

	④	③	②	①
				FDC3H
				OF3 SD3 FDC3H
				MX+OF3 G3A Q3A GQ3A OF3 SD3 FDC3H

- ① 主产品：CH3N-63、CH3H-63、CH3LN-63、CH3LH-63、CH3Z-63
- ② 模数化电操机构：FDC3H
- ③ 信号类附件：OF3/SD3
- ④ 控制类附件：MX+OF3/G3A/Q3A/GQ3A

注意：最多拼装的附件数量为2个，只能拼装1个信号类附件，只能拼装1个控制类附件。必须在电操和控制类附件之间安装一个信号类附件。

②+①	√
③+②+①	√
④+③+②+①	√
③+③+②+①	×
④+②+①	×
④+④+②+①	×

LED灯状态指示

绿色Led常亮：主产品合闸及控制处于自动模式。

绿色Led闪烁：产品处于手动模式。

红色Led常亮：主产品故障脱扣（如过载、短路、漏电或者由于其它附件引起脱扣）。

红色绿色Led交替闪烁：产品故障自锁。

LED灯灭：正面滑块下滑，产品锁定，手动、自动操作功能失效。

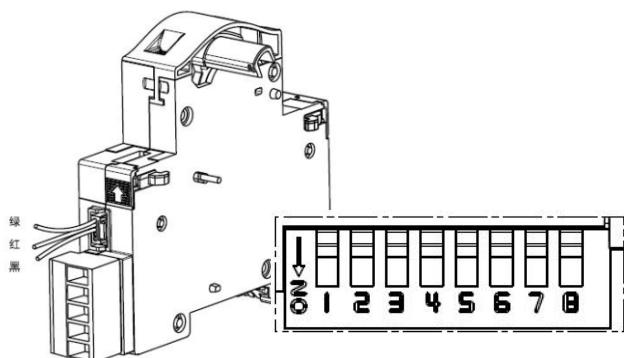
序号	常见故障情况	原因分析	处理方法
1	LED灯灭	1.端子接线没有接入电源。 2.电操滑块下滑。	1.将端子正确接入电源。 2.将电操滑块往上推，使电操处于运行状态。
2	LED红灯常亮	主产品过载、短路、漏电或其它附件引起脱扣。	保持电操通电状态，手动操作主产品手柄合闸（如主产品故障脱扣，需确认故障已经解除。）
3	LED红绿灯交替闪烁	1.附件拼装不匹配 2.电操分闸、合闸不到位，产品自锁。	1.检查电操和控制类附件之间是否安装信号类附件。 2.滑动正面滑块两次，使产品解锁。
4	主产品合不上闸	电操手柄断裂	联系厂家客服售后，更换电操手柄。

安全规程

本产品必须依照安装规范，最好由拥有相关资质的电工进行安装。不正确的安装和使用将可能导致触电或火灾危险。

在进行安装前，请仔细阅读说明书，并应考虑到产品专用安装地点的情况。除非说明书特别注明，否则不得拆开、拆卸或改动设备。常熟开关制造有限公司的任何产品只能由经常熟开关制造有限公司培训并获得相关资质的人员拆开或修理。用户未经许可自行拆开或修理，制造商不负任何责任，同时取消其更换和保修的权利。本产品只能使用常熟开关制造有限公司品牌的配件。

电操产品通讯协议



接口说明

通讯线随产品附送，长度500mm，使用时按上图插入。
(其中：绿线-RS485B；红线-RS485A；黑线-GND)

地址拨码为二进制方式，对应关系如下：(ON位置是开)

1	2	3	4	5	6	7	8
1	2	4	8	16	32	64	128

使用时将ON位置对应的数字累加，如17=1+16，
即第1个和第5位置拨码在ON位置，其他拨码在另一侧。
(地址应从1开始，如拨码都不在ON位置，则默认地址为1)

主要参数

通讯接口	RS-485
默认设置	波特率：9600 (不可调)
数据帧格式	1位起始位，8位数据位；1位停止位，无校验位。
协议	Modbus-RTU

数据帧格式

地址	功能码	数据	校验码
8-Bit	8-Bit	N*8-Bit	16-Bit

功能 (Function) 码

代码	定义	行为
3	读数据寄存器	获得一个或多个寄存器当前的二进制值
6	预置单寄存器	放置一个特定的二进制值到一个寄存器中

1、读数据寄存器 (03H)

通过03功能码，允许用户获得设备采集与记录的任何数据及系统参数。
下面例子是从1号从机读3个采集到的基本数据 (数据帧中每个地址占用2个字节)。

下行报文 (主站到从站)：

设备地址	功能码	变量起始地址高字节	变量起始地址低字节	变量个数高字节	变量个数低字节	校验码低字节	校验码高字节
01H	03H	00H	01H	00H	03H	54H	0BH

03功能码下行示例

上行报文 (从站到主站)：响应包含从机地址、功能码、数据的数量和CRC错误校验。

设备地址	功能码	变量总字节数	变量值高字节	变量值低字节	变量值高字节	变量值低字节	变量值高字节	变量值低字节	校验码低字节	校验码高字节
01H	03H	06H	00H	01H	00H	02H	00H	03H	FDH	74H

03功能码上行示例

2、预置单寄存器 (06H)

功能码06H允许用户改变单个寄存器的内容，控制器内部的任何可写的单寄存器都已使用此功能码来改变其值。
例如：预置工作模式寄存器的值为0x0001H，地址是0x0010H。

下行报文（主站到从站）：

设备地址	功能码	变量起始地址高字节	变量起始地址低字节	变量值高字节	变量值低字节	校验码低字节	校验码高字节
01H	06H	00H	10H	00H	01H	49H	CFH

06功能码下行示例

上行报文（从站到主站）：

设备地址	功能码	变量起始地址高字节	变量起始地址低字节	变量值高字节	变量值低字节	校验码低字节	校验码高字节
01H	06H	00H	10H	00H	01H	49H	CFH

06功能码上行示例

通讯地址表：

序号	变量代号	变量名称	变量类型	单位	访问规则	数据地址	备注
1	Tag	设备类型	UINT	/	R	0x0001	见表1
2	Manner	工作模式	UINT	/	R	0x0002	见表2
3	state	主产品状态	UINT	/	R	0x0003	见表3
4	Operation No	动作次数	UINT	/	R	0x0004	
5	Remote_Ctrl	遥控	UINT	/	W	0x0005	见表4

设备类型：

0	1	2	3	4	5
双电源自动转换开关	电子式塑壳断路器	万能式断路器	变频器	马达保护器	电动操作机构

工作模式：

0	1	2
自动	手动	挂锁状态

主产品合闸状态：

0	1	2	3
分闸	合闸	脱扣	产品自锁

遥控：

0	1
分闸	合闸

错误返回信息说明：

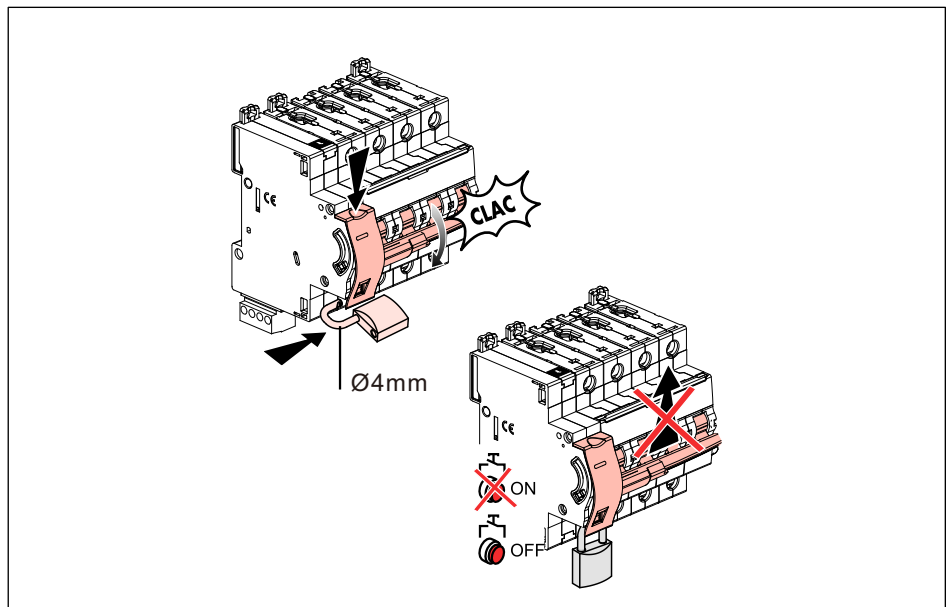
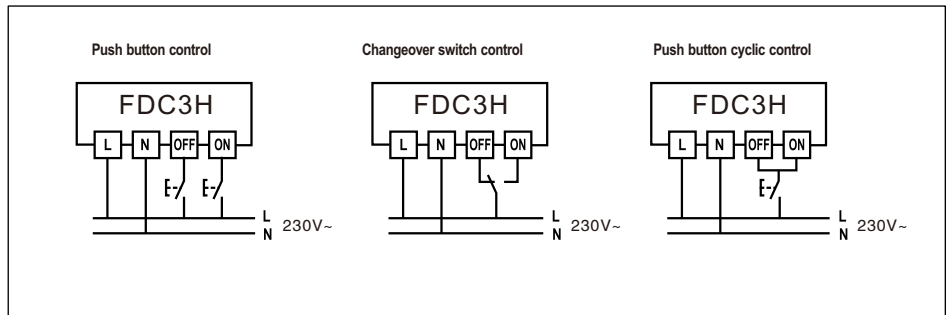
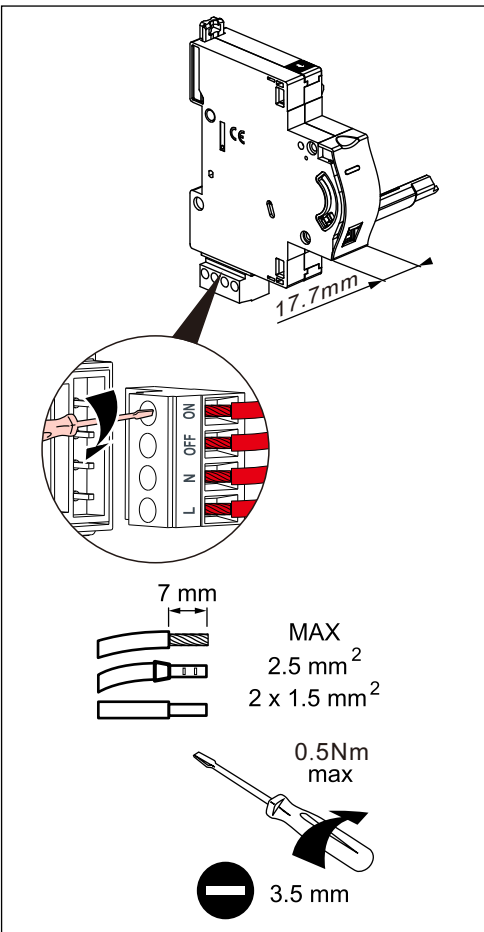
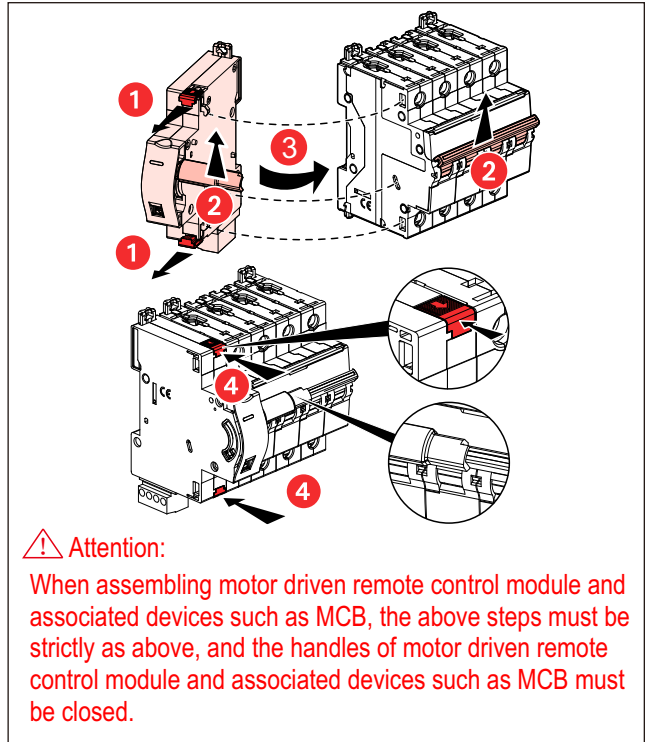
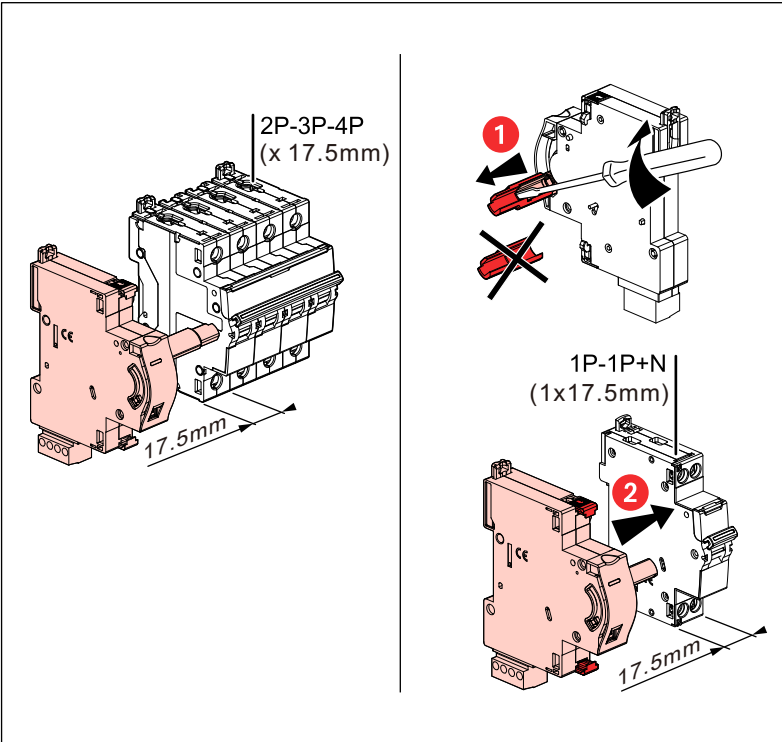
功能码 03（数据错误，或无权限）

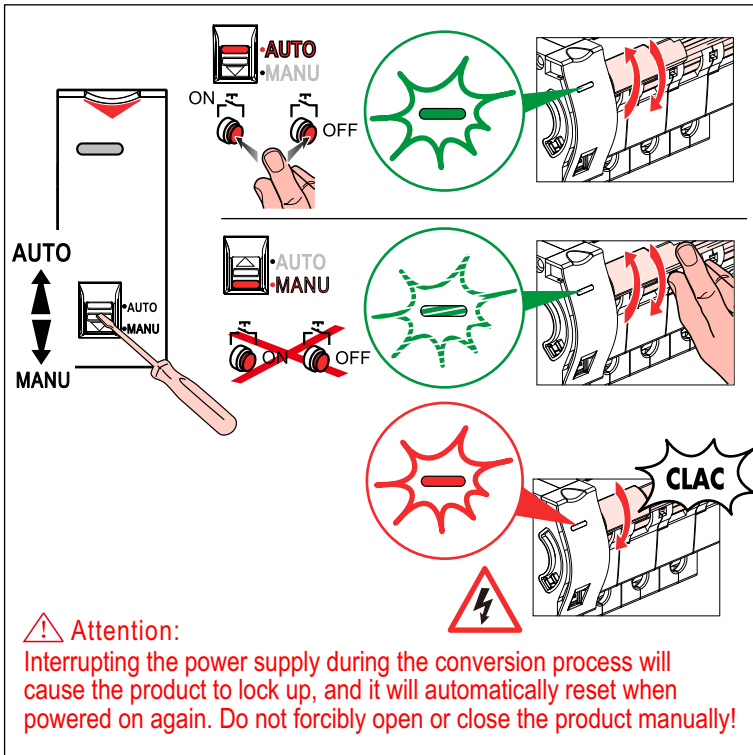
设备地址	0x86	0x03	CRC_L	CRC_H
------	------	------	-------	-------

功能码 06（数据错误，或无权限）

设备地址	0x86	0x06	CRC_L	CRC_H
------	------	------	-------	-------

This product must be installed in accordance with installation specifications, preferably by a qualified electrician. Incorrect installation and use may result in electric shock or fire hazard. Before installing, please carefully read the instructions and consider the specific installation location for the product. Unless specified in the instruction manual, the equipment shall not be opened, disassembled, or modified. Any product of Changshu Switch Manufacturing Co., Ltd. can only be disassembled or repaired by personnel trained and qualified by Changshu Switch Manufacturing Co., Ltd. The manufacturer shall not be responsible for any unauthorized disassembly or repair by the user, and the right of the users to replace and warranty shall be revoked. This product can only use accessories from Changshu Switch Manufacturing Co., Ltd.





	④	③	②	①
				FDC3H
		OF3 SD3		FDC3H
	MX+OF3 G3A Q3A GQ3A	OF3 SD3		FDC3H

- ① Associated device: CH3N-63、CH3H-63、CH3LN-63、CH3LH-63、CH3Z-63
- ② Motor driven remote control module: FDC3H
- ③ Signalling auxiliaries: OF3/SD3
- ④ Control auxiliaries: MX+OF3/G3A/Q3A/GQ3A

②+①	✓
③+②+①	✓
④+③+②+①	✓
③+③+②+①	✗
④+②+①	✗
④+④+②+①	✗

Attention:
The maximum number of installed accessories is 2, only 1 signalling auxiliary can be assembled, and only 1 control auxiliary can be assembled. A signalling auxiliary must be installed between the motor driven control unit and control auxiliaries.

LED light status indication

Green LED fixed: Associated device power on and remote control in AUTO mode.

Green LED flashing: Remote control in MANU mode.

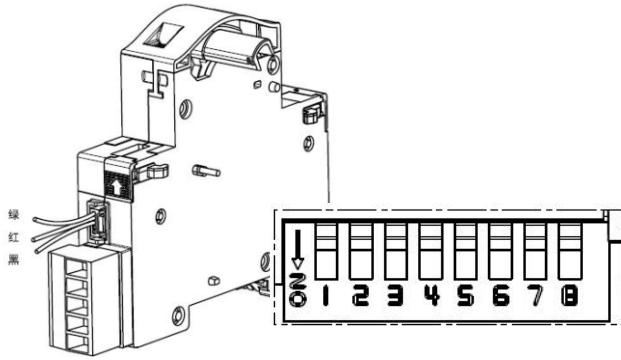
Red LED fixed: The device has tripped on fault (such as overload, short-circuit, residual current fault or by control auxiliary).

Red and green LED lights flashing alternately: Product malfunction self-locking.

LED light off: The front slider slides down, the product is locked, and the manual and automatic operation functions are invalid.

No.	Common fault situations	Cause analysis	Processing method
1	LED light off	1. Terminal wiring is not connected to power supply. 2. Sliding front face downward.	1. Connect the terminals correctly to the power supply. 2. Sliding front face upward to put the motor driven remote control module in running state.
2	Red LED fixed	The device has tripped on fault (overload, short-circuit, residual current fault) or by control auxiliary.	Maintain the power on state of the motor driven remote control module and manually operate the associated device handle to close. (If the associated device malfunctions and trips, it is necessary to confirm that the fault has been resolved.)
3	Red and green LED lights flashing alternately	1. Mismatch between accessories. 2. Improper opening and closing of motor operator, resulting in product self-locking.	1. Check if signalling auxiliaries are installed between the motor driven remote control module and control auxiliaries. 2. Sliding the front face twice to unlock the product.
4	The associated device cannot be closed	The handle of motor driven remote control module is broken.	Contact the manufacturer's customer service and after-sales service to replace the handle.

The motor driven remote control module protocols



Connection

The cable with a length of 500mm is provided with the product. When using it, insert it according to the diagram above. Note: Green - RS485B; Red - RS485A; Black - GND.

The dial switch address uses binary method, and the corresponding relationship is as follows (On-active):

1	2	3	4	5	6	7	8
1	2	4	8	16	32	64	128

Accumulate the numbers corresponding to the ON position, such as 17=1+16, that is, the first and fifth bit of the dial switch are in the ON position, and the other bits are on the other side (The address should start from 1. If all bits are not in the ON position, the default address is 1).

Main parameters

Port	RS-485
Default	Baud rate: 9600 (not adjustable)
Data Frame	1 start bit, 8 data bits, 1 stop bit, no check bit.
Protocol	Modbus-RTU

Data Frame

Address	Function code	Data	Checksum
8-Bit	8-Bit	N*8-Bit	16-Bit

Function code

Code	Function	Meaning
3	Read data register	Read the current binary value of one or more registers
6	Preset single register	Preset a specific binary value into a register

1、Data reading register (03H)

With the 03 function code, users are allowed to obtain data and system parameters recorded by the device.

The following example is basic data collected from 3 data read from Slave No.1 (each address occupies 2 bytes in the data frame)

Slave address	Function code	Initial address of data MSB	Initial address of data LSB	Data size MSB	Data size LSB	Checksum LSB	Checksum MSB
01H	03H	00H	01H	00H	03H	54H	0BH

Table 3.1 03 Host requests message format

Slave replies message (slave to master): The message includes the slave address, function code, quantity of data, and Checksum.

Slave address	Function code	Byte number	Data1 MSB	Data1 LSB	Data2 MSB	Data2 LSB	Data3 MSB	Data3 LSB	Checksum LSB	Checksum MSB
01H	03H	06H	00H	01H	00H	02H	00H	03H	FDH	74H

Table 3.2 03 Slave replies message format

2、Preset single register (06H)

Function code 06H allows the user to change the content of a single register.

Any writable single register within the controller can use this function code to change its value.

For example: For address 0x0010H, refer to following table to change the value of working mode register to 0x0001H.

Host requests message format (master to slave)

Slave address	Function code	Start address of data MSB	Start address of data LSB	Data MSB	Data LSB	Checksum LSB	Checksum MSB
01H	06H	00H	10H	00H	01H	49H	CFH

Table 3.3 06 Host requests message format

Slave replies message (slave to master):

Slave address	Function code	Initial address of data MSB	Initial address of data LSB	Data MSB	Data LSB	Checksum LSB	Checksum MSB
01H	06H	00H	10H	00H	01H	49H	CFH

Table 3.4 06 Slave replies format

Register address table:

Num	Code	Name	Format	Unit	Access rule	Data address	Note
1	Tag	Device type	UINT	/	R	0x0001	Table1
2	Manner	Working mode	UINT	/	R	0x0002	Table2
3	state	Main switch status	UINT	/	R	0x0003	Table3
4	Operation No	Operation cycles	UINT	/	R	0x0004	
5	Remote_Ctrl	Remote control	UINT	/	W	0x0005	Table4

Device type:

0	1	2	3	4	5
ATSE	Electronic-type MCCB	ACB	Frequency converter	Motor protection device	Motor operator

Working mode:

0	1	2
Automatic	Manual	Padlock status

Closing status of product:

0	1	2	3
OFF	ON	Trip	Self locking

Remote control:

0	1
OFF	ON

Error return information description

Function code 03(wrong data or no access)

Address	0x86	0x03	CRC_L	CRC_H
---------	------	------	-------	-------

Function code 06(wrong data or no access)

Address	0x86	0x06	CRC_L	CRC_H
---------	------	------	-------	-------