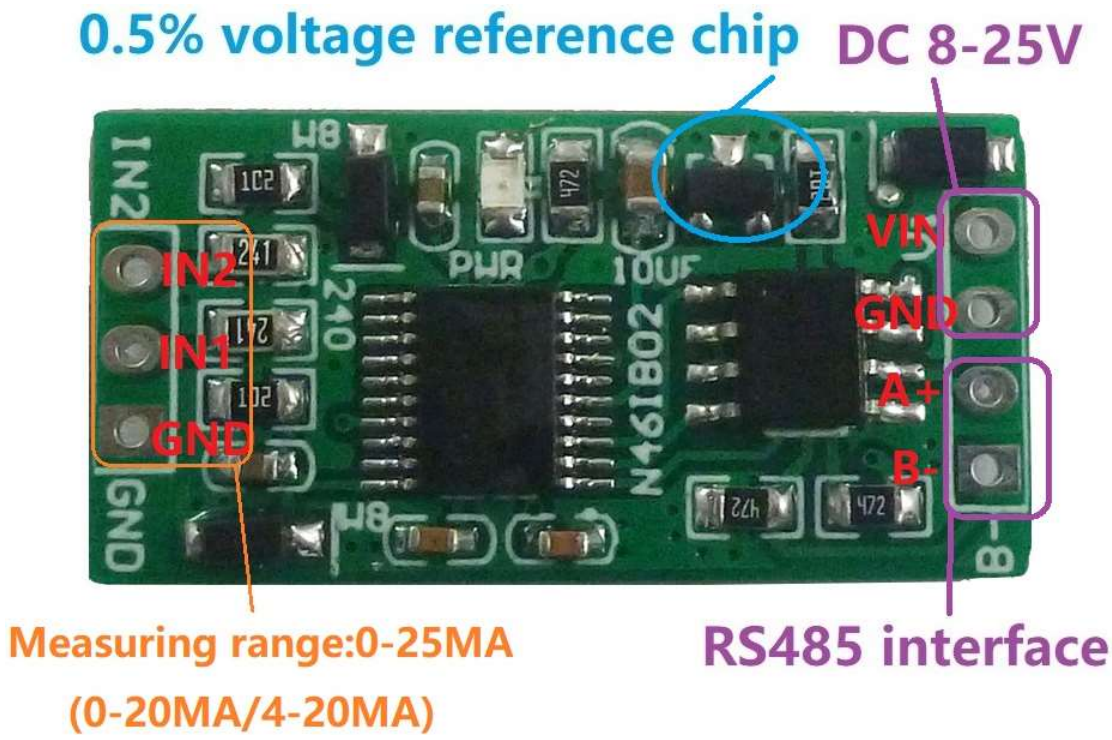


Features:

1: Operating Voltage : DC 8-25V(DC 9V 12V 15V 24V)

2: Operating Current : 9-13MA

3: MODBUS RTU Command support 03 06 function code

4: IN1/IN2 channel current measurement range is 0-25MA(for 0-20MA/4-20MA)

5: Current resolution is 0.1MA, measurement accuracy is 1%; if the error is greater than 1%, it can be calibrated

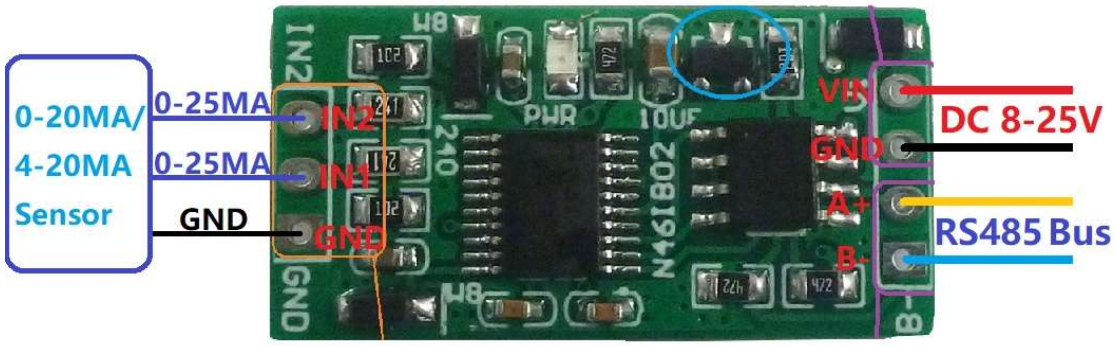
6 :MODBUS commands can be made serial HyperTerminal (serial assistant) OR PLC Enter;

7 :Under the MODBUS command mode, it can support up to 247 devices in parallel

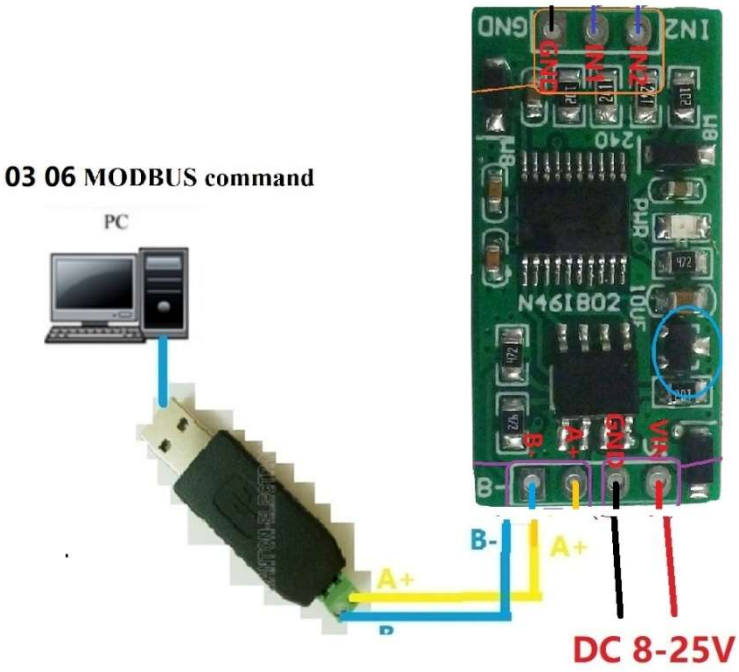
8 :Size: 30 * 15 * 4.3mm(no PIN)

9 :Weight: 1.7g(no PIN),2.2g(with PIN)

Wiring diagram:

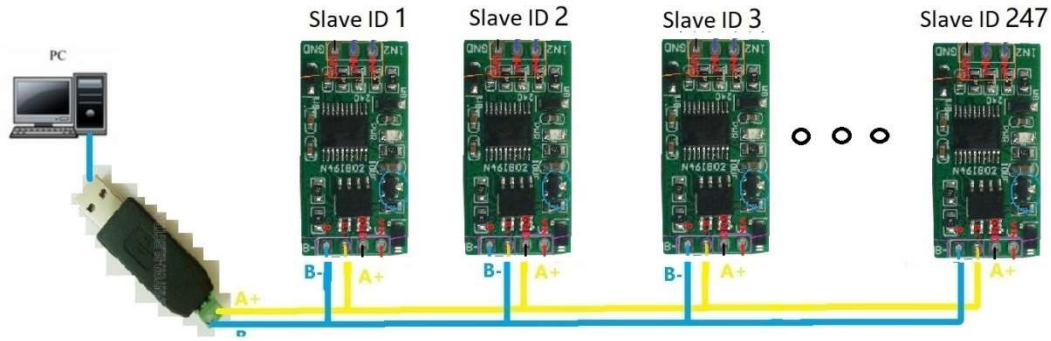


Slave ID: Different "Sliver ID" can be set by command, the maximum number is 247
Under the MODBUS command mode,the slave ID must be correct
Command Description, Please refer to " N4AIA04 modbus rtu protocol "



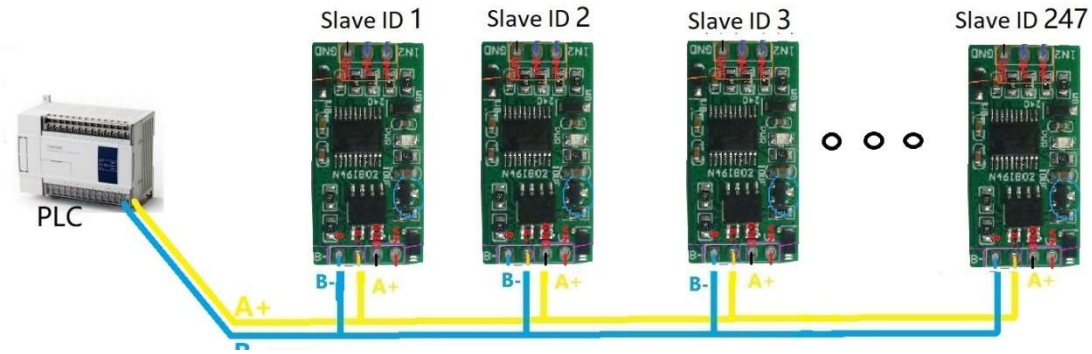
03 06 MODBUS command

You can set different "Slave ID" by command



03 06 MODBUS command

You can set different "Slave ID" by command



N46IB02 modbus rtu protocol

Function code

RS485 address (Station address) (1)	Function (1)	Register address (2)	Read number (2)	CRC16 (2)
	03 Read			
	06 Write			

Read-only register,Read Function code Is 03				
Register address	Register contents	Number of bytes	Units	Remarks
0x0000	(CH1)IN1 Current value	2	0.1MA	such as: Get 0x00C8 Decimal 200 Current= 2000 * 0.1 = 20MA
0x0001	(CH2)IN2 Current value			
Read / write register; Read function code is 03 ,Write function code is 06				
0x0007	(CH1)IN1 Current ratio	2	0.1% millesimal	This value can be corrected when the Current reading deviation is greater than 1%, such as: 1000 means 1:1 1010: 1% increase 990: 1% decrease
0x0008	(CH2)IN2 Current ratio			
0x000E	RS485 address (Station address)	2		Read Address 0XFF Write Address 1-247
0x000F	Baud rate	2		0~4 0:1200 1:2400 2:4800 3:9600（default） 4:19200 5: Factory reset

Serial baud rate：9600（default），N，8，1

Modbus RTU Communication protocol：

1. **Read Current value**

Send data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Read number (2)	CRC16(2)

Returns data

RS485 address (Station address) (1)	Function (1)	Number of bytes (1)	data (n)	CRC16(2)

RS485 address(Slave ID) : 0x01~0xFE

Function code 0x03

Register address：0x0000-0x0001, Indicates 1-2channel value

Read number：0x0001-0x0002

Read Current:

The return of the Current value is two bytes，High-bit in the former and low-bit in the post,convert it to decimal and divided by 10, is the Current value, Unit 0.1MA; for example:

For example:

Send data(RS485 address is 1)：01 03 00 00 00 01 84 0A

Returns data：01 03 02 00 78 B8 66

01 RS485 address，03 Function，02 length，B8 66 crc16

0078 is the Current value, it is converted to decimal = 120, 1200/10=12MA；

2. **Read RS485 address**

Send data

RS485 address (Broadcast address) (1)	Function (1)	Register address (2)	Read number (2)	CRC16(2)

Returns data

RS485 address (Broadcast address) (1)	Function (1)	Number of bytes (1)	data (n)	CRC16(2)

Broadcast address 0xff

Function code 0x03

Register address：0x000E

Read number：0x0001

For example:

send data：FF 03 00 0E 00 01 F0 17

Returns data：FF 03 02 00 01 50 50

FF Broadcast address，03 Function，02 length，01 is the current module RS485 address , 50 50 crc16

Note: When using this command, only one temperature module can be connected to the RS485 bus, more than one will be wrong!

3. Write RS485 address

Send data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Setting Content (2)	CRC16(2)

Returns data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Register value (2)	CRC16(2)

RS485 address(Slave ID) : 0x01~0xFE

Function code 0x06

Register address：0x000E

Setting Content：2Bytes(1-247)

For example, The current RS485 address is 1, We need to change the RS485 address to 3:

send data(RS485 address is 1)：01 06 00 0E 00 03 A8 08

Returns data：01 06 00 0E 00 03 A8 08

4. Read baud rate

Send data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Read number (2)	CRC16(2)

Returns data

RS485 address (Station address) (1)	Function (1)	Number of bytes (1)	data (n)	CRC16(2)

RS485 address(Slave ID) : 0x01~0xFE

Function code 0x03

Register address：0x000F

Read number：0x0001

For example:

send data(RS485 address is 1)：01 03 00 03 00 01 74 0A

Returns data：01 03 02 00 03 F8 45

01 RS485 address，03 Function，02 length，F8 45 crc16

03 means the current baud rate is 9600bps

Baud rate corresponds to the number: 0: 1200 1: 2400 2: 4800 3: 9600 4: 19200

5. Write RS485 address

Send data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Setting Content (2)	CRC16(2)

Returns data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Register value (2)	CRC16(2)

RS485 address(Slave ID) : 0x01~0xFE

Function code 0x06

Register address：0x000F

Setting Content：2Bytes(0-4)

For example, Change the baud rate to 4800bps:

send data(RS485 address is 1)：01 06 00 0F 00 02 38 08

Returns data：01 06 00 0F 00 02 38 08

Baud rate corresponds to the number: 0: 1200 1: 2400 2: 4800 3: 9600 4: 19200

5: Factory reset

Note: 1 The baud rate will be updated when the module is powered up again!

2 The factory setting can be restored when the baud rate corresponding to the number is 5.

For example: 01 06 00 0F 00 05 79 CA

6. Read current ratio:

Send data

RS485 address	Function	Register address	Read number (2)	CRC16(2

(Station address) (1)	n (1)	(2)		)

Returns data

RS485 address (Station address) (1)	Functio n (1)	Number of bytes (1)	data (n)	CRC16(2)

RS485 address(Slave ID) : 0x01~0xFE

Function code 0x03

Register address：0x0007-0x0008 ; Indicates 1-2 channel value

Read number：0x0001-0x0002

Return data: 0.1% millesimal

The voltage ratio can be corrected by this value when the voltage reading deviation is greater than 1%. The default value is 1000 (3E8).

For example 1:

send data(RS485 address is 1)：01 03 00 07 00 01 35 CB; 07 is Channel 1

Returns data：01 03 02 03 E8 B8 FA

03E8 is the voltage ratio, which is 1000 in decimal and divided by 1000=1; indicating that channel 1 does not need to modify the voltage value.

For example 2:

send data(RS485 address is 1)：01 03 00 08 00 01 05 C8; 08 is Channel 2

Returns data：01 03 02 03 DE 38 EC

03DE is the voltage ratio, which is 990 in decimal and divided by 1000=0.99; Indicates that channel 2 reads 0.99 times the actual acquisition value.

7. Set current ratio

The current ratio can be corrected by this value when the current reading deviation is greater than 1%. The default value is 1000 (3E8).

Send data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Setting Content (2)	CRC16(2)

Returns data

RS485 address (Station address) (1)	Function (1)	Register address (2)	Register value (2)	CRC16(2)

RS485 address(Slave ID) : 0x01~0xFE

Function code 0x06

Register address：0x0007-0x0008 ; Indicates 1-2 channel value

Setting Content：2Bytes

Setting value: 2 bytes, unit 0.1%. When this value is set to 1000 (3E8), the voltage value does not

change.

For example 1: The actual current of channel 1 is 5.0MA, but the read value is only 4.0MA. The ratio deviation is 5/4=1.25, and the correction voltage ratio is changed to 1250, which can correct the current.

Send frame: 01 06 00 07 04 E2 BA 82

Return frame: 01 06 00 07 04 E2 BA 82

The return frame is the same as the send frame. 07 means channel 1, 04 E2 means correction voltage ratio is 1250

For example 2: The actual current of channel 1 is 4.0MA, but the read value is only 5.0MA. The ratio deviation is 4/5=0.8, and the correction current ratio is changed to 800, which can correct the current.

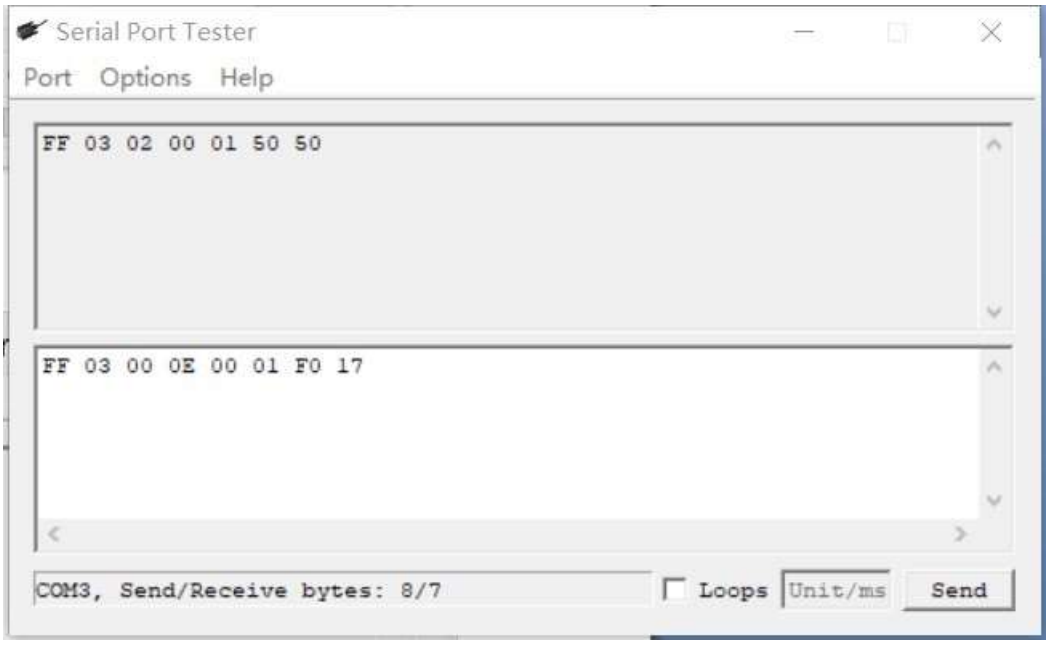
Send frame: 01 06 00 08 03 20 09 20

Return frame: 01 06 00 08 03 20 09 20

The return frame is the same as the send frame. 08 means channel 2, 03 20 means correction voltage ratio is 800

MODBUS commands you can use "Modbus Poll" input, as shown below

（CRC check generated automatically）



You can also use HyperTerminal serial input, as shown below

（Manually add CRC check）