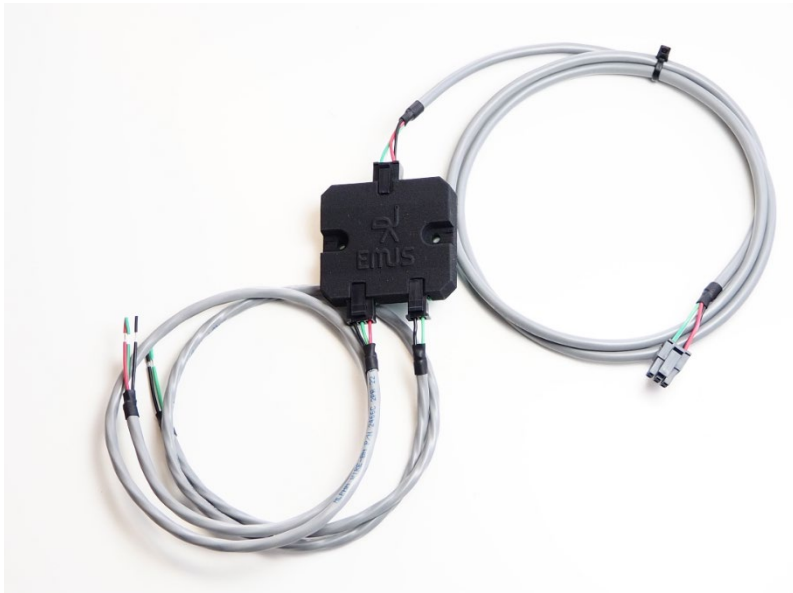# CGM – CAN Cell Group Module (CGM022C)

INTRODUCTION

EMUS G1 CAN Cell Group Modules (also known as CGMs) are advanced, microprocessor equipped cell communication adapters that allow the Control Unit to communicate with the Cell Modules over the CAN bus instead of directly. More than one of them can be used in a single battery pack, which allows to connect the Cell Modules into several small daisy chains instead of one long chain. This not only eliminates the drawbacks of the Top and Bottom Isolators, but also enables the EMUS G1 BMS to manage battery packs that consist of several strings of cells connected in parallel.

APPLICATIONS

- Any lithium chemistry, series-connected battery pack, or a pack of multiple parallel strings, of up to 3200 cells total if using 32 EMUS CAN Cell Group Modules with 100 EMUS Cell Modules on each. (distributed grouped)

FEATURES

- Serial data interface for continuous cell monitoring.
- CAN data interface. Enables to communicate with CAN equipped EMUS G1 Control Unit.
- Each CAN Cell Group Module supports up to 100 cells.
- Supports 50, 125, 250, 500, 800 kbit/s and 1 Mbit/s CAN baud rates (default 250kbit/s).

MECHANICAL INFORMATION

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7.6

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48.8

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Ø3.2

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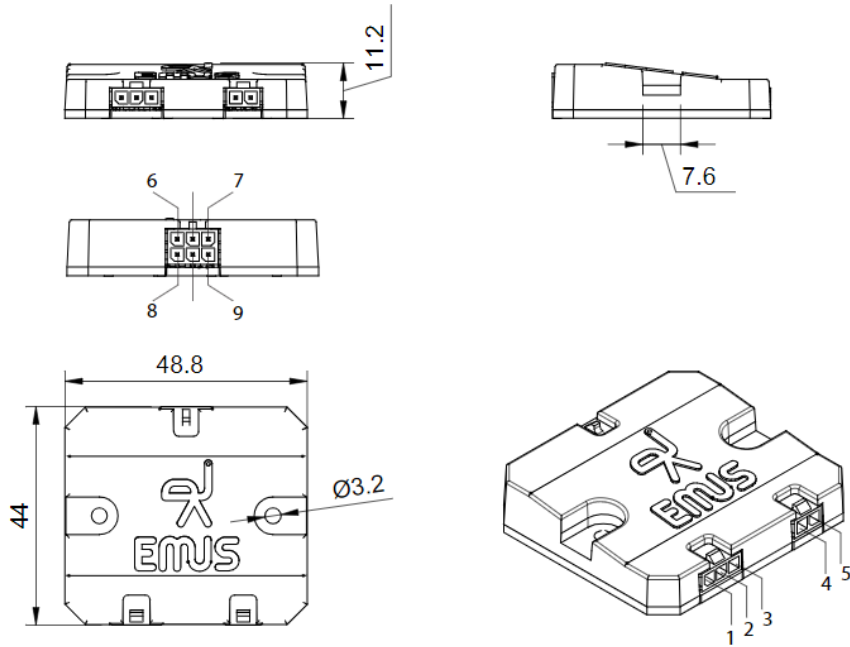
Pin No.	Wire Color	Assignment
1	Black	TOP CELL –
2	Green	UP
3	Red	TOP CELL +
4	Black	BOT CELL –
5	Green	DN

Pin No.	Assignment	Mating Housing	Terminal
6	PWR		
7	CAN H	microfit 43025-0600	43030-0003 (recommended crimp tool Molex Hand Crimp Tool P/N: 638190000)
8	GND		
9	CAN L		

ELECTRICAL CHARACTERISTICS

Item	Conditions	Value
Supply voltage		9.0 VDC to 32.0 VDC (24 VDC Typical)
Power supply reverse protection		Yes
Current consumption	In active mode, supply voltage = 12VDC	6.3 mA
	In active mode, supply voltage = 24VDC	3.6 mA
	In sleep mode, supply voltage = 12VDC	1.0 mA
	In sleep mode, supply voltage = 24VDC	0.16 mA
Isolation voltage		2.0 kV
Transient/overvoltage protection between TOP CELL– and UP		5.6 VDC
Reverse polarity protection between TOP CELL– and UP		–0.7 VDC
Transient/overvoltage protection between TOP CELL– and TOP CELL+		5.6V V DC
Reverse polarity protection between TOP CELL– and TOP CELL+		–0.7 VDC
Transient/overvoltage protection between BOT CELL– and DN		5.6 VDC
Reverse polarity protection between BOT CELL– and DN		–0.7 VDC
CAN Speed		50kbps, 125kbps, 250kbps, 500kbps, 800kbps, 1Mbps
Transient/overvoltage protection between CAN H/CAN L and GND (and vice versa)		24 VDC

OTHER SPECIFICATIONS

Item	Conditions	Value
Max number of Cell Modules in cell communication daisy chain		100
Reserved CAN IDs		0x1FFFFEE5, 0x1FFFFEE6, 0x1FFFE5E5, and 0x1FFFE5E6
Sleep mode timeout		10 s
Wakeup source		CAN activity
Operating temperature		–40 to +85 °C
IP rating		IP53
Weight	CGM	15 g
	CGM with battery cell communication cables	35 g
	CGM with battery cell communication and CAN cables	66 g
Cell communication cable length		0.5 m
Cell communication wire ring terminal type		Molex 19323–0011 (recommended crimp tool Molex 64003–0100 or PRESSMASTER KWB0325S)
CAN cable length		1 m