# Daly CAN Communications Protocol

V1.0

# 1. Version revision record

| Serial Num | Description | Date | Version | Author |
|---|---|---|---|---|
| 1. | Initial version | 2019.06.11 | V1.0 | |
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| | | | | |

# 1.Physical layer

## 1.1 UART

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|---|---|
| 1. physical interface | CAN |
| 2. baud rate | 250K |

# 2.Communication format

## 2.1 Basic timing

All messages are sent by the host, all slaves receive messages to determine whether the slave address matches, only in the case of slave address match allowed to return data to the host.

## 2.2 Address assignment

| Module | Address |
|---|---|
| BMS master | 0x01 |
| Bluetooth APP | 0x80 |
| GPRS | 0x20 |
| Upper computer | 0x40 |

## 2.3 CAN Communication Format

### 2.3.1 PC send

| CAN ID<br>(4 Bytes) | Data |
|---|---|
| Priority + Data ID + BMS Address +PC Address<br>0x18100140 | 8 Bytes |

### 2.3.2 The slave responds to the host command

| CAN ID<br>(4 Bytes) | Data |
|---|---|
| Priority + Data ID + PC Address +BMS Address<br>0x18104001 | 8 Bytes |

# 3.Communications content information

| Data Message | Data ID | UPPER-BMS | Note<br>Remark |
|---|---|---|---|
| SOC of total voltage current | 0x90 | Send | Byte0~Byte7：Reserved |
| | | Received | Byte0~Byte1:Cumulative total voltage (0.1 V)<br>Byte2~Byte3:Gather total voltage (0.1 V)<br>Byte4~Byte5:Current (30000 Offset ,0.1A)<br>Byte6~Byte7:SOC (0.1%) |
| Maximum & Minimum voltage | 0x91 | Send | Byte0~Byte7：Reserved |
| | | Received | Byte0~Byte1:Maximum cell voltage value (mV)<br>Byte2:No of cell with Maximum voltage<br>Byte3~byte4: Minimum cell voltage value (mV)<br>Byte5:No of cell with Minimum voltage |
| Maximum & Minimum temperature | 0x92 | Send | Byte0~Byte7：Reserved |
| | | Received | Byte0: Maximum temperature value (40 Offset ,°C)<br>Byte1: Maximum temperature cell No<br>Byte2: Minimum temperature value (40 Offset ,°C)<br>Byte3: Minimum temperature cell No |
| Charge & discharge MOS status | 0x93 | Send | Byte0~Byte7：Reserved |
| | | Received | Byte0:State (0 stationary 1 charge 2 discharge)<br>Byte1:Charge MOS state<br>Byte2:Discharge MOS status<br>Byte3:BMS life (0~255 cycles)<br>Byte4~Byte7:Remain capacity (mAH) |
| Status information 1 | 0x94 | Send | Byte0~Byte7：Reserved |
| | | Received | Byte0:No of battery string<br>Byte1: No of Temperature<br>Byte2: Charger status (0 disconnect 1 access)<br>Byte3: Load status (0 disconnect 1 access)<br>Byte4:<br>Bit 0:DI1state<br>Bit 1:DI2state<br>Bit 2:DI3state<br>Bit 3:DI4state<br>Bit 4:DO1state<br>Bit 5:DO2state<br>Bit 6:DO3state<br>Bit 7:DO4state<br>Byte 5~Byte 7：Reserved |
| Cell voltage 1~48 | 0x95 | Send | Byte0~Byte7：Reserved |

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|---|---|---|---|
| | | Received | The voltage of each monomer is 2 byte, according to the actual number of cell, the maximum 96 byte, is sent in 16 frames<br>Byte0:frame number, starting from 0,0xFF invalid<br>Byte1~byte6:Cell voltage (1 mV)<br>Byte7: Reserved |
| Cell temperature 1~16 | 0x96 | Send | Byte0~Byte7：Reserved |
| | | Received | Each temperature accounts for 1 byte, according to the actual number of temperature send, the maximum 21 byte, send in 3 frames<br>Byte0:frame number, starting at 0<br>Byte1~byte7:cell temperature(40 Offset ,℃) |
| Cell balance State 1~48 | 0x97 | Send | Byte0~Byte7：Reserved |
| | | Received | 0： Closed 1： Open<br>Bit0: Cell 1 balance state<br>...<br>Bit47:Cell 48 balance state<br>Bit48~Bit63：reserved |
| Battery failure status | 0x98 | Send | Byte0~Byte7：Reserved |
| | | Received | 0->No error 1->Error<br>Byte 0<br>Bit 0: Cell volt high level 1<br>Bit 1: Cell volt high level 2<br>Bit 2: Cell volt low level 1<br>Bit 3: Cell volt low level 2<br>Bit 4: Sum volt high level 1<br>Bit 5: Sum volt high level 2<br>Bit 6: Sum volt low level 1<br>Bit 7: Sum volt low level 2<br>Byte 1<br>Bit 0: Chg temp high level 1<br>Bit 1: Chg temp high level 2<br>Bit 2: Chg temp low level 1<br>Bit 3: Chg temp low level 2<br>Bit 4: Dischg temp high level 1<br>Bit 5: Dischg temp high level 2<br>Bit 6: Dischg temp low level 1<br>Bit 7: Dischg temp low level 2<br>Byte 2<br>Bit 0: Chg overcurrent level 1<br>Bit 1: Chg overcurrent level 2<br>Bit 2: Dischg overcurrent level 1<br>Bit 3: Dischg overcurrent level 2<br>Bit 4: SOC high level 1 |

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|---|---|---|---|
| | | | Bit 5: SOC high level 2<br>Bit 6: SOC Low level 1<br>Bit 7: SOC Low level 2<br>Byte 3<br>Bit 0: Diff volt level 1<br>Bit 1: Diff volt level 2<br>Bit 2: Diff temp level 1<br>Bit 3: Diff temp level 2<br>Bit 4~Bit7:Reserved<br>Byte 4<br>Bit 0: Chg MOS temp high alarm<br>Bit 1: Dischg MOS temp high alarm<br>Bit 2: Chg MOS temp sensor err<br>Bit 3: Dischg MOS temp sensor err<br>Bit 4: Chg MOS adhesion err<br>Bit 5: Dischg MOS adhesion err<br>Bit 6: Chg MOS open circuit err<br>Bit 7: Discrg MOS open circuit err<br>Byte 5<br>Bit 0: AFE collect chip err<br>Bit 1: Voltage collect dropped<br>Bit 2: Cell temp sensor err<br>Bit 3: EEPROM err<br>Bit 4: RTC err<br>Bit 5: Precharge failure<br>Bit 6: Communication failure<br>Bit 7: Internal communication failure<br>Byte6<br>Bit 0: Current module fault<br>Bit 1: Sum voltage detect fault<br>Bit 2: Short circuit protect fault<br>Bit 3: Low volt forbidden chg fault<br>Bit4-Bit7：Reserved<br>Byte7: Fault code |