Communications agreements

V1.0

V1.0 version

1. （Revision records）

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

1. Physical layer

1. physical interface	CAN
2. baud rate	250K

2. Communications Format

2.1 Basic timing

All messages are sent by the host, all slave after receiving the message to determine whether the slave address match, only in the case of slave address match is allowed to return data to the host.

2.2 Address allocation

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

2.3 CAN Communication formats

2.4.1upper computer

CAN ID 4byte	Data content Data
Priority + data ID+BMS address + PC address (0x18100180)	8 bytes

2.4.2 BMS responds to host commands

CAN ID 4byte	Data content Data
Priority + data ID+ PC address +BMS address (0x18108001)	8 bytes

6. Communications content information

Data Message	ID Data ID Message ID	UPPER - BMS	Note Remark
SOCSOC of Total Voltage Current	0x90	Send	Byte0~Byte7:Reserved
		Return	Byte0~byte1：（0.1V）pressure (0.1 V) Byte2~byte3：（0.1V） acquisition (0.1 V) Byte4~byte5：（30000 Offset，0.1A）current (Offset,0.1A 30000) Byte6-Byte7：SOC（0.1%）
Maximum Minimum Voltage of Monomer	0x91	Send	Byte0~Byte7:Reserved
		Return	Byte0~byte1：maximum monomer voltage (mV) Byte2： Maximum Unit Voltage cell No. Byte3~byte4：minimum monomer voltage (mV) Byte5：Minimum Unit Voltage cell No.
Maximum minimum temperature of	0x92	Send	Byte0~Byte7:Reserved
		Return	Byte0： maximum monomer temperature (40 Offset,° C)

monomer			Byte1： Maximum monomer temperature cell No. Byte2：minimum monomer temperature (40 Offset,° C) Byte3：Minimum Monomer Temperature cell No.
MOS Charge/discharge, MOS status	0x93	Send	Byte0~Byte7:Reserved
		Return	Byte0：charge/discharge status (0 stationary ,1 charged ,2 discharged) Byte1：charging MOS tube status Byte2：discharge MOS tube state Byte3:BMS life(0~255 cycles) Byte4~Byte7: residual capacity (mAH)
1 Status Information 1	0x94	Send	Byte0~Byte7:Reserved
		Return	Byte0： battery string Byte1： temperature Byte2： charger status (0 disconnected ,1 connected) Byte3： load status (0 disconnected ,1 access) Byte4： Bit 0: DI1 state

			Bit 1: DI2 state Bit 2: DI3 state Bit 3: DI4 state Bit 4: DO1 state Bit 5: DO2 state Bit 6: DO3 state Bit 7: DO4 state Byte 5~Byte6 :charge/discharge cycles Byte7:Reserved
1~48 Cell voltage 1~48	0x95	Send	Byte0~Byte7:Reserved
		Return	Each unit voltage of 2 byte, according to the actual number of units sent, a maximum of 96 byte, divided into 16 frames sent Byte0：Frame number, starting from 0,0 xFF invalid Byte1~byte6：）monomer voltage (1 mV) Byte7:Reserved
1~16 Monomer	0x96	Send	Byte0~Byte7:Reserved
		Return	Each temperature is 1 byte, sent according to the actual number of temperature used, a maximum of 21 byte, divided into 3 frames

temperature 1~16			Byte0： frame number, starting at 0 Byte1~byte7 monomer temperature (40 Offset，° C)
Monomer equilibrium state	0x97	Send	Byte0~Byte7:Reserved
		Return	0：OFF 1：ON Bit0： monomer 1 equilibrium state ... Bit47： monomer 48 equilibrium state Bit48~Bit63：reserved
Battery failure status	0x98	Send	Byte0~Byte7:Reserved
		Return	0 -> No error 1 -> Error Byte 0 Bit 0: one stage warning of unit over voltage Bit 1: one stage warning of unit over voltage Bit 2: one stage warning of unit over voltage

			Bit 3: two stage warning of unit over voltage Bit 4: Total voltage is too high One alarm Bit 5: Total voltage is too high Level two alarm Bit 6: Total voltage is too low One alarm Bit 7: Total voltage is too low Level two alarm Byte 1 Bit 0: Charging temperature too high. One alarm Bit 1: Charging temperature too high. Level two alarm Bit 2: Charging temperature too low. One alarm Bit 3:Charging temperature's too low. Level two alarm Bit 4:Discharge temperature is too high. One alarm Bit 5:Discharge temperature is too high. Level two alarm Bit 6: Discharge temperature is too low. One alarm Bit 7: Discharge temperature is too low. Level two alarm Byte 2 Bit 0: Charge over current. Level one alarm

			Bit 1:Charge over current, level two alarm Bit 2: Discharge over current. Level one alarm Bit 3: Discharge over current, level two alarm Bit 4: SOC is too high an alarm Bit 5: SOC is too high. Alarm Two Bit 6: SOC is too low. level one alarm Bit 7: SOC is too low. level two alarm Byte 3 Bit 0: Excessive differential pressure level one alarm Bit 1: Excessive differential pressure level two alarm Bit 2: Excessive temperature difference level one alarm Bit 3: Excessive temperature difference level two alarm Byte 4 Bit 0: charging MOS over temperature warning Bit 1: discharge MOS over temperature warning Bit 2: charging MOS temperature detection sensor failure

			Bit 3: discharge MOS temperature detection sensor failure Bit 4: charging MOS adhesion failure Bit 5: discharge MOS adhesion failure Bit 6: charging MOS breaker failure Bit 7: discharge MOS breaker failure Byte 5 Bit 0: AFE acquisition chip malfunction Bit 1: monomer collect drop off Bit 2: Single Temperature Sensor Fault Bit 3: EEPROM storage failures Bit 4: RTC clock malfunction Bit 5: Precharge Failure Bit 6: vehicle communications malfunction Bit 7: intranet communication module malfunction Byte 6： Bit 0: Current Module Failure Bit 1: main pressure detection module Bit 2: Short circuit protection failure

			Bit 3:Low Voltage No Charging Bit 4: MOS GPS or soft switch MOS off Bit 5~Bit7: Reserved Byte7： fault code (if 0 x 03, show "fault code 3",0 do not show)
Discharge MOS control	0xD9	sent	Byte 0:result(0 OFF, 1 ON) Byte 1-Byte 7:Reserved
		return	Byte 0:result(0 OFF, 1 ON) Byte 1-Byte 7:Reserved
Charge MOS control	0xDA	sent	Byte 0:result(0 OFF, 1 ON) Byte 1-Byte 7:Reserved
		return	Byte 0:result(0 OFF, 1 ON) Byte 1-Byte 7:Reserved