Low Voltage Battery System CANBUS Protocol
V1.3

CAN 总线规格 CAN Bus：

采用标准帧，速率:500kbps，数据发送周期 1s。

Use standard frame, communication rate: 500kbps, data transmission cycle: 1s.

逆变器每秒回复数据：

Inverterreplyeverysecond: 0x305: 00-00-00-00-00-00-00-00

Little endian.

CAN ID: 0x359 + adr * 0x1000

Byte 0	Protection	Table 1	
Byte 1	Protection	Table 2	
Byte 2	Alarm	Table 3	
Byte 3	Alarm	Table 4	
Byte 4	Modulenumbers		8bits unsigned char
Byte 5	"P"	0x50	
Byte 6	"N"	0x4E	
Byte 7	-		

Table 1

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit 0
Discharge over current			Cell under temperature	Cell over temperature	Cell or module under voltage	Cell or module over voltage	

Table 2

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit 0
				System error			Chargeover current

Table 3

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit 0
Discharge high current			Cell low temperature	Cell high temperature	Cell or module low voltage	Cell or module high voltage	

Table 4

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit 0
				Internal communication fail			Charge high current

CAN ID: 0x351

Byte 0	Battery charge voltage	Unit: 0.1V	16 bits unsigned int
Byte 1	建议充电电压		
Byte 2	Charge current limit	Unit: 0.1A	16 bits signed int, 2`s

Byte 3	充电限流		complement
Byte 4	Discharge current limit	Unit: 0.1A	16 bits signed int, 2`s complement
Byte 5	放电限流		
Byte 6	Discharge limit voltage	Unit: 0.1V	16 bits signed int
Byte 7	建议放点截止电压		

CAN ID: 0x355

Byte 0	SOCof single module or average value of system	Unit: 1%	16bit unsigned int
Byte 1			
Byte 2	SOH of single module or average value of system	Unit: 1%	16bit unsigned int
Byte 3			
Byte 4			
Byte 5			
Byte 6			
Byte 7			

CAN ID:0x356

Byte 0	Voltageof single module or average module voltage of system 单模块的电压或系统平均电压	Unit: 0.01V	16 bits signed int, 2`s complement
Byte 1			
Byte 2	Module or system total current 单台或系统总电流	Unit: 0.1A	16 bits signed int, 2`s complement
Byte 3			
Byte 4	Averagecelltemperature 电芯平均温度	Unit: 0.1℃	16 bits signed int, 2`s complement
Byte 5			
Byte 6			
Byte 7			

CAN ID：0x35C

Byte 0	Requestflag	Table5	
Byte 1			

Table 5

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit 0
Charge enable	Discharge enable	Request force charge I* 强充标记 1	Request force charge II* 强充标记 2	Request full charge** 满充标记			

Bit 5 is designed for inverter allows battery to shut down, and able to wake battery up to charge it.

  Bit 4 is designed for inverter doesn`t want battery to shut down, able to charge battery before shut down to avoid low energy.   We suggest inverter to use this bit,

   In this case, inverter itself should set a threshold of SOC: after force charge, only when battery SOC is higher than this threshold then inverter will allow discharge, to avoid force charge and discharge status change frequently.

**Request full charge:

Reason: when battery is not full charged for long time, the accumulative error of SOC calculation will be too high and may not able to be charged or discharged as expected capacity.

Logic: if SOC never higher than 97% in 30 days, will set this flag to 1. And when the SOC is ≥97%, the flag will be 0.

How to: we suggest inverter to charge the battery by grid when this flag is 1.

CAN ID：0x35E

Byte 0	Manufacturer Name		ASCII
Byte 1			

Multiple Strings Instruction:

并柜说明：

 When multiple strings in parallel via the LV-HUB (in this case upper controller is communicating with the LV-HUB). The Hub will allocate each string address according to the ADD switch setting of each string's master battery:

系统根据主机设备的拨码开关的位置，配置系统的组别地址，设置如下：

Dip 2	Dip 3	Dip 4	Address/组别地址
0	0	0	0
1	0	0	1
0	1	0	2
1	1	0	3
0	0	1	4
1	0	1	5
0	1	1	6
1	1	1	7

   The address shall add offset as: 0x1000 * Adr.

   For instance:

   1.   Single string:Address 0, then can id = can id + 0x1000 * 0, which is default CAN ID.

   2.   Forth string:Address 4, then can id = can id + 0x1000 * 4(i.e. 0*4355 is the forth adr string SOC&SOH)

   例：

   1）单组别使用时，组别地址为 0，can id = can id + 0x1000 * 0，即为默认 can id。

   2）组别为 4 时，can id = can id + 0x1000 * 4，如 0x4355 为第 4 组地址 soc 和 soh。