

# WINMO

## DPH系列

### 安全注意事项

在进行微型可编程控制的安装、运转、保养检修之前，请务必熟读此使用手册和其他相关手册，确保正确使用。请在熟练掌握操作方法、安全信息以及全部注意事项之后再使用。  
在本说明书中，安全注意事项分为“危险”和“注意”两类。

### 安全注意事项

- 危险** 错误操作可能造成死亡或是重伤的危险。
  - 注意** 错误的操作可能造成人员中等程度伤害，轻伤或是物品损坏。
- 本手册所记载的事项，也可能因情况不同而导致严重后果，这些全部记载在重要内容里，务请遵守。  
另外，请妥善保管产品附带的使用说明，以便需要时取出阅读。务必将使用手册交给最终用户。

## 1. 设计注意事项

### 危险

- 外部电源发生异常、可编程控制器发生故障时，为使整个系统安全运行，请务必在可编程控制器的外部设置安全电路。
- 务必在可编程控制器的外部电路中设置紧急制动电路、保护电路、正反转电路等相反操作的互锁电路和防止机器损坏的定位上限、下限的互锁电路等。
- 可编程控制器CPU通过自诊断功能检测出WDT错误等异常情况时，全部输出被关闭。另外当可编程控制器CPU不能检测的输入输出控制部分等的异常情况发生时，不能控制输出。这时为使机器能安全运转，请设计外部电路和机构。
- 由于输出单元的继电器、晶体管故障，会无法控制输出为ON或OFF的状态。为使机器能安全运行，对于与重大事故相关的输出信号，请设计外部电路和机构。

## 2. 安装注意事项

### 注意

- 请在手册的1.3项中记载的一般规格环境中使用。请勿在下列场所使用：有灰尘、油烟、导电性尘埃、腐蚀性气体、可燃性气体的场所；暴露于高温、结露、风雨的场所；有振动、冲击的场所。电击、火灾、误操作也会造成产品损坏。
- 在进行螺丝孔加工和接线时，不要使铁屑或电线头落入可编程控制器的通风窗口内，可能引起火灾、故障、误操作。
- 可编程控制器通风窗上装有防尘罩，在工作结束后请将其拆下。否则会引起火灾、故障、误操作。
- 请把连接电缆、存储盒、显示模块准确插入规定插口中。接触不良有可能引起误操作。

- 为防止温度上升，切勿在底部、顶部、及竖直方向安装。请务必按右图所示在墙壁上水平安装。
- 主机和其他设备或构造物之间请留出50mm以上空间。尽量避开高压线、高压设备、动力设备。

## 3. 布线注意事项

- 可编程控制器的信号输入和输出线不能在同一电缆上通过。
- 另外，不能将信号输入线和输出线与其他动力线、输出线在同一管道中通过，也不能捆扎在一起。
- 若按上述注意事项执行，输入输出布线即使长达50~100m，也几乎没有噪音问题。但一般为安全起见，布线长应在20m以内。

### 危险

- 必须在外部电源全部切断时进行安装、接线等操作。否则会引起触电或产品损坏。
- 在安装、布线等工作结束后，通电运行前，必须先装上端子盖板，以免触电。

### 注意

- 空端子不要与外部接线，否则会引起产品损坏。
- 正反转界限 互锁 正转 反转 可编程序控制器输出元件  
正反转接触器同时合上十分危险，象这样的负载，除了可编程控制器内部程序设定互锁以外，在可编程控制器外部也必须设置如上图所示的互锁。

### 注意

- 请按本手册中记载的内容对专用接线端进行AC电源的接线。
- 如果把AC电源接入直流输入输出端子或直流电源端子，会烧坏可编程控制器。
- 请不要从外部电源对基本单元的24端子供电。对空端子请勿从外部布线，否则会损坏产品。
- 请把基本单元的接地端子按第三种方式接地。但请不要和强电系统共地。

## 附记

- 电源出现不满10ms的瞬时断电，可编程控制器仍会继续工作。长时间停电或电压偏低时，可编程控制器会停止工作，输出变为OFF，但是一旦电源恢复供电，会自动地重新开始运转（RUN输入为ON时）

## 4. 启动·保养注意事项

### 危险

- 请不要在通电时触摸端子，否则可能引起触电、误操作。
- 请在电源关闭后进行端子的清扫和拆卸，在通电时执行有可能引起触电。
- 请在熟读手册、充分确认安全后，再进行机器运转中的程序变更，强制输出、RUN STOP等操作。
- 操作错误会损坏机器，引起事故。

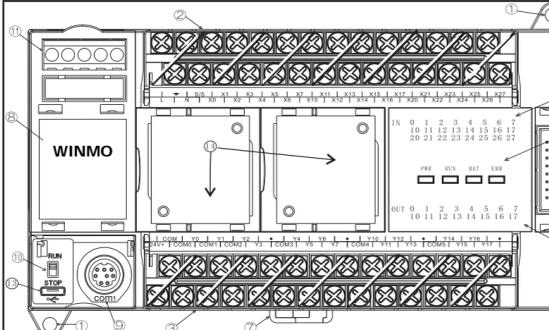
### 注意

- 请不要进行分解和改造，否则会引起故障、误动作、火灾。
- 关于修理事宜请与福州富昌维控电子科技有限公司联系。
- 请在电源关闭之后，进行扩展电缆等连接电缆的拆卸工作，否则会引起故障和误动作。

## 5. 维护检修

- 定期检查可编程控制器内是否装有寿命较短的消耗品。
  - 继电器输出型，如果输出继电器异常高频工作或驱动大容量负载时，必须注意其对使用寿命的影响。
  - 和其他设备一起检查，请注意以下要点。
    - 有否由于其他发热体或直射阳光，导致机内温度异常升高。
    - 有无粉尘或导电性尘埃侵入机内。
    - 有无接线和端子松动及其它异常。

## 6. 机种构成和产品规格



- 安装孔：2处(φ4.5)
- 电源、输入信号用端子台
- 供应电源、输出信号用端子台
- 输入显示 LED
- 输出显示 LED
- PWR LED：表示通电状态  
RUN LED：运行时灯亮  
BAT LED：电池指示灯  
ERR LED：程序错误时指示灯闪烁；CPU错误时指示灯亮
- DIN导轨安装用卡扣
- 盖板
- 连接编程设备(COM1)
- RUN/STOP开关
- COM1/COM2 RS485端口
- 扩展模块的接口
- USB下载端口
- BD板插口

## 7. 通信接口定义

整机硬件编制配置两个通讯口，COM1为RS422/RS485，其中RS422的通讯口是8针的S端子，485为A+B-两端子；COM2端口为RS485，其信号引脚定义如下：



## 8. 型号名称体系及其种类

可编程控制器的型号名称见产品侧面的型号标签。《基本单元的型号名称构成》



- 型号名称构成中的①-④表示以下的规格：
- 输入、输出点数：参照一览表。
  - 输出方式：R=继电器输出（有触点、交流、直流负载两用）  
T=晶体管输出（无触点、直流负载用）
  - 扩展口：4H=带有4轴的高速脉冲输出，2H=带有2轴的高速脉冲输出。
  - 电源类型：A:AC220V输入，省略为默认AC220V；B:AC110V输入，C:AC24V输入，D:DC24V输入
  - 指令集：2=特殊指令

## 9. 电气规格

项目	DPH14/20/26	DPH32/40/60
额定电压	AC100 ~ 240V	
电压允许范围	AC85 ~ 264V	
额定频率	50/60HZ	
允许瞬停时间	10ms以下瞬间停电,电机能继续工作	
电源保险丝	250V 1A 5φX20mm	250V 3.15A 5φ X20mm
冲击电流	最大 20A 5ms以下 /AC100V	
最大负载	20W	
传感器电源	DC24V 700mA	

※1：输入电流部分（7mA/1点、5mA/1点）也包含在内。  
DC电源型

项目	DPH系列机型
额定电压	DC24V
电压允许范围	DC24V±10%
允许瞬停时间	10ms以下瞬间停电,电机能继续工作
电源保险丝	250V 3.15A
冲击电流	最大 15A 1ms以下 /AC100V
最大负载	30W以下（不记扩展模块外接电源部分）

## 10. 环境规格

周围温度	0~55℃ .....使用时，-20~70℃ .....保存时		
相对湿度	35~85%RH(无凝露).....使用时		
耐振性	符合 JIS C 0040标准		
	频率	加速度	振幅
	DIN导轨安装产品 10~57Hz	—	0.035mm
	直接安装产品 57~150Hz	4.9m/S <sup>2</sup>	—
耐冲击	符合 JIS C 004标准 (147m/S <sup>2</sup> , 作用时间11ms, 正弦半波脉冲在X、Y、Z三方向各3次)		
	正弦半波脉冲在X、Y、Z三方向各3次)		
耐噪声	噪声电压 1,000V-p-p 噪声幅值1μs上升1ms频率 30~100Hz 噪声模拟实验		
耐电压	AC1500V (1分钟) 符合JEM-1021标准电源		
绝缘阻抗	DC500V绝缘测试器测得5MΩ以上		
接地	第三种接地(不可与强电系统共地)※1		
使用环境	无腐蚀性、可燃性气体，无大量导电性尘埃(灰尘)		



## 11. 输入规格

DPH系列可编程控制器基本单元的规格如下表所示。

项目	AC电源, DC输入
机种	DPH基本单元
输入信号电压	DC±24V ±10%
输入信号电流	7mA/DC24V(X002以后,5mA/DC24V)
输入 ON 电流	4.5mA以上(X002以后,3.5mA/DC24V)
输入 OFF 电流	1.5mA以下
输入响应时间	约10ms 可通过内置的数字滤波器D8020变更为0~15ms/PLC参数设定
输入信号形式	触点输入或是NPN、PNP开集电极晶体管输入
回路绝缘	光耦绝缘
输入动作表示	输入ON时LED灯亮

※1：X002以后是4.7kΩ。

## 12. 输出规格

项目	继电器输出	晶体管输出
机种	DPH基本单元	DPH基本单元
外部电源	AC250V以下, DC30V以下	DC5~30V
回路绝缘	机械绝缘	光电耦合绝缘
动作表示	继电器线圈通电时LED灯亮	光耦合器驱动时LED灯亮
最大负载	电阻负载	2A/1点, 8A/4点
	电感负载	80VA
	灯负载	100W
开路漏电流	—	0.1mA/DC30V
最小负载	—	DC5V/2mA参考值
响应时间	输入 ON 电流	约10ms
	输入 OFF 电流	约10ms

## 13. COM2串口设定:

M8120	保留	D8120	通讯格式, 界面配置设定, 默认为0
M8121	发送等待中(RS指令)	D8121	站号设置, 界面配置设定, 默认为0
M8122	发送标志(RS指令) 指令执行状态(MODBUS)	D8122	发送剩余数据数量(仅对RS指令)单位为0.1ms. modbus: 指令发送间隔, 0=5ms
M8123	接收完成标志(RS) 通讯错误标志(MODBUS)	D8123	接受到的数据数量(仅对RS指令)
M8124	接受中(仅对RS指令)	D8124	起始字符STX(仅对RS指令)
M8125	保留	D8125	终止字符ETX(仅对RS指令)
M8126	保留	D8126	通讯协议设定, 界面配置设定, 默认为0
M8127	保留	D8127	计算机链接协议接通要求数据起始地址号
M8128	保留	D8128	计算机链接协议接通要求发送数据数量
M8129	超时判断	D8129	通讯超时时间判断, 界面配置设定, 默认为10(100ms)

## COM2串口协议

协议	由D8126设定	模式	COM2通信格式
Rs指令	00H	半双工	由D8120设定
HMI监控协议	01H	半双工	由D8120设定
MODBUS-RTU 从站	02H	半双工	由D8120设定
MODBUS-ASCII从站	03H	半双工	由D8120设定
Rs指令	10H	半双工	由D8120设定
MODBUS-RTU 主站	20H	半双工	由D8120设定
MODBUS-ASCII主站	30H	半双工	由D8120设定

本协议通信格式及波特率由D8120设定, D8120的定义见下表:

位号	名称	内容	
b0	数据长	7位	8位
b2b1	奇偶性	00: 无 01: 奇校验(ODD) 11: 偶校验(EVEN)	MODBUS-RTU从站协议及指令只支持8位数据位, 否则将造成通信出错
b3	停止位	1位	2位
b7b6b5b4	波特率(bps)	0111: 4800 1010: 38400	1000: 9600 1001: 19200 1101: 57600 1100: 115200

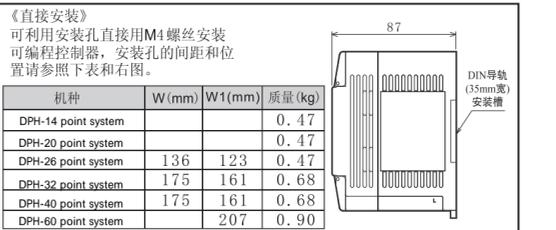
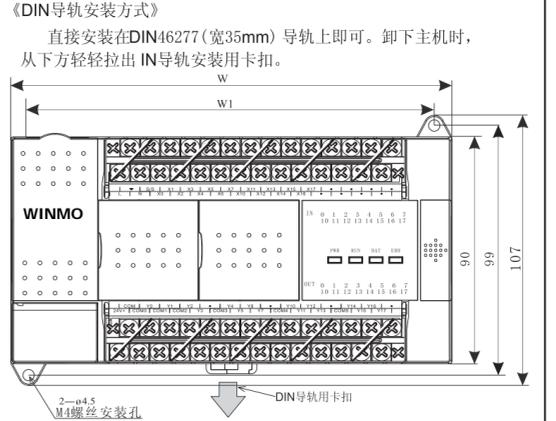
例子1: 设定为MODBUS RTU主站, 不断的读从机地址为100的寄存器, 数据存于D10。



例子2: 设定为MODBUS RTU从站协议:



## 15. 安装方法和外形尺寸



# 保修说明

产品维修时, 请把此保修卡和所购产品一起妥善送(寄)回我公司维修部进行维修。

- 注意事项:
- 自您购买产品之日起, 凡按照产品使用说明书安装使用, 十八个月内本公司免费维修, 十八个月之后维修只收取维修工本费。
  - 非本公司产品质量原因引起的维修, 如使用不当、保管不妥、擅自拆机等原因造成的损坏, 公司维修只收取维修工本费。

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# WINMO

## DPH Series User Manual

Thank you for purchasing the DPH Series programmable logic controller. The information in this User's Manual, including text, diagrams and explanation, which will guide the reader in the correct installation and operation of the DPH series PLC, and should be understood before attempting to install or use the products.

The information provided in this manual may be changed without notice.

**WARNING** Warning notice indicates which will cause either personal serious injury or damage to equipment, if notice is not taken.

**CAUTION** Caution notice indicates which possible cause either personal serious injury or damage to equipment, if notices is not taken.

**NOTE:** Depending on the circumstances, indicated by CAUTION may also cause serious injury. In any case, it is important to follow this manual properly. Always inform the customers about this manual.

### 1.Design Precautions

#### WARNING

To ensure safety system operation, Please configure emergency braking circuit, positive inversion circuit or other similar protection circuit for PLC, which protection circuit can prevent the damage to PLC or other devices.

- External power supply would break down unexpectedly.
- All outputs are turned off, as an error is detected by PLC CPU during self-diagnosis, such as a watch dog timer error. Also when error that cannot be detected, internal protection circuit may be disabled.
- The output state of relay or transistor in the PLC can not be controlled, when relay or transistor is damaged.

### 2.Installation Precautions

#### WARNING

- Always make sure to install PLC on vertical plane, not on broadside.
- 50 mm safe distance must be kept with other devices, and far away from the high-voltage power line, high-voltage device and the power equipment.

#### CAUTION

- Never use the product on condition with dust, oily smoke, conductive dusts, Corrosive gas, flammable gas, vibration or impacts, or expose to high temperature, fire or rain.
- Do not leave anything in the vent, when installation or wiring is completed.
- Always make sure to remove the dust proof sheet from the PLC's vent when installation or wiring is completed.
- Put connection cables, storage boxes, display module in proper socket, bad connection may led to serious consequences

### 3.Wiring Precautions

#### WARNING

- Before installation and wiring, you must cut off the power.
- Before running, please make sure to attach the cover for terminal on PLC.
- That positive inversion contactor are worked on at the same time will be dangerous.
- PLC will be damaged, if the invalid terminal on the PLC being connected with other devices.

#### CAUTION

- Please follow the instruction to connect with power supply which provided in this manual. The range of AC source must be from 100V to 240V.
- Please never directly connect terminal with external power supply which is over 24V.
- Separately grounding is recommended.

- The signal input cable and the signal output cable can not go with the same cable.
- Never put the signal input/output cable and other power cable together.
- It would be more safer if the cable within 20m.

**Note:**The PLC would stop working, if the power-off time is over 10ms. The PLC would stop working with the long time power-off or low voltage, and the all the output of this PLC will be OFF. The PLC would continue work automatically with normal power supply.

### 4.Maintenance Precautions

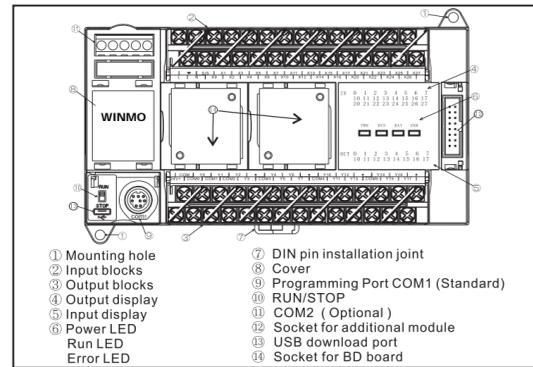
#### WARNING

- Never touch the PLC when power is on.
- Never clean up PLC when power is on, that may cause the electric shock.
- The manual should be understood before attempting to install or program.

#### CAUTION

- Never modify structure of PLC.
- If there is something wrong with our products please contact Wecon technology company.
- Working with high frequency and large capacity load will shorten service life.
- Please check the following items:
  - Keep far away from directing sunshine or other heating element, because that would raise the temperature of PLC.
  - Make sure there is no dust or electrical dust in the PLC.
  - Make sure there is no anomaly in the PLC.

## 5.Module&Product specification

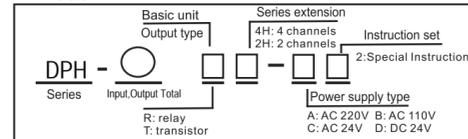


## 6. Communication Interface

The LX series PLC has two communication port, support Rs422 (Standard) and Rs485 (Optional).

Pinout of COM1 and COM2.	
COM1 (Rs422 standard)	Pin 1: RxD- Received data (negative)
	Pin 2: RxD+ Received data (positive)
	Pin 3: GND Signal ground
	Pin 4: TxD- Transmitted data (negative)
	Pin 5: +5V Output voltage is +5V, The same as the internal voltage
	Pin 6: NC Empty
	Pin 7: TxD+ Transmitted data (positive)
	Pin 8: NC Empty
COM2 (Rs485 optional)	Pin A- 485+ Received data (positive)
	Pin B- 485- Received data (negative)

## 7. Model



## 8.Electrical Specification

### AC Power Supply

Model	DPH14/20/26	DPH32/40/60
Rated voltage	AC 100V ~ 240V	
Voltage range	AC 85V ~ 264V	
Rated frequency	50/60HZ	
Power outage time	continue to work with less than 10ms power outage time	
Power fuse	250V 1A 5gX20mm	250V 3.15A 5gX20mm
Impulse current	Less than 20A 5ms/AC100V	
Power (W)	20W	50W
Sensor power supply	DC 24V 700mA	

### DC Power Supply

Model	DPH
Rated voltage	DC 24V
Voltage range	DC 24V±10%
Power outage time	continue to work with less than 10ms power outage time
Power fuse	250V 3.15A
Impulse current	Less than 15A 1ms/AC100V
Power (W)	Less than 30W

## 9.Environmental Specifications

Temperature	Using:0~55 °C Saving: -20~70°C		
Humidity	35~85%RH( no condensation)		
	JIS C 0040 standards		
Resistance to vibration	DIN rail installed	Frequency	Amplitude
		10~57Hz	0.035mm
Directly installed	Directly installed	Frequency	Amplitude
		10~57Hz	0.075mm
		Acceleration	Amplitude
		4.9m/S <sup>2</sup>	10 times of X,Y,Z (80 minutes from every direction)
		9.8m/S <sup>2</sup>	

impact resistance	JIS C 0041 standard	
Resistance to noise	Noise voltage 1000Vp-p noise 1µs up to 1ns frequency 30~100Hz noise simulation	
Voltage resistance	AC1500V (1 minute)	Confirm with JEM-1021
Insulation resistance	DC500V is more than 5MΩ	
Grounding	PLC	DEVICE
	Special grounding(Best)	Common grounding(Better)
	Grounding together(Never)	

Environment:No corrosive gas, combustible gas, or electrical dust

## 10. Input Specifications

Model	DPH
Power supply	AC power supply, DC output
Input single voltage	DC24V ±10%
Input single current	7mA/DC24V(X002 or later, 5mA/DC24V)
Input ON current	4.5mA or more(behind X002, 3.5mA/DC24V)
Input OFF current	Less than 1.5mA
Input responding time	About 10ms
	X000-X005 change D8020 into 0-15ms by the x built-in digital filter inside
Input single type	Contact input or NPN,PNP Open electrode transistor input
Insulated return	Optocoupler insulation
Input status	When input is ON, LED is on

## 11.Output Specification

Output type	Relay	Transistor
Model	DPH	
Power supply	Less than AC250V/DC30V	DC5~30V
Loop insulation	Mechanical insulation	Photoelectric coupling insulation
Action	Relay coil driven, LED on	Optical coupler driven,LED on
Max load	Resistive	2A/point, 8A/COMx port
	Inductive	80VA
	General	100W
Leak current	0.1mA/DC30V	
Min load	DC5V 2mA (reference)	
Response time	About 10ms	Less than 0.2ms, 5µs(Y0,Y1)

## 12.COM2 Port Setting

M8120	Reserved	D8120	Communication format (0 by default)
M8121	Sending waiting	D8121	Station number
M8122	Sending flag	D8122	Amount of data to be sent:unit: 0.1ms. Modbus send interval:0~5ms
M8123	Received flag	D8123	Amount of receiving data
M8124	Receiving	D8124	Beginning character STX
	Reserved	D8125	Ending character ETX
M8126	Reserved	D8126	Communication protocol (0 by default)
M8127	Reserved	D8127	The beginning address of the data
M8128	Reserved	D8128	Amount of sending data
M8129	Timeout judgement	D8129	Timeout setting,10(100ms) by default

## COM2 Setting (D8126)

protocol	D8126	Mode	Communication formate
Rs instruction	00H	Half-duplex	By D8120
HMI monitoring protocol	01H		
MODBUS-RTU slave	02H		
MODBUS-ASCII slave	03H		
Rs instruction	10H		
MODBUS-RTU master	20H		
MODBUS-ASCII master	30H		

## Communication format (D8120)

Bit	Item	Content	
		0	1
b0	Length	7 bits	8 bits
b2 b1	Verification	00: None 01: Odd 11: Even	
b3	Stop bit	1 bit	2 bits
b7 b6 b5 b4	Baudrate (bps)	0111:4800 1000:9600 1001:19200 1010:38400 1011:57600 1100:115200	

**NOTE:** the communication format is 9600. 1. 8 .None, so check the form, b7b6b5b4=1000, b3=0, b2b1=00, b0=1.D8120=81H

**Example1: MODBUS RTU master.**

```

M8002 [MOV H20 D8126] Protocol Setting
      [MOV H81 D8120] Communication Format
      [MOV H103 D0] Station No. and command
      [MOV H64 D1] Address
      [MOV H1 D2] Number of Address
      [MOV K200 D8129] Timeout
M8000 [RS D0 D1 D2 D10] Communication Buffer
    
```

Take effect after STOP to RUN  
Result: PIC read address 100 in slave device constantly after startup. send the command in Hex over COM2  
01 03 00 64 00 01 C5 D5  
01:Station No.  
03:MODBUS command code  
Read slave device address;  
00 64:The address of slave device:D1,  
00 01:Number of address;D2  
C5 D5:CRC check.

**Example2: MODBUS RTU SLAVE.**

```

M8002 [MOV H02 D8126] Take after STOP to RUN
      [MOV H81 D8120] Slave device reply (in Hex):
      [MOV H1 D8121] Communication Format
      [MOV K200 D8129] Station No.;
      [MOV H5100 D100] Timeout
    
```

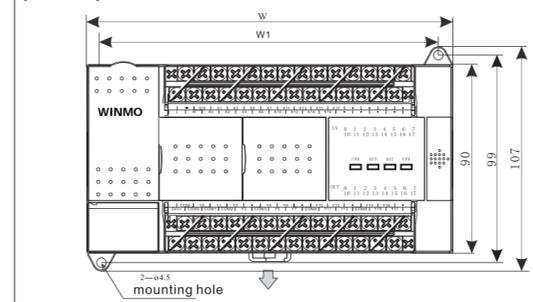
01 03 02 51 00 85 D4  
01:Station No.;  
03:MODBUS command;  
02:Reply 2 bytes  
51 00:Value of address, value of D100  
85 D4:CRC check.

## 13. terminal

Pin	DPH
L/N	AC 100V~240V
+24V/COM	output +24V
⊥	Grounding
●	The empty post, never be connected
X0~Xn	External input terminal
Y0~Yn,COMn	Output terminal, Group number
S/S	support leakage input (connected to +24V) or source input (connected to COM).

## 14.Installation

Directly install in DIN46277(width35mm) pin, when disboard the host Pull the joint slowly for DIN installation



Use the M4 screw to install the PLC. The distance and the location refer to the right figure,0.47

Model	W (mm)	W1 (mm)	Q (kg)
DPH-14 point system	136	123	0.47
DPH-20 point system	136	123	0.47
DPH-26 point system	136	123	0.47
DPH-32 point system	175	161	0.68
DPH-40 point system	175	161	0.68
DPH-60 point system	221	207	0.90

## 15.The arrangement of terminal for DPH series

The type of relay and transistor have the same arrangement of terminal (\*The bold line is the boundary of each group)

# 保修卡

用户单位 Customer units		联系人 Contacts	
用户地址 Customer address		联系电话 Phone	
产品名称 Product Name		出厂编号 Serial number	
购买日期 Date of purchase		购买联系人 (经销商) Sellers	
购买地 The place of purchase		备注 Remarks	
维修 记录 Maintenance record	日期 (Date)	故障原因以及处理情况 (Cause and solution)	

**Warranty Description**  
Please send product and this warranty Card to our service department ,When maintenance product.

**Notes:**

- According to prescription ,the period for protecting to fix product is 18 months(From the day when you purchase).During this period,any belongs to under normal usage circumstance cause because of the product quality's problem of breakdown, our company will be responsible for giving free maintain.
- Free maintain won't be given under the following

**circumstance :**

- The braekdown caused by the manipulation that hasn't follow the requests of the Manual.
- The damage caused by the unauthorized disassemble.
- The damage caused by customer inappropriate preservation, maintain,or the usage.
- The breakdown and the damage caused by the Force majeure.

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