

## Safety Warning

- 1 Installation and maintenance by professionals only.
- 2 It is strictly prohibited to install in humid and explosive environment.
- 3 When installing, maintaining and maintaining the product, the power must be turned off.
- 4 It is strictly forbidden to touch conductive parts during product operation.

## 1 Purpose

MOD-1 series of Motor driven Mechanism , adopts electronic technology to control the normal operation of traditional circuit breaker, realizing remote control of opening and closing, more humanized operation, and field assembling nxb1251p circuit breaker. MOD-1 series Motor driven Mechanism has a wide range of applications, which can be used in tower base station, industrial power management system and so on.

## 2 Main technical parameters

environment condition	Ambient temperature (°C)	-5°C~+40°C
Humid and hot atmospheric conditions		+40 °C, relative humidity 50%+it can reach 90% at 20 °C;
	Altitude	No more than 2000m
technical parameter	Rated working voltage Ue (V)	DC48-60V
	Product width	27mm
	Action time	Opening ≤ 0.2S, closing ≤ 0.5s (excluding delay)
	Installation mode	Guide rail installation
	Mechanical life	10000 times, 3 times / min
	Mode of action	Remote control, can be remote opening and closing
	Indicator light	Indicator light on: normal operation; Indicator light off: no power supply; The indicator light flashes slowly: the [Manu/Auto] is in the manual state; Indicator lamp flashing rapidly: mechanical failure

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## Continued Table 1

[manual / automatic] operation	Switch [Manu/Auto] to automatic mode for remote control; switch [Manual/Auto] to manual mode for manual opening or closing without automatic action
Communication function	RS485 Modbus protocol, baud rate 9600bps, address code 1-247.

## 3 installation

(1) Outline and installation dimensions

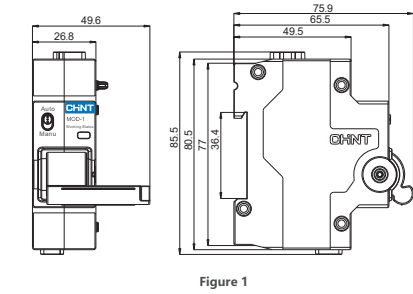


Figure 1

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(2) Product assembly diagram

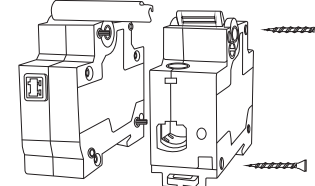


Figure 2

(3) Description of product keys and indicator lights

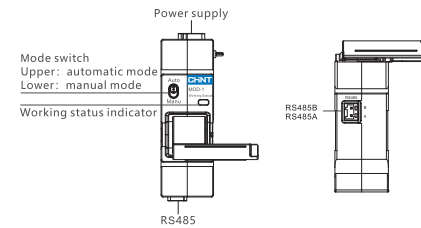


Figure 3

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Mode switch	1. When the [Manu/Auto] is in the manual mode, the LED light flashes slowly; 2. When the [Manu/Auto] is in the automatic mode, the LED light is always on
Working status indicator	1. When the [Manu/Auto] is in the manual mode, it cannot be remotely controlled to open or close, but the device information can be read through the host computer software 2. In case of mechanical failure in opening and closing of the Motor-driven mechanism, LED light flashes rapidly; When the equipment has no power supply, the LED light is off

## 4 maintenance

- 1) Daily dust removal; Check whether the terminal screws are loose, and check whether the wires are damaged and aged. Under the environmental conditions specified in the manual, please check the products stored or stopped for half a year before use.
- 2) Troubleshooting and precautions

Table 2 examples of troubleshooting

Fault phenomenon	Cause analysis	Exclusion method
The indicator does not work	No power supply or manual	1. Check whether the electric operating mechanism is connected to the power supply
The working status indicator flashes slowly	[Manu/Auto] is in manual state	1. Check whether the [Manu/Auto] is in the manual state. If yes, please switch the [Manu/Auto] to the automatic state
The working status indicator flashes rapidly	Abnormal transmission of electric operating mechanism	1. Check whether the electric operating mechanism and nxb-125 circuit breaker are assembled in place 2. Check whether there are foreign matters on the electric operating mechanism that hinder the operation

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## Continued Table 2

Fault phenomenon	Cause analysis	Exclusion method
The upper computer software can not read the address of MOD-1 series Motor-driven Mechanism	1. The electric operating mechanism is not connected with the power supply or the working voltage is not within the rated working voltage range of the electric operating mechanism (dc48v-60v) 2. 485 communication line is not connected or the A and B bus are connected reversely 3. It is not configured according to 485 Modbus protocol of MOD-1 series Motor-driven Mechanism	1. Check whether the power supply is connected or whether the power supply voltage is within the rated operating voltage range of the electric operating mechanism (dc48v-60v). 2. Check whether the communication line is connected and whether the A and B buses are connected according to the 485 interface indicator 3. It is configured according to 485 Modbus protocol of MOD-1 series Motor-driven Mechanism
	MOD-1 series of Motor-driven Mechanism can not be closed	1. Check whether the electric operating mechanism is remotely locked by the upper computer software 2. The electric operating mechanism is damaged

## 5 environmental protection

In order to protect the environment, when the product or its components are scrapped, please properly treat it as industrial waste; The recycling station shall be disassembled and recycled according to relevant regulations.

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## 6 communication protocol

6.1: basic rules

1. Communication protocol format

Address code	Function code	data	CRC16 calibration
1 byte	1 byte	2 bytes	2 bytes
?	?	?	?

2. Communication baud rate 9600, no parity check, 1 stop bit
3. The frame response timeout is 50ms

6.2: function code function

Function code	purpose	Return value	express
0x03	Read single or multiple holding registers	0x01	Illegal function
0x10	Write single or multiple holding registers	0x02	Illegal data address
		0x03	Illegal data value
0x83	Read abnormal function code	0x07	Slave device busy
0x90	Write abnormal function code		

6.3: function code description

Read register

Main machine of distribution box

Address code	Function code	Register address	Number of registers	CRC check
1 byte	1 byte	2 bytes	2 bytes	2 bytes
?	0X03	?	N	?

(normal response) splitter ----- > distribution box host

Address code	Function code	Number of registers	date	CRC check
1 byte	1 byte	1 bytes	2 * n bytes	2 bytes
?	0X03	2*N	?	?

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(abnormal response) shunt --- > distribution box host

Address code	Sub device ID	Function code	Exception code	CRC check
1 byte	1 byte	1 byte	1 byte	2 bytes
?	?	0X83	?	?

2. 0x10 (write register)

Main machine of distribution box

Address code	Function code	Register address	Number of registers	Number of bytes	data	CRC check
1 byte	1 byte	2 bytes	2 bytes	1 byte	2 * n bytes	2 bytes
?	0X10	?	N	2N	?	?

(normal response) splitter ----- > distribution box host

Address code	Function code	Register address	Number of registers	CRC check
1 byte	1 byte	2 bytes	2 bytes	2 bytes
?	0X10	?	?	?

(abnormal response) shunt --- > distribution box host

Address code	Function code	Number of registers	CRC check
1 byte	1 byte	1 byte	2 bytes
?	0X90	?	?

3. 0x06 (write register)

Main machine of distribution box

Address code	Function code	Register address	Number of registers	CRC check
1 byte	1 byte	2 bytes	2 bytes	2 bytes
?	0X06	?	?	?

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(normal response) splitter ----- > distribution box host

Address code	Function code	Register address	Number of registers	CRC check
1 byte	1 byte	2 bytes	2 bytes	2 bytes
?	0X06	?	?	?

(abnormal response) shunt --- > distribution box host

Address code	Function code	Number of registers	CRC check
1 byte	1 byte	1 byte	2 bytes
?	0X86	?	?

6.4: single phase circuit breaker - register address

Register name	Register address	Type / length	Company	attribute	explain
Device properties					
address	0	U16		Read / write	
Equipment type	1	U16		read-only	See Table 1
Hardware version number	2	U16		read-only	
Software version number	3	U16		read-only	
Serial number of equipment	4-11	16Byte		Read / write	
Baud rate setting	12	U16		Read / write	See Table 2
Equipment status					
Switch status	13	U16		Read / write	See Table 3
Switch mode	14	U16		Read / write	See Table 4
Switch failure	15	U16		Read / write	See Table 5

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续表1

Register name	Register address	Type / length	Company	attribute	explain
Remote opening and closing times	16	U16		read-only	
Timing opening and closing times	17	U16		read-only	
Automatic closing times	18	U16		read-only	
Fault opening times	19	U16		read-only	
Reclosing function					
Auto reclosing enable	54	U16		Read / write	0: off 1: on (1)
Number of reclosing cycles	55	U16		Read / write	0: infinite (0)
Auto reclosing time	56	U16	1S	Read / write	20-60s(20s)

Table 1: equipment types

value	explain
0	Module without metering
1	With 1p single phase metering module
2	With 2p single phase metering module
3	With 3P three-phase metering module
4	With 4P three-phase metering module

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Table 2: baud rate settings

value	explain
0	15200
1	57600
2	38400
3	19200
4	9600

Table 3: switch status

Value (read)	explain
0x0000	Local closing
0x00FF	Local opening
0x0100	Remote closing
0x01FF	Remote opening
0x0200	Timing closing
0x02FF	Timing opening
0x0300	Automatic closing
0x04FF	Fault opening
0x0055	Switch failure
Value (write)	explain
0x0000	Switch on
0x00FF	Opening
0x5500	Release switch fault

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Table 4: switching modes

Value (read)	explain
0	normal
1	Local lock
2	Remote lock
3	Local lock + remote lock
Value (write)	explain
0	Remote unlocking
2	Remote lock

Table 5: switch failure

Value (read)	explain
0	normal
1	Reset sensor not detected
2	Closing sensor not detected
3	Opening sensor not detected
4	Closing limit switch not detected
5	Opening limit switch not detected
Value (write)	explain
0	Release switch fault

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# CHINT

## QC PASS

MOD-1  
Motor driven Mechanism

Check 15

Test date: Please see The packing

ZHEJIANG CHINT ELECTRICS CO., LTD.

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MOD-1  
Motor driven Mechanism  
User Instruction

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MOD-1  
Motor driven Mechanism  
User Instruction