MODBUS RTU Protocol for 4DI4DO module

A basic MODBUS command always takes two main parameters：

1. ID Address：Designated to receive this Command ID address。
2. Function Code：This Command function。

The reception to the Command element will return a Response inform the completion of action in response to the remote or the value returned by the read, Response Command format in the format is basically the same, but also have ID Address and Function code in order to master identification, the following table for common Function code order.

1. MODBUS RTU Protocol

The following MODBUS functions are supported.

Function code	Description
0x03	Read Holding Registers
0x05	Write Single Coil
0x06	Write Single Register

2. MODBUS Protocol Address Map

0x03 Read Holding Registers and 0x06 Write Single Register

MODBUS Register	HEX	Function	Description	Action
0x0000	0x0106	Read/Write Modbus device Address And Baud Rate Setting	High byte: Modbus device Address The rage is 1~247 Low byte: Baud Rate Setting 1: 2400 2: 4800 3: 9600 4: 14400 5: 19200 6: 38400 7: 115200	R/W
0x0001	0x0600	Data length , Parity, and stop	High byte: Data length , Parity, and stop bits. Valid values	R/W

		bits Setting	are : SERIAL_8N1 0x06(default) SERIAL_8N2 0x0E SERIAL_8E1 0x26 SERIAL_8E2 0x2E SERIAL_8O1 0x36 SERIAL_8O2 0x3E Low byte: Reserved	
0x0002	0x0300	Read Version Code	High byte: Version Code 0x03 is ModbusRTU_AI4_DIO_44 Low byte: Reserved	R
0x001C	0x0009	read DI0 ~ DI3 status	Ex: 0x0009 means DI0: status is high DI1: status is low DI2: status is low DI3: status is high	R
0x0020	0x000A	read DO0 ~ DO3 status or write DO0 ~ DO3 status	Ex: 0x000A means DO0: status is low DO1: status is high DO2: status is low DO3: status is high	R/W

0x05 Write Single Coil

MODBUS Register	HEX	Function	Description	Action
0x0020	0xFF00	Write DO0 status	Ex: 0xFF00 write DO0 as high 0x0000 write DO0 as low	W
0x0021	0xFF00	Write DO1 status	Ex: 0xFF00 write DO1 as high 0x0000 write DO1 as low	W
0x0022	0xFF00	Write DO2 status	Ex: 0xFF00 write DO2 as high 0x0000 write DO2 as low	W
0x0023	0xFF00	Write DO3 status	Ex: 0xFF00 write DO3 as high 0x0000 write DO3 as low	W

Example for read Modbus Address and Baud Rate :

Request		Response	
Field Name	(Hex)	Field Name	(Hex)
MODBUS Address	01	MODBUS Address	01
Function	03	Function	03
Starting Address Hi	00	Byte Count	02
Starting Address Lo	00	High Byte Data	01
Quantity of Outputs Hi	00	Low Byte Data	06
Quantity of Outputs Lo	01	High Byte CRC	39
High Byte CRC	84	Low Byte CRC	D6
Low Byte CRC	0A		

Ex: High Byte Data 0x01 means Modbus Address = 01. The available rage is 1~247.

Low Byte Data 0x06 means Baud Rate = 38400

For 1 means baud rate is 2400

2 means baud rate is 4800

3 means baud rate is 9600

4 means baud rate is 14400

5 means baud rate is 19200

6 means baud rate is 38400

7 means baud rate is 115200