|  |  |
| --- | --- |
| CAN Protocol | CANXXXX (CAN number will be defined by software engineer) |
| CAN Baud Rate | 250K |
| Charger Receiving CAN ID | 0x23E |
| Charger Transmitting CAN ID | 0x1BE |

**CAN Communication Specification:**

Message 1：

|  |  |  |  |
| --- | --- | --- | --- |
| OUT | IN | CAN ID | Cycle (ms) |
| BMS | OBC | 0x23E | 1000 |
|
| Data | | | |
| Position | Data Name | |  |
| BYTE1 | Max allowable charging terminal voltage high byte | | 0.1V/bit, offset: 0,  e.g.: Vset =3201, corresponding voltage is 320.1v |
| BYTE2 | Max allowable charging terminal voltage low byte | |
| BYTE3 | Max allowable charging current high byte | | 0.1A/bit, offset: 0,  e.g.: Iset =582, corresponding current is 58.2A |
| BYTE4 | Max allowable charging current low byte | |
| BYTE5 | Switch control | | 0x00: Switch on  0x01: Switch off  0x02: Charging finish  When OBC receive Charging Finish instruction, firstly S2 is open, then connector lock unlocked, next OBC enter into sleep mode |
| BYTE6 | Working status control | | 0x00: Charging mode  0x01: Heating mode |
| BYTE7 | Reserved | |  |
| BYTE8 | Reserved | |  |

Message 2

|  |  |  |  |
| --- | --- | --- | --- |
| OUT | IN | CAN ID | Cycle (ms) |
| CCS | BCA | 0x1BE | 1000 |
|
| Data | | | |
| Position | Data Name | |  |
| BYTE1 | Output voltage high byte | | 0.1V/bit, offset: 0,  e.g.: Vout =3201, corresponding voltage is 320.1v |
| BYTE2 | Output voltage low byte | |
| BYTE3 | Output current high byte | | 0.1A/bit, offset: 0,  e.g.: Iout =582, corresponding current is 58.2A.  0: Charging  1: Discharging |
| BYTE4 | Output current low byte | |
| BYTE5 | STATUS flag 1 | | See table STATUS 1 |
| BYTE6 | STATUS flag 2 | | Bit2-Bit0 (OBC working status)  000: Initial status  001: Charging status  010: Stand-by status  011: Error status  Bit 3: Reservation  Bit 4: S2 switch control status  0: Open  1: Close  Bit 5: Connector lock status  0: Unlocked  1 Locked  Bit 6: Over temperature warning status  0: No warning  1: Warning  Bit 7: Fan status  0: Not working  1: Working |
| BYTE7 | Current output max power | | 100W/bit, offset: 0  e.f.: Pout=30, the corresponding power is 3000W |
| BYTE8 | Reserved | |  |

|  |  |  |
| --- | --- | --- |
| STATUS | Mark | Description |
| Bit0 | Hardware failure | 0: Normal  1: Failure |
| Bit1 | Temperature of charger | 0: Normal  1: Protection against over-temperature (Stop output) |
| Bit2 | Input voltage | 0: Input voltage normal  1: Input voltage abnormal, OBC stop working |
| Bit3 | Battery status | 0: OBC detects that the battery voltage is normal  1: OBC detects that the battery voltage is abnormal (battery voltage is too low or polarity of battery connected reverse)  Note: The status after OBC powered on which is defaulted as Charging Mode, OBC will report 1 after BMS working and before output relay do not close  The battery state in heating mode is 0 |
| Bit4 | Communication status | 0: Normal  1: Communication receiving time-out |
| Bit5 | CC status | 0: Normal  1: Fault  Note: As long as no CC signal is detected, It is fault |
| Bit6 | CP status | 0: Normal  1: Fault  Note: As long as no CP signal is detected, It is fault |
| Bit7 | Electronic lock status | 0: Normal  1: Fault  Fault determination:  Lock status is determined as unlocked when lock close  Lock status is determined as locked when lock open |

Operation Mode:

1. BMS transmit the operating message (message 1) to the OBC at fixed interval one second, OBC shall work according to the voltage and current from the receiving message. The OBC will enter into Communication failure status and shut off output if without receiving the message in five seconds.
2. OBC transmit the message (message 2) to BMS at fixed interval one second, the display meter can show the charger status according to the up-to-date information.

500ms later

10 minutes later

10 minutes later

10 minutes later

10 minutes later

OBC work normal

Lasts for 5 seconds

Power on immediately after power lost

CP normal

BMS message normal

CP wake up OBC

OBC Sleep after one minute

OBC Sleep after one minute

Lock closed

Lock close

CC normal

AC normal

S2 close

S2\Lock open

AC/CP fault

S2\Lock open

CP fault

OBC sleep

AC disconnection

S2\Lock open

S2\Lock open

CC fault

OBC normal working

AC normal

Close S2

Lock closed

Close Lock

BMS instruction normal

CP normal

OBC wake up

CC normal

OBC Sleep

Finish