



# G1 Cell Module – GBS Type

Battery Management Systems

battery made simple

Remote Monitoring ready

Reviewed by I.R.R on 2024-April-16

Product Code: CM031B

## Introduction

**EMUS Cell Module** is the device that measures cell's voltage, temperature, and its own temperature. It broadcasts all measured values to the G1 Control Unit. Also, cell module using previously mentioned values 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 up to 80 cells using TOP/BOT isolators or CGM
- Energy storage systems
- Photovoltaics battery systems
- Electric vehicles
- Recommended up to ~240Ah. Higher cell capacity could lead to longer balancing periods

## Features

- Integrated port for optional external temperature sensor (100kΩ NTC by code ETS02)
- Integrated internal temperature sensor for overheating protection
- Integrated internal temperature sensor for overheating protection
- Digital I/O, Analog, proprietary serial interface for communication
- Balancing level indicating red LED
- Communication indicating green LED
- Maximum balancing current up to 2.10A

## Mechanical Information

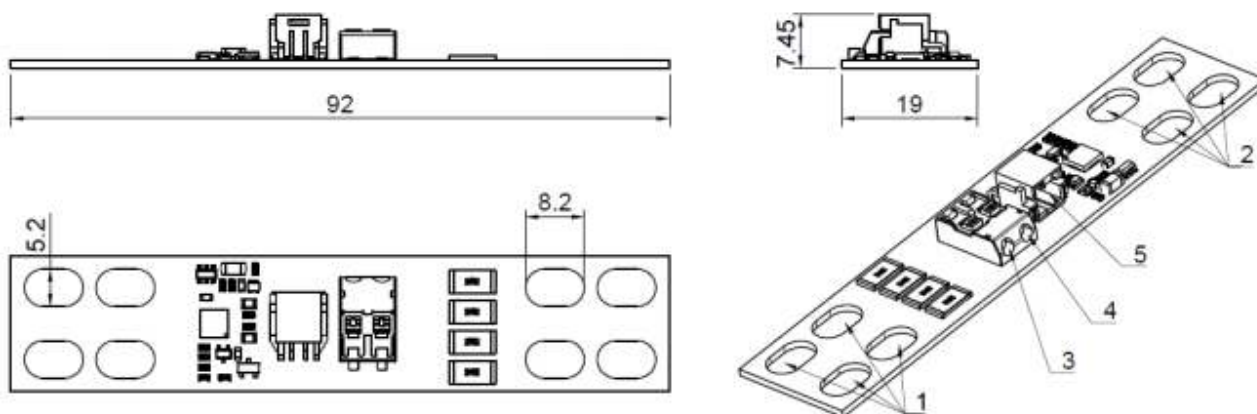


Table 1. CM031B pin assignment

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

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Table 2. Recommended tightening torque

No.	Terminal Bolt type	Recommended tightening torque (Nm)
1	M5	10
2	M6	12
3	M8	14
4	M14	24

## Electrical Characteristics

Table 3. CM031B 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
Voltage measurement error	±10mV
Maximum balancing current	1.90A @ 4.20V*   1.65A @ 3.60V*
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	3.2 mA
Current consumption in sleep mode, supply voltage = 3.60V	35µA
Balancing resistor resistance	2.05 Ω
Balancing resistor rated power	4 W

\*Maximum balancing current depend on environmental thermal conditions

## Other Specifications

Table 4. CM031B other specifications

Item	Value
Operating temperature	-40°C to +85°C
IP Rating	IP21
Weight	6 g
Dimensions	92x19x7.45 mm
Mounting hole	M5
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 timeout (8 s)

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