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YM-D16K8 遥信遥控单元
YM-D16K8 Remote control unit
使用说明书
Instructions

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1. 产品简介 Product introduction

YM-D16K8 通信遥控单元同时具备有 16 路开关量输入信号采集和 8 路继电器输出控制。支持 RS485 通信接口，可实现远程的信号采集和控制并且可设置为开关量输入控制继电器输出，是一种混合型的智能化元件，适用面广。

YM-D16K8 Remote control unit has 16-way discrete input signal acquisition and 8-way relay output control. Support RS485 communication interface, can realize remote signal acquisition and control and can be set to switch quantity input control relay output, is a hybrid intelligent component, wide application.

具备事件记录功能，可记录 32 个通信遥控事件以及事件发生的时间，32 条数据循环存储；软件还对 16 路开关量输入与 8 路 DO 输出状态进行实时记录。

With the event recording function, it can record 32 remote control events and event occurrence time, 32 data cycle storage; the software also records the 16 DI and 8 DO output status in real time.

2. 产品特点 Product characteristics

- ◇ 采用最新 PIC 芯片，抗干扰能力强；

Using the latest PIC chip, strong anti-interference capability;

- ◇ 混合型多回路采集，性价比高；

Mixed multi-loop collection, highly cost-effective

- ◇ 输入输出可灵活配置使用；

Input and output can be flexibly configured and used

- ◇ 标准 Modbus 通信接口，可与业界流行的组态软件 (Intouch、Flx、组态王、力控、太力等) 通信。

Standard Modbus communication interface, can communicate with the industry popular configuration software (Intouch, Flx, configuration king, force control, too force, etc.).

3. 性能指标 Performance indicators

开关量输入 Switch input	
最大路数 Maximum road number	16 路 16 way
输入形式 Input mode	输入为无源干节点，各通道都有指示 LED The input is a passive dry node, and each channel has the indicated LED
继电器输出 Relay output	
最大路数 Maximum road number	8 路 8 way
接点容量 contact rating	5A/250VAC, 5A/30VDC
辅助电源 Power supply	
输入范围 Input range	① AC85V~265V or DC85V~330V; ② DC20V~60V;

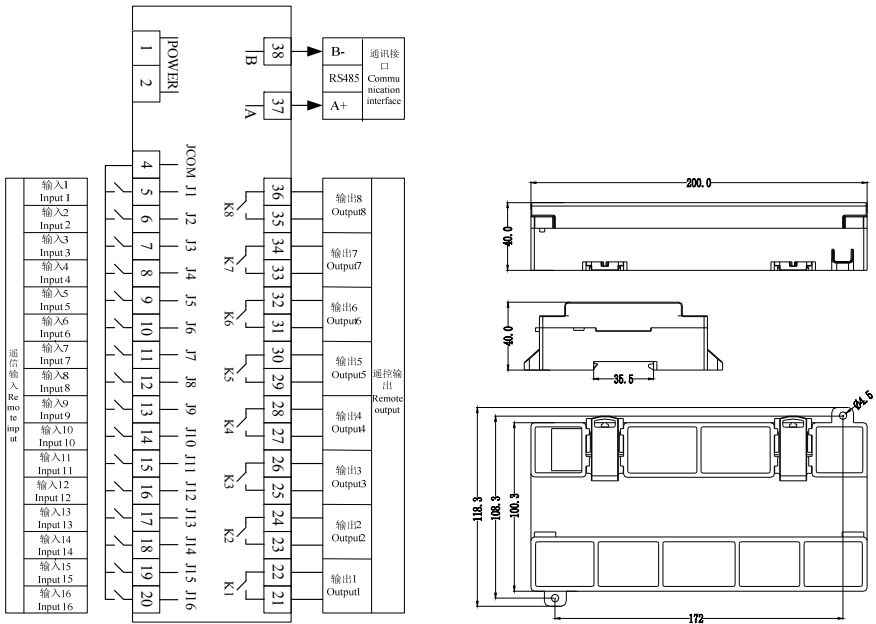
功耗 Power Consumption	<10VA
通信 Communication	
类型 Type	RS485, Modbus-RTU
地址范围 Address range	1~32
波特率 Baud rate	2400/4800/9600/19200
环境条件 Environmental conditions	
工作环境 Work environment	温度-10℃~55℃ 湿度 20%RH~95%RH Temperature-10℃ ~55℃ humidity 20% RH ~ 95% RH
储存环境 Storage environment	温度-25℃~55℃ 湿度 20%RH~95%RH Temperature-25℃ ~55℃ humidity 20% RH ~ 95% RH
安装海拔 Install the altitude	<2000M

4. 端子定义 Terminal definition

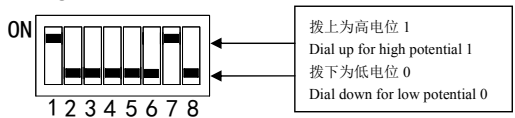
1、2	辅助电源输入端 Power supply input terminal	21、22	K1 第 1 路开出输出端 the output terminal of K1 the 1 st DO
4	Jcom 开入公共端 Jcom DI common terminal	23、24	K2 第 2 路开出输出端 the output terminal of K2 the 2 nd DO
5	J1 第 1 路开入输入端 the input terminal of J1 the 1 st DI
6	J2 第 2 路开入输入端 the input terminal of J2 the 2 nd DI	33、34	K7 第 7 路开出输出端 the output terminal of K7 the 7 th DO
..	35、36	K8 第 8 路开出输出端 the output terminal of K8 the 8 th DO
19	J15 第 15 路开入输入端 the input terminal of J15 the 15 th DI	37、38	RS485 接口 A、B 端 RS485 ports A and B
20	J16 第 16 路开入输入端 the input terminal of J16 the 16 th DI		

5. 接线图和产品外形尺寸图(单位:mm,公差:±0.5) Wiring diagram and product appearance dimensions

(unit: mm, tolerance: ± 0.5)



6. 拨码开关设置 Dip switch Settings



上图所示设置状态为：地址 01；波特率 9600；无校验

The set state shown in the figure above is: address 01, baud rate, 9600; no check

◇ 拨码开关定义 Dip switch definition

位 Bit	定义 Definition	功能 Function
8	校验位 Check bit	0: 无校验; 1: 奇偶校验; 0: No parity; 1: odd-even check;
7-6	波特率 Baud rate	00: 2400bps; 01: 4800bps; 10: 9600bps; 11: 19200bps;
5-1	地址 Address	00001: 地址为 1; 00010: 地址为 2; 00011: 地址为 3; 00001: Address 1, 00010: Address 2,00011: Address 3, 11111: 地址为 31; 00000: 地址为 32 11111: Address 31,00000: Address 32

7. 通信协议 Communication protocol

1. 开入开出状态查询 Status inquiry of DI and DO

地址 Address	参数 Parameter	数据类型 Data type	数据范围 Data Range	功能码 Function code	
0000H	DI1	BIT	1: 合; 0: 分 1: Closed,0:Separate	02	
0001H	DI2	BIT	1: 合; 0: 分 1: Closed,0:Separate	02	
.....	
000EH	DI15	BIT	1: 合; 0: 分 1: Closed,0:Separate	02	
000FH	DI16	BIT	1: 合; 0: 分 1: Closed,0:Separate	02	
0010H	DO1	BIT	1: 合; 0: 分 1: Closed,0:Separate	02	05
.....
0017H	DO8	BIT	1: 合; 0: 分 1: Closed,0:Separate	02	05

注：开出写入 0XFF00 表示闭合,写入 0X0000 表示断开。

Note: Open write 0 XFF 00 is closed, and write 0X0000 is disconnected.

例：闭合第一路继电器：01 05 00 10 FF 00；断开第五路继电器：01 05 00 14 00 00

Example: Close the first circuit relay: 01 05 00 10 FF 00; disconnect the fifth circuit relay: 01 05 00 14 00 00

2. 读写寄存器内容 Read and write the register content

地址(十六进制) Address(hexadecimal)	内容 Content	读/写 Read / Write	功能码 Function Code	长度(字节) Length (Bytes)
0000	仪表识别码 Instrument identification code	R	03	2
0001	版本号 version number	R	03	2
0002	地址编码 Address code	R	03	2
0003	波特率 Baud rate	R	03	2
0004	校验模式 Calibration mode	R	03	2
0005	时钟设置：秒/分(BCD 码) Clock setting: seconds / minute (BCD code)	R/W	03/10	2
0006	时钟设置：时/日(BCD 码) Clock setting: time / day (BCD code)	R/W	03/10	2
0007	时钟设置：月/年(BCD 码) Clock setting: month / year (BCD code)	R/W	03/10	2
0008	时钟设置允许位(1: YES) Clock setting allowed bit (1: YES)	R/W	03/10	2
0009-000A	保留 Keep			
000B	地址指针(0019H-0098H) Address pointer (0019H-0098H)	R	03	2
000C	保留 Keep			

000D	当前时间: 秒/分(BCD 码) Current time: seconds / minute (BCD code)		R	03	2
000E	当前时间: 时/日(BCD 码) Current time: time / day (BCD code)		R	03	2
000F	当前时间: 月/年(BCD 码) Current time: month / year (BCD code)		R	03	2
0010	16 路开入状态 16DI state	高位: 9-16 路 High level: 9-16 road	R	03	2
		低位: 1-8 路 Low level: 1-8 road	R	03	2
0011	8 路开出状态 8DO state	高位: 空 High: Empty	R	03	2
		低位: 1-8 路 Low level: 1-8 road	R	03	2
0012	保留 Keep				
0013	数据清零(1: YES) Data reset(1: YES)		R/W	03/10	2
0014-0018	保留 Keep				
0019	数据 1: 地址 Data 1: Address 跳变 saltus step		R	03	2
001A	数据 1: 秒 分 Data 1:seconds / minute		R	03	2
001B	数据 1: 时 日 Data 1: time / day		R	03	2
001C	数据 1: 月 年 Data 1:Month / year		R	03	2
.....
0095	数据 32: 地址 跳变 Data 32: Address saltus step		R	03	2
0096	数据 32: 秒 分 Data 32:seconds / minute		R	03	2
0097	数据 32: 时 日 Data 32: time / day		R	03	2
0098	数据 32: 月 年 Data 32:Month / year		R	03	2
009A-009F	保留 Keep				
00A0	DI1 计数器 DI1 counter		R	03/10	2
.....
00AF	DI16 计数器 DI16 counter		R	03/10	2
00B0	DO1 计数器 DO1 counter		R	03/10	2
.....
00B7	DO8 计数器 DO8 counter		R	03/10	2
00B8-00C7	保留 Keep				
00C8	DO1“非” DO1 wrong		R/W	03/10	2
00C9	DO1“与” DO1 and		R/W	03/10	2
00CA	DO1“或” DO1 or		R/W	03/10	2
.....

00DD	DO8“非” DO8 wrong		R/W	03/10	2
00DE	DO8“与” DO8 and		R/W	03/10	2
00DF	DO8“或” DO8 or		R/W	03/10	2
0x00E0	DO1 输出方式 The DO 1 output mode	0: 电平输出 其他: 脉冲输出 0: level output Other: pulse output	R/W	03/10	2
.....
0x00E7	DO8 输出方式 The DO 8 output mode	0: 电平输出 其他: 脉冲输出 0: level output Other: pulse output	R/W	03/10	2

备注 Remarks:

1. 事件记录 SOE 地址从 0x0019 开始,32 组数据共 256 个字节(每组数据 8 个字节,建议用户 8 个字节连续读取),通讯软件上红字显示为最新发生事件,始终保持在最顶行。

The SOE address starts from 0x0019. 32 groups of data contain 256 bytes(Each group of data contains 8 bytes. It is recommended that users read 8 bytes consecutively.)Messaging app red, The word appears as the most recent event and always stays in the top row.

数据跳变格式: 0XFF 表示从断开到闭合跳变,0X00 表示从闭合到断开跳变。

Data jump format: 0XFF indicates a jump from open to closed, 0X00 indicates a jump from close to break.

2. 设置当前时间 Set the current time

发送: 01 10 00 05 00 04 08 12 14 10 21 09 07 00 01 A3 A8

返回: 01 10 00 05 00 04 D1 CB

说明: 时间设置为 07 年 09 月 21 日 10 时 14 分 12 秒

Sent: 01 10 00 05 00 04 08 12 14 10 21 09 07 00 01 A3 A8

Returns: 01 10 00 05 00 04 D1 CB

Explain: The time is set to 10:14:12 seconds on September 21,2007

3. 读第一组事件记录 Read the first set of event records

发送: 01 03 00 19 00 04 95 CE

返回: 01 03 08 02 00 52 22 16 30 12 09 29 5A

说明: 09 年 12 月 30 日 16 时 22 分 52 秒第 2 路闭合到断开的跳变。

Sent: 01 03 00 19 00 04 95 CE

Returns: 01 03 08 02 00 52 22 16 30 12 09 29 5A

Explain: The time is set to 16:22:52 seconds on December 30,2009

4. 继电器输出受控于 DI 输入的逻辑运算 (通讯地址: 0x00C8 - 0x00DF) Relay output is controlled by logical operation of DI input (communication address: 0x00C8-0x00DF)

每个 DO 输出通道均可受控于 DI 的输入状态,由 16 个 DI 通道的状态及其逻辑运算结果控制。逻辑运算有:“非”、“与”及“或”三种,“非”优先级最高,“或”优先级最低。

Each DO output channel can be controlled by the input state of the DI, and is controlled by the state of the 16 DI channels and their logical operation results. There are three logical operations: "not", "and", and "or", "not" has the highest priority, "or" has the lowest priority.

“非”: 是设置为有效电位值,当设置为 1 时表示对应 DI 闭合时有效,设置为 0 时表示对应 DI 断开时有效;

"Non": is set to the effective potential value, when set to 1 when the corresponding DI is closed, set to 0 when the corresponding DI is disconnected

“与”: 是设置位的与逻辑关系,如设置为 0X0011(设“非”为 0xffff) 则表示选中了 DI5 与 DI1 两路 DI,它们的关系为“与”,此时 DI5、DI1 输入必须同时闭合状态则相应 DO 动作,否则相应 DO 不动作。

And: indicates the logical relationship between the set bit. For example, 0X0011(set Not to 0xffff) indicates that DI5 and DI1 are selected, and their relationship is and. In this case, the input of DI5 and DI1 must be closed at the same time, so that the corresponding DO action is not taken.

“或”：是设置位的或逻辑关系，如设置为 0X0011(设“非”为 0xffff) 则表示选中了 DI5 与 DI1 两路 DI,它们的关系为“或”，此时如果 DI5、DI1 有一路输入为闭合状态则相应 DO 闭合，否则相应 DO 不动作。

Or: indicates the set bit or logical relation,If the value is set to 0X0011(set Not to 0xffff), two DI's of DI5 and DI1 are selected, and their relationship is OR,If any input of DI5 or DI1 is closed, the corresponding DO is closed. Otherwise, the corresponding DO does not act.

5. DO1-DO8 输出方式设置 DO1-DO8 Output mode setting

协议 0x00E0-0x00E7: 设置为 0, 表明继电器输出是电平方式, 设置不为 0 的数据, 则继电器输出是脉冲方式, 比如 DO1 输出设置数据为 10, 表明继电器脉冲输出 1S。

Protocol 0x00E0-0x00E7:Set it to 0,Indicates that the relay output is level mode, the data set is not 0, then the relay output is pulse mode,For example, the DO1 output setting data is 10, indicating that the relay pulse output is 1S.

发送: 01 10 00 E0 00 01 02 00 0A + CRC

返回: 01 10 00 E0 00 01 + CRC

Send to: 01 10 00 E0 00 01 02 00 0A + CRC

Return: 01 10 00 E0 00 01 + CRC

举例 Example:

1. 假设设置 DO1 的“非”值为 0xffff, (意思是每路 DI 高电平有效, 继电器动作),“与”为 0x0802 (意思为 DI12 和 DI2 同时等于 1 时 DO1 动作),“或”为 0xc004 (意思为 DI16、DI15 和 DI3 有任一等于 1 时 DO1 动作);

Suppose the "not" value of DO1 is set to 0xffff,(meaning that each DI high level is effective, relay action),"And" is 0x0802 (It means that DI12 and DI2 are equal to each other1 indicates the DO1 action), "or" is 0xc004 (meaning that DI16, DI15 and DI3 have any DO1 action equal to 1);

2. 假设设置 DO1 的“非”值为 0x0000, (意思是每路 DI 低电平有效, 继电器动作),“与”为 0x0802 (意思为 DI12 和 DI2 同时等于 0 时 DO 动作),“或”为 0xc004 (意思为 DI16、DI15 和 DI3 有任一等于 0 时 DO 动作)。

Suppose the "not" value of DO1 is set to 0x0000,(meaning that each DI low level is effective, relay action),,"And" is 0x0802 (It means that DI12 and DI2 are equal to each other0 indicates the DO action), "or" is 0xc004 (meaning that DI16, DI15 and DI3 have any DO action equal to 0).

注：“与”为 0x0000 (意思为 DI 不参加“与”运算),“或”为 0x0000(意思为 DI 不参加“或”运算), 则: DO 输出与 DI 输入无关 (DO 输出状态保持上一次的状态), 仅受远程控制。

Note:"And" is 0x0000 (meaning DI does not participate in the "and" operation),The "or" is 0x0000(meaning DI does not participate in the "or" operation),The DO output has nothing to do with the DI input(The DO output state remains as it was last time), controlled only remotely.

注：以上图片仅供参考，产品以实物为准。

Note: The above pictures are for reference only, the products are subject to the actual product.



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