BMS: CAN BUS COMMUNICATION SPECIFICATION

1. Communication Specification

The principle for data link layer.
Communication speed for bus line: 250Kbps.
The provision for data link layer: Refer to the related regulation of CAN2.0B and J1939.
Use and redefine 29 identifiers of CAN extended frame. The distribution of 29 identifiers are listed below:

IDENTIFIER 11BITS											SRR	IDE	IDENTIFIER EXTENSION 18BITS															
PRIORITY			R	DP	PDU FORMAT(PF)						SRR	IDE	PF		PDU SPECIFIC(PS)								SOURCE ADDRESS(SA)							
3	2	1	1	1	8	7	6	5	4	3			2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
28	27	26	25	24	23	22	21	20	19	18			17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Priority has 3 bits so there can be 8 priorities. R is generally 0. DP is fixed at 0. 8-bit PF is the code for the message. 8-bit PS refers to destination address. 8-bit SA refers to the source address.
›There is a name and an address for every node which accesses to the network. The name is used for nodes identification and address arbitration. The address is used for data communication to node.
›Every node has at least one function. Multiple nodes might have the same function or one node might have multiple functions.

CAN Network Address Distribution

Obtain the node address of CAN Bus from the definition of J1939 Standard：

Node Name	SOURCE ADDRESS(SA)
Motor Controller	239(0xEF)
Battery Management System（BMS）	244(0xF4)
Charger Control System（CCS）	229(0xE5)
Broadcast Address（BCA）	80(0x50)

Message Format:

Message 1: （CAN ID: 0x1806E5F4）

OUT	IN	ID				Cycle Time (ms)
BMS	CCS	P	R	DP	PF	1000
		6	0	0	6	
Data						
Position	Data Name					
BYTE1	Max Allowable Charging Terminal Voltage High Byte	0.1V/bit offset：0 case.：Vset =3201，its corresponding 320.1v				
BYTE2	Max Allowable Charging Terminal Voltage Low Byte					
BYTE3	Max Allowable Charging Current High Byte	0.1A/bit offset：0 case.：Iset =582，its corresponding 58.2A				
BYTE4	Max Allowable Charging Current Low Byte					
BYTE5	Control	0：Start charging. 1：battery protection, stop charging				
BYTE6	Control	0：Charging mode.1：Heating mode。				
BYTE7	Reserved					
BYTE8	Reserved					

Message 2：（CAN ID: 0x18FF50E5）

OUT	IN	ID				Cycle Time (ms)
CCS	BCA	P	R	DP	PF	1000
		6	0	0	0xFF	
Data						
Position	Data Name					
BYTE1	Output Voltage High Byte	0.1V/bit offset：0 case：Vout =3201，its corresponding 320.1v				
BYTE2	Output Voltage Low Byte					
BYTE3	Output Current High Byte	0.1A/bit offset：0 case：Iout =582，its corresponding 58.2A				
BYTE4	Output Current Low Byte					
BYTE5	Status Flags					
BYTE6	Reserved					
BYTE7	Reserved					
BYTE8	Reserved					

STATUS	Mark	Description
Bit0	Hardware Failure	0: Normal. 1: Hardware Failure
Bit1	Temperature of Charger	0: Normal. 1: Over temperature protection
Bit2	Input Voltage	0: Input voltage is normal. 1. Input voltage is wrong, the charger will stop working.
Bit3	Starting state	0: Battery is connected normally. 1: Battery is not connected or the battery is connected reversely.
Bit4	Communication State	0: Communication is normal. 1: Communication receive time-out.
Bit5		
Bit6		
Bit7		

Control Mode

1. The BMS sends operating information(Message 1) to charger at fixed interval of 1s. After receiving the message, the charger will work under the Voltage and Current in Message. If the Message is not received within 5s, it will enter into communication error state and stop charging.
2. The charger send broadcast message (Message 2) at intervals of 1s. The display meter can show the status of the charger according to up-to-date information.