

TCH MODBUS USER INSTRUCTIONS

1, The instrument RS485 communication BPS is fixed at 9600 bits/s, start bit=1, data bit=8, stop bit=1, starting and ending time >5ms.

2, The format of the data reading and writing is same as standard Modbus protocol. Definition as follows:

Request: PV1: 01 03 00 C9 00 02 14 35

| | | | | |
|-----|-----|-----------|--------|-------------|
| 01 | 03 | 201(00C9) | 0002 | 5173 (1435) |
| ADD | COM | PV1 | Counts | CRC |

Response: PV1 01 03 04 1E 30 00 01 XX XX

| | | | | |
|-----|-----|--------|----------|------|
| 01 | 03 | 04 | 1E300001 | **** |
| ADD | COM | Counts | PV1 | CRC |

PV1= $\frac{1E30}{PV} \frac{00}{01H} = 772.8$ 1E30=7728, 1 POINT=772.8 PV1=1E300101H=-772.8

②:00=INT
 01=1 Point
 02=2 Point
 03=3 Point

①: ≠0 negative
 =0 positive

3, When it is TC/RTD Input, reading and writing is one decimal. When it is other Input, reading and writing is as parameter DP1,

4, Commands:

02H: read digital value / discrete I/O parameters

03H: read holding registers parameters

06H: write single holding register parameter value

10H: write multi holding registers parameters value

WRITE SV=100.5, 01 10 00 00 00 02 04 03 ED 00 01 A2 1E,

SV= -100.5, 01 10 00 00 00 01 04 03 ED 01 01 A3 8E

5, Communication parameters:

| Factory setting | Parameters | Parameter address (DEC) | COUNTS | Function | Remark |
|-----------------|------------|-------------------------|--------|---------------------------------------|-----------|
| | FLAG4 | 104 | 1 | Symbol | Read only |
| | MV | 105 | 2 | PID1 operating value output | Read only |
| | MV1 | 168 | 2 | PID2 operating value output | Read only |
| | PV1 | 201 | 2 | 1 st input measuring value | Read only |
| | PV2 | 204 | 2 | 2nd input measuring value | Read only |
| | SV | 0000 | 2 | Setting value | R / W |
| 100 | AL1 | 0004 | 2 | Alarm 1 set value | R / W |
| 900 | AL2 | 0008 | 2 | Alarm 2 set value | R / W |
| 500 | AL3 | 0012 | 2 | Alarm 3 set value | R / W |
| 0. 0 | Cdb | 0016 | 2 | Cooling clearance | R / W |

| | | | | | |
|--------|------|------|---|---|-------|
| 0 | AT | 0019 | 1 | Auto-tune | R / W |
| 000 | LCK | 0020 | 1 | Set lock function | R / W |
| 0 | MAN | 0021 | 1 | manual or auto | R / W |
| 001 | ADD | 0022 | 1 | communication address | R / W |
| 0. 0 | PSV1 | 0024 | 2 | PV1 correction value | R / W |
| 0. 0 | PSV2 | 0028 | 2 | PV2 correction value | R / W |
| 1. 0 | HY1 | 0032 | 2 | Alarm 1 hysteresis value | R / W |
| 0 | AM1 | 0035 | 1 | Alarm 1 mode setting | R / W |
| 1. 0 | HY2 | 0036 | 2 | Alarm 2 hysteresis value | R / W |
| 1 | AM2 | 0039 | 1 | Alarm 2 mode setting | R / W |
| 1. 0 | HY3 | 0040 | 2 | Alarm 3 hysteresis value | R / W |
| 2 | AM3 | 0043 | 1 | Alarm 3 mode setting | R / W |
| 3. 0 | P | 0044 | 2 | PID 1 proportion band | R / W |
| 240 | I | 0048 | 2 | PID 1 Integral time | R / W |
| 0. 0 | D | 0052 | 2 | PID 1 differential coefficient time | R / W |
| 0 | OUTD | 0055 | 1 | PID 1 control direction | R / W |
| 1. 0 | HYS | 0056 | 2 | PID 1 control function | R / W |
| 020 | CTL | 0059 | 1 | PID 1 control cycle | R / W |
| 0. 0 | OUTL | 0060 | 2 | PID1 MV output low limit | R / W |
| 100. 0 | OUTH | 0064 | 2 | PID1MV output high limit | R / W |
| 0. 0 | HUM | 0068 | 2 | PID 1 desiccant output limit | R / W |
| 5. 0 | Pc | 0072 | 2 | PID 2 proportion band | R / W |
| 240 | Ic | 0076 | 2 | PID 2 Integral time | R / W |
| 0. 0 | dc | 0080 | 2 | PID 2 differential coefficient time | R / W |
| 1 | OUc | 0083 | 1 | PID 2 control direction | R / W |
| 020 | C-t | 0084 | 1 | PID 2 control cycle | R / W |
| K type | INP1 | 0085 | 1 | 1 st input signals | R / W |
| 0.0 | LSP | 0088 | 2 | 1 st input low limit | R / W |
| 1200 | USP | 0092 | 2 | 1 st input high limit | R / W |
| 1 | DP1 | 0095 | 1 | decimal point for 1 st input | R / W |
| 0 | UNIt | 0096 | 1 | display unit for 1 st input | R / W |

FLAG4 位功能：BIT 0: Bit=0 PV1 正常，bit0=1 PV1 超限显示，只读
 BIT1: Bit=0 PV2 正常，bit1=1 PV2 超限显示，只读
 Bit2: bit2=0 手动工作，Bit2=1 自动工作，只这一位可读写
 Bit3: 内部写 EPPROM 标志
 Bit4: bit4=0 AL1 无报警 Bit4=1 AL1 报警，只读
 Bit5: bit5=0 AL2 无报警 Bit5=1 AL2 报警，只读
 Bit7 Bit6 内部使用

通信将仪表改为手动方式，同时再将 输出值 **MV** 定为 **0**，则温度输出关闭

AL1 AL2 报警方式改为相反工作方式，如 **AM1=4**，改为 **AM1=5**，即高值报警改为低值报警，则输出反动作

当要改手动自动功能时，只能修改 **FLAG4** 的位 **2**，其位不能改，

即只能写入自动 **04** /或手动 **00** 值

如 **01 06 00 68 00 04 09 D5**，自动命令（例中表址为 **1**）

01 06 00 68 00 00 08 16，手动命令（例中表址为 **1**）

*只当手动状态时才可写 **MV** 输出值，按定点数写，高字为整数，低字这符号及小数，

如 写全输出 **100.0**，按整数 **1000=03E8H**，正数，小数为 **1** 位=**0001** 命令为 **01 10 00 69 00 02 04 03 E8 00 01 74 5D**，

全关，**0.0**，**01 10 00 69 00 02 04 00 00 00 01 F4 2D**

输出 **50.0**，**01 10 00 69 00 02 04 01 F4 00 01 B4 23**