CANBUS PROTOCOL OF ENCAP MODULES

Release Date: 30 August 2023

Version 1; Revision 0

C A N 1 D : 0 X 3 5 9

Byte 0	Protection	Table 1	
Byte 1	Protection	Table 2	
Byte 2	Alarm	Table 3	
Byte 3	Alarm	Table 4	
Byte 4	Module Numbers		8 bits Unsigned Char
Byte 5	"P"	0x50	
Byte 6	"N"	0x4E	
Byte 7	-		

T A B L E 1

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Discharge Over current			Cell under temperature	Cell over temperature	Cell or Module under voltage	Cell or Module over voltage	

TABLE 2

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
				System Error			Charge Over Current

TABLE 3

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Discharge high current			Cell low temperature	Cell high temperature	Cell or Module low voltage	Cell or Module high voltage	

TABLE 4

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
				Internal Communication fail			Charge high Current

C A N 1 D : 0 X 3 5 1			
Byte 0	Battery Charge Voltage	Unit 0.1V	16 bits unsigned int
Byte 1			
Byte 2	Charge Current Limit	Unit 0.1A	16 bits signed int, 2's complement
Byte 3			
Byte 4	Discharge Current Limit	Unit 0.1A	16 bits signed int, 2's complement
Byte 5			
Byte 6			
Byte 7			

C A N 1 D : 0 X 3 5 5			
Byte 0	SOC of single Module or average value of system	Unit: 1%	16 bits unsigned int
Byte 1			
Byte 2	SOH of single Module or average value of system	Unit: 1%	16 bits unsigned int
Byte 3			
Byte 4			
Byte 5			
Byte 6			
Byte 7			

CAN1D:0X356

Byte 0	Voltage of single Module or average module voltage of system	Unit: 0.01V	16 bits signed int, 2's complement
Byte 1			
Byte 2	Module or system total current	Unit: 0.1A	16 bits signed int, 2's complement
Byte 3			
Byte 4	Average cell temperature	Unit: 0.1°C	16 bits signed int, 2's complement
Byte 5			
Byte 6			
Byte 7			

CAN1D:0X35C

Byte 0	Request Flag	Table 5	
Byte 1			

TABLE 5

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Charge enable	Discharge enable	Request force charge I*	Request force charge II*	Request full charge**			

N O T E S :

*For US2000B: Please use bit 5, the SOC range is: 15 ~19%. Bit 4 is NULL.

*For US2000B-Plus: Bit 5, the SOC range is: 5 ~10%. Bit 4 is the SOC range is: 9 ~13%.

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

Bit 4 is designed for inverter that doesn't want battery to shut down and is 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 reach higher than 97% in 30 days, will set this flag to 1. And when the SOC is equal to or higher than 97%, the flag will be 0.

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