R-T12100B Communication Protocol

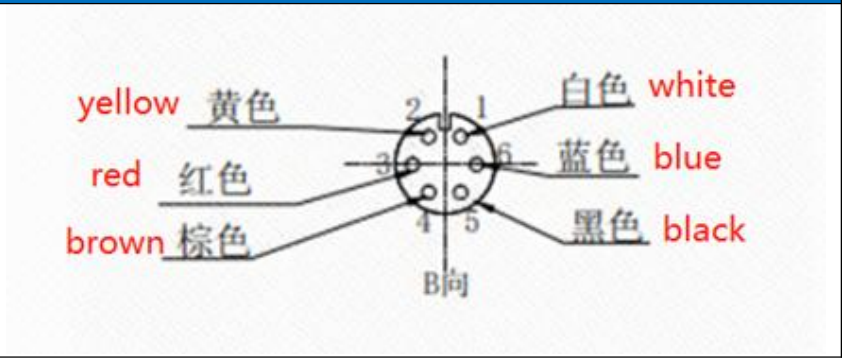
Software parameter/logic requirements document

Version Record

Version	Content	Author	Date
TB00	Initial Version	Jason	2023.01

1. General Description

Hardware interface

LINK-IN		
Pin	**COM Up**	**Top View**
1	CANH2	
2	CANL2	
3		
4		
5	RS485-B	
6	RS485-A	

2. General Definition

2.1 Status Description

Warning: corresponding to the BMS 'warning' parameter, one or more parameters have reached the warning value, need to report battery normal or derated operation

Alarm: corresponding to the BMS "protection" parameter, one or more parameters have reached the dangerous critical value, and the battery needs to start self-protection immediately

Error: defined as: 'fault', the battery or BMS is abnormal, except for short circuit, it should not be automatically restored.

Protocol Introduction

Protocol 1	Protocol 2	Protocol 3
CAN2.0 Standard frame, low in front Baud rate：500Kbps	**reserved**	**reserved**

2.3 CAN-ID Detailed Description

Heartbeat frame: 0x305 (ignore content), sending interval 1S.

Byte order: little endian, the frame type is 11bit standard frame.

Heart beat data from inverter 0x305: 00 00 00 00 00 00 00 00, inverter should send every second.

Analog information

ID	Byte	Type	Unit	Remark
0x351	Byte0	charge voltage	unit: 0.1V, un16	See details Table 2
	Byte1			Dynamic value, host processing
	Byte2	charge current limit	unit: 0.1A, un16	See details Table 1 , Passing positive numbers, each slave machine is processed
	Byte3			

				separately, and the master machine summarizes
	Byte4	discharge current limit	unit: 0.1A, un16	See details Table 1 , Passing positive numbers, each slave machine is processed separately, and the master machine summarizes
	Byte5			
	Byte6	discharge voltage limit	unit: 0.1V, un16	See details Table 2
	Byte7			Fixed value, handled by the host
0x355	Byte0	SOC	unit: 1%, un16	Single module or battery system mean value
	Byte1			
	Byte2	SOH	unit: 1%, un16	Single module or battery system mean value
	Byte3			
	Byte4	high precision SOC	unit:0.01%, un16	Single module or battery system mean value
	Byte5			
0x356	Byte0	system voltage	unit: 0.01V, un16	
	Byte1			
	Byte2	system current	int: 0.1A，sn16	
	Byte3			
	Byte4	system temperature	int: 0.1℃	
	Byte5			
0x35F	Byte0	model	un16	
	Byte1			
	Byte2	protocol version number	un16	
	Byte3			
	Byte4	available capacity	un16: Ah	
	Byte5			
0x35E Logo	Byte0-Byte7	Corresponding product brand name, default (space)TOPBAND Requirements can be written by the host computer		ASCII
0x360	Byte 0	charge request	un8	Low SOC request charging 1 or full charging request has a set 1, then set FF, otherwise it is 00
Low SOC request charging 1: When SOC<20% or low voltage alarm or protection occurs, this bit is set to 1 Release condition: System SOC>30% and system voltage greater than 12.8*nV				
0x372	Byte0	Battery module number	un16	Online battery number
	Byte1			
	Byte2	Disable Charge Module	un16	module with 0 charge limit current
	Byte3			
	Byte4	Disable Disharg Module	un16	module with 0 discharge limit current

	Byte5			
	Byte6	Off-line battery number	un16	Offline battery number
	Byte7			

Status Bit Information

ID	Byte	bit7	bit6	bit5	bit4	bit3	bit2	bit1	Bit0	Status
0x35A	Byte0	Discharge high temperature		Unit/system low voltage		Unit/system high voltage				**Protect ★★**
	Byte1	discharge over current		charge low temperature		charge high temperature		discharge low temperature		
	Byte2	system malfunction		short circuit		Mos malfunction		Charge over current		
	Byte3							poor cell consistency		
	Byte4	Discharge high temperature		Unit/system low voltage		Unit/system high voltage				**Warning★**
	Byte5	discharge over current		charge low temperature		charge high temperature		discharge low temperature		
	Byte6	Intranet communicatio n fault						charge over current		
	Byte7							poor cell consistency		
	Description: Send 10 normally, trigger send 01 (bit N+1, bit N), undefined bytes are occupied by 00 or 11; Intranet communication failure: 10 seconds after the slave battery is disconnected, the communication failure flag will be uploaded and cleared after recovery (master detection). System failure: When a serious system failure occurs, such as sampling/cell failure, NTC/temperature difference abnormality, MOS failure serious failure, short circuit, ambient temperature failure, MOS temperature failure									