

## RS485/232 to Analog Signal Converter

(D/A Converter, WJ31 series)

### Features:

- >> RS-485/232 interface, isolation convert standard analog signal output
- >> Analog signal output accuracy is better than 0.2%
- >> Can calibrate module output accuracy
- >> Signal output / communication interface isolation voltage 3000VDC
- >> Wide supply range: 8 ~ 32VDC
- >> High reliability, easy programming, easy to install and wiring
- >> User-programmable settings module address, baud rate, etc.
- >> set the host to read the WJ21 product data to the remote collection
- >> Supports Modbus RTU protocol
- >> DIN35 Rail-mounted

### Typical Application:

- >> Standard analog signal output
- >> Intelligent building control, security and engineering applications
- >> RS-232/485 industrial automation control system
- >> Industrial control signal isolation and long-term transmission
- >> Equipment debug and control
- >> Sensor signal remote transmission
- >> Implementation of the industrial field data given
- >> Medical, industrial products development
- >> 4-20mA signal output

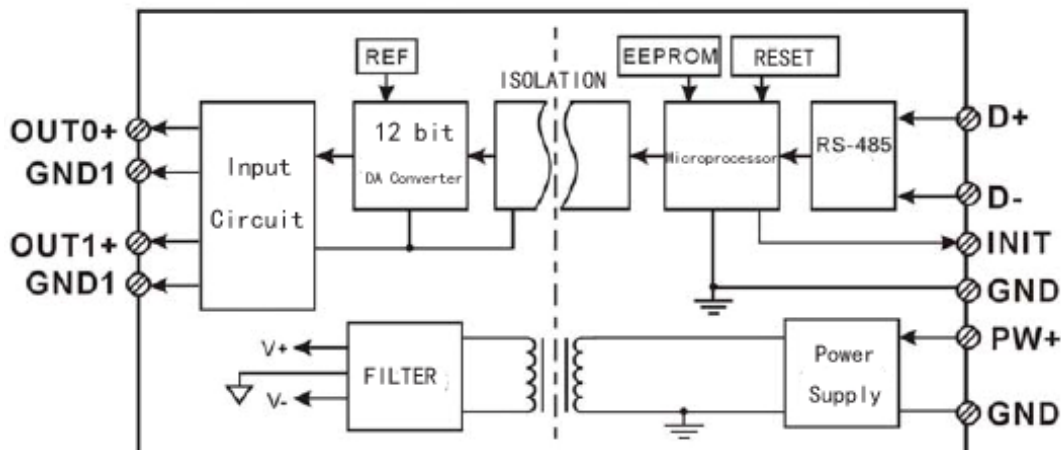


Figure 1 WJ31

### Product Overview:

The WJ31 series realize host RS-485/232 interface signal isolation converted into a standard analog signal, to control the remote device. WJ31 products can be applied to RS-232/485 bus industrial automation control system, 4-20mA / 0-5V/0-10V standard signal output, to control industrial site execution set equipment, control equipment and display instrument.

Products include power supply isolation, signal isolation, linearization, D/A conversion and RS-485 serial communication. Each serial interface can connect up to 256 pieces WJ21 Series modules, communication using ASCII code or MODBUS RTU communication protocol, and its instruction set compatible with the ADAM modules, baud rate can be set by the code, with other manufacturers control module hang in the same RS-485 bus for easy programming.



WJ31 series products are based on SCM's intelligent monitoring and control system, users set the calibration value, address, baud rate, data format, checksum status, and configuration information are all stored in nonvolatile memory EEPROM.

WJ31 products are according to industry standard design, isolation between signal output / communication interface, can withstand voltage 3000VDC, high anti-interference ability and reliability. Operating temperature range is - 45 ~ +85 °C.

### Function Description:

WJ31 signal isolation D / A converter module can be used to output one channel voltage or current signal, can also be used to output two common ground current or voltage signal.

#### 1. Analog signal output

12-Bit acquisition accuracy, all products signal input range have been calibrated. In use, users also can program calibration easily.

About the specific current or voltage input range, please see product selection. when need two channels signal output, signal value must be the same.

#### 2. Communication protocol

**Communication Interface:** one channel standard RS-485 communication interface, or one standard RS-232 communication interface, specify when ordering.

**Communication Protocols:** supports two protocols, characters protocol of the command set defined and MODBUS RTU communication protocol. Can be programmed using the kind of communication protocol, can be achieved with PLC, RTU of many Brands or computer monitoring system for network communication.

**Data Format:** 10 Bits. 1 start bit,8 data bits,1 stop bit.

**Address:** (0 to 255) and baud rate (2400,4800,9600,19200,38400 bps) can be set, the most long-distance about communication networks is up to 1200 meters, through the twisted-pair shielded cable.

Communication interface of high anti-jamming design, ± 15KV ESD protection, communication response time is less than 100mS.

#### 3. Anti-jamming

According to need to set the checksum. Module internal has transient suppression diodes, can inhibit a variety of surge pulse, protection module, and internal digital filter can also be well suppressed from the grid frequency interference.

### Product Selection:

<b>WJ31</b>	□ - □	<b>U(A)</b> □
Interface		Output Voltage or Current Signal
<b>485:</b> Input is RS-485 interface		<b>U1:</b> 0-5V <b>A1:</b> 0-1mA
<b>232:</b> Input is RS-232 interface		<b>U2:</b> 0-10V <b>A2:</b> 0-10mA
		<b>U3:</b> 0-75mV <b>A3:</b> 0-20mA
		<b>U4:</b> 0-2.5V <b>A4:</b> 4-20mA
		<b>U5:</b> 0-±5V <b>A5:</b> 0-±1mA
		<b>U6:</b> 0-±10V <b>A6:</b> 0-±10mA
		<b>U7:</b> 0-±100mV <b>A7:</b> 0-±20mA
		<b>U8:</b> user-defined <b>A8:</b> user-defined

Sample 1: part No.:**WJ31 485-A4** Input is RS485 interface, 4-20mA signal output

Sample 1: part No.:**WJ31 232-U1** Input is RS-232 interface ,0-5V signal output

### General parameters:

(typical @ +25 °C, Vs to 24VDC)

Output type: current / voltage signal

Accuracy: 0.2%

Output maladjustment: current output  $\pm 0.5 \mu\text{A} / ^\circ\text{C}$ , voltage output of  $\pm 0.1 \text{mV} / ^\circ\text{C}$

Temperature drift:  $\pm 20 \text{ppm} / ^\circ\text{C}$  ( $\pm 30 \text{ppm} / ^\circ\text{C}$ , maximum)

Output load capacity: current output  $350\Omega$  (4-20mA/0-20mA/0-  $\pm 20\text{mA}$  current output)  
voltage output  $10\text{mA}$  (0-5V/0-10V/0-  $\pm 5\text{V}$  voltage output)

Communication: RS-485 protocol or RS-232 standard characters protocols and MODBUS RTU communication protocol  
Baud Rate (1200,2400,4800,9600,19200,38400 bps) can be selected via software  
Address (0 to 255) can be selected via software

Communication Response Time: 100 ms maximum

Power Supply: +8 ~ 32VDC wide range power supply, internal anti-reverse and over-voltage protection circuit

Power Loss: less than 1.5W

Operating Temperature:  $-45 \sim +80 ^\circ\text{C}$

Humidity: 10 ~ 90% (no condensation)

Storage Temperature:  $-45 \sim +80 ^\circ\text{C}$

Storage Humidity: 10 ~ 95% (no condensation)

Isolation Voltage: communication interface / output: 3KVDC, 1 minute, leakage current: 1mA

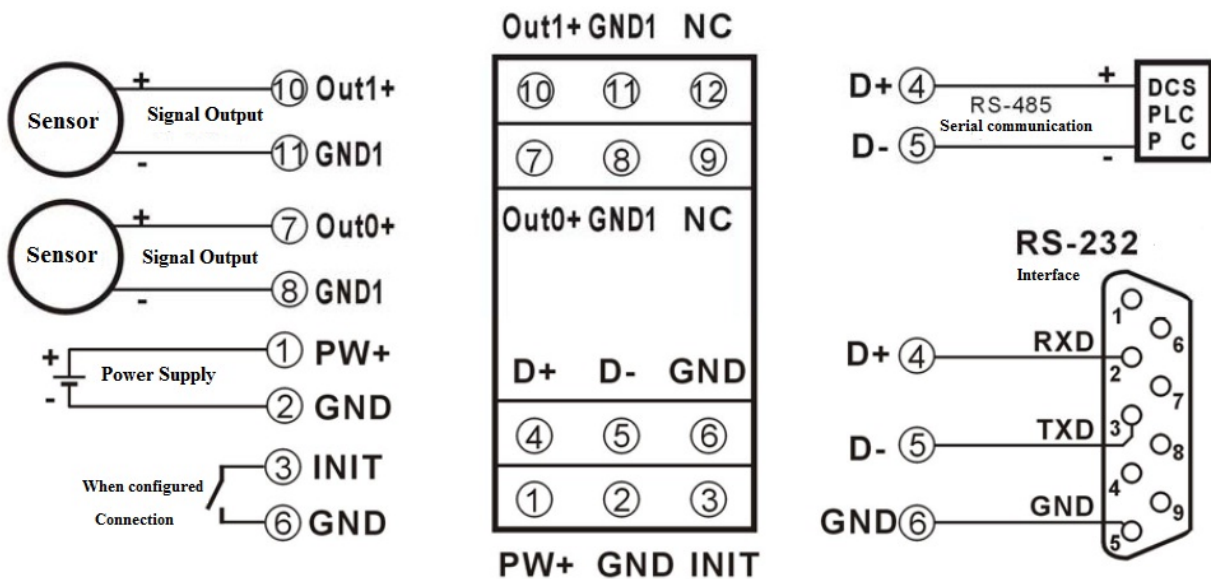
Which communication interface and power supply are common ground.

Shock Voltage: 3KVAC, 1.2/50us (peak)

Dimensions: 106.7 mm x 79 mm x 25mm

### Footprint Function:

PIN	Name	Function	PIN	Name	Function
1	PW+	Power+	7	OUT 0+	Analog signal output 0+
2	GND	Power-	8	GND 1	Analog signal output 0-
3	INIT	Initialization state set	9	NC	NO PIN
4	D+	RS-485 signal+	10	OUT 1+	Analog signal output 1+
5	D-	RS-485 signal-	11	GND 1	Analog signal output 1-
6	GND	Power-,Output port ground	12	NC	NO PIN



Top View

Figure 3 WJ31 Wiring Diagram

## Initialization WJ31 modules:

All WJ31 modules, if you use RS-485 network, must be assigned a unique address code, address code value of hexadecimal numbers between 00 and FF. However, all new WJ21 module uses a factory initial settings, as follows:

- Address code: 01
- Baud rate: 9600 bps
- Checksum is disable

As the new module address codes are the same, their address will be contradictory to other modules, so when you set up the system, you must reconfigure each WJ31 module address. WJ31 module can be connected the power cord and RS485 communication lines, through configuration commands to modify the WJ31 module address. Baud rate, parity and status, communication protocols also need to be adjusted according to user requirements. In the modified baud rate, parity and status, communication protocol, you must first enter the module to the default state, or can not be modified.

## Let the module into the default state:

WJ31 module has a special INIT pin. Connecting the INIT PIN to ground (GND PIN), then open power, the module into the default state. In this state, the module is configured as follows:

- Address code 00
- 9600 bps baud rate
- Checksum is disable

At this time, via configuration commands you can modify the WJ31 module baud rate, parity, checksum state and other parameters, by setting the module communication protocol command to select the communication protocol. When are not sure a module specific configuration, can also be configured by installing the jumper, so that the module into the default state, then reconfigure the module. If clients need set the module to MODBUS RTU communication protocol, see the MODBUS protocol section for instructions.

## WJ31 character protocol command set:

Order is by a series of characters, such as first code, address ID, variables, an optional checksum byte and a terminator (**cr**) which can show command. In addition to wildcard address “\*\*”synchronization command, the host only commands a WJ21 module once.

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

**(Leading code)** prefix is the first letter of the command. All commands require a command prefix, such as %, \$, #, @, ... etc.

**(Addr)** module address code, if not specified below, range is from 00 ~ FF (hexadecimal).

**(Command)** shows the command code or variable values.

**[Data]** some output command needs data

**[Checksum]** brackets Checksum (checksum) shows an optional parameter, only the checksum is enabled, need this option.

**(Cr)** a control code character as identify , **(cr)** as a carriage return character, its value is 0x0D.

**1 - Character**  
**2 - Character**  
**Variable length**  
**Variable length**  
**2 - Character**  
**1 - Character**

When enabled checksum (checksum), users need [Checksum]. It accounted for 2 - character. Commands and responses must be attached checksum feature. Checksum used to check all input commands to help you find the host to the module command module to the host response to errors and mistakes. Checksum characters placed in command or in response to the character after the carriage return before.

Calculated as follows: two characters, the hexadecimal number for all issued prior to the ASCII values of and, then with hexadecimal digits 0xFF phase proceeds.

Examples: Disable checksum (checksum)

command: **\$002(cr)**  
 response: **!00020600 (cr)**

Enable checksum

command: **\$002B6 (cr)**

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

### Command response:

Response message depends on a variety of commands. Response also consists of several characters, including leading code, variables and end tags. The first code of response signal has two: '!' Or '>' indicates that a valid command and '?' means invalid. By checking the response information, you can monitor whether the command is valid

### Note:

1. In some cases, many commands use the same command format. To ensure that you use a command in the address is correct, if you use the wrong address and this address represents another module, then the command will take effect in another module, resulting in an error.
2. the command must be entered in uppercase letters.

### 1、Set Channel N Analog Output Value Command

**Description:** set analog output module channel N output value

Command Format: **#AAN(data)(cr)**

**Parameter:#** delimiter character

**AA** module address, (range 00-FF). Factory address is 01, converted to hexadecimal ASCII code for each character. Such as address 01 into hexadecimal are 30H and 31H.

**N** Channel code 0 or 1. Change to hexadecimal are 30H and 31H

**(data)** set channel N reset output analog value .The data format is in Engineering Units, Percent of FSR, Two's complement hexadecimal. Refer to Chapter 3 Command Set.

**(cr)** is the terminating character, carriage return (0Dh)

**Response :** >(cr) command is valid.

?AA(cr) invalid command or illegal operation

**Parameter: >** delimiter character

**(cr)** terminating character, carriage return (0Dh)

There is no response if the format error or communication error or address does not exist.

**Example: Command(Character format) #010+16.000(cr)**

**(Hexadecimal format) 233031302B31362E3030300D**

**Response (Character format) >(cr)**

**(Hexadecimal format) 3E0D**

The channel 0 output value is +16.000mA at setting address 01H module.

### 2、Set Channel N Reset Analog Output Value Command

**Description:**Set Channel N Reset Analog Output Value as the present data formats.

Command Format: **#AASN(data)(cr)**

**Parameter: #** delimiter character

**AA** module address (range 00-FF) hexadecimal. Factory address is 01, converted to hexadecimal ASCII code for each character. Such as address 01 into hexadecimal are 30H and 31H.

**S** set reset analog output value

**N** Channel code 0 or 1. Change to hexadecimal are 30H and 31H

**(data)** set channel N reset output analog value .The data format is in Engineering Units,Percent of FSR,

Two's complement hexadecimal. Refer to Chapter 3 Command Set.

(**cr**) is the terminating character, carriage return (0Dh)

**Response :** >(cr) command is valid.

?AA(cr) invalid command or illegal operation

There is no response if the format error or communication error or address does not exist.

**Example: Command #01S0+04.000(cr)**

**Response >(cr)**

The channel 0 reset output value is +04.000mA at setting address 01H module.

### 3、Set Analog Output Module Command

**Description:** Set address, output ranges, baud rate, data formats, checksum and state for a analog output module, counter data are stored in a EEPROM.

Command Format: %AANNTTCCFF(cr)

Parameter : % delimiter character

**AA** module address, (range 00-FF) hexadecimal. Factory address is 01, converted to hexadecimal ASCII code for each character. Such as address 01 into hexadecimal are 30H and 31H.

**NN** indicates new module hexadecimal address, value NN range is 00~FF

**TT** hexadecimal indicates type code.WJ31 must been set 00

**CC** Baud Rate code (hexadecimal)

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

Table 2 Baud rate code

**FF** Hexadecimal 8-bit represents the data format, checksum. Note: from bits2 to bits5 need not been set to zero.

Bit7	Bit 6	Bit 5	Bit 4	Bit 3	Bit2	Bit 1	Bit 0
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Table 3 Data format, checksum and code

Bit7: Reserved bits (must set to 0)

Bit6: checksum states, if 0:Disabled, if 1: Enabled

Bit5-bit2: Not used(must set to 0)

Bit1-bit0: Data Format Bit

00: Engineering Units

01: % of FSR

10: Twos complement hexadecimal

11: ohms(only for RTD products )

(cr) terminating character, carriage return (0Dh)

**Response: !AA(cr)** command is valid

?AA(cr) command is invalid or illegal operation, or do not set up line before changing baud rate or checksum

Parameter Description:

! delimiter character which indicates a valid command.

? delimiter character which indicates a invalid command.

AA represents input module address

(cr) terminating character, carriage return (0Dh)

If you configure module for the first time, AA=00 and NN equal to new address. If reconfigure module changing address, input range, data formats, AA equals to present configured address, NN equals to the current or new address. If reconfigure module changing baud rate or checksum state, must install command string, make them in listening mode, module address is 00H, also AA=00H, NN=present or new address.

There is no response if the format error or communication error or address does not exist.

**Example:**    **command**    %0011000600(cr)  
                  **response**    !11(cr)

**Description:** %    delimiter character  
                  00    indicates analog output WJ31 module original address set to 00H.  
                  11    indicates new module hexadecimal address is 11H  
                  00    indicates type code, WJ31 must been set to 00  
                  06    indicates baud rate: 9600 baud  
                  00    indicates data format is Engineering Units, checksum is disabled

#### 4、 Read Set Status Command

**Description: Read configuration for a specified WJ31 module.**

**Command Format:**    \$AA2(cr)

**Parameter:**    \$    delimiter character  
                  AA    module address, (range 00-FF) represents the 2-character hexadecimal  
                  2    indicates read set state command  
                  (cr) terminating character, carriage return (0Dh)

**Response:** !AATTCCFF(cr)    command is valid  
                  ?AA(cr)        command is invalid or illegal operation

**Parameter:**    !    delimiter character  
                  AA    represents input module address  
                  TT    Type Code  
                  CC    Baud rate code, Table 3  
                  FF    Table 4  
                  (cr) terminating character, carriage return (0Dh)

There is no response if the format error or communication error or address does not exist.

**Example:**    **command**    \$302(cr)  
                  **response**    !300F0600(cr)

!    delimiter character  
30    indicates WJ31 module address is 30H  
00    indicates input type code  
06    represents that baud rate is 9600 baud  
00    represents that data format is Engineering Units, disable checksum

#### 5、 Offset Calibration Command

**Description: Calibrates an analog output module ZERO offset errors**

**Command Format:**    \$AA1N(cr)

**Parameter:**    \$    delimiter character  
                  AA    module address, (range 00-FF) represents the 2-character hexadecimal  
                  1    represents offset calibration command  
                  N    channel code 0~1  
                  (cr) terminating character, carriage return (0Dh)

**Response:** ! AA (cr)    command is valid

- ?AA(cr) command is invalid or Illegal operation
- ! delimiter character which indicates a valid command.
- ? delimiter character which indicates a invalid command.
- AA represents input module address
- (cr) terminating character, carriage return (0Dh)

Products have been calibrated, user can use them directly. After calibrating offset command, then calibrate gain errors. In the calibration, analog output modules need to be calibrated channel connected to the multimeter to monitor the output signal, through the first command set command to set the analog output, regulated to multimeter inside shows the value of the output signal is zero, and then enter the calibration offset command. See the specific calibration methods calibrate the module sections.

There is no response if the format error or communication error or address does not exist.

**Example: command \$0110(cr)**  
**response !01 (cr)**

Calibrate channel 0 offset at address 01H module.

### 6、 Gain Calibration Command

**Description: Calibrate module channel N full gain of the output value**

Command Format: \$AA0N(cr)

- Parameter: \$ delimiter character
- AA module address, (range 00-FF) represents the 2-character hexadecimal
- 0 represents gain calibration command
- N channel code 0~1
- (cr) terminating character, carriage return (0Dh)

**Response: !AA(cr)** command is valid  
?AA(cr) command is invalid or illegal operation

- Parameter: ! delimiter character which indicates a valid command.
- ? delimiter character which indicates a invalid command.
- AA represents input module address
- (cr) terminating character, carriage return (0Dh)

Products have been calibrated, user can use them directly. After calibrating offset command, then calibrate gain errors. When the calibration, the analog output module is required to connect to the multi-meter monitored output signal On been calibrated channel, through the command set command to set the analog output, adjusted to the output signal is full- scale, displays in the multi-meter, and then enter calibration gain command. The specific calibration method, see calibration Module chapter.

There is no response if the format error or communication error or address does not exist.

**Example: command \$0100(cr)**  
**Response !01 (cr)**

Calibrate channel 0 at address 01H module.

### 7、 Read Module Name Command

**Description: Read a analog output module name**

Command Format: \$AAM(cr)

- Parameter: \$ delimiter character
- AA module address, (range 00-FF) represents the 2-character hexadecimal
- M read module name command
- (cr) terminating character, carriage return (0Dh)

**Response: !AA(Module Name)(cr)** command is valid  
?AA(cr) command is invalid or illegal operation



Parameter: **!** delimiter character which indicates a valid command.  
**?** delimiter character which indicates a invalid command.  
**AA** represents input module address  
**(Module Name)** WJ21,WJ31 or WJ71 or other module name  
**(cr)** terminating character, carriage return (0Dh)

There is no response if the format error or communication error or address does not exist.

**Example: command \$08M(cr)**  
**Response !08WJ31 (cr)**

At address 08H module is WJ31

### 8、 Channel N Analog Output Value Read-Back Command

**Description: Analog output module channel N output value read-back**

Command Format: **\$AADN(cr)**

Parameter: **\$** delimiter character  
**AA** module address, (range 00-FF) represents the 2-character hexadecimal  
**D** analog output value read-back command  
**N** channel code 0~1  
**(cr)** terminating character, carriage return (0Dh)

**Response: !AA(Data)(cr)** command is valid  
**?AA(cr)** command is invalid or illegal operation

Parameter: **!** delimiter character  
**AA** represents input module address(range 00-FF)  
**(Data)** read-back channel N analog output data. Data format may be engineering units, the percentage of FSR, Hexadecimal complement. Detailed description see command 3.  
**(cr)** terminating character, carriage return (0DH)

There is no response if the format error or communication error or address does not exist.

**Example: command \$01D0 (cr)**  
**Response !01+12.000 (cr)**

At address 01H, module channel 0 current output value is +12.000mA (Data format is engineering units)

### 9、 Set Communication Protocol Command

**Description: Set the module communication protocol to characters protocol or Modbus RTU protocol.**

Command Format: **\$AAPV(cr)**

Parameter: **\$** delimiter character  
**AA** module address, (range 00-FF) represents the 2-character hexadecimal  
**P** set communication protocol command  
**V** protocol code: 0 or 1. Change to hexadecimal is 30H or 31H.  
**0:** characters protocol  
**1:** Modbus RTU protocol  
**(cr)** terminating character, carriage return (0Dh)

**Response: !AA(cr)** command is valid  
**?AA(cr)** command is invalid or illegal operation

Parameter: **!** delimiter character which indicates a valid command.  
**?** delimiter character which indicates a invalid command.  
**AA** represents output module address  
**(cr)** terminating character, carriage return (0Dh)

There is no response if the format error or communication error or address does not exist.

Set command protocol must be effective by default.

**Example 1:**    **command**    **\$00P1(cr)**  
                   **response**    **!00 (cr)**

Setting the communication protocol is Modbus RTU protocol.

**Example 2:**    **command**    **\$00P0(cr)**  
                   **response**    **!00 (cr)**

Setting the communication protocol is characters protocol.

### Output Range and Data Format:

WJ31 uses three data formats:    00: Engineering Units  
   01: % of FSR  
   10: Twos complement hexadecimal

Input Range	Data Format	Max.	Min.
<b>A4: 4-20mA</b>	Engineering Units	+20.000	+04.000
	% of FSR	+100.00	+020.00
	Twos complement hexadecimal	FFF	333
<b>A3: 0-20mA</b>	Engineering Units	+20.000	±00.000
	% of FSR	+100.00	±000.00
	Twos complement hexadecimal	FFF	000
<b>U1: 0-5V</b>	Engineering Units	+5.0000	±0.0000
	% of FSR	+100.00	±000.00
	Twos complement hexadecimal	FFF	000
<b>U2: 0-10V</b>	Engineering Units	+10.000	±00.000
	% of FSR	+100.00	±000.00
	Twos complement hexadecimal	FFF	000
<b>U5: 0-±5V</b>	Engineering Units	+5.0000	-5.0000
	% of FSR	+100.00	-100.00
	Twos complement hexadecimal	FFF	000
<b>U6: 0-±10V</b>	Engineering Units	+10.000	-10.000
	% of FSR	+100.00	-100.00
	Twos complement hexadecimal	FFF	000
<b>A7: 0-±20mA</b>	Engineering Units	+20.000	-20.000
	% of FSR	+100.00	-100.00
	Twos complement hexadecimal	FFF	000
<b>U8/A8: user-defined</b>	Engineering Units	+100.00	±000.00
	% of FSR	+100.00	±000.00
	Twos complement hexadecimal	FFF	000

**Table 4 Output Range and Data Format**

### Example:

- Output Range is A4:4-20mA, setting output is 4mA:
  - Engineering Units    user command    **#010+04.000(cr)**
  - Percent of FSR       user command    **#010+020.00(cr)**
  - Twos complement     user command    **#010333(cr)**
- Output Range is U1:0-5V, setting output is 3V:
  - Engineering Units    user command    **#010+3.0000(cr)**
  - Percent of FSR       user command    **#010+060.00(cr)**
  - Twos complement     user command    **#010999(cr)**

### Module Calibration:

**We have calibrated the module, the user can use directly.**

You can also use the product calibration function to re-calibrate the module. During calibration, the module needs using a precision multi-meter to monitor the output value.

In order to improve calibration accuracy, it is recommended to calibrate using the following equipment:

1. A five and a half or more high-precision voltage / current measuring instruments to monitor the accuracy of the output signal

### Calibration:

1. Select to need been calibrated output channel, in accordance with the module output scope connects to the corresponding voltage or current measuring instruments.
2. Set output zero signal, usually is 0mA, 4mA or 0V. Set the analog output by the first command of command sets, adjusted to the output signal is zero value which the measuring instruments display.
3. Until the signal stabilized, send the offset calibration \$AA1N command to WJ31 module.(N: channel code 0 or 1)
4. Set output full- scale signal. Set the analog output by the first command of command sets, adjusted to the output signal is full- scale value which the measuring instruments display.
5. Until the signal stabilized, send the offset calibration \$AA0N command to WJ31 module.(N: channel code 0 or 1)
6. Finished

### Modbus RTU communication protocol:

Module default protocol is character communications protocol. If you need to set the module to Modbus RTU protocol, please follow these settings:

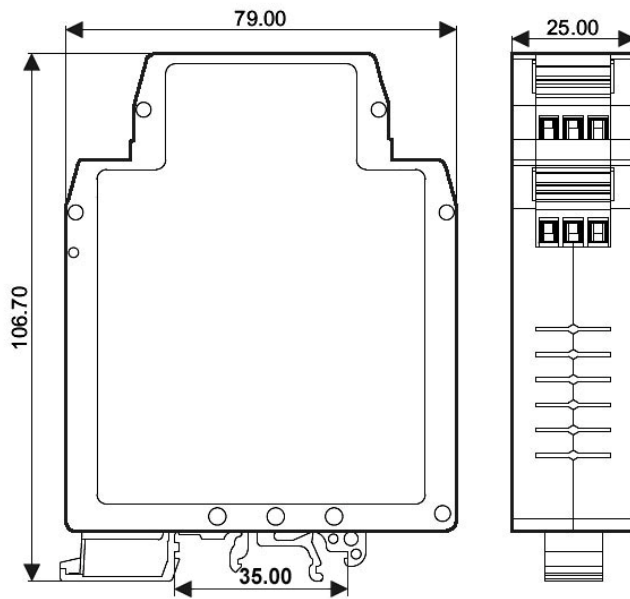
1. Short connect INIT pin (pin 3) and GND pin (pin 6).
2. Connect the power cord and the communication interface cable.
3. Turn on the power, the module enters the default state automatically, address 00, baud rate 9600.
4. Wait 1 minute, module is initialization.
5. Send the command \$00P1(cr), check the response, if is !00 (cr), set successfully.
6. Turn off the power, disconnect the INIT and GND connections.
7. The module has been set to the Modbus RTU protocol mode successfully.

### Register Description:

Address 4X (PLC)	Address (PC, DCS)	Data	Property	Data Explanation
40001	0000	Out0(0x0000-0x0FFF)	read/write	channel 0 analog output value
40002	0001	Out1(0x0000-0x0FFF)	read/write	channel 1 analog output value
40003	0002	Sout0 (0x0000-0x0FFF)	read/write	channel 0 analog output value after power
40004	0003	Sout1 (0x0000-0x0FFF)	read/write	channel 1 analog output value after power

**Table 5 Modbus RTU register description**

Size(unit:mm)



Standard DIN35 Rail

**Warranty**

Two years (but violate operating rules and requirements to create damage, clients need pay maintenance costs)

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**Brand**

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