Jikong BMS RS485 Modbus general protocol (V1.0)

The Jikong BMS RS485 Modbus general protocol uses a master-slave response method for data communication. The host can only initiate a request through a unique slave address, and the BMS (slave) responds according to the host request, that is, half-duplex communication. This protocol only allows the host to initiate a request and the slave to respond passively, so the slave will not actively occupy the communication line to cause data conflicts.

1. Physical interface

communication The electrical characteristics of the physical

interface are as	UART
follows:	RS485
Communication	115200bps
interface level	
standard	8 1
Baud rate Data bit Stop bit Parity bit	none

2. Protocol Format

Information transmission is asynchronous, using hexadecimal for communication, information frame format:

Address code functior	code data area		**CRC check** 1
byte 1 byte 1 byte 2 bytes			

1) Address

code The address code is the first byte of each communication information frame and supports 1 to 247. The address of each slave on the bus must be unique. Only the slave that matches the address code sent by the host can respond and return data.

2) Function

Code The function code is the second byte of each communication information frame. The host sends and informs the slave device through the function code. What operation is to be performed. The function code is

defined as follows: Function		
Read	Definition	Operation reads data from one or more registers
10H	Register 03H Write Register	Data written to one or more registers

3) Data area

The data area varies with the function code and data direction. These data can be different combinations of "register first address + read register number", "register address + operation data", "register first address + operation register number + data length + data", etc. The data area of different function codes is explained in detail in "Function Code Analysis".

3) CRC check

CRC check is used to ensure the correctness and integrity of data transmission.

3. Error feedback

Address and CRC check errors will not receive data feedback from the slave, and other errors will return error codes to the host. The second bit of the data frame plus 0X80 indicates that an error has occurred in the request (illegal function code, illegal data value, etc.). The error data frame is as follows:

address code	function code	Error code area **CRC**	**check**
The 1-byte	1 byte	1 byte 2 bytes	

error code is defined as follows:

value	Function	illustrate
01H	code with illegal name	This function code does not support register operation
02H	Register address error	A register that is prohibited from being accessed by the slave is accessed
03H	Illegal data	The data logic is illegal or exceeds the limit
04H	CRC check error	CRC check error

4. Information Transmission Process

When the communication command is sent from the host to the slave, the slave that matches the address code sent by the host receives the communication command.

If the CRC check is correct, the corresponding operation is executed, and then the execution result (data) is returned to the host. Return information

The address code, function code, executed data and CRC check code are included.

If an error occurs, no information will be returned.

5. Function code analysis

1) Function code 03H: Read register

For example: the host wants to read the data of two holding registers whose slave address is 01H and the starting register address is 05H.

According to the host, it sends:

Host sends		Data (HEX)
address code		01H
function code		03H
Starting register address	High Byte	00H
	Low Byte	05H
Number of registers	High Byte	00H
	Low Byte	02H
CRC Check	Low Byte	D4H
	High Byte	0AH

If the slave holds the data of registers 05H and 06H as 1122H and 3344H, the slave returns:

Slave return data (HEX)		
address code		01H
function code		03H
Number of bytes		04H
Register 05 data	High byte	11am
	low byte	22H
Register 06 data	high byte	33H
	low byte	44H
CRC Check	low byte	4BH
	high byte	C6H

2) Function code 10H: write register

For example: the host wants to save the data 0005H, 2233H to the slave address 01H, the starting register address is

In the 2 registers of 0020H, the host sends:

The host sends		Data (HEX)
the address		01H
code function code		10H
Starting register address	High byte	00H
	low byte	20H
Number of registers	high byte	00H
	low byte	02H
number of bytes		04H
0000H register to be written	written high byte	00H
	Low byte	05H
0001H register to be written	High byte	22H
	Low Byte	33H
CRC check	Low Byte	B9H
	high byte function code	03H

10H operation, slave returns:

Slave returns		Data (HEX)
address code		01H
function code		10H
Starting register address	High Byte	00H
	Low Byte	20H
Number of registers	High Byte	00H
	Low Byte	02H
CRC Check	Low Byte	40H
	High Byte	02H

Register Map

Starting address Address Field	code offset Index data type length HEX DEC	Type e	Len gth	R/W	Content	Unit	Note
	0 UINT32		4	RW	Enter sleep voltage VolSmartSlee p 0x0000	mV	
	0x0004	4 UINT32	4	RW	Cell undervoltage protection VolCellUV	mV	
	R 0x0008	8 UINT32	4	RW	Cell undervoltage protection recovery VolCellUVP	mV	
	0x000C 12 UINT32		4	RW	Cell overcharge protection VolCellOV	mV	
	R 0x0010	16 UINT32	4	RW	Single cell overcharge protection recovery voltage VolCellOVP	mV	
	g 0x0014	20 UINT32	4	RW	Trigger balanced voltage difference VolBalanTri	mV	
		24 UINT32	4	RW	SOC-100% voltage VolSOC100% 0x0018	mV	
	28 UINT32		4	RW	SOC-0% voltage VolSOC0% 0x001C	mV	
	0x0028	40 UINT32	4	RW	Automatic shutdown voltage VolS ysPwrOff	mV	
	0x002C 44 UINT32		4	RW	Continuous charging current CurBatCOC	mA	
	0x0030	48 UINT32	4	RW	Charge overcurrent protection delay TIMBatCOCPDl y		
	y 0x0034	52 UINT32	4	RW	Charge overcurrent protection release TIMBatCOCPRDl		
	0x0038	56 UINT32	4	RW	Continuous discharge current CurBatDcOC	S S	
	y 0x003C 60 UINT32		4	RW	Discharge overcurrent protection delay TIMBatDcOCPDl		
	y 0x0040	64 UINT32	4	RW	Discharge overcurrent protection release TIMBatDcOCPRDl		
	y 0x0044	68 UINT32	4	RW	Short circuit protection release TIMBatSCPRDl		
	0x0048	72 UINT32	4	RW	Maximum balancing current CurBalanMax	mA	
	TMPBatCOT 0x004C 76 INT32		4	RW	Charging over-temperature protection	S S S	
	R 0x0050	80 INT32	4	RW	Charge over temperature recovery TMPBatCOTP	mA	
	0x0054	84 INT32	4	RW	Discharge over temperature protection TMPBatDcOT	0.1 ÿ	
	R 0x0058	88 INT32	4	RW	Discharge over temperature recovery TMPBatDcOTP	0.1 ÿ	
	TMPBatCUT 0x005C 92 INT32		4	RW	Charging low temperature protection	0.1 ÿ	
	R 0x0060	96 INT32	4	RW	Charging low temperature recovery TMPBatCUTP	0.1 ÿ	
	TMPMosOT 0x0064 100 INT32		4	RW	MOS over temperature protection	0.1 ÿ	
	TMPMosOTP R 0x0068 104 INT32		4	RW	MOS over temperature protection recovery	0.1 ÿ	
	UINT32		4	RW	CellCount 0x006C 108	0.1 ÿ	0.1 ÿ ÿ
	0x0070 112 UINT32		4	RW	Charging switch BatChargeEN		1: On; 0: Off1: On;
	0x0074 116 UINT32		4	RW	Discharge switch BatDisChargeEN		0: Off1: On; 0: Off
	UINT32		4	RW	BalanEN 0x0078 120		
	0x007C 124 UINT32		4	RW	Battery design capacity CapBatCell	I	
	0x0080 128 UINT32		4	RW	Short circuit protection delay SCPDelay	us	

0x1000	0x0084 132 UINT32 0x0088 136	4 RW	Balanced start voltage VolStartBalan	mV		
	UINT32 0x008C 140 UINT33	4 RW	Connection line internal resistance 0CellConWireRes0	uÿ		
	0x0090 144 UINT34 0x0094 148	4 RW	Connection line internal resistance 1CellConWireRes1	uÿ		
	UINT35 0x0098 152 UINT36	4 RW	Connection line internal resistance 2CellConWireRes2	uÿ		
	0x009C 156 UINT37 0x00A0 160	4 RW	Connection line internal resistance 3CellConWireRes3	uÿ		
	UINT38 0x00A4 164 UINT39	4 RW	Connection line internal resistance 4CellConWireRes4	uÿ		
	0x00A8 168 UINT40 0x00AC 172	4 RW	Connection line internal resistance 5CellConWireRes5	uÿ		
	UINT41 0x00B0 176 UINT42	4 RW	Connection line internal resistance 6CellConWireRes6	uÿ		
	0x00B4 180 UINT43 0x00B8 184	4 RW	Connection line internal resistance 7CellConWireRes7	uÿ		
	UINT44 0x00BC 188 UINT45	4 RW	Connection line internal resistance 8CellConWireRes8	uÿ		
	0x00C0 192 UINT46 0x00C4 196	4 RW	Connection line internal resistance 9CellConWireRes9	uÿ		
	UINT47 0x00C8 200 UINT48	4 RW	Connection line internal resistance 10CellConWireRes10	uÿ		
	0x00CC 204 UINT49 0x00D0 208	4 RW	Connection line internal resistance 11CellConWireRes11	uÿ		
	UINT50 0x00D4 212 UINT51	4 RW	Connection line internal resistance 12CellConWireRes12	uÿ		
	0x00D8 216 UINT52 0x00DC 220	4 RW	Connection line internal resistance 13CellConWireRes13	uÿ		
	UINT53 0x00E0 224 UINT54	4 RW	Connection line internal resistance 14CellConWireRes14	uÿ		
	0x00E4 228 UINT55 0x00E8 232	4 RW	Connection line internal resistance 15CellConWireRes15	uÿ		
	UINT56 0x00EC 236 UINT57	4 RW	Connection line internal resistance 16CellConWireRes16	uÿ		
	0x00F0 240 UINT58 0x00F4 244	4 RW	Connection line internal resistance 17CellConWireRes17	uÿ		
	UINT59 0x00F8 248 UINT60	4 RW	Connection line internal resistance 18CellConWireRes18	uÿ		
	0x00FC 252 UINT61 0x0100 256	4 RW	Connection line internal resistance 19CellConWireRes19	uÿ		
	UINT62 0x0104 260 UINT63	4 RW	Connection line internal resistance 20CellConWireRes20	uÿ		
	0x0108 264 UINT32 0x010C 268	4 RW	Connection line internal resistance 21CellConWireRes21	uÿ		
	UINT32	4 RW	Connection line internal resistance 22CellConWireRes22	uÿ		
		4 RW	Connection line internal resistance 23CellConWireRes23	uÿ		
		4 RW	Connection line internal resistance 24CellConWireRes24	uÿ		
		4 RW	Connection line internal resistance 25CellConWireRes25	uÿ		
		4 RW	Connection line internal resistance 26CellConWireRes26	uÿ		
		4 RW	Connection line internal resistance 27CellConWireRes27	uÿ		
		4 RW	Connection line internal resistance 28CellConWireRes28	uÿ		
		4 RW	Connection line internal resistance 29CellConWireRes29	uÿ		
		4 RW	Connection line internal resistance 30CellConWireRes30	uÿ		
		4 RW	Connection line internal resistance 31CellConWireRes31	uÿ		
		4 RW	Device address DevAddr	H		
		4 RW	Discharge precharge time TIMProdischarge	s		

	0x0114 276 UINT16		2	RW Heating switch HeatEN		1: On; 0: Off1: On;	BIT0
				RW Temperature sensor shield Disable temp-sensor		0: Off1: On; 0: Off	BIT1
				RW GPS Heartbeat			BIT2
				RW Multiplexing port function Port Switch		1: RS485; 0: CAN 1:	BIT3
				RW LCD Always On		open; 0: close 1:	BIT4
				RW Special Charger		open; 0: close 1:	BIT5
				RW SmartSleep		open; 0: close	BIT6
	0x0116 278	INT8	2	RW Battery alarm temperature TMPBatOTA	ÿ		
		INT8		RW Battery alarm recovery temperature TMPBatOTA R	ÿ		
	0x0118 280	UINT8	2	RW Intelligent sleep time TIMSmartSleep	H		
		UINT8		R Data field enable control 0			
	0x0000	0 UINT16	2	R CellVol0	mV		
	0x0002	2 UINT16	2	R CellVol1	mV		
	0x0004	4 UINT16	2	R CellVol2	mV		
	0x0006	6 UINT16	2	R CellVol3	mV		
	0x0008	8 UINT16	2	R CellVol4	mV		
	0x000A 10 UINT16		2	R CellVol5	mV		
	0x000C 12 UINT16		2	R CellVol6	mV		
	0x000E 14 UINT16		2	R CellVol7	mV		
	0x0010	16 UINT16	2	R CellVol8	mV		
	0x0012	18 UINT16	2	R CellVol9	mV		
	0x0014	20 UINT16	2	R CellVol10	mV		
	0x0016	22 UINT16	2	R Cell voltage 11CellVol11	mV		
	0x0018	24 UINT16	2	R CellVol12	mV		
	0x001A 26 UINT16		2	R Cell voltage 13CellVol13	mV		
	0x001C 28 UINT16		2	R Cell voltage 14CellVol14	mV		
	0x001E 30 UINT16		2	R CellVol15	mV		
	0x0020	32 UINT16	2	R Cell voltage 16CellVol16	mV		
	0x0022	34 UINT16	2	R Cell voltage 17CellVol17	mV		
	0x0024	36 UINT16	2	R Cell voltage 18CellVol18	mV		
	0x0026	38 UINT16	2	R Cell voltage 19CellVol19	mV		
	0x0028	40 UINT16	2	R CellVol20	mV		
	0x002A 42 UINT16		2	R Cell voltage 21CellVol21	mV		
	0x002C 44 UINT16		2	R Cell voltage 22CellVol22	mV		
	0x002E 46 UINT16		2	R Cell voltage 23CellVol23	mV		

0x0030	48	UINT16	2	R	Cell voltage 24	CellVol24	mV	
0x0032	50	UINT16	2	R	Cell voltage 25	CellVol25	mV	
0x0034	52	UINT16	2	R	CellVol26		mV	
0x0036	54	UINT16	2	R	CellVol27		mV	
0x0038	56	UINT16	2	R	Cell voltage 28	CellVol28	mV	
0x003A	58	UINT16	0x003C	2	R	CellVol29		mV
60 UINT16	0x003E	62 UINT16	2	R	CellVol30		mV	
0x0040			2	R	Cell voltage 31	CellVol31	mV	
	64	UINT32	4	R	Battery status	CellSta		BIT[n] is 1, indicating that the battery is present.
0x0044	68	UINT16	2	R	CellVolAve	average voltage of a single cell	mV	
0x0046	70	UINT16	2	R	Maximum pressure difference	CellVdifMax	mV	
0x0048	72	UINT8	2	R	Maximum voltage cell number	MaxVolCellNbr		
		UINT8		R	Minimum voltage cell number	MinVolCellNbr		
0x004A	74	UINT16	0x004C	2	R	Balance line resistance 0	CellWireRes0	mÿ
76 UINT16	0x004E	78 UINT16	2	R	Balance line resistance 1	CellWireRes1	mÿ	
0x0050			2	R	Balance line resistance 2	CellWireRes2	mÿ	
	80	UINT16	2	R	Balance line resistance 3	CellWireRes3	mÿ	
0x0052	82	UINT16	2	R	Balance line resistance 4	CellWireRes4	mÿ	
0x0054	84	UINT16	2	R	Balance line resistance 5	CellWireRes5	mÿ	
0x0056	86	UINT16	2	R	Balance line resistance 6	CellWireRes6	mÿ	
0x0058	88	UINT16	2	R	Balance line resistance 7	CellWireRes7	mÿ	
0x005A	90	UINT16	0x005C	2	R	Balance line resistance 8	CellWireRes8	mÿ
92 UINT16	0x005E	94 UINT16	2	R	Balance line resistance 9	CellWireRes9	mÿ	
0x0060			2	R	Balance line resistance 10	CellWireRes10	mÿ	
	96	UINT16	2	R	Balance line resistance 11	CellWireRes11	mÿ	
0x0062	98	UINT16	2	R	Balance line resistance 12	CellWireRes12	mÿ	
0x0064	100	UINT16	0x0066	2	R	Balance line resistance 13	CellWireRes13	mÿ
102 UINT16	0x0068	104	2	R	Balance line resistance 14	CellWireRes14	mÿ	
UINT16	0x006A	106 UINT16	2	R	Balance line resistance 15	CellWireRes15	mÿ	
0x006C	108	UINT16	0x006E	2	R	Balance line resistance 16	CellWireRes16	mÿ
110 UINT16	0x0070	112	2	R	Balance line resistance 17	CellWireRes17	mÿ	
UINT16	0x0072	114 UINT16	2	R	Balance line resistance 18	CellWireRes18	mÿ	
0x0074	116	UINT16	2	R	Balance line resistance 19	CellWireRes19	mÿ	
			2	R	Balance line resistance 20	CellWireRes20	mÿ	
			2	R	Balance line resistance 21	CellWireRes21	mÿ	

	0x0076 118	UINT16	0x0078	2	R	Balance line resistance 22CellWireRes22	mÿ		
	120 UINT16	0x007A	122 UINT16	2	R	Balance line resistance 23CellWireRes23	mÿ		
	0x007C 124	UINT16	0x007E	2	R	Balance line resistance 24CellWireRes24	mÿ		
	126 UINT16	0x0080	128 UINT16	2	R	Balance line resistance 25CellWireRes25	mÿ		
	0x0082 130	UINT16	0x0084	2	R	Balance line resistance 26CellWireRes26	mÿ		
	132 UINT16	0x0086	134 UINT16	2	R	Balance line resistance 27CellWireRes27	mÿ		
	0x0088 136	UINT16	0x008A	2	R	Balance line resistance 28CellWireRes28	mÿ		
	138 INT16	0x008C	140 UINT32	2	R	Balance line resistance 29CellWireRes29	mÿ		
	0x0090 144	UINT32	0x0094	2	R	Balance line resistance 30CellWireRes30	mÿ		
	148 UINT32	0x0098	152 INT32	2	R	Balance line resistance 31CellWireRes31	mÿ		
	0x009C 156	INT16	0x009E	2	R	Power board temperature Tem pMos	0.1 ÿ		
	158 INT16			4	R	Balance line resistance status CellWireResSta		BIT[n] is 1, indicating that the balance line alarm	
				4	R	Total battery voltage BatVol	mV		
0x1200				4	R	Battery power BatWatt	m W		
				4	R	Battery current BatCurrent	mA		
				2	R	Battery temperature TempBat 1	0.1 ÿ		
				2	R	Battery temperature TempBat 2 Balancing	0.1 ÿ		
	0x00A0	160	UINT32	4	R	line resistance is too large AlarmWireRes		1: Fault; 0: Normal1:	BIT0
						MOS overtemperature protectionAlarmMosOTP		Fault; 0: Normal1: Fault;	BIT1
						Cell quantity does not match the set valueAlarmCell Quantit y Current		0: Normal1: Fault; 0:	BIT2
						sensor abnormalityAlarmCurSensorErr Cell overvoltage		Normal1: Fault; 0:	BIT3
						protectionAlarmCellOVP Battery overvoltage		Normal1: Fault; 0:	BIT4
						protectionAlarmBatOVP Charge overcurrent		Normal1: Fault; 0:	BIT5
						protectionAlarmChOCP Charge short circuit		Normal1: Fault; 0:	BIT6
						protectionAlarmChSCP Charge		Normal1: Fault; 0:	BIT7
						overtemperature protectionAlarmChOTP		Normal1: Fault; 0:	BIT8
						Charge low temperature		Normal1: Fault; 0:	BIT9
						protectionAlarmChUTP Internal communication		Normal1: Fault; 0:	BIT10
						abnormalityAlarmCPUAuxCommuErr Cell		Normal1: Fault; 0:	BIT11
						undervoltage protectionAlarmCellUVP		Normal1: Fault; 0:	BIT12
						Battery undervoltage protectionAlarmBatUVP		Normal1: Fault; 0:	BIT13
						Discharge overcurrent protectionAlarmDchOCP		Normal1: Fault; 0:	BIT14
						Discharge short circuit protectionAlarmDchSCP		Normal1: Fault; 0:	BIT15
						Discharge overtemperature		Normal1: Fault; 0:	BIT16
						protectionAlarmDchOTP Charge tube abnormalityAlarmChargeMOS Discharge tube abnormalityAlarmDischargeMOS		Normal1: Fault; 0: Normal1: Fault; 0: Normal1: Fault; 0: Normal1: Fault; 0: Normal1: Faul	BIT17

					GPS DisconnectedGPSDisconnected		1: Fault; 0: Normal1:	BIT18
					Please modify the authorization password in timeModify		Fault; 0: Normal1: Fault;	BIT19
					PWD. in timeDischarge On FailedBattery		0: Normal1: Fault; 0:	BIT20
					Over Temp AlarmBattery Over Temp Alarm		Normal	BIT21
0x00A4 164	INT16		2	R	BalanCurrent	mA		
0x00A6	166	UINT8	2		R Balanced state BalanSta		2: discharge; 1: charge; 0: off	
		UINT8			R Remaining power SOCStateOfchar ge	%		
0x00A8 168	INT32 0x00AC		4	R	Remaining capacity SOCCa pRemai n	mAH		
172 UINT32	0x00B0 176		4	R	Battery actual capacity SOCFullChargeCap	mAH		
UINT32 0x00B4 180	UINT32		4	R	Cycle Count	ÿ		
			4	R	Total cycle capacity SOCC ycleCap	mAh		
0x00B8	184	UINT8	2		R SOH Valuation SOCSOH	%		
		UINT8			R Precharge state Precharge		1: On; 0: Off	
0x00BA 186	UINT16	0x00BC	2	R	User layer alarm UserAlarm			
188 UINT32			4	R	RunTime	s		
0x00C0	192	UINT8	2		R Charge status		1: On; 0: Off1: On; 0: Off	
		UINT8			R Discharge state Dischar ge			
0x00C2 194	UINT16	0x00C4	2	R	User layer alarm 2UserAlarm2			
196 UINT16	0x00C6 198		2	R	Discharge overcurrent protection release time TimeDcOCP R	s		
UINT16 0x00C8 200	UINT16		2	R	Discharge short circuit protection release time TimeDcSCP R	s		
0x00CA 202	UINT16	0x00CC	2	R	Charge overcurrent protection release time TimeCOCP R	s		
204 UINT16	0x00CE 206		2	R	Charging short circuit protection release time TimeCSCP R	s		
UINT16			2	R	Single cell undervoltage protection release time TimeUVP R	s		
			2	R	Single cell overvoltage protection release time TimeOVP R	s		
0x00D0	208	UINT8	2	R	MOS temperature sensor MOS Tem pSensorAbsent			BIT0
					Battery temperature sensor 1 BATTem pSensor1Absent		1: Normal; 0: Missing1:	BIT1
					Battery temperature sensor 2 BATTem pSensor2Absent		Normal; 0: Missing1:	BIT2
					Battery temperature sensor 4 BATTem pSensor4Absent		Normal; 0: Missing1:	BIT4
					Battery temperature sensor 5 BATTem pSensor5Absent		Normal; 0: Missing1:	BIT5
		UINT8			R Heating status		Open; 0: Close	
0x00D2 210	UINT16	0x00D4	2	R	Reserved			
212 UINT16	0x00D6 214		2	R	Emergency switch time TimeEmer genc y	s		
UINT16 0x00D8 216	UINT16		2	R	Battery current correction factor BatCurCorrect			
0x00DA 218	UINT16		2	R	Charging current sensor voltage VolChar gCur	mV		
			2	R	Discharge current sensor voltage VolDischar gCur	mV		

	0x00DC 220 FLOAT 0x00E0			4	R	Battery voltage correction factor BatVolCorrect			
	224 UINT16 0x00E2 226			2	R	Balanced charge PWM value Charge PWMDut y Cyle	%		
	UINT16 0x00E4 228 UINT16			2	R	Balanced discharge PWM value Dischar gePWMDut y Cyle	%		
	0x00E6 230 UINT16			2	R	Battery voltage BatVol			
				2	R	Heating current HeatCurrent	0.01VmA		
	0x00EE 238		UINT8	2	R	Retain RVD			
			UINT8		R	Charger statusChargerPlugged		1: inserted; 0: not inserted	
	0x00F0 240 UINT32 0x00F4			4	R	System Beat SysRunTicks	0.1S		
	244 UINT32 0x00F8 248			4	R	PVD trigger timestamp PVDTri gTimestam ps	0.1S		
	INT16 0x00FA 250 INT16			2	R	Battery temperature TempBat 3	0.1 ÿ		
	0x00FC 252 INT16 0x0100			2	R	Battery temperature TempBat 4	0.1 ÿ		
	256 UINT32 0x0108 264			2	R	Battery temperature TempBat 5	0.1 ÿ		
	UINT32			4	R	RTC counter RTCTicks		Starting from 2020-1-1	
				4	R	Enter sleep time TimeEnterSlee p Parallel	S		
	0x010C 268		UINT8	2	R	current limiting module status PCLModuleSta		1: On; 0: Off	
			UINT8			Reserve RVD			
0x1400	0x0000	0 ASCII		16	R	Manufacturer Model ManufacturerDeviceID			
	0x0010	16 ASCII		8	R	Hardware version number HardwareVersion			
	0x0018	24 ASCII		8	R	Software Version			
	0x0020	32 UINT32		4	R	Accumulated running time ODDRunTime	S		
	0x0024	36 UINT32		4	R	Power-on times PWROnTimes			
0x1600	0x0000	0 UINT16		4	W	Voltage Calibration	times mV		
	0x0004	4 UINT16		2	W	protection board shutdown			
	0x0006	6 UINT16		4	W	Current Calibration	mA		
	0x000A 10 UINT16 0x000C			2	W	one-button ternary LI-ION			
	12 UINT16 0x000E 14			2	W	One-click Lithium Iron LIFEPO4			
	UINT16			2	W	One-click Lithium Titanate LTO			
	0x0010	16 UINT16		2	W	Emergency start Emer genc y			
	0x0012	18 UINT32		4	W	Timecalibration			