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1 概述:

CY40 系列智能分接位置监控器适用于有载分接开关的控制(1→N、N→1、停操作)与分接位置的监视。

本装置面板显示分接开关的分接位置和操作状态; 功能接口有无源 BCD 码、RS-485 (RS-232) 串行通信接口; 模拟量 1-5V 和 4-20mA 输出、一一对应分接位置无源接点输出、远控 1→N、N→1、停控制输入端口可供选择。

本装置可与计算机或自动电压调整装置配合使用, 实现有载调压的自动控制。

1 .General

CY40 series intelligent tap position monitor are fit For controlling and surveillance to tap position of on-load tap changer(1→N、N→1、Stop)

The faceplate of the device display tap position tap position and operating state of on-load tap changer,As function interface, following interface can be chose: Passive BCD code,serial communication interface RS-485(RS-232), analog volume 1-5V and 4-20mA output, tap position passive contacts which one by one corresponding output and remote controlling 1→N、N→1、 Stop input terminal.

The device may be cooperated with computer or automatic voltage regulator, actualize automatic controlling for on-load voltage regulating.

2 CY40系列智能分接位置监控器型号

Type of CY40 Series Intelligent Tap Position Monitor

2.1 、CY40

型号 Type	显示范围 Display range	中间位置 Middle position	外形尺寸 Outline dimension	主要功能 Main function
CY40	1-39		160×80×160 mm ³	1、分接位置显示、开关运行状态指示
CY40-1	1-17	9A、9b、9C		2、输出无源 BCD 码
CY40-2	1-21	11A、11b、11C		3、远控 1→N、N→1、停指令输入接口
CY40-3	1-25	13A、13b、13C		1、Display of tap position, indication of tap changer operating state
CY40-4	1-29	15A、15b、15C		2、Output passive BCD code
CY40-5	1-33	17A、17b、17C		3、 Input terminal of remote controlling instruction 1→N、N→1、Stop

2.2 CY40A

型号 Type	显示范围 Display range	中间位置 Middle position	外形尺寸 Outline dimension	主要功能 Main function
CY40A	1-39		160×80×250 mm ³	1、分接位置显示、开关运行状态指示 2、输出无源 BCD 码 3、远控 1→N、N→1、停指令输入端口 4、设有 RS-485、RS-232 串行接口 1、Display of tap position, indication of tap changer operating state 2、Output passive BCD code 3、Input terminal of remote controlling instruction 1→N、N→1、Stop. 4、 There are serial interfaces RS-485、RS232
CY40A-1	1-17	9A、9b、9C		
CY40A-2	1-21	11A、11b、11C		
CY40A-3	1-25	13A、13b、13C		
CY40A-4	1-29	15A、15b、15C		
CY40A-5	1-33	17A、17b、17C		
CY40A-6	专用于ZMT有载分接开关 Only for ZMT on load tap changer			

2.3 CY40B

型号 Type	显示范围 Display range	中间位置 Middle position	外形尺寸 Outline dimension	主要功能 Main function
CY40B	1-19		160×80×250 mm ³	1、分接位置显示、开关运行状态指示 2、输出无源 BCD 码 3、远控 1→N、N→1、停指令输入端口 4、设有 RS-485、RS-232 串行接口 5、输出分接位置一一对应无源接点(19 挡以下) 6、分接位置模拟量输出 1、 Display of tap position, indication of tap changer operating state 2、Output passive BCD code 3、 Input terminal of remote controlling instruction 1→N、N→1、Stop. 4、 There are serial interfaces RS-485、RS232 5、One to one passive contact output of Tap position (under 19) 6、Remote measure analog volume Output of tap position (4-20mA, Current and 1-5V voltage)
CY40B-1	1-17	9A、9b、9C		
CY40B-2	1-21	11A、11b、11C		
CY40B-3	1-25	13A、13b、13C		
CY40B-4	1-29	15A、15b、15C		
CY40B-5	1-33	17A、17b、17C		
CY40B-6				

3 技术参数:

Technical Parameter

3.1 工作电源: AC 220V±10% , 50Hz

Power source: AC 220V±10% , 50Hz

3.2 分接位置输入方式: 十进制线编码无源接点输入

Input method of tap position :Decimalist line coding passive Contact input

3.3 远控输入: 无源接点输入(无容量要求)

Remote controlling input: passive contact input(without capacity required)

3.4 显示方式: 3 位高亮度 LED 显示

Display method :Three bit digits high brightness LED display

3.5 分接位置遥测输出: 1-5V 电压信号, 4-20mA 电流信号

Remote measure of tap position output : current:4-20mA,voltage:1-5V

3.6 遥信输出: BCD 无源接点输出(触点容量: AC 1A/240V , DC 0.3A/220V)

Remote signal output: BCD passive contact output (contact capacity: AC 1A/240V DC 0.3A/220V)

3.7 工作温度: -20°C -40°C

Operating temperature : -20°C ---+40°C

3.8 相对湿度: 20°C 时小于 90%

Relative humidity: less than 90% when 20°C

4 使用方法:

Using Method

4.1 电气接线按电路框图 7.5 ~ 7.7 中对应的分接位置智能监控器型号连接。

Electric wiring connect according to corresponding type of intelligent tap position monitor in circuit block diagram 7.5 ~ 7.7.

4.2 合上电源,分接位置智能监控器面板上显示当前分接位置。(19 芯电缆线必须连接)

1→N 操作: 按“1→N”按钮,“1→N”指示灯亮,分接开关动作,分接变换完成后,“1→N”指示灯熄灭。

N→1 操作: 按“N→1”按钮,“N→1”指示灯亮,分接开关动作,分接变换完成后,“N→1”指示灯熄灭。

在操作过程中,按“停”按钮,操作立即停止。

Turn on power supply,the faceplate of intelligent tap position monitor display current tap position.(must be connect for 19 core cable)

Operation of 1→N: Press button "1→N", indeting lamp light. The tap changer operating, the indeting lamp

"1→N"extinguish after accomplish tap transforming.

Operating of N→1: Press button "N→1", indeting lamp light. The tap changer operating, the in-deting lamp

"N→1"extinguish after accomplish tap transforming.

Press button "stop"during operating process, the operating Stop immediately.

5 CY40系列智能分接位置监控器电缆插座CX1、接线端子X1接线表

Wiring Table of Cable Socket CX1 and Wiring Terminal X1 Of CY40 Series Intelligent Tap Position Monitor

5.1 19 芯电缆插座 CX1 分接位置和运行信号触点输入接线表

Wiring table of tap position of 19 core cable socket CX1 and operating signal contact input

19 芯插座编号 19 core socket number	分接位置接点盘、中间继电器 K11 Tap position interface disk Intermediate relay K11	备注 Remark
CX1 — 1	接个位 1 To unit's order 1	接分接位置接点盘 To contact disk of tap position
CX1 — 2	接个位 2 To unit's order 2	
CX1 — 3	接个位 3 To unit's order 3	
CX1 — 4	接个位 4 To unit's order 4	
CX1 — 5	接个位 5 To unit's order 5	
CX1 — 6	接个位 6 To unit's order 6	
CX1 — 7	接个位 7 To unit's order 7	
CX1 — 8	接个位 8 To unit's order 8	
CX1 — 9	接个位 9 To unit's order 9	
CX1 — 10	接个位 0 To unit's order 0	
CX1 — 11	接十位 1 To tens place 1	
CX1 — 12	接十位 2 To tens place 2	
CX1 — 13	接十位 3 To tens place 3	
CX1 — 14	空 Empty	空 Empty
CX1 — 15	运行指示无源信号触点 Operating indicate passive signal contact	接 K11 无源常开 To passive normally open contact of K11
CX1 — 16	运行指示无源信号触点 Operating indicate passive signal contact	
CX1 — 17	接十位 0 To tens place 0	接分接位置接点盘 To contact disk of tap position
CX1 — 18	分接位置信号公共端	
CX1 — 19	Common signal terminal of tap position	

5.2 11 脚接线端子 X1 远传输出、远控输入接线表

Wiring table of 11 pins wiring terminal X1 remote transmission Output and remote control input

11 脚接线端子编号 11 Pins connect terminal number	远传输出、远控输入 remote transmission Output and remote control input	备注 Remark
D01	BCD 码无源接点输出"D01" BCD code passive contact output"D01"	BCD 码无源接点输出 负载能力： AC 1A/240V DC 0.3A/220V Output of passive normally open contact, BCD-code (Contact loading capacity: AC1A/240V, DC 0.3A/220V)
D02	BCD 码无源接点输出"D02" BCD code passive contact output"D02"	
D04	BCD 码无源接点输出"D04" BCD code passive contact output"D04"	
D08	BCD 码无源接点输出"D08" BCD code passive contact output"D08"	
D10	BCD 码无源接点输出"D10" BCD code passive contact output"D10"	
D20	BCD 码无源接点输出"D20" BCD code passive contact output"D20"	
DCOM	BCD 码接点输出公共端 Common terminal of BCD code contact	
1→N	1→N 指令无源接点输入 Passive contact input of 1→N instruction	无源常开接点 (远控输入) passive normally open contact (remote input)
N→1	N→1 指令无源接点输入 Passive contact input of N→1 instruction	
STOP	停指令无源接点输入 Passive contact input of stop instruction	
COM	1→N、N→1、停指令输入公共端 Common terminal of 1→N、N→1、stop instruction	

注：CY40、CY40A、CY40B 智能分接位置监控器的 CX1 电缆插座、X1 接线端子引脚信号相同
 Note :CX1 cable socket and X1 wiring terminal of CY40 、CY40A 、CY40B Intelligent tap position monitor are same for pins signal

5.3 CY40

X2 接线表(7 脚接线端子)
X2 Wiring table (7 pins wiring terminal)

接线端子信号 connect terminal signal	端子定义 Terminal define	备注 Remark
1→N	无源接点输出 passive contact output	到电动机构 To motor unit (此连线由用户提供) This connection is provided by the user.
停 STOP	无源接点输出 passive contact output	
N→1	无源接点输出 passive contact output	
COM	1→N、停、N→1 公共端 Common terminal of 1→N、N→1、stop	
220V AC	交流 220V 工作电源输入 Operation power input of Alternating current 220V	监控器电源 Power of monitor
≡	接地 Link To earth	接地 Link To earth

5.4 CY40A

X2 接线表(10 脚接线端子)
X2 Wiring table (10 pins wiring terminal)

接线端子信号 connect terminal signal	端子定义 Terminal define	备注 Remark
A	RS485 通讯接口 RS485 communication interface	101 通讯规约 101 communication protocol
B		
空 Empty	空 Empty	空 Empty
1→N	无源接点输出 passive contact output	到电动机构 To motor unit (此连线由用户提供) This connection is provided by the user.
停 STOP	无源接点输出 passive contact output	
N→1	无源接点输出 passive contact output	
COM	1→N、停、N→1 公共端 Common terminal of 1→N、N→1、stop	
220V AC	交流 220V 工作电源输入 Operation power input of Alternating current 220V	监控器电源 Power of monitor
≡	接地 Link to earth	接地 Link to earth

RS-232 接口 9 针 D 型插座接线表:

Wiring table of RS-232 interface 9 pins D type socket

引脚 Pins	1	2	3	4	5	6	7	8	9
信号 signal		RXD receive	TXD transmit		GND earth				

5.5 CY40B

X2 接线表(10 脚接线端子)

X2 Wiring table (10 pins wiring terminal)

接线端子信号 connect terminal signal	端子定义 Terminal define	备注 Remark
A	RS485 通讯接口 RS485 communication interface	101 通讯规约 101 communication protocol
B		
空 Empty	空 Empty	空 Empty
1→N	无源接点输出 passive contact output	到电动机构 To motor unit (此连线由用户提供) This connection is provided by the user.
停 STOP	无源接点输出 passive contact output	
1→N	无源接点输出 passive contact output	
COM	1→N、停、N→1 公共端 Common terminal of 1→N、N→1、stop	
220V AC	交流 220V 工作电源输入 Operation power input of Alternating current 220V	监控器电源 Power of monitor
≡	接地 Link to earth	接地 Link to earth

X3 接线表(24 脚接线端子)

X3 Wiring table (24 pins wiring terminal)

接线端子信号 connect terminal signal	端子定义 Terminal define	备注 Remark
1	一一对应无源接点输出 One to one passive Contact output of Tap position	无源常开接点 负载能力： AC 1A/240V， DC 0.3A/220V Output of passive normally open contact, BCD-code (Contact loading capacity: AC1A/240V, DC 0.3A/220V)
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
C	一一对应无源接点输出公共端 One to one passive Contact output of Tap position Common terminal	
空 Empty	空 Empty	空 Empty
V	1-5V 模拟电压输出 1-5v analog voltage output	分接位置模拟量 Analog of tap position
I	4-20mA 模拟电流输出 4-20mA analog Current output	
GND	模拟量输出公共端 Common terminal of analog output	

6 结构及工作原理：

Structure and Operating Principle

6.1 结构 Structure

采用塑料机箱，PVC 薄膜面板和轻触按键，使用面板上的轻触按键，可进行指令选择及手动操作。

Adopt plastic case ,faceplate PC thin membrane faceplate and Touch keystroke,press keystroke can make dictating choice and manual operating.

6.2 工作原理(电路参见电路框图 7.5 ~ 7.7)

分接开关分接位置信号通过后面板上电缆插座 CX1 送入监控器内光电隔离电路，隔离后微控制器进行编码。

微控制器将分接位置信号进行 D/A 转换，输出 1-5V 电压信号和 4-20mA 电流信号。

分接位置信号通过 RS-485(RS-232)串行通讯接口，输出远传信号，用户计算机通过 RS-485(RS-232)串行通讯接口输入遥控信号，实现有载开关与用户计算机的双向通讯，传输协议采用部颁标准 101 通讯规约，用户计算机还可以通过监控器的远控输入 1→N、N→1、停指令，使分接开关动作，达到调压的目的。

功能接口还具有 无源 BCD 码、一一对应分接位置无源触点输出可供选择。

Operating Principle(circuitry see circuit block diagram 7.5 ~ 7.7)

Tap positoon signal of tap changer is entered isolation circuit inside the equipment through cable socket CX1 on Backboard,micro controller make coding after isolation.

CPU make tap position signal D/A transforming ,as remote

Measure signal output voltage 1-5V and current 4-20mA analog tap position signal.

Tap position signal exports remote transmission signal through serial communication interfaces RS-485(RS-232), User computer imports remote control single through serial communication interfaces RS-485(RS-232),achieve bidirectional communication between on-load tap changer And user's computer, transmission protocols adopt ministry Standard 101 communication stipulation, user computer imports 1→N、N→1、Stop indicating through remote control input interface, operate tap changer, achieve objective of voltage Regulation .

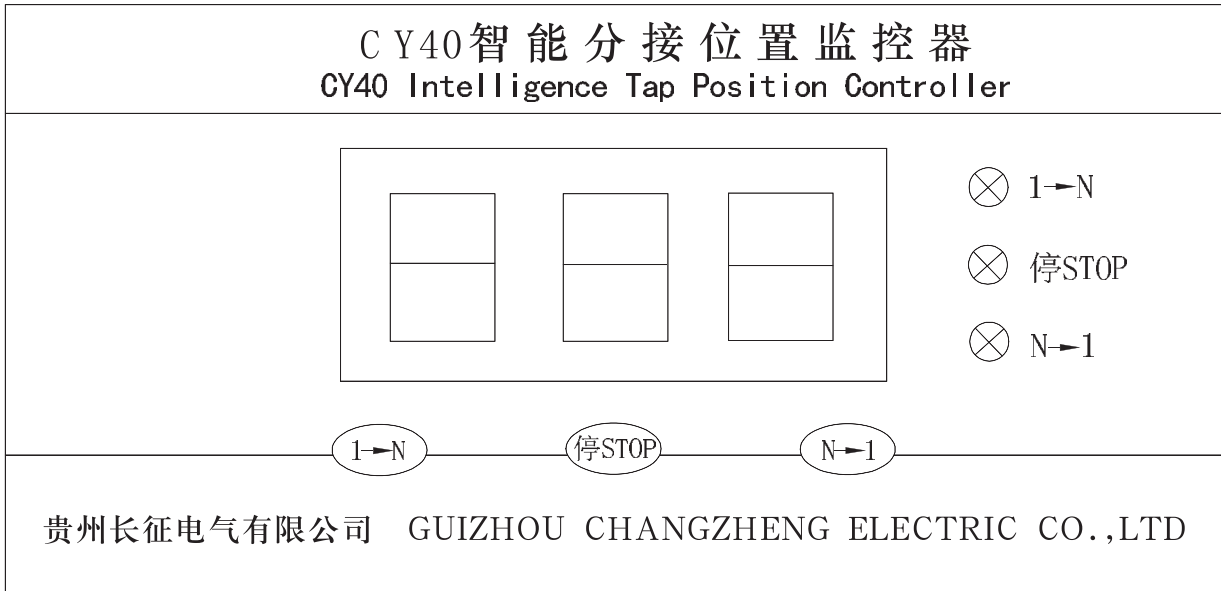
As function interface,have passive BCD code and one by one corresponding tap position passive contact output can be chose

7 附件

Attached drawing

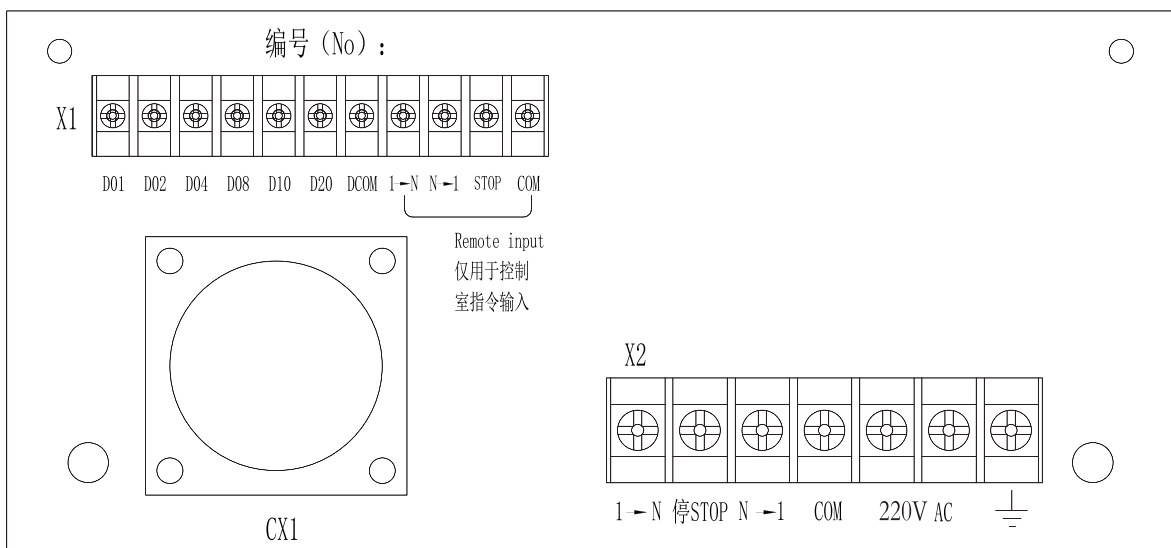
7.1. 前面板示意图

Sketch drawing of facepanel



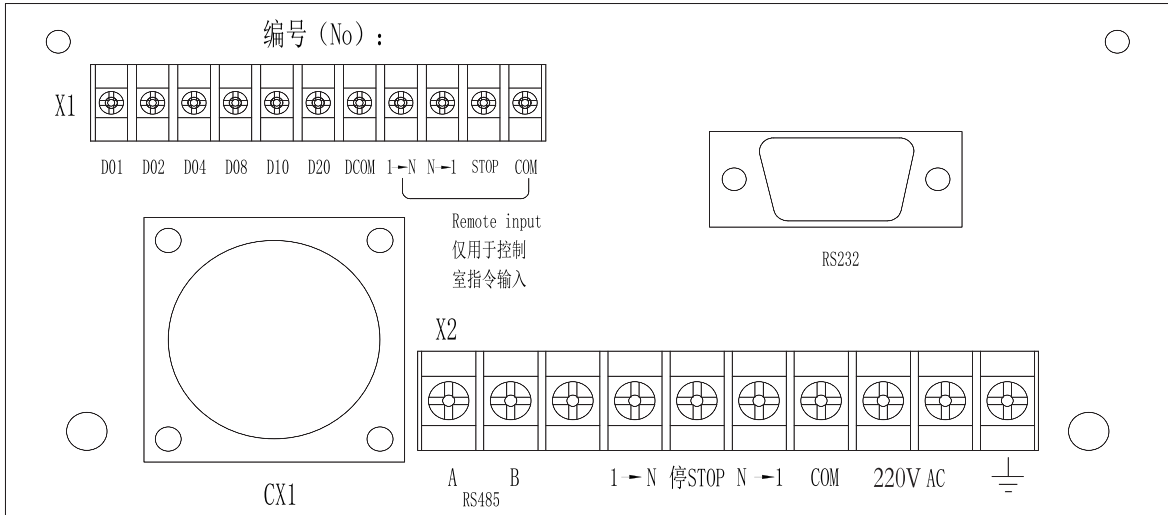
7.2. CY40 后面板示意

Sketch drawing of backpanel of CY40



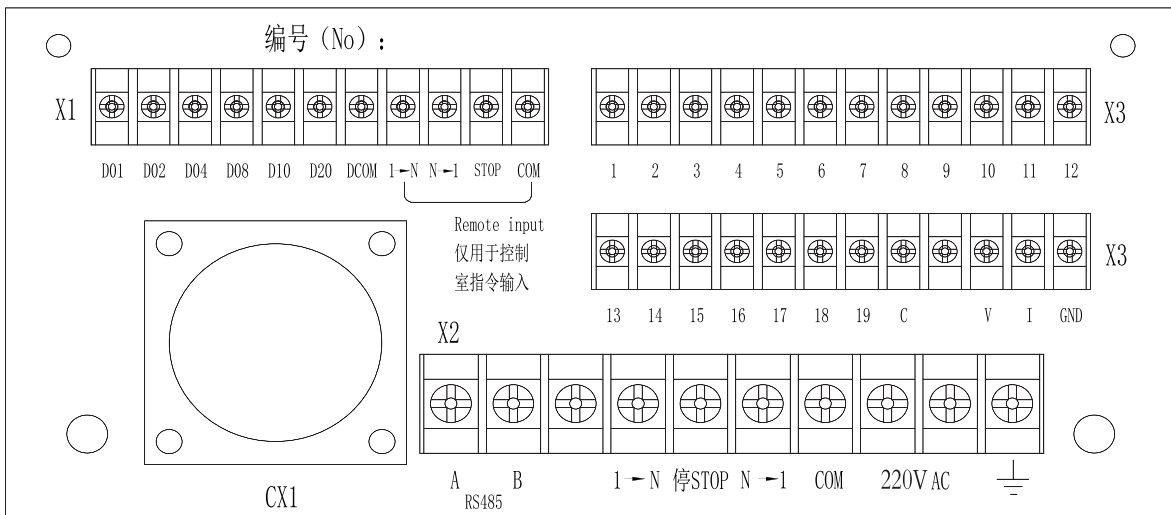
7.3 CY40A 后面板示意图

Sketch drawing of backpanel of CY40A



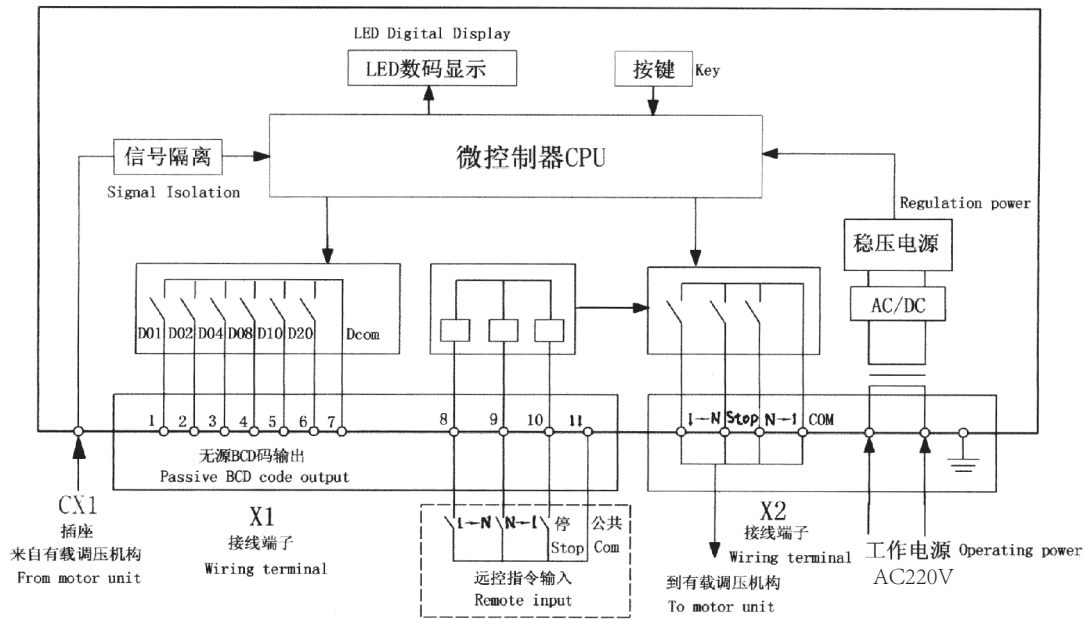
7.4 CY40B 后面板示意图

Sketch drawing of backpanel of CY40B



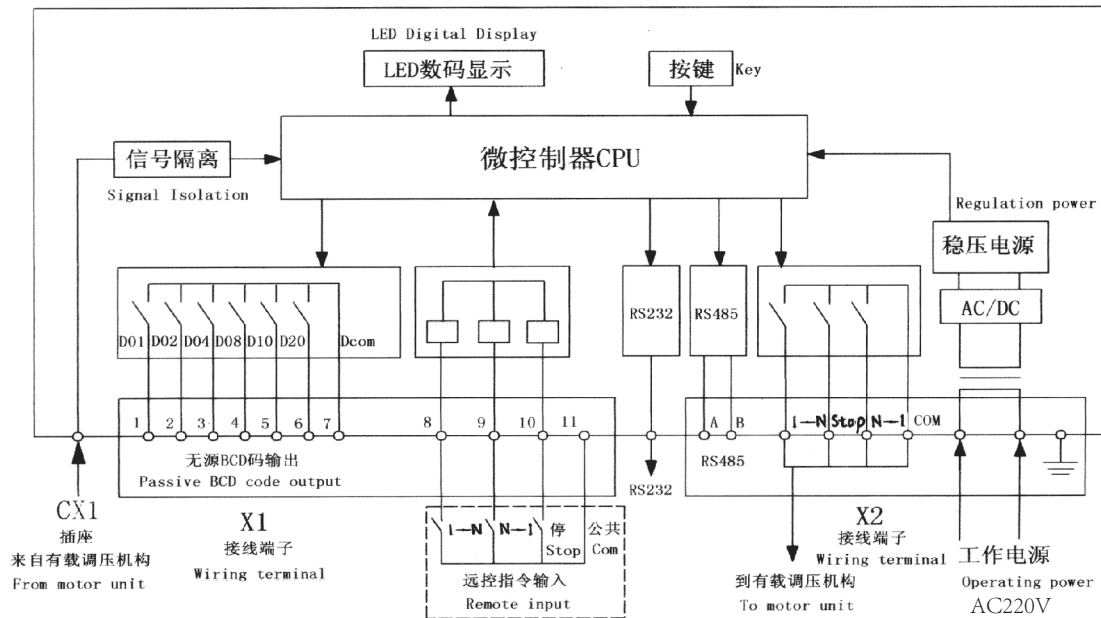
7.5 CY40 电路框图

Circuit block diagram of CY40



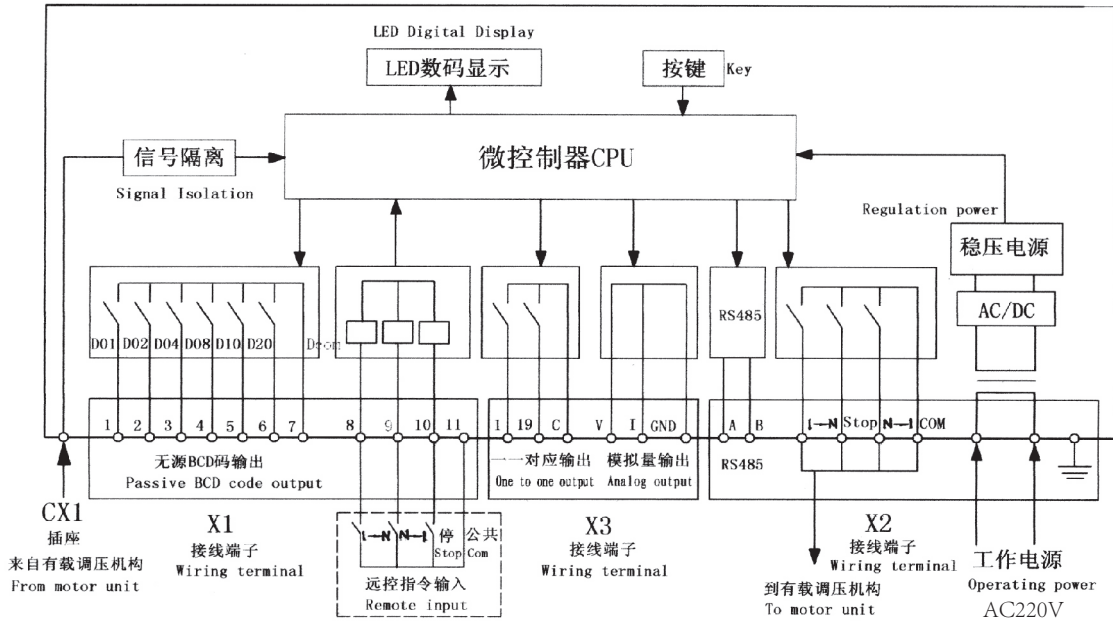
7.6 CY40A 电路框图

Circuit block diagram of CY40A



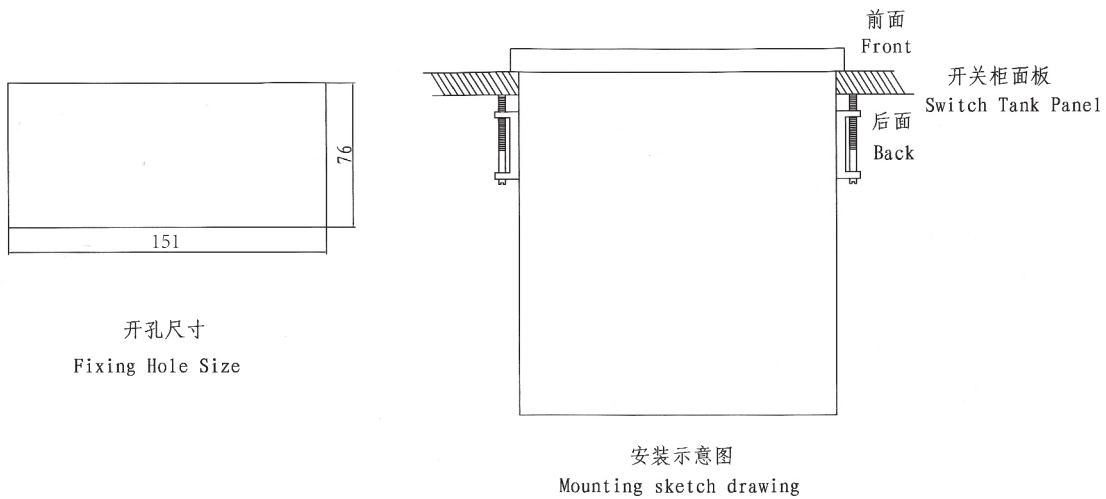
7.7 CY40B 电路框图

Circuit block diagram of CY40B



7.8 开孔尺寸

Fixing hole dimension



8 使用保养

Maintenance

8.1 本监控器在使用过程中,应经常保持清洁,不应有导电尘埃覆盖机体。

In using process, should keep cleanness, there is not electric dust on it

8.2 插头及输出、输入接线应保持接触良好。

Contacting plug, input and output connection should keep right contacting

9 随机文件及备件

Enclosed documents and spare parts

9.1 产品合格证: 一份

Certificate of quality : 1

9.2 使用说明书: 一本

Operating instruction : 1

9.3 安装支架 : 二只

Mounting bracket : 2

9.4 通讯光盘 : 一个(CY40A、CY40B)

Communication disk : 1(CY40A、CY40B)

10 用户须知

Notice to customer

10.1 订货时须提供所配用的分接开关的型号、调压级数、中间位置、所需要的输入、输出功能接口。

Please offer the tap-changer model, voltage regulation progression and central position to be matched as well as the input and output interfaces needed.

10.2 用户在遵守保管及使用规则下,从安装使用起 12 个月,并从制造厂发货给用户不超过 18 个月期限内,产品由于制造质量的原因发生损坏或不能正常工作的情况,制造厂可无偿地为用户更换或修理。

During the 12 months of operation and 18 months after delivery from manufacturer to user, if the products are damaged or out of work due to the manufacturing quality under the condition of correct operation and maintenance by user, the manufacturer offer to change or repair the products for free charge.