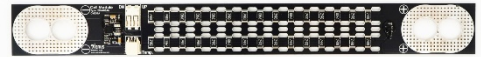


# Cell Module – 200-400Ah Type (CM051)

## INTRODUCTION

**EMUS Cell Module** is the device which once mounted on a cell measures cell's voltage, temperature, its own temperature and broadcasts all measured values to main unit. Also, cell module using previously mentioned values and regulates the balancing current to keep cell's voltage lower than the balancing threshold, while at same time keeping its own temperature lower than certain maximum value to protect itself from overheating.



## APPLICATIONS

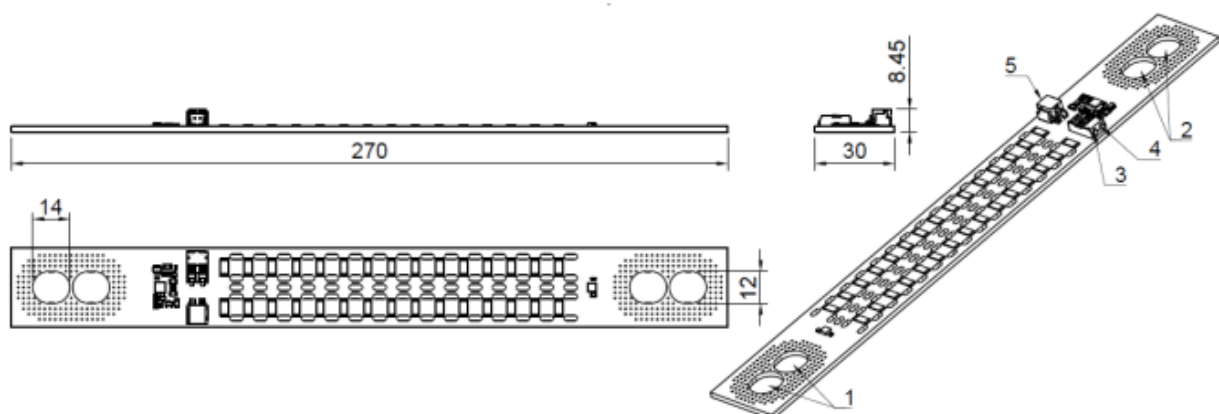
- Any lithium chemistry, series connected battery pack of up to 100 cells if using serial cell communication. (distributed regular)
- Any lithium chemistry, series connected battery pack, or pack of multiple parallel strings, of up to 3200 cells total, if using EMUS CAN Cell Group Modules. (distributed grouped)
- Applications with battery capacity up to 1400<sup>1</sup> Ah.

## FEATURES

- External temperature measurement sensor 100k (sold separately by code ETS02).
- Digital I/O, Analog, proprietary serial interface for communication
- Communication indicating green LED.
- Balancing level indicating red LED.
- Maximum balancing current up to 4.5 A.

## MECHANICAL INFORMATION

Distances between mounting holes: 21cm; 24cm.



<sup>1</sup> The maximum value of the battery capacity using this type of cell module depends on the battery pack cells quality, lifecycle, grading, temperature control, and other factors. For more detailed information about cell module selection please refer to EMUS G1 User Manual.



| Terminal No. | Assignment         | Mating housing                           | Terminal crimp          |
|--------------|--------------------|--|-------------------------|
| 1            | CELL +             | -  | 50212-8100 Molex crimps |
| 2            | CELL-              |  |                         |
| 3            | UP                 | Molex Light-Trap 104188-0210             |                         |
| 4            | DN                 |  |                         |
| 5            | Temperature sensor | 502351-0201 2pin Molex Dura-click header |                         |

## ELECTRICAL CHARACTERISTICS

| Item   | Value               |
|--|---------------------|
| Operating Voltage  | 2.0 VDC to 4.55 VDC |
| Voltage measuring range  | 2.0 VDC to 4.55 VDC |
| Voltage measurement resolution   | 10mV                |
| Internal temperature measuring range   | -40°C to 85°C       |
| Internal temperature measurement resolution  | 1°C                 |
| Internal temperature measurement accuracy  | ±5°C                |
| External temperature measuring range   | -99°C to 154°C      |
| External temperature measurement resolution  | 1°C                 |
| External temperature measurement accuracy  | ±5°C                |
| Current consumption in active mode, when communication LED is on, supply voltage = 3.60V | 3.3 mA              |
| Current consumption in sleep mode, supply voltage = 3.60V                                | 35µA                |
| Balancing resistor resistance  | 0.8 Ω               |
| Balancing resistor rated power   | 30 W                |



**OTHER SPECIFICATIONS**

| Item                                  | Value   |
|---------------------------------------|---|
| Operating temperature                 | -40°C to +85°C  |
| IP Rating                             | IP21  |
| Weight                                | 32 g  |
| Dimensions                            | 270x30x8.45 mm  |
| Mounting hole                         | M12   |
| CELL + wire length                    | -   |
| CELL + wire ring terminal type        | -   |
| Communication wire length             | -   |
| External temperature sensor type      | SR PASSIVES NTC, 100 kΩ P/N NTCM-100K-B4250                         |
| Sleep mode timeout when not balancing | 60 ms   |
| Sleep mode timeout when balancing     | 10 s  |
| Wakeup source                         | Cell communication signal edge, watchdog timer timeout (8 s period) |