



Deye CAN BUS – Low voltage

500kbps 1s

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

Inverter reply every second: 0x305: 00-00-00-00-00-00-00-00

Little Endian

CAN ID 0x351

|        |                         |            |                                    |
|--------|-------------------------|------------|------------------------------------|
| Byte 0 | Battery Charge Volage   | 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 |                         |            |                                    |

CAN ID 0x355

|        |   |          |                      |
|--------|---|----------|----------------------|
| 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 |   |          |                      |

CAN ID 0x356

|        |  |            |                                    |
|--------|--|------------|------------------------------------|
| Byte 0 | Voltage of single module or average module voltage of system | Unit: 0.1V | 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 0.1C | 16 bits signed int, 2's complement |
| Byte 5 |                          |           |                                    |
| Byte 6 |                          |           |                                    |
| Byte 7 |                          |           |                                    |

CAN ID 0x35E

|        |                   |      |       |
|--------|-------------------|------|-------|
| Byte 0 | Manufacturer name | DEYE | ASCII |
| Byte 1 |                   |      |       |

CAN ID 0x359

|        |                |         |                      |
|--------|----------------|---------|----------------------|
| 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 | -              |         |                      |

Table 1

| Bit7                   | Bit6 | Bit5 | Bit4                   | Bit3                  | Bit2                         | Bit1                        | Bit0 |
|------------------------|------|------|------------------------|-----------------------|------------------------------|-----------------------------|------|
| 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 | Bit0                |
|------|------|------|------|--------------|------|------|---------------------|
|      |      |      |      | System error |      |      | Charge over current |

Table 3

| Bit7                   | Bit6 | Bit5 | Bit4                 | Bit3                  | Bit2           | Bit1           | Bit0 |
|------------------------|------|------|----------------------|-----------------------|----------------|----------------|------|
| Discharge high current |      |      | Cell low temperature | Cell high temperature | Cell or module | Cell or module |      |

|  |  |  |  |  |             |              |  |
|--|--|--|--|--|-------------|--------------|--|
|  |  |  |  |  | low voltage | high voltage |  |
|--|--|--|--|--|-------------|--------------|--|

Table 4

| Bit7 | Bit6 | Bit5 | Bit4 | Bit3                        | Bit2 | Bit1 | Bit0 |
|------|------|------|------|-----------------------------|------|------|------|
|      |      |      |      | Internal communication fail |      |      |      |

CAN ID 0x35C

|        |              |         |  |
|--------|--------------|---------|--|
| Byte 0 | Request flag | Table 5 |  |
| Byte 1 |              |         |  |

Table 5

| Bit7          | Bit6             | Bit5                    | Bit4                     | Bit3                   | Bit2 | Bit1 | Bit0 |
|---------------|------------------|-------------------------|--------------------------|------------------------|------|------|------|
| Charge enable | Discharge enable | Request force charge I* | Request force charge II* | Request full charge ** |      |      |      |

- For US2000B: Please use bit5, the SOC range is: 15~19%. Bit 4 is NULL.
- For US2000B-Plus: Bit 5 the SOC range is 5~10%,

Bit 4 the SOC range is 9~13%.

Bit 5 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 fully charged for long time, the accumulative error of SOC calculation will be too high and may not be able to be charged or discharged at expected capacity.

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

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

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Data received from 2 module pack.

can0 500 [8] B3 15 00 00 57 64 89 04

System voltage:B315=55.55V

System current:0000=0A

System SOC:57=87%

System SOH:64=100%

System hear beat:0489=1161

can0 501 [8] 00 00 00 00 02 02 00 00

System alarm starts:0000=No alarms

System Protection:0000=No protection active

Number of total trays:02=2

Number of normal operating trays:02=2

Number of fault trays:0=0

can0 502 [8] 45 02 AC 03 AC 03 C0 01

Battery charge voltage:0245=58.1V

Charge current limitation:03AC=94A

Discharge current limitation:03AC=94A

Battery discharge voltage:01C0=44.8V

can0 503 [8] 93 0F 98 0F 8B 0F B3 15

System avg cell voltage:0F93=3.731V

System max cell voltage:0F98=3.992V

System min cell voltage:0F8B=3.979V

System avg tray voltage:15B3=55.55V

can0 504 [8] B5 15 B2 15 14 15 14 00

System max tray voltage:15B5=55.57V

System min tray voltage:15B2=55.54V

System avg cell temp:14=20degC

System max cell temp:15=21degC

System min cell temp:14=20degC

can0 505 [8] 01 03 00 00 00 00 00 00

Comm protocol major:01=1

Comm protocol minor:02=3

can0 510 [8] B5 15 16 00 57 64 00 00

Tray 1 voltage:15B5=55.57V

Tray 1 current:0016=00.22A

Tray SOC:57=87%

Tray 1 SOH:64=100%

Tray 1 Alarm:00=No alarm

can0 511 [8] 00 00 98 0F 90 0F 14 14

Tray 1 protection status:0000=No protection

Tray 1 max cell voltage:0F98=3.992V

Tray 1 min cell voltage0F90=3.984V

Tray 1 max cell temp:14=20degC

Tray 1 min cell temp:14=20DegC

can0 512 [8] 00 00 00 00 01 02 00 00 ???????

can0 518 [8] B2 15 16 00 57 64 00 00

Tray 3 voltage:15B5=55.54V (tray can ID set to 3)

Tray 3 current:0016=00.22A

Tray 3 SOC:57=87%

Tray 3 SOH:64=100%

Tray 3 Alarm:00=No alarm

can0 519 [8] 00 00 98 0F 8B 0F 15 15

Tray 3 protection status:0000=No protection

Tray 3 max cell voltage:0F98=3.992V

Tray 3 min cell voltage0F8B=3.979V

Tray 3 max cell temp:15=21degC

Tray 3 min cell temp:15=21DegC

can0 51A [8] 00 00 00 00 01 02 00 00 ????????

can0 5F0 [8] 03 00 95 0F 98 0F 98 0F

Tray-ID:0003=3

Cell voltage 01:0F95=3.989V

Cell voltage 02:0F98=3.992V

Cell voltage 03:0F98=3.992V

can0 5F1 [8] 03 00 95 0F 92 0F 92 0F

Tray-ID:0003=

Cell voltage 03:0F95=3.989V

Cell voltage 04:0F98=3.992V

Cell voltage 05:0F98=3.992V

can0 5F2 [8] 03 00 92 0F 92 0F 96 0F

Tray-ID:0003=3

Cell voltage 07:0F95=3.989V

Cell voltage 08:0F98=3.992V

Cell voltage 09:0F98=3.992V

can0 5F3 [8] 03 00 96 0F 92 0F 8B 0F

Tray-ID:0003=3

Cell voltage 10:0F95=3.989V

Cell voltage 11:0F98=3.992V

Cell voltage 12:0F98=3.992V

can0 5F4 [8] 03 00 90 0F 8B 0F 8B 0F

Tray-ID:0003=3

Cell voltage 13:0F90=3.984V

Cell voltage 14:0F8B=3.979V

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Rassberry PI sends following data out:

can0 00000351 [8] 45 02 AC 03 54 FC C0 01

Battery Charge Volage:0245=58.1V

Charge current limit:03AC=94A

Discharge current limit:FC54=645.96A ??????

can0 00000355 [8] 56 00 64 00 00 00 00 00

SOC of single module or average value of system:0056=86%

SOH of single module or average value of system:0064=100%

can0 00000356 [8] AE 15 00 00 00 00 00 00 00

Voltage of single module or average module voltage of system:15AE=55.5V

Module or system total current:0000=0A

can0 0000035E [8] 00 00 00 00 00 00 00 00

Manufacturer name:00000000

can0 0000035E [8] 00 00 00 00 00 00 00 00

Manufacturer name:00000000

can0 00000359 [8] 00 00 00 00 00 00 00 00

No protection

No alarm