8 channel rs485 commamd

MODBUS command (function code 06 is Control command,03 is Read status command)

Note :

1 MODBUS command must be HEX

2 Slave ID (device address) must be consistent with the DIP switches (A0-A5)

9600 Band ,8 Data bits,None Parity,1 Stop Bit。

MODBUS 06 Command (**Control command** ,HEX):

Bytes Number	1	2	3	4	5	6	7	8
MODBUS Definitions	Slave ID	Function	Address		Data		CRC Check	
Function	Device Address	Function	Channel number		Command	Delay time	CRC Check	
Open	0x00-0x2F	0x06	0x0001-0x0008		0x01	0x00	2Bytes CRC	
Close	0x00-0x2F	0x06	0x0001-0x0008		0x02	0x00	2Bytes CRC	
Toggle (Self-locking)	0x00-0x2F	0x06	0x0001-0x0008		0x03	0x00	2Bytes CRC	
Latch Inter-locking)	0x00-0x2F	0x06	0x0001-0x0008		0x04	0x00	2Bytes CRC	
Momentary (Non-locking)	0x00-0x2F	0x06	0x0001-0x0008		0x05	0x00	2Bytes CRC	
Delay	0x00-0x2F	0x06	0x0001-0x0008		0x06	0x00-0xff	2Bytes CRC	

Remarks:

1 Momentary mode, delay time is 1 seconds

2 Delay mode, delay time is 0-255 seconds

Return command：

Command is active, return to send commands; instruction is invalid no return.

MODBUS 03 Command (**Read status command** ,HEX):

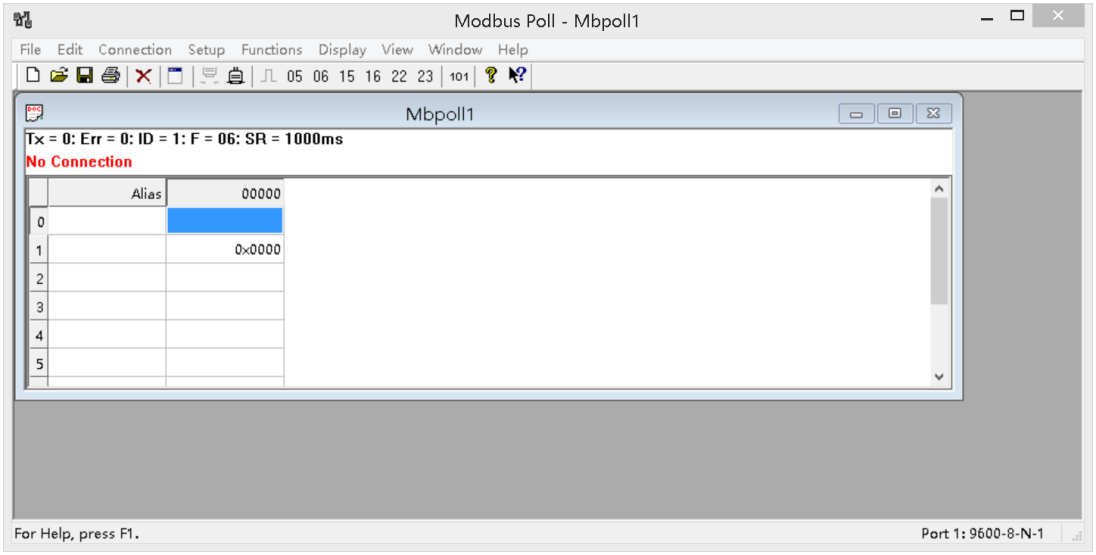
Bytes Number	1	2	3	4	5	6	7	8
MODBUS Definitions	Slave ID	Function	Address		Data		CRC Check	

Function	Device Address	Function	Starting register address	Register length	CRC Check
Read Channel 1 State	0x00-0x2F	0x03	0x0001	0x0001	
Read Channel 2 State	0x00-0x2F	0x03	0x0002	0x0001	
Read 2 consecutive channels status	0x00-0x2F	0x03	0x0001-0x0003	0x0002	
Read 3 consecutive channels status	0x00-0x2F	0x03	0x0001-0x0002	0x0003	
Read all 8 channels status	0x00-0x2F	0x03	0x0001	0x0008	

Read status command returns (function code 03, HEX format):

Bytes length	1	1	1		2
MODBUS Definitions	Slave ID	Function	data length	data	CRC16 Check
Function	Device Address	Function	data length	Relay state 0x0001 open 0x0000 close	CRC16 Check
Channel 1 open	0x00-0x1F	0x03	0x02	0x0001	
Channel 1 close	0x00-0x1F	0x03	0x02	0x0000	
Channel 2 open	0x00-0x1F	0x03	0x02	0x0001	
Channel 2 close	0x00-0x1F	0x03	0x02	0x0000	
Channel 1 open Channel 2 open	0x00-0x1F	0x03	0x04	0x0001 0x0001	
Channel 1 open Channel 2 close	0x00-0x1F	0x03	0x04	0x0001 0x0000	
Channel 1 close Channel 2 open	0x00-0x1F	0x03	0x04	0x0000 0x0001	
Channel 1 close Channel 2 close	0x00-0x1F	0x03	0x04	0x0000 0x0000	

MODBUS commands you can use "Modbus Poll" input, as shown below
（CRC check generated automatically）



You can also use HyperTerminal serial input, as shown below

（Manually add CRC check）

Examples (Slave ID is 1,DIP switch state)

Channel 1 Open ： 01 06 00 01 01 00 D9 9A

Channel 1 Close ： 01 06 00 01 02 00 D9 6A

Channel 1 Toggle：01 06 00 01 03 00 D8 FA

Channel 1 Latch：01 06 00 01 04 00 DA CA

Channel 1 Momentary: 01 06 00 01 05 00 DB 5A

Channel 1 Delay 10 seconds : 01 06 00 01 06 0A 5B AD

Channel 1 Delay 100 seconds: 01 06 00 01 06 64 DA 41

Channel 2 Open ： 01 06 00 02 01 00 29 9A
Channel 2 Close ： 01 06 00 02 02 00 29 6A
Channel 2 Toggle ： 01 06 00 02 03 00 28 FA
Channel 2 Latch ： 01 06 00 02 04 00 2A CA
Channel 2 Momentary : 01 06 00 02 05 00 2B 5A
Channel 2 Delay 10 seconds : 01 06 00 02 06 0A AB AD
Channel 2 Delay 100 seconds : 01 06 00 02 06 64 2A 41

Read state (assuming that the channel 1 is open, the channel 2 is close).
Read channel 1 state ： 01 03 00 01 00 01 D5 CA
Return open：01 03 02 00 01 79 84

Read channel 2 state ： 01 03 00 02 00 01 25 CA
Return close：01 03 02 00 00 B8 44

Read channel 1 and channel 2 state ： 01 03 00 01 00 02 95 CB
Return channel open and channel 2 close ： 01 03 04 00 01 00 00 AB F3

CRC check code(C51 MCU)：

const unsigned char code auchCRCHi[256] = {
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00,

```
0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00,
0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01,
0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00,
0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01,
0xC0, 0x80, 0x41,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01,
0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00,
0xC1, 0x81, 0x40
} ;
const unsigned    char code auchCRCLo[256] = {
0x00, 0xC0, 0xC1, 0x01, 0xC3, 0x03, 0x02, 0xC2, 0xC6, 0x06, 0x07, 0xC7, 0x05,
0xC5, 0xC4,0x04,
0xCC, 0x0C, 0x0D, 0xCD, 0x0F, 0xCF, 0xCE, 0x0E, 0x0A, 0xCA, 0xCB, 0x0B,
0xC9, 0x09, 0x08, 0xC8,
0xD8, 0x18, 0x19, 0xD9, 0x1B, 0xDB, 0xDA, 0x1A, 0x1E, 0xDE, 0xDF, 0x1F,
0xDD, 0x1D, 0x1C, 0xDC,
0x14, 0xD4, 0xD5, 0x15, 0xD7, 0x17, 0x16, 0xD6, 0xD2, 0x12, 0x13, 0xD3,
0x11, 0xD1, 0xD0, 0x10,
0xF0, 0x30, 0x31, 0xF1, 0x33, 0xF3, 0xF2, 0x32, 0x36, 0xF6, 0xF7, 0x37, 0xF5,
0x35, 0x34, 0xF4,
0x3C, 0xFC, 0xFD, 0x3D, 0xFF, 0x3F, 0x3E, 0xFE, 0xFA, 0x3A, 0x3B, 0xFB,
0x39, 0xF9, 0xF8, 0x38,
0x28, 0xE8, 0xE9, 0x29, 0xEB, 0x2B, 0x2A, 0xEA, 0xEE, 0x2E, 0x2F, 0xEF,
0x2D, 0xED, 0xEC, 0x2C,
0xE4, 0x24, 0x25, 0xE5, 0x27, 0xE7, 0xE6, 0x26, 0x22, 0xE2, 0xE3, 0x23, 0xE1,
0x21, 0x20, 0xE0,
0xA0, 0x60, 0x61, 0xA1, 0x63, 0xA3, 0xA2, 0x62, 0x66, 0xA6, 0xA7, 0x67,
0xA5, 0x65, 0x64, 0xA4,
0x6C, 0xAC, 0xAD, 0x6D, 0xAF, 0x6F, 0x6E, 0xAE, 0xAA, 0x6A, 0x6B, 0xAB,
0x69, 0xA9, 0xA8, 0x68,
0x78, 0xB8, 0xB9, 0x79, 0xBB, 0x7B, 0x7A, 0xBA, 0xBE, 0x7E, 0x7F, 0xBF,
0x7D, 0xBD, 0xBC, 0x7C,
0xB4, 0x74, 0x75, 0xB5, 0x77, 0xB7, 0xB6, 0x76, 0x72, 0xB2, 0xB3, 0x73,
0xB1, 0x71, 0x70, 0xB0,
0x50, 0x90, 0x91, 0x51, 0x93, 0x53, 0x52, 0x92, 0x96, 0x56, 0x57, 0x97, 0x55,
0x95, 0x94, 0x54,
0x9C, 0x5C, 0x5D, 0x9D, 0x5F, 0x9F, 0x9E, 0x5E, 0x5A, 0x9A, 0x9B, 0x5B,
0x99, 0x59, 0x58, 0x98,
0x88, 0x48, 0x49, 0x89, 0x4B, 0x8B, 0x8A, 0x4A, 0x4E, 0x8E, 0x8F, 0x4F,
```

```
0x8D, 0x4D, 0x4C, 0x8C,
0x44, 0x84, 0x85, 0x45, 0x87, 0x47, 0x46, 0x86, 0x82, 0x42, 0x43, 0x83, 0x41,
0x81, 0x80,0x40
} ;



unsigned int CRC_16(unsigned char *str,unsigned int usDataLen)
{
 unsigned char uchCRCHi = 0xFF ; /* high byte of CRC initialized */
 unsigned char uchCRCLo = 0xFF ; /* low byte of CRC initialized */
       unsigned uIndex ; /* will index into CRC lookup table */
       while (usDataLen--)/* pass through message buffer */
       {
          uIndex = uchCRCHi ^ *str++ ; /* calculate the CRC */
          uchCRCHi = uchCRCLo ^ auchCRCHi[uIndex];
          uchCRCLo = auchCRCLo[uIndex] ;
       }
 return (uchCRCHi << 8 | uchCRCLo) ;
}
```