

CAN  
Communications Protocol

v1.0

## 1. Version revision record

Serial Num	Description	Date	Version	Author
1.	Initial version	2019.06.11	V1.0	

## 1. Physical layer

### 1.1 UART

1. physical interface	CAN
2. baud rate	250K

## 2. Communication format

### 2.1 Basic timing

All messages are sent by the host, all slaves receive messages to determine whether the slave address matches, only in the case of slave address match allowed to return data to the host.

### 2.2 Address assignment

Module	Address
BMS master	0x01
Bluetooth APP	0x80
GPRS	0x20
Upper computer	0x40

## 2.3 CAN Communication Format

### 2.3.1 PC send

CAN ID (4 Bytes)	Data
Priority + Data ID + BMS Address +PC Address 0x18100140	8 Bytes

### 2.3.2 The slave responds to the host command

CAN ID (4 Bytes)	Data
Priority + Data ID + PC Address +BMS Address 0x18104001	8 Bytes

### 3. Communications content information

Data Message	Data ID	UPPER-BMS	Note Remark
SOC of total voltage current	0x90	Send	Byte0~Byte7: Reserved
		Received	Byte0~Byte1:Cumulative total voltage (0.1 V) Byte2~Byte3:Gather total voltage (0.1 V) Byte4~Byte5:Current (30000 Offset ,0.1A) Byte6~Byte7:SOC (0.1%)
Maximum & Minimum voltage	0x91	Send	Byte0~Byte7: Reserved
		Received	Byte0~Byte1:Maximum cell voltage value (mV) Byte2:No of cell with Maximum voltage Byte3~byte4: Minimum cell voltage value (mV) Byte5:No of cell with Minimum voltage
Maximum & Minimum temperature	0x92	Send	Byte0~Byte7: Reserved
		Received	Byte0: Maximum temperature value (40 Offset ,°C) Byte1: Maximum temperature cell No Byte2: Minimum temperature value (40 Offset ,°C) Byte3: Minimum temperature cell No
Charge & discharge MOS status	0x93	Send	Byte0~Byte7: Reserved
		Received	Byte0:State (0 stationary 1 charge 2 discharge) Byte1:Charge MOS state Byte2:Discharge MOS status Byte3:BMS life (0~255 cycles) Byte4~Byte7:Remain capacity (mA)
Status information 1	0x94	Send	Byte0~Byte7: Reserved
		Received	Byte0>No of battery string Byte1: No of Temperature Byte2: Charger status (0 disconnect 1 access) Byte3: Load status (0 disconnect 1 access) Byte4: Bit 0:DI1state Bit 1:DI2state Bit 2:DI3state Bit 3:DI4state Bit 4:DO1state Bit 5:DO2state Bit 6:DO3state Bit 7:DO4state Byte 5~Byte 7: Reserved
Cell voltage 1~48	0x95	Send	Byte0~Byte7: Reserved

		Received	The voltage of each monomer is 2 byte, according to the actual number of cell, the maximum 96 byte, is sent in 16 frames Byte0:frame number, starting from 0,0xFF invalid Byte1~byte6:Cell voltage (1 mV) Byte7: Reserved
Cell temperature 1~16	0x96	Send	Byte0~Byte7: Reserved
		Received	Each temperature accounts for 1 byte, according to the actual number of temperature send, the maximum 21 byte, send in 3 frames Byte0:frame number, starting at 0 Byte1~byte7:cell temperature(40 Offset ,°C)
Cell balance State 1~48	0x97	Send	Byte0~Byte7: Reserved
		Received	0: Closed 1: Open Bit0: Cell 1 balance state ... Bit47:Cell 48 balance state Bit48~Bit63: reserved
Battery failure status	0x98	Send	Byte0~Byte7: Reserved
		Received	0->No error 1->Error Byte 0 Bit 0: Cell volt high level 1 Bit 1: Cell volt high level 2 Bit 2: Cell volt low level 1 Bit 3: Cell volt low level 2 Bit 4: Sum volt high level 1 Bit 5: Sum volt high level 2 Bit 6: Sum volt low level 1 Bit 7: Sum volt low level 2 Byte 1 Bit 0: Chg temp high level 1 Bit 1: Chg temp high level 2 Bit 2: Chg temp low level 1 Bit 3: Chg temp low level 2 Bit 4: Dischg temp high level 1 Bit 5: Dischg temp high level 2 Bit 6: Dischg temp low level 1 Bit 7: Dischg temp low level 2 Byte 2 Bit 0: Chg overcurrent level 1 Bit 1: Chg overcurrent level 2 Bit 2: Dischg overcurrent level 1 Bit 3: Dischg overcurrent level 2 Bit 4: SOC high level 1

		<p>Bit 5: SOC high level 2</p> <p>Bit 6: SOC Low level 1</p> <p>Bit 7: SOC Low level 2</p> <p>Byte 3</p> <p>Bit 0: Diff volt level 1</p> <p>Bit 1: Diff volt level 2</p> <p>Bit 2: Diff temp level 1</p> <p>Bit 3: Diff temp level 2</p> <p>Bit 4~Bit7:Reserved</p> <p>Byte 4</p> <p>Bit 0: Chg MOS temp high alarm</p> <p>Bit 1: Dischg MOS temp high alarm</p> <p>Bit 2: Chg MOS temp sensor err</p> <p>Bit 3: Dischg MOS temp sensor err</p> <p>Bit 4: Chg MOS adhesion err</p> <p>Bit 5: Dischg MOS adhesion err</p> <p>Bit 6: Chg MOS open circuit err</p> <p>Bit 7: Discrg MOS open circuit err</p> <p>Byte 5</p> <p>Bit 0: AFE collect chip err</p> <p>Bit 1: Voltage collect dropped</p> <p>Bit 2: Cell temp sensor err</p> <p>Bit 3: EEPROM err</p> <p>Bit 4: RTC err</p> <p>Bit 5: Precharge failure</p> <p>Bit 6: Communication failure</p> <p>Bit 7: Internal communication failure</p> <p>Byte6</p> <p>Bit 0: Current module fault</p> <p>Bit 1: Sum voltage detect fault</p> <p>Bit 2: Short circuit protect fault</p> <p>Bit 3: Low volt forbidden chg fault</p> <p>Bit4-Bit7: Reserved</p> <p>Byte7: Fault code</p>
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