

Modbus (to device)

Size	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte
Type	Device Address	Command Code	Register address	Length of register	CRC	CRC

Device Address : 0x50

Command Code:

0x03: Get/ Read

0x10: Set/ Write

0x80: Error

Register address:

Register	Pointer address	Size (Byte)
Version	0x00	1
Battery SoC	0x01	1
Battery Warning	0x02	1
Charger Detection	0x03	1
Charger Step	0x04	1
Emergency button	0x05	1
Manual brake button	0x06	1
Charger Error	0x07	1
Voltage of Battery	0x08	2
Voltage of Charger	0x0A	2
Voltage of Load	0x0C	2
Current of Charging	0x0E	2
Current of Load	0x10	2
Temperature	0x12	2

Length of register: N x 1 byte

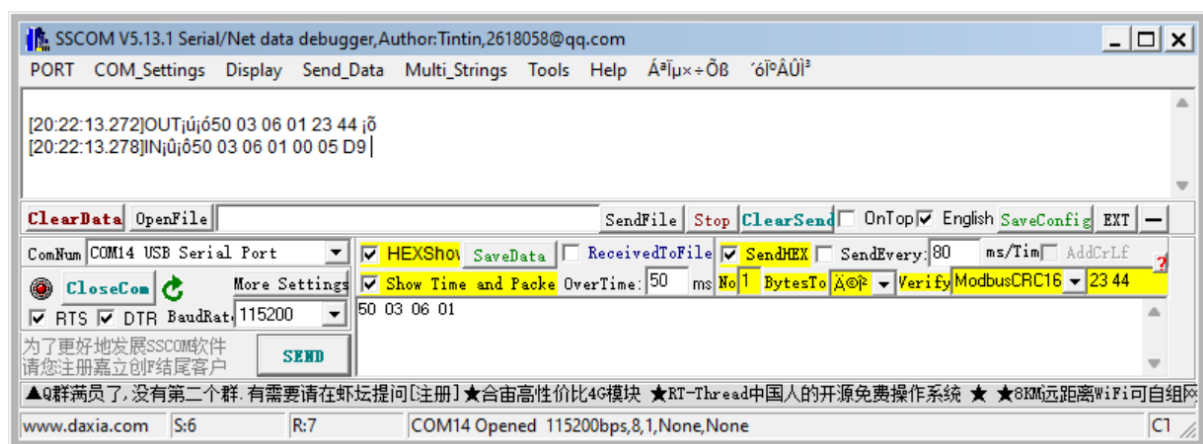
Modbus (GET/Read from device)

Size	1 byte	1 byte	1 byte	1 byte	N x 1 byte	1 byte	1 byte
Type	Device Address	Command Code	Register address	Length of register		CRC	CRC

Example:

OUT: 50 03 06 01 23 44

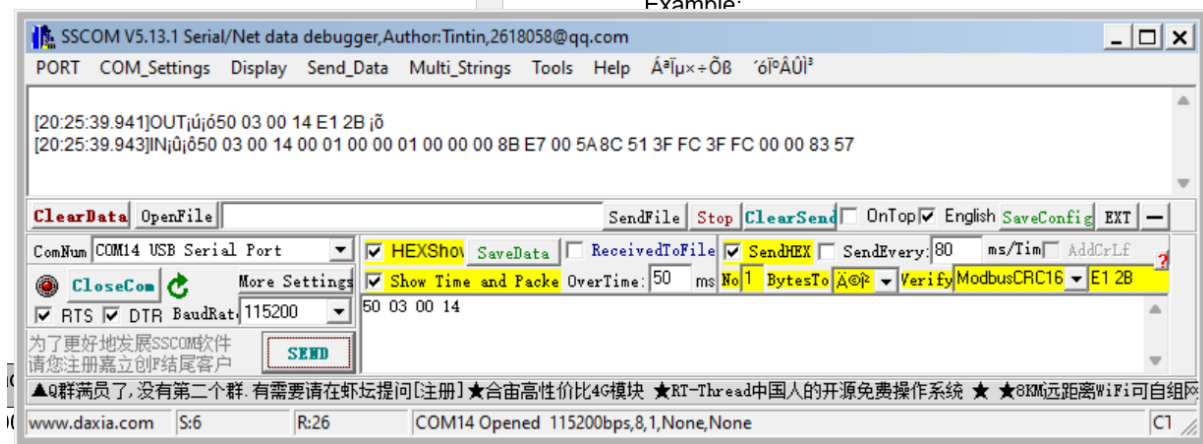
IN: 50 03 06 01 00 05 D9



OUT: 50 03 00 14 E1 2B

IN: 50 03 00 14 00 01 00 00 01 00 00 00 8B D9 00 4E 8C 69 36 78 3C FC 00 00 FE BF

Example:



Modbus (Error response from device)

Size	1 byte	1 byte	1 byte	1 byte	1 byte
Type	Device Address	Error Command Code	Error Code	CRC	CRC

Error Command Code: 0x80

Get Error Command Code: 0x80 + 0x03

Set Error Command Code: 0x80 + 0x10

Error Code:

CMD Error: 0x01 // cmd error, not get or set

Pointer address Rrror: 0x02 // pointer address error

Over Size Error: 0x03 // register over size

CRC Error: 0x04 // CRC Error

Register Definition:

Register	Definition:
Version	SW ver
Battery SoC	State of charge: 0 – 3 0 = 75%-100% 1 = 50%-75% 2 = 25%-50% 3 = 0%-25%
Battery Warning	Warning of the battery Uvw: under voltage warning Ovw: over voltage warning Otw: over temperature warning <code>(uint8_t)((battery_uvw<<2) (battery_ovw<<1) (battery_otw))</code>
Charger Detection	0: no detect 1: detected
Charger Step	CHARGER_STEP_OFF 0 CHARGER_STEP_READY 1 CHARGER_STEP_DETECTED 2 CHARGER_STEP_WAIT 3 CHARGER_STEP_CHARGING 4 CHARGER_STEP_FULL 5 CHARGER_STEP_STOP 6 CHARGER_STEP_ERROR 9
Emergency button	0: Emergency button not pressed 1: Emergency button pressed
Manual brake button	0: Brake button not pressed 1: Brake button pressed
Charger Error	CHARGER_ERR_BATTERY 1 CHARGER_ERR_VOLTAGE 2 (TBC)
Voltage of Battery	Voltage of Battery (mV) 16 bits
Voltage of Charger	Voltage of Charger (mV) 16 bits
Voltage of Load	Voltage of Load (mV) 16 bits
Current of Charging	Current of Charging (No available) 16 bits
Current of Load	Current of Load (No available) 16 bits
Temperature	Temperature (No available) 16 bits