VDC
It can also be a power source that supplies power to the module
The working current of the transistor is less than 30mA
Need to turn off the internal pull-up resistor, set the 40083 register to 0, or send the character command $01QX0

Output high level equal to power supply voltage
Need to open the internal pull-up resistor, set the 40083 register to 1, or send the character command $01QX1.

Note: The factory default is to turn off the pull-up function

WJ63 Character Protocol Command Set:

The factory initial settings of the module are as follows:

The address code is 01

Baud rate 9600 bps

Prohibition of checksum verification

If using an RS-485 network, a unique address code must be assigned, which is a hexadecimal number between 00 and FF. Since the address codes of new modules are the same, their addresses will conflict with other modules. Therefore, when building the system, you must reconfigure the addresses of each WJ63 module. After connecting the power line and RS485 communication line of the WJ63 module, the address of the WJ63 module can be modified through configuration commands. The baud rate and checksum status also need to be adjusted according to the user's requirements. Before modifying the baud rate and checksum status, the module must first enter the default state, otherwise it cannot be modified.

Method to put the module into default state:

There is an Initiate switch located on the side of the WJ63 module. Turn the Initiat switch to the Initiat position, then turn on the power, and the module will enter the default state. In this state, the configuration of the module is as follows:

The address code is 00

Baud rate 9600 bps

Prohibition of checksum verification

At this point, the baud rate, checksum status, and other parameters of the WJ63 module can be modified through configuration commands. When unsure of the specific configuration of a module, the Initiat switch can also be turned to the Initiat position to put the module into default mode, and then the module can be reconfigured.

Note: Please turn the Initiat switch to the NORMAL position during normal use.

The character protocol command consists of a series of characters, such as the prefix, address ID, variables, optional checksum bytes, and a command terminator **(cr)** used to display the command. The host only commands one WJ63 module at a time, except for synchronous commands with wildcard address "* *".

Command format: **(Leading Code) (Addr) (Command) [data] [checksummary] (cr)**

The **leading code** is the first letter in the command. All commands require a command prefix, such as%, $, #, @ Wait. **1-character**

The address code of the **(Addr)** module, if not specified below, ranges from 00 to FF (hexadecimal). **2-character (Command)** displays command code or variable values. **Variable length**

[data] Some data required for output commands. **Variable length**

The **Checksum** in parentheses is an optional parameter that is only required when checksum is enabled. **2-character**

(cr) is a control code symbol used for recognition, and (cr**)** serves as the carriage return terminator with a value of 0x0D.

1-character

When checksum is enabled, [Checksum] is required. It occupies 2 characters. Both commands and responses must be accompanied by checksum features. The checksum is used to check all input commands to help you detect errors in host to module commands and module to host responses. The checksum character is placed after the command or response character and before the carriage return.

Calculation method: Two characters, hexadecimal number, which is the sum of the ASCII code values of all the characters previously sent, and then combined with the hexadecimal number 0xFF to obtain the result.

Application example: Prohibit checksum

User command **$002 (cr)**

Module response**! 00020600 (cr)**

Enable checksum

User command **$002B6 (cr)**

Module response**! 00020600 A9 (cr)**

'$' = 0x24 '0' = 0x30 '2' = 0x32

B6=(0x24+0x30+0x30+0x32) AND 0xFF

'**!**' = 0x21 '0' = 0x30 '2' = 0x32 '6' = 0x36

A9=(0x21+0x30+0x30+0x30+0x32+0x30+0x36+0x30+0x30) AND 0xFF

Response to Command:

The response information depends on various commands. The response also consists of several characters, including the initial code, variables, and ending identifier. There are two types of initial codes for response signals, '**!**' Or '**>**' represents a valid command while '**?**' It represents invalidity. By checking the response information, it is possible to monitor whether the command is valid

Note: In some cases, many commands use the same command format. To ensure that the address you are using is correct in a command, if you use the wrong address that represents another module, the command will take effect in that module, resulting in an error.

2. Commands must be entered in uppercase letters.

3. (cr) represents the Enter key on the keyboard, do not write it directly, it should be typed with the Enter key.

1. Read switch status command

Description: Read back all output channel switch status, switch reset status, and input channel switch status from the module.

Command format: **# AA (cr)**

Parameter description: # delimiter. Hexadecimal is 23H

AA module address, with a value range of 00 to FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:>**AAAAAAAA, BBBBBBB, CCCCCCCC (cr)** command is valid.

? The **01 (cr)** command is invalid or an illegal operation.

Parameter description:**>**delimiter. Hexadecimal is 3EH

AAAAAAAA represents the read output switch status, consisting of 8 numbers arranged in the order of DO7~DO0,

Value 0: Output transistor disconnected; Value 1: Output transistor connected

BBBBBB represents the read reset output switch status, consisting of 8 numbers arranged in the order of DO7~DO0,

Value 0: Output transistor disconnected; Value 1: Output transistor connected

CCCCCCCC represents the read input switch status, consisting of 8 numbers arranged in the order of DI7~DI0,

Value 0: Input low level; Value 1: Input high level

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Application example: User command (character format) **# 01 (cr)**

Module response (character format)**>00011000000011000000111 (cr)**

Explanation: The module output switch status is 00011000, arranged in the order of DO7~DO0

Channel 0: transistor disconnected Channel 1: transistor disconnected Channel 2: transistor disconnected Channel 3: transistor connected

Channel 4: transistor connected Channel 5: transistor disconnected Channel 6: transistor disconnected Channel 7: transistor disconnected

After resetting the module, the output switch status is 00001010, arranged in the order of DO7~DO0

Channel 0: transistor disconnected Channel 1: transistor connected Channel 2: transistor disconnected Channel 3: transistor connected

Channel 4: transistor disconnection Channel 5: transistor disconnection Channel 6: transistor disconnection Channel 7: transistor disconnection

The input switch status of the module is 00000 111, and the arrangement order is DI7~DI0

Channel 0: High Level Channel 1: High Level Channel 2: High Level Channel 3: Low Level

Channel 4: Low Level Channel 5: Low Level Channel 6: Low Level Channel 7: Low Level

2. Set transistor output command

Description: Set the status of all output channel transistors. The factory setting for all channels is 00000000.

Command format: **# AA1ABCD (cr)**

Parameter description: # delimiter. Hexadecimal is 24H

AA module address, with a value range of 00 to FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

1 represents setting the transistor output command

AB channel selection, can choose all output channels or a single output channel.

Set output: Setting AB to 00 means setting all output channels. If setting a single channel, character A must be set to 1, and character B can be set to 0-7, representing 8 transistor DO output channels.

Set reset output: Setting AB to FF means setting the reset output values for all channels. If setting the reset output for a single channel, character A must be set to E, and character B can be set to 0-7, representing 8 transistor DO output channels.

CD output value.

1， If it is set for all channels (AB=00 or AB=FF)

Then there are two hexadecimal numbers, as shown in the figure on the right

C represents channels 7 to 4

D represents channels 3 to 0

Bit value is 0:

C				D			
DO7	DO6	DO5	DO4	DO3	DO2	DO1	DO0

Set the output transistor to disconnect

Bit value is 1:

Set the output transistor to turn on

2， If it is set for a single channel (AB=1X or AB=EX, where X represents the channel to be set), it can only be set to 00 or 01,

00: Set the X-channel output transistor to disconnect

01: Set the X-channel output transistor to turn on

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**!** The **01 (cr)** command is valid.

? The **01 (cr)** command is invalid or an illegal operation.

Application example 1: User command (character format) **# 011000F (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set the output of all channels (AB=00) to 0FH, and convert it to binary to 0000 1111,

So the switch state output by the module is:

Channel 0: transistor connected Channel 1: transistor connected Channel 2: transistor connected Channel 3: transistor connected

Channel 4: transistor disconnection Channel 5: transistor disconnection Channel 6: transistor disconnection Channel 7: transistor disconnection

Application example 2: User command (character format) **# 0111201 (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set the transistor of channel 2 to be connected.

Application Example 3: User Command (Character Format) **# 011FFFF (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set the reset output of all channels (AB=FF) to FFH, which is converted to binary as 1111 1111,

After the module is reset, all channel transistors are turned on.

3. Read counter data command

Explanation: Reading the data of the counter can read all channels or a single channel.

Command format: **# AA2 (cr)**

AA module address, with a value range of 00 to FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

2 represents the command to read counter data from channels 0 to 7.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AAAAAAAAAA, AAAAAAAAAA, AAAAAAAAAA, AAAAAAAAAA, AAAAAAAAAA, AAAAAA**

AAAA, AAAAAAAAAA, AAAAAAAAAA(cr)

Command format: **# AA2N (cr)**

AA module address, with a value range of 00 to FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

2 Indicates the command to read counter data.

N represents the command to read channel N counter data.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AAAAAAAAAA(cr)**

Application example 1: User command (character format) **# 012 (cr)**

Module response (character format)**! 0012345678, 0012345678, 0012345678, 0012345678, 0012345678, 0012345678, 0012345678, 0012345678 (cr)**

Explanation: The count value for all channels is 12345678.

Application example 2: User command (character format) **# 0120 (cr)**

Module response (character format)**! 0012345678(cr)**

Explanation: The count value for channel 0 is 12345678.

4. Read input frequency command

Explanation: The frequency of the input can be read for all channels or for a single channel.

Command format: **# AA3**

AA module address, with a value range of 00 to FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

3 represents the input frequency command for channels 0 to 7.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AAAAAA.AA,AAAAAA.AA,AAAAAA.AA,AAAAAA.AA,AAAAAA.AA,AAAAAA.AA,AAAAAA.AA, AAAAAA.AA (cr)**

Command format: **# AA3N** Read Channel N Input Frequency

AA module address, with a value range of 00 to FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

3 Indicates the command for reading input frequency.

N represents the frequency command for reading channel N.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AAAAAA.AA (cr)**

Application example 1: User command (character format) **# 013 (cr)**

Module response (character format)**! 001000.00,001000.00,001000.00,001000.00,001000.00,001000.00, 001000.00,001000.00(cr)**

Explanation: The input frequency value for all channels is 1KHz.

Application example 2: User command (character format) **# 0130 (cr)**

Module response (character format)**! 001000.00(cr)**

Explanation: The input frequency value for channel 0 is 1KHz.

5. Read and output PWM commands

Explanation: Reading the output PWM can read all channels, single channels, and reset PWM values.

Command format: **# AA4 (cr)** Read PWM values for channels 0 to 7

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA(cr)**

Command format: **# AA4S (cr)** Read Channel 0~Channel 7 Reset PWM Value

Response format:**! AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA, AAA.AA(cr)**
Command format: **# AA4N (cr)** Read PWM value of channel N
Response format:**! AAA.AA (cr)**
Command format: **# AA4SN (cr)** Read the reset PWM value of channel N
Response format:**! AAA.AA (cr)**

Application example 1: User command (character format) **# 014 (cr)**
Module response (character format)**! 050.00,050.00,050.00,050.00,050.00,050.00,050.00,050.00(cr)**
Explanation: The PWM value for all channels is 50%.
Application example 2: User command (character format) **# 0140 (cr)**
Module response (character format)**! 050.00(cr)**
Explanation: The PWM value for channel 0 is 50%.

6. Set PWM command

Explanation: Setting the output PWM value or resetting the PWM value can only be set for a single channel. The factory setting for all channels is 050.00.
Command format: **# AA5NAAA AA (cr)** sets the PWM value for channel N
Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.
N-channel, with a value range of 0-7.
AAA.AA sets the output PWM value within the range of **000.00~100.00**
(cr) End symbol, upper computer enter key, hexadecimal is 0DH.
Response format:**! AA (cr)** indicates successful setting
Command format: **# 015SNAAA AA (cr)** sets the reset PWM value for channel N
Response format:**! AAcr)** indicates successful setting
Application example 1: User command (character format) **# 0150050.00 (cr)**
Module response (character format)**! 01(cr)**
Explanation: Set the PWM value for channel 0 to 50%.
Application Example 2: User Command (Character Format) **# 015S0050.00 (cr)**
Module response (character format)**! 01(cr)**
Explanation: Set the reset PWM value for channel 0 to 50%.

7. Read the frequency command of PWM

Explanation: Read the output PWM frequency and also read the reset PWM frequency.
Command format: **# AA6 (cr)** Read PWM frequency
Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.
(cr) End symbol, upper computer enter key, hexadecimal is 0DH.
Response format:**!** AAAAA**, BBBBB (cr)** AAAAA represents the frequency of channels 0-3, BBBBB represents the frequency of channels 4-7
Command format: **# AA6S** read reset PWM value
Response format:**! AAAAA, BBBBB (cr)** AAAAA represents the reset frequency of channels 0-3, BBBBB represents the reset frequency of channels 4-7
Application example 1: User command (character format) **# 016 (cr)**

Module response (character format)**! 01000,02000(cr)**

Explanation: The PWM frequency for channels 0-3 is 1KHz, and the PWM frequency for channels 4-7 is 2KHz.

Application Example 2: User Command (Character Format) **# 016S (cr)**

Module response (character format)**! 00100,00200 (cr)**

Explanation: The PWM reset frequency for channels 0-3 is 100Hz, and the PWM reset frequency for channels 4-7 is 200Hz.

8. Set PWM frequency command

Explanation: To set the output PWM frequency or reset PWM frequency, only a single channel can be set. Range 00000~65535, set to 00000 to turn off PWM output and output as switch level output. The factory setting for all channels is 00000.

Command format: **# AA7NAAAA (cr)** N=0 indicates setting the PWM frequency for channels 0-3, and N=1 indicates setting the PWM frequency for channels 4-7.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AA (cr)** indicates successful setting

Command format: **# AA7SNAAAAA (cr)** N=0 indicates setting the PWM reset frequency for channels 0-3, N=1 indicates setting the PWM reset frequency for channels 4-7.

Response format:**! AA (cr)** indicates successful setting

Application example 1: User command (character format) **# 017000100 (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set the PWM frequency of channels 0-3 to 100Hz.

Application example 2: User command (character format) **# 017S100500 (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set the reset PWM frequency for channels 4-7 to 500Hz.

9. Modify the numerical command of DI counter

Explanation: You can modify the value of the DI counter and reset it to zero to start counting again.

Command format: **$AA1NAAAAAAAAA (cr)** Modify the count value of channel N

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AA (cr)** indicates successful setting

Application example: User command (character format) **$01150000000000 (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set the count value of channel 5 to 0.

10. Set PWM output reverse command

Explanation: Set whether the PWM output needs to be inverted between high and low levels before outputting. The factory setting is 00000000.

Command format: **$AA3BBBBBB (cr)** Set whether the PWM output takes the reverse command.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is

converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AA (cr)** indicates successful setting

Parameter description: **BBBBBB** represents the switch state, with 8 numbers arranged in the order of DO7~DO0

Value 0: The PWM output of this channel is normal; Value 1: The PWM of this channel takes the inverse output

Application example: User command (character format) **$013000000 (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set all channel PWM to output normally.

11. Read whether the PWM output takes the reverse command

Explanation: Check if the PWM output is set to reverse.

Command format: **$AA4 (cr)** Read PWM output with reverse command.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! BBBBBBB (cr)** indicates whether the PWM output is set to reverse

Parameter description: **BBBBBB** represents the switch state, with 8 numbers arranged in the order of DO7~DO0

Value 0: The PWM output of this channel is normal; Value 1: The PWM of this channel takes the inverse output

Application example: User command (character format) **$014 (cr)**

Module response (character format)**! 11111110(cr)**

Explanation: The 0-channel PWM outputs normally, while the 1-7 channel PWM outputs in reverse.

12. Set the counting method of DI counter

Explanation: Set the DI counter to count rising or falling edges. The factory setting is 00000000. The setting takes effect after the module is restarted.

Command format: **$AA5BBBBB (cr)** Set the counting method of the DI counter.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AA (cr)** indicates successful setting

Parameter description: **BBBBBB** represents switch status, 8 numbers, arranged in the order of DI7~DI0

Value 0: The rising edge count of the channel; Value 1: The descending edge count of this channel

Application example: User command (character format) **$01511110000 (cr)**

Module response (character format)**! 01(cr)**

Explanation: Set the falling edge count for channels 7 to 4 and the rising edge count for channels 3 to 0.

13. Read the counting method of DI counter

Explanation: Read whether the DI counter counts the rising edge or the falling edge.

Command format: **$AA6 (cr)** reads the counting method of the DI counter.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! BBBBBB (cr)** represents the counting method of the DI counter.

Parameter description: **BBBBBB** represents switch status, 8 numbers, arranged in the order of DI7~DI0

Value 0: The rising edge count of the channel; Value 1: The descending edge count of this channel

Application example: User command (character format) **$016 (cr)**

Module response (character format)**! 11111110(cr)**

Explanation: 0 channel rising edge count, 1-7 channel falling edge count.

14. Set the number of pulses per revolution for DI

Explanation: Set the number of pulses per revolution for DI. Set according to the parameters of the device connected to DI, with a factory default value of 1000. Only after setting the correct number of pulses can the DI speed be read.

Command format: **$AA7NAAAA** sets the number of pulses per revolution for DI channel N. **AAAAA** represents the number of pulses, such as 1000800 or

600 and so on.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

Response format:**! AA (cr)** indicates successful setting

Application example: User command (character format) **$017100300**

Module response (character format)**! 01(cr)**

Explanation: Set the number of pulses per revolution for DI1 to 300.

15. Read the number of pulses per revolution of DI

Explanation: Read the number of pulses per revolution for all DI channels.

Command format: **$AA8** reads the number of pulses per revolution for all DIs, arranged in sequence from 0 to 7.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

Response format:**! AAAAA, AAAAA, AAAAA, AAAAA, AAAAA, AAAAA, AAAAA, AAAAA (cr)**

Indicates the number of pulses per revolution for DI0~DI7.

Application example: User command (character format) **$018**

Module response (character format)**! 01000, 01000, 01000, 01000, 01000, 01000, 01000, 01000 (cr)**

Explanation: The number of pulses per revolution for all DI channels is 1000.

16. Set whether the DI count value will be automatically saved when the power is turned off

Explanation: Set whether the count value of DI is automatically saved when the power is turned off. The factory default value is 0 (not automatically saved, reset to zero when the power is turned off).

Command format: **$AASW**

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

Is the command to automatically save the count value of DI when the power is turned off.

W 0: Do not automatically save, power off and reset to zero; 1: Power off automatically saves DI count value.

Response format:**! AA (cr)** indicates successful setting

Application example: User command (character format) **$01S0**

Module response (character format)**! 01(cr)**

Explanation: Set DI to not save count values and automatically reset the count after power failure.

17. Set the pull-up switch for DI and DO

Description: Set the pull-up switch for DI and DO, with a factory default value of 00 (both DI and DO have the pull-up function turned off).

Command format: **$AAQXY**

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

Set the pull-up switch command for DI and DO.

X 0: DI turns off the pull-up voltage; 1: Connect the pull-up voltage to DI. X: Keep the original settings.

Y 0: DO turns off the pull-up voltage; 1: Connect the pull-up voltage to DO. X: Keep the original settings.

Response format:**! AA (cr)** indicates successful setting

Application example: User command (character format) **$01Q11**

Module response (character format)**! 01(cr)**

Explanation: Set both DI and DO to apply pull-up voltage. When DI is an NPN input, it can be set to turn on the DI pull-up voltage.

When DO requires voltage output, it can be set to turn on the DO pull-up voltage.

18. Set the filtering time for DI

Explanation: Set the filtering time for DI. 1 represents 1mS, and the factory default is 0. The photoelectric switch input is set to 0, and it is recommended to set the mechanical switch or relay input to 20~100mS. The setting will take effect after restarting.

Command format: **$AALWNAAAAA** sets the filtering time for DI channel N. N is the counter code, with a value of 012345678, corresponding to DI0~DI7. Setting N to 'M' means setting the filtering time for all channels simultaneously. **AAAAA** represents filtering time, such as 0, 20, or 50.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

Response format:**! AA (cr)** indicates successful setting

Application example: User command (character format) **$01LW100020**

Module response (character format)**! 01(cr)**

Explanation: Set the filtering time for DI1 to 20, which is 20mS.

19. Read the filtering time of DI

Explanation: Read the filtering time of all DI channels.

Command format: **$AALR** reads the filtering time of all DIs, arranged in the order of DI0~DI7.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

Response format:**! AAAAA, AAAAA, AAAAA, AAAAA, AAAAA, AAAAA, AAAAA, AAAAA**

Indicates the filtering time for DI0~DI7.

Application example: User command (character format) **$01LR**

Module response (character format)**! 00020, 00020, 00020, 00020, 00020, 00020, 00020, 00020 (cr)**

Explanation: The filtering time for all DI channels is 20mS.

20. Reset all parameters set by the above character command to factory settings.

Explanation: The parameters set by the above character commands in the module will be reset to factory settings, and the module will automatically restart after completion.

Command format: **$AA900 (cr)** Set parameters to factory settings.

Parameter description: **AA** module address, value range 00~FF (hexadecimal). The factory address is 01, which is converted to hexadecimal as the ASCII code for each character. If address 01 is replaced with hexadecimal, it will be 30H and 31H.

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**! AA (cr)** indicates successful setup, and the module will automatically restart.

Application example: User command (character format) **$01900**

Module response (character format)**! 01(cr)**

Explanation: Parameters are reset to factory settings.

21. Configure WJ63 module command

Explanation: Set the address, baud rate, and checksum status for a WJ63 module. The configuration information is stored in non-volatile memory EEPROM.

Command format:**% AANNTTCCFF (cr)**

Parameter description:**%** delimiter.

AA module address, with a value range of 00 to FF (hexadecimal).

NN represents the new module hexadecimal address, with values ranging from 00 to FF.

TT uses hexadecimal to represent type encoding. The WJ63 product must be set to 00.

CC uses hexadecimal to represent baud rate encoding.

Baud rate code	Baud rate
04	2400 baud
05	4800 baud
06	9600 baud
07	19200 baud
08	38400 baud
09	57600 baud

Table 2 Baud rate codes

FF uses 8-bit hexadecimal to represent data format and checksum. Note that from bits2 to bits5, it is not necessary to set it to zero.

Bit7	Bit 6	Bit 5	Bit 4	Bit 3	Bit2	Bit 1	Bit 0

Table 3 Data format, checksum code

Bit7: Reserved bit, must be set to zero

Bit6: checksum status, 0: prohibited; For 1: Allow

Bit5-bit2: No need, it must be set to zero.

Bit1-bit0: Data format bit. 00: Engineering Units

10: Two complement in hexadecimal

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**!** The **AA (cr)** command is valid.

? The **AA (cr)** command is invalid or an illegal operation, or a configuration jumper is not installed before changing the baud rate or checksum.

Parameter description:**!** The delimiter indicates that the command is valid.

? The delimiter indicates that the command is invalid.

AA represents the input module address

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Other instructions: If you are configuring the module for the first time, AA=00, NN equals the new address. If the module is reconfigured to change the address, input range, and data format, AA equals the currently configured address, and NN equals the current or new address. If you want to reconfigure the module to change the baud rate or checksum status, you must install a configuration jumper to put the module into the default state. At this time, the module address is 00H, that is, AA=00H, NN is equal to the current or new address.

If the format is incorrect, the communication is incorrect, or the address does not exist, the module will not respond.

Application example: User command**% 0011000600 (cr)**

Module response**! 11(cr)**

Explanation:**%** delimiter.

00 means that the original address of the WJ63 module you want to configure is 00H.

11 indicates that the new module's hexadecimal address is 11H.

00 type code, WJ63 product must be set to 00.

06 represents a baud rate of 9600 baud.

00 indicates that the data format is in engineering units and checksum is prohibited.

22. Read configuration status command

Explanation: Read configuration for a specified WJ63 module.

Command format: **$AA2 (cr)**

Parameter description: **$**delimiter.

AA module address, with a value range of 00 to FF (hexadecimal).

2 represents the command to read the configuration status

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Response format:**!** The **AATTCCFF (cr)** command is valid.

? The **AA (cr)** command is invalid or an illegal operation.

Parameter description:**!** Boundary symbol.

AA represents the input module address.

TT stands for type code.

CC stands for baud rate encoding. See Table 2

FF is shown in Table 3

(cr) End symbol, upper computer enter key, hexadecimal is 0DH.

Other instructions: If the format is incorrect, the communication is incorrect, or the address does not exist, the module will not respond.

Application example: User command **$302 (cr)**

Module response**! 300F0600(cr)**

Explanation:**!** Boundary symbol.

30 indicates that the WJ63 module address is 30H.

00 represents the input type code.

06 represents a baud rate of 9600 baud.

00 indicates that checksum is prohibited.

Modbus RTU communication protocol:

The factory initial settings of the module are as follows:

The Modbus address is 01

Baud rate 9600 bps

Method to put the module into default state:

There is an Initiate switch located on the side of the WJ63 module. Turn the Initiat switch to the Initiat position, then turn on the power, and the module will enter the default state. In this state, the module temporarily returns to its default state: address 01, baud rate 9600. When unsure of the specific configuration of a module, users can query the address and baud rate registers 40201-40202 to obtain the actual address and baud rate of the module, or modify the address and baud rate as needed.

Note: Please turn the Initiat switch to the NORMAL position during normal use.

Supports Modbus RTU communication protocol, with command format following the standard Modbus RTU communication protocol.

The function codes supported by WJ63 are as follows:

Function code		name	explain
01	Read Coil Status	Read coil status	1 represents high level, 0 represents low level.
03	Read Holding Register	Read and hold register	1 represents high level, 0 represents low level.
05	Write Single Coil	Write a single coil	1 indicates that the transistor is conducting, and 0 indicates that the transistor is disconnected.
06	Write Single Register	Write a single register	1 indicates that the transistor is conducting, and 0 indicates that the transistor is disconnected.
fifteen	Write Multiple Coils	Write multiple coils	
sixteen	Write Multiple Registers	Write multiple registers	

Register Description:

Supports registers with function codes 01, 05, and 15

Address 0X (PLC)	Address (PC, DCS)	Data content	attribute	Data Explanation
00001	0	DO0 output switch quantity	Read/ Write	Output status of DO channels 0-7 0 indicates that the transistor is disconnected, 1 indicates that the transistor is conducting
00002	one	DO1 output switch quantity	Read/ Write	
00003	two	DO2 output switch quantity	Read/ Write	
00004	three	DO3 output switch	Read/	

		quantity	Write	
00005	four	DO4 output switch quantity	Read/ Write	
00006	five	DO5 output switch quantity	Read/ Write	
00007	six	DO6 output switch quantity	Read/ Write	
00008	seven	DO7 output switch quantity	Read/ Write	
00009	eight	DO0 output switch quantity	Read/ Write	Reset output status of DO channels 0-7 (default value is 0) 0 indicates that the transistor is disconnected after resetting, 1 indicates that the transistor conducts after resetting
00010	nine	DO1 output switch quantity	Read/ Write	
00011	ten	DO2 output switch quantity	Read/ Write	
00012	eleven	DO3 output switch quantity	Read/ Write	
00013	twelve	DO4 output switch quantity	Read/ Write	
00014	thirteen	DO5 output switch quantity	Read/ Write	
00015	fourteen	DO6 output switch quantity	Read/ Write	
00016	fifteen	DO7 output switch quantity	Read/ Write	
00017	sixteen	Output of DO channel 0 is reversed	Read/ Write	DO channels 0~7, (default value is 0) 0 indicates normal PWM output, 1 represents the output after PWM inversion
00018	seventeen	Output of DO channel 1 is reversed	Read/ Write	
00019	eighteen	Output of DO channel 2 is reversed	Read/ Write	
00020	nineteen	Output of DO channel 3 is reversed	Read/ Write	
00021	twenty	Output of DO channel 4 is reversed	Read/ Write	
00022	twenty-one	Output of DO channel 5 is reversed	Read/ Write	
00023	twenty-two	Output of DO channel 6 is reversed	Read/ Write	
00024	twenty-three	Output inversion of DO channel 7	Read/ Write	
00025	twenty-four	Counting method for DI0 input	Read/ Write	DI channels 0~7, (default value is 0) 0 is the rising edge count, 1 is the falling edge count
00026	twenty-five	Counting method for DI1 input	Read/ Write	

00027	twenty-six	Counting method for DI2 input	Read/ Write	
00028	twenty-seven	Counting method for DI3 input	Read/ Write	
00029	twenty-eight	Counting method for DI4 input	Read/ Write	
00030	twenty-nine	Counting method for DI5 input	Read/ Write	
00031	thirty	Counting method for DI6 input	Read/ Write	
00032	thirty-one	Counting method for DI7 input	Read/ Write	
00033	thirty-two	DI0 input switch quantity	read-only	Level status of DI channels 0-7 0 represents a low-level input, 1 represents a high-level input
00034	thirty-three	DI1 input switch quantity	read-only	
00035	thirty-four	DI2 input switch quantity	read-only	
00036	thirty-five	DI3 input switch quantity	read-only	
00037	thirty-six	DI4 input switch quantity	read-only	
00038	thirty-seven	DI5 input switch quantity	read-only	
00039	thirty-eight	DI6 input switch quantity	read-only	
00040	thirty-nine	DI7 input switch quantity	read-only	

Supports registers with function codes 03, 06, and 16, and the addresses in the table are decimal numbers. The storage order for 32-bit long integers and floating-point numbers is CDAB.

Address 4X (PLC)	**Address (PC, DCS)**	**Data content**	**attribute**	**Data Explanation**
forty thousand and one	0	DO output PWM0	Read/ Write	DO output channels 0-7, PWM output value, Integer, range 0~10000
forty thousand and two	one	DO output PWM1	Read/ Write	
forty thousand and three	two	DO output PWM2	Read/ Write	
forty thousand and four	three	DO output PWM3	Read/ Write	
forty thousand and five	four	DO output PWM4	Read/ Write	
forty thousand and six	five	DO output PWM5	Read/ Write	

forty thousand and seven	six	DO output PWM6	Read/ Write	
forty thousand and eight	seven	DO output PWM7	Read/ Write	
forty thousand and nine	eight	DO channel 0~3 frequency	Read/ Write	Pulse frequency, (default value is 0) Integer, range 0~65535 Hz Set to 0, indicating switch output Set to 1~65535, indicating PWM output
forty thousand and ten	nine	DO channel 4-7 frequency	Read/ Write	
40017~40018	16~17	DI channel 0 count	Read/ Write	Long integers (0x0000000~0xFFFFFFFF), DI channels count from 0 to 7. The storage order is CDAB. The low 16 bits of channel 0 are stored in register 40017, The high 16 bits of channel 0 are stored in register 40018, The other channels follow the same pattern.
40019~40020	18~19	DI channel 1 count	Read/ Write	
40021~40022	20~21	DI channel 2 count	Read/ Write	
40023~40024	22~23	DI channel 3 count	Read/ Write	
40025~40026	24~25	DI channel 4 count	Read/ Write	
40027~40028	26~27	DI channel 5 count	Read/ Write	
40029~40030	28~29	DI Channel 6 Count	Read/ Write	
40031~40032	30~31	DI channel 7 count	Read/ Write	
forty thousand and forty-one	forty	Number of pulses per revolution for DI0	Read/ Write	An unsigned integer (default value at factory is 1000), set based on the number of pulses per revolution. After setting, registers 40101~40108 correspond to the speed of the corresponding channel.
forty thousand and forty-two	forty-one	Number of pulses per revolution for DI1	Read/ Write	
forty thousand and forty-three	forty-two	Number of pulses per revolution for DI2	Read/ Write	
forty thousand and forty-four	forty-three	Number of pulses per revolution for DI3	Read/ Write	
forty thousand and forty-five	forty-four	Number of pulses per revolution for DI4	Read/ Write	
forty thousand and forty-six	forty-five	Number of pulses per revolution for DI5	Read/ Write	
forty thousand and forty-seven	forty-six	Number of pulses per revolution for DI6	Read/ Write	
forty thousand and forty-eight	forty-seven	Number of pulses per revolution for DI7	Read/ Write	
forty thousand and sixty-five	sixty-four	PWM0 reset output value	Read/ Write	PWM reset output values for channels 0 to 7,

forty thousand and sixty-six	sixty-five	PWM1 reset output value	Read/ Write	(The default value is 5000) Integer, range 0~10000
forty thousand and sixty-seven	sixty-six	PWM2 reset output value	Read/ Write	
forty thousand and sixty-eight	sixty-seven	PWM3 reset output value	Read/ Write	
forty thousand and sixty-nine	sixty-eight	PWM4 reset output value	Read/ Write	
forty thousand and seventy	sixty-nine	PWM5 reset output value	Read/ Write	
forty thousand and seventy-one	seventy	PWM6 reset output value	Read/ Write	
forty thousand and seventy-two	seventy-one	PWM7 reset output value	Read/ Write	
forty thousand and seventy-three	seventy-two	Channel 0~3 frequency reset value	Read/ Write	Pulse frequency reset output value, (default value is 0) Integer, range 0~65535 Hz Set to 0, indicating switch output Set to 1~65535, indicating PWM output
forty thousand and seventy-four	seventy-three	Channel 4-7 frequency reset value	Read/ Write	
Address 4X (PLC)	**Address (PC, DCS)**	**Data content**	**attribute**	**Data Explanation**
forty thousand and eighty-one	eighty	Automatic saving of DI count values	Read/ Write	0: Do not automatically save, power off and reset to zero; (default value is 0) 1: Power off automatically saves DI count value.
forty thousand and eighty-two	eighty-one	DI's pull-up switch	Read/ Write	0: DI turns off the pull-up voltage; (default value is 0) 1: Connect the pull-up voltage to DI.
forty thousand and eighty-three	eighty-two	DO's pull-up switch	Read/ Write	0: DO turns off the pull-up voltage; (default value is 0) 1: Connect the pull-up voltage to DO.
forty thousand and eighty-nine	eighty-eight	Parameter reset to factory settings	Read/ Write	If set to FF00, all register parameters of the module will be restored to factory settings, and the module will automatically restart after completion
forty thousand one hundred and one	one hundred	Speed of DI channel 0	read-only	Unsigned integer. The speed is calculated based on the number of pulses set in registers 40041~40048.
forty thousand one hundred and two	one hundred and one	Speed of DI channel 1	read-only	
forty thousand one hundred and three	one hundred and two	Speed of DI channel 2	read-only	

forty thousand one hundred and four	one hundred and three	Speed of DI channel 3	read-only	
forty thousand one hundred and five	one hundred and four	Speed of DI channel 4	read-only	
forty thousand one hundred and six	one hundred and five	Speed of DI channel 5	read-only	
forty thousand one hundred and seven	one hundred and six	Speed of DI channel 6	read-only	
forty thousand one hundred and eight	one hundred and seven	Speed of DI channel 7	read-only	
40129~40130	128~129	Frequency of DI channel 0	read-only	32-bit floating-point number, collected frequency. The storage order is CDAB. If floating-point numbers are not supported and integers need to be read, please refer to registers 40145~40160
40131~40132	130~131	Frequency of DI channel 1	read-only	
40133~40134	132~133	Frequency of DI channel 2	read-only	
40135~40136	134~135	Frequency of DI channel 3	read-only	
40137~40138	136~137	Frequency of DI channel 4	read-only	
40139~40140	138~139	Frequency of DI channel 5	read-only	
40141~40142	140~141	Frequency of DI channel 6	read-only	
40143~40144	142~143	Frequency of DI channel 7	read-only	
40145~40146	144~145	Frequency of DI channel 0	read-only	32-bit long integer, collected frequency. The storage order is CDAB. The low 16 bits of channel 0 are stored in register 40129, The high 16 bits of channel 0 are stored in register 40130, The other channels follow the same pattern.
40147~40148	146~147	Frequency of DI channel 1	read-only	
40149~40150	148~149	Frequency of DI channel 2	read-only	
40151~40152	150~151	Frequency of DI channel 3	read-only	
40153~40154	152~153	Frequency of DI channel 4	read-only	
40155~40156	154~155	Frequency of DI channel 5	read-only	
40157~40158	156~157	Frequency of DI	read-	

		channel 6	only	
40159~40160	158~159	Frequency of DI channel 7	read-only	
40181~40188	180~187	DI channels 0~7 Filtering time	Read/ Write	Filtering time for DI channels 0-7 Unsigned integer. Each register corresponds to the filtering time of a channel. 1 represents a filtering time of 1mS, with the photoelectric switch input set to 0 and the mechanical switch or relay input recommended to be set to 20-100mS. The setting will take effect after restarting.
Address 4X (PLC)	**Address (PC, DCS)**	**Data content**	**attribute**	**Data Explanation**
forty thousand two hundred and one	two hundred	Module address	Read/ Write	Integer, effective after restart, range 0x0000-0x00FF
forty thousand two hundred and two	two hundred and one	Baud rate	Read/ Write	Integer, effective after restart, range 0x0004-0x000A 0x0004 = 2400 bps， 0x0005 = 4800 bps 0x0006 = 9600 bps， 0x0007 = 19200 bps 0x0008 = 38400 bps， 0x0009 = 57600 bps 0x000A = 115200bps
forty thousand two hundred and eleven	two hundred and ten	Module Name	read-only	High bit: 0x00 Low bit: 0x63

Table 5 Modbus Rtu Register Description

Communication example 1: If the module address is 01, send in hexadecimal: **010300000001840A** to retrieve the data from the register.

01	03	00	00	00	01	eighty-four	0A
Module address	Read and hold register	Register Address High Bit	Low bit register address	Register quantity high	Low register quantity	CRC check low bit	CRC check high bit

If the module replies: **0103020333F8A1**, the read data is 0x0333. If it is converted to decimal 819, it means that the PWM output of channel 0 is currently 8.19%.

01	03	02	03	thirty-three	F8	A1
Module address	Read and hold register	The number of bytes in the data	data-high	data-low	CRC check low bit	CRC check high bit

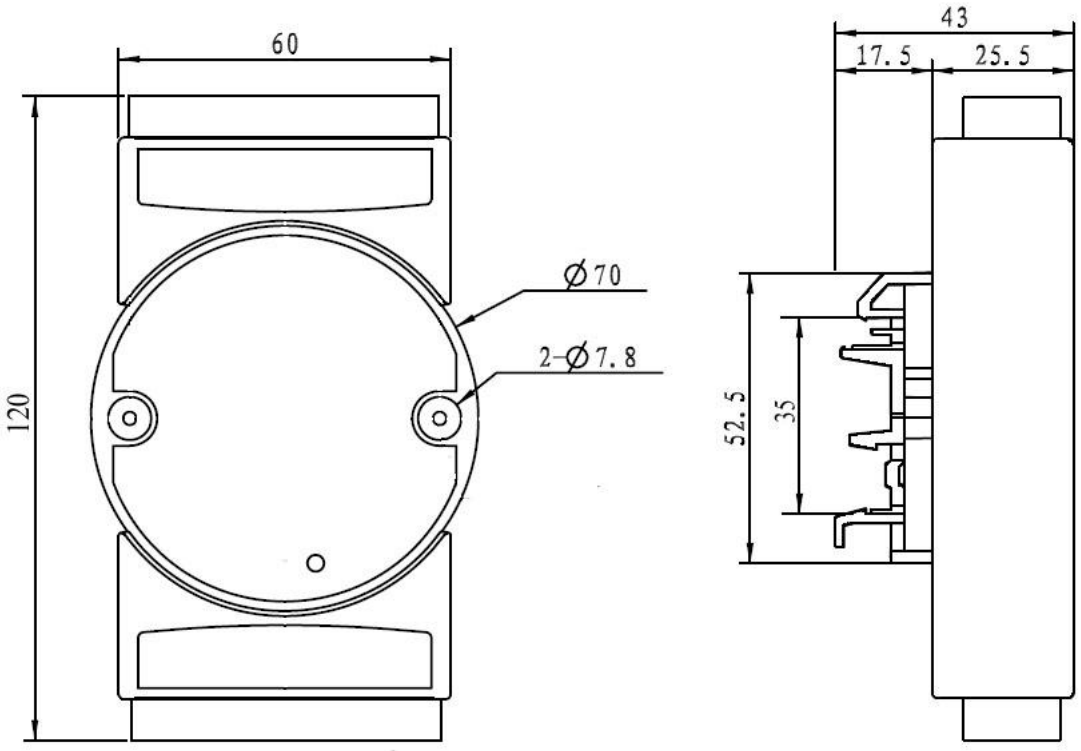
Communication example 2: If the module address is 01, send **010300100002C5CE** in hexadecimal to retrieve the data from the register.

01	03	00	ten	00	02	C5	CE
Module address	Read and hold register	Register Address High Bit	Low bit register address	Register quantity high	Low register quantity	CRC check low bit	CRC check high bit

If the module replies: **01030400640000BBEC**, the data read is 0x0000 for the top 16 bits and 0x0064 for the bottom 16 bits. The high and low bits are merged into 0x00000064 and converted to decimal as 100, it indicates that the current count value for channel 0 is 100.

01	03	04	00	sixty-four	00	00	BB	EC
Module address	Read and hold register	The number of bytes in the data	Data low 16 bits		Data is 16 bits high		CRC check low bit	CRC check high bit

Dimensions: (Unit: mm)



Can be installed on standard DIN35 rails

guarantee:

Within two years from the date of sale, if the user complies with the storage, transportation, and usage requirements and the product quality is lower than the technical specifications, it can be returned to the factory for free repair. If damage is caused due to violation of operating regulations and requirements, device fees and maintenance fees shall be paid.

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