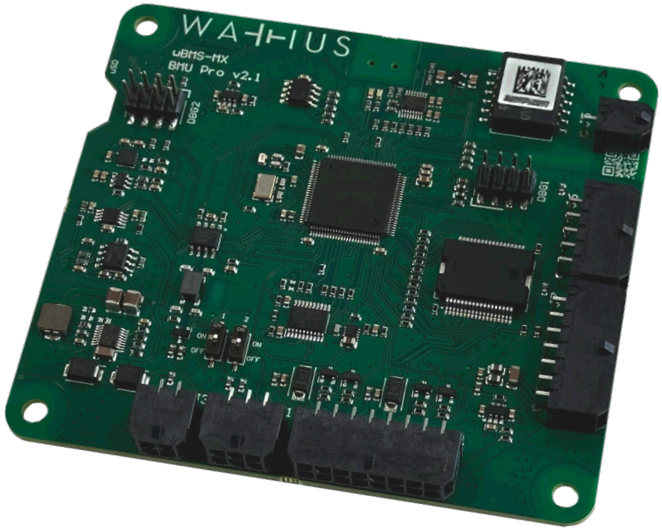
wBMS-MX BMU Pro

High-performance Battery Management Unit



Introduction

The Wattius **wBMS-MX BMU Pro** is an upgraded Battery Monitoring Unit option compatible with all wBMS-MX and wBMS-HX CMUs.

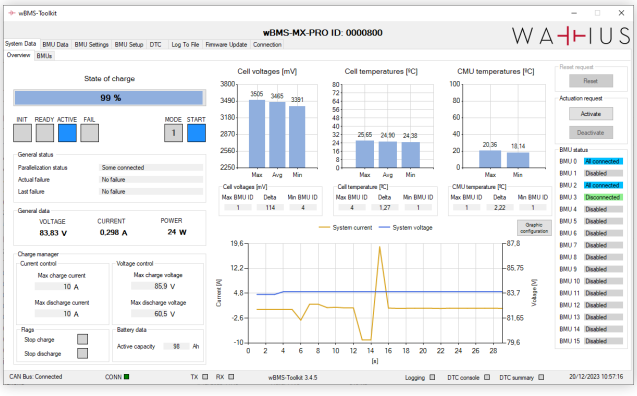
The wBMS-MX BMU Pro features direct compliance with **IEC62619** and is pre-certified for **Functional Safety**, with a Compliance Report for **ISO13849:1** Performance Level D issued by a certified third-party testing entity.

The wBMS-MX BMU Pro features **two CAN bus** interfaces, as well as Bluetooth and USB. It also improves current measurement accuracy, featuring up to 4 hall sensors inputs, providing support for **dual-range** current sensors.

Each BMU supports **up to 48 CMUs**. Multiple BMUs can be connected in **parallel** without additional hardware. The system automatically handles smart string connection / disconnection and provides a single control interface with EMS / Inverter.

With the wBMS-Toolkit PC software multiple configuration parameters can be tuned to work with different types of cells, architectures and use cases, as well as providing an excellent tool to monitor the system and access diagnostic and debug information.

wBMS-Toolkit



Connectivity

2x CANbus, Bluetooth & USB.
Real-Time logging of events, alarms and operation data to microSD card.
Monitoring, configuration & analysis with free wBMS-Toolkit PC software.

Performance

Compatibility with all wBMS-MX and wBMS-HX CMU models.
Up to 48 CMUs per BMU.
Multiple battery string in each BMU.
Up to 16 BMU automatic parallelization.
Support for external isolation monitors and HV sensors.
Support for dual-range hall sensors.

Safety

ISO13849:1 Performance Level D
Internal diagnostics and safety-critical redundant systems.
Cell and relay open-wire detection.

The wBMS-MX is compatible with the **wBMS-Toolkit**, our Windows software provided free of charge:

- Monitor all **BMS data** in real time.
- Configure **hundreds of configuration parameters.**
- Data logging, diagnostics and flags.
- Firmware update through USB and CAN bus.

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BMU Specifications

Power supply	9 - 36 Vdc. Independent input for contactor supply.
Consumption	Active: < 1 W Deep sleep: < 35 mW.
Supported CMUs	48 CMU per each BMU. Compatible with all wBMS-MX and wBMS-HX CMU models.
Current sensing	Up to 4 external 0 - 5 Vdc hall current sensor. Accuracy < ± 0,1 mV. Support for dual-range, differential or redundant single-ended hall current sensors. Support for external CAN bus current sensors.
CAN interface	2x CAN bus 2.0 A/B (Up to 1Mb/s). Referenced to external power supply. Configurable termination resistor with switch.
Other interfaces	Mini USB 2.0. Bluetooth 5.0 Low Energy.
General input	3x analog / digital (configurable) signal up to 36 Vdc. 3x dry contact digital input. Configurable to multiple functions (ignition key, HVIL, relay feedback etc.). 3x external NTCs.
General output	Maximum total output 4 A. 6x low-side switch. 1,5 A nominal, 2,5 A peak. Extended diagnostics and redundant high-side disconnection. 2x high-side outputs. Open load detection and overload protection. Configurable to multiple functions (contactor, precharge, alarm, coolong, etc.).
High-voltage measurement	Direct support with wBMS-VIC. Support for third-party external CAN bus.
Isolation measurement	Direct support with wBMS-VIC. Support for third-party external CAN bus.
Memory	Integrated redundant non-volatile memory: system configuration, maximeter and flags. MicroSD support (up to 32 GB).
Parallelization	Up to 16 BMUs in parallel. Smart parallelization management without additional hardware. Multiple battery string management in each BMU.
Dimensions	L100 x W90 x H16 mm. 4x M4 mounting holes.
Operating temperature range	-40 to +85 ºC.
Connectors	Molex MicroFit.
Compliance	Functional Safety ISO13849:1 PLd (Compliance Report from certified third-party available). Fully compatible with IEC62619, including 2023/1542/EU. EMC: 2024/30/EU. RoHS: 2011/65/EU.

20250410 RevE

MADE IN EU

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