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 11BYTES											SRR	IDE	IDENTIFIER EXTENSION 18BYTES															
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

Herein, Priority has 3-bit and there can be 8 priority levels. R is generally fixed as 0. DP is fixed as 0 at present. 8-byte PF is the code for message. 8-byte PS refers to destination address or array extension. 8-byte SA refers to the source address for sending messages.

›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)
Charger Control System 2（CCS2）	230(0xE6)
Broadcast Address（BCA）	80(0x50)

Message Format

Message1: (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 (VOL_SET_H)	0.1V/byte offset:0 e.g. Vset=3201, its corresponding 320.1V				
BYTE2	Max Allowable Charging Terminal Voltage Low Byte (VOL_SET_L)					
BYTE3	Max Allowable Charging Current High Byte (VOL_SET_H)	0.1A/byte offset:0 e.g. Iset=582, its corresponding 58.2A				
BYTE4	Max Allowable Charging Current Low Byte (VOL_SET_L)					
BYTE5	Control	0: Charger is open and on charge. 1:Battery protection, the charger closes its output.				
BYTE6	Reserved					
BYTE7	Reserved					
BYTE8	Reserved					

Message 2: (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/byte offset:0 e.g. Vout=3201, its corresponding 320.1V				
BYTE2	Output Voltage Low Byte					
BYTE3	Output Current High Byte	0.1A/byte offset:0 e.g. Iout=582, its corresponding 58.2A				
BYTE4	Output Current Low Byte	Max byte means mark. 0: charging; 1: discharging				
BYTE5	Status Flags					
BYTE6	Reserved					
BYTE7	Reserved					
BYTE8	Reserved					

STATUS （BYTE5）	Mark	Description
Bit 0	Hardware Failure	0: Normal. 1: Hardware Failure
Bit 1	Temperature of Charger	0: Normal. 1: Over temperature protection
Bit 2	Input Voltage	0: Input voltage is normal. 1. Input voltage is wrong, the charger will stop working.
Bit 3	Stating State	0: The charger detects the voltage of the battery and enter into starting state. 1: The charger stays closed (to prevent reverse polarity)
Bit 4	Communication State	0: Communication is normal. 1: Communication receive time-out.
Bit 5		
Bit 6		
Bit 7		

Operation Mode

1. BMS send operating information (Message 1) and (Message 10+Message 11+Message 12) 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, then it will enter into communication error state and the output will be closed.
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.