



# Communication Protocol MODBUS RTU

## **RY-DB1501 Protocol**



| Comm Settings   |      |
|-----------------|------|
| Modbus protocol | RTU  |
| Baudrate        | 9600 |
| parity          | None |
| Databits        | 8    |
| Stopbits        | 1    |
| default addr    | 1    |

| Description   |
|---|
| 1.Register Addr described in this document is (1 + protocol address),which means that the address used in modbus packet is (register addr -1);  |
| 2.All default/max/min values in this document are described in two format 'protocol value' and 'real value' in the method of 'real value(protocolvalue)'<br>'real Value' is the true value. ie output current value is 1.25A,the '1.25' is the real value<br>'protocol vallue' is used in protocol, which is a copy of 'real value'. ie 125 is used in protocol to describe 1.25A , then '125' is the 'protocol value'<br>basically 'protocol value'=( 'real value'+ offset) * coefficienty |

| ---Read Function Code:0x3<br>---Write Function Code:0x6/0x10 |              |        |                                 |      |              |      |  |              |
|--|--------------|--------|---------------------------------|------|--------------|------|--|--------------|
| Reg Addr   | Name         | Type   | Default                         | Min  | Max          | Unit | Description  | Non-Volatile |
| 1001   | Control Mode | Signed | 1(1)                            | 0(0) | 6(6)         | -    | 0=Comm Mode<br>1=Potentiometer<br>2=Voltage Signal<br>3=Current Signal<br>4=PWM Signal | Yes          |
|  |              |        | 'protocol value' = 'real value' |      |              |      |  |              |
| 1002   | Control      | Signed | 0(0)                            | 0(0) | 65535(65535) | -    | bit0=On/Off  | No           |

|      |           |        |                                 |      |              |     |   |     |
|------|-----------|--------|---------------------------------|------|--------------|-----|---|-----|
|      | Command   |        | 'protocol value' = 'real value' |      |              |     | Control,1:ON 0:OFF(only in Comm Mode)<br>bit1:15=Reserved |     |
| 1003 | RPM Set   | Signed | 0(0)                            | 0(0) | 65535(65535) | RPM | RPM Speed set to run (only in Comm Mode )                 | No  |
|      |           |        | 'protocol value' = 'real value' |      |              |     |   |     |
| 1004 | Direction | Signed | 0(0)                            | 0(0) | 1(1)         | -   | 0=Forward<br>1=Reversed                                   | Yes |
|      |           |        | 'protocol value' = 'real value' |      |              |     |   |     |

| ---Read Function Code:0x3<br>---Write Function Code:NA |           |        |                                 |      |              |      |  |              |
|--|-----------|--------|---------------------------------|------|--------------|------|--|--------------|
| Reg Addr   | Name      | Type   | Default                         | Min  | Max          | Unit | Description  | Non-Volatile |
| 2001   | RPM speed | Signed | 0(0)                            | 0(0) | 65535(65535) | RPM  | Runtime Speed  | No           |
|  |           |        | 'protocol value' = 'real value' |      |              |      |  |              |
| 2002   | Fault1    | Signed | 0(0)                            | 0(0) | 65535(65535) | -    | bit0=Short Circuit<br>bit1=Motor Stalled<br>bit2=Module NTC Error<br>bit3=Module Vver Temp<br>bit4=Bus Over Voltage<br>bit5=Bus Low Voltage<br>bit6=Output Phase Lost<br>bit7=Input Phase Lost<br>bit8=Overload<br>bit9=Comm Fail<br>bit10=Bus Unbalance<br>bit11=AC Low<br>bit12=AC High<br>bit13=Ext Fault Signal<br>bit14=EEPROM Error<br>bit15=Inner Comm Fail | No           |
|  |           |        | 'protocol value' = 'real value' |      |              |      |  |              |
| 2003   | Fault2    | Signed | 0(0)                            | 0(0) | 65535(65535) | -    | bit0=Amb Over Temp Shutdown<br>bit1=Amb NTC Error<br>bit2=Ext NTC Error<br>bit3=Current Sample   | No           |
|  |           |        | 'protocol value' = 'real value' |      |              |      |  |              |

|      |                |          |                                       |                |                |    |   |    |
|------|----------------|----------|---------------------------------------|----------------|----------------|----|---|----|
|      |                |          |                                       |                |                |    | Error<br>bit4:15=Reserved   |    |
| 2004 | Warning1       | Signed   | 0(0)                                  | 0(0)           | 65535(65535)   | -  | bit0=EEPROM Error<br>bit1=Over Temp Fast Down<br>bit2=Over Temp Slow Down<br>bit3=Over Temp Limit<br>bit4=Analog Input Error<br>bit5=Overload<br>bit6=Comm Fail<br>bit7=Amb Over Temp<br>bit8=Fan Fail<br>bit9=Ext NTC Error<br>bit10:15=Reserved | No |
|      |                |          | 'protocol value' = 'real value'       |                |                |    |   |    |
| 2005 | Warning2       | Signed   | 0(0)                                  | 0(0)           | 65535(65535)   | -  | bit0:15=Reversed  | No |
|      |                |          | 'protocol value' = 'real value'       |                |                |    |   |    |
| 2006 | Bus Voltage    | Signed   | 0(0)                                  | 0(0)           | 65535(65535)   | V  |   | No |
|      |                |          | 'protocol value' = 'real value'       |                |                |    |   |    |
| 2007 | Output Current | Signed   | 0(0)                                  | 0(0)           | 65535(6553500) | A  |   | No |
|      |                |          | 'protocol value' = 'real value' * 100 |                |                |    |   |    |
| 2008 | Amb Temp       | Unsigned | 0(0)                                  | -32768(-32768) | 32767(32767)   | iæ |   | No |
|      |                |          | 'protocol value' = 'real value' * 10  |                |                |    |   |    |
| 2009 | Module Temp    | Unsigned | 0(0)                                  | -32768(-32768) | 32767(32767)   | iæ |   | No |
|      |                |          | 'protocol value' = 'real value' * 10  |                |                |    |   |    |