

Introduction

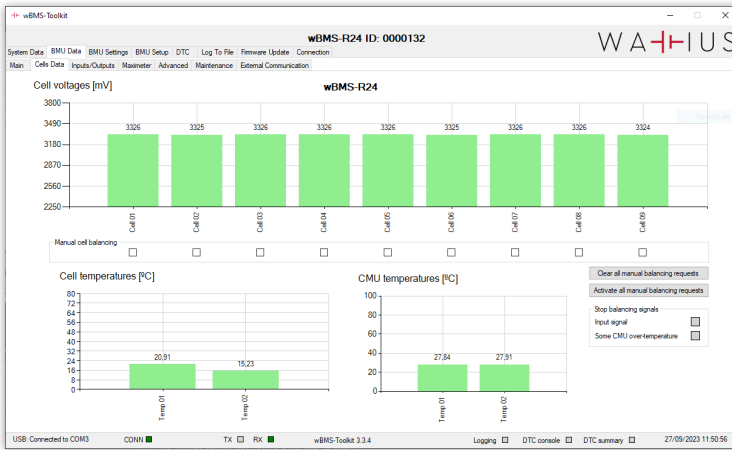
The Wattius wBMS-Toolkit is a Windows PC software provided **free-of-charge** that allows real-time monitoring of all BMS data and configuration of thousands of system parameters.

The wBMS-Toolkit is **compatible with all Wattius wBMS™ products**. Connection between wBMS-Toolkit and the devices can be established through **USB, CAN bus, Ethernet** or even **Bluetooth**.

Thousands of system **parameters can be configured** through the wBMS-Toolkit, such as I/O functions, multiple operation modes, advanced SoP and SoC cell characteristics, CAN bus communication protocols or parallelisation options. Configurations can be exported, saved into files and imported.

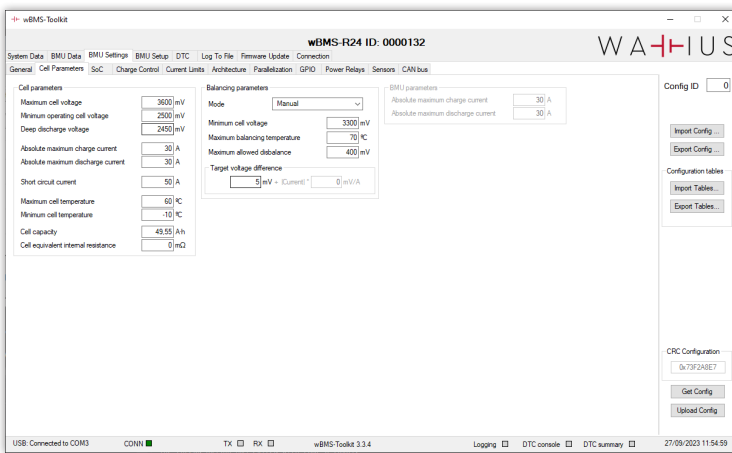
The wBMS-Toolkit is also an excellent tool to view **detailed diagnostics** and troubleshooting information. Maximum lifetime measurements of the BMS can also be accessed.

Multiple access levels with different privileges can be setup for different users. Customer can integrate their software tools with the wBMS-Toolkit using included **API**.



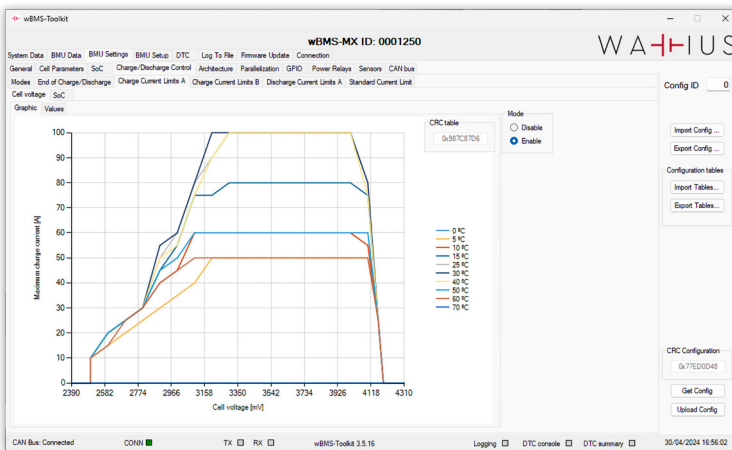
Connectivity & Monitoring

- Compatibility with all wBMS™ products using a single software tool.
- Real-time monitoring of all BMS data.
- Connection over USB, CAN bus, Ethernet and Bluetooth.
- Possibility to use MQTT broker for remote operation over Internet.
- Data-logging.



Configuration parameters

- Thousands of configuration parameters.
- Customisation of inputs and outputs functions.
- 2 different operation modes.
- Custom balancing strategies, actuation signals, and much more.
- Configure parallelisation of up to 16 battery strings for large-capacity systems.
- Export / Import of configuration files.



SoP & SoC

- Advanced State-of-Performance configurations. Maximum charge and discharge current tables based on cell voltage, temperature and SoC.
- Advanced configuration of State-of-Charge cell characteristics based on cell voltage and temperature, with up to 2.000 points.
- Import / Export to excel files.

ID	Timestamp	Severity	Source	Description	Status	Device ID
178	29/04/2024 20:32:36	Error	BMU	Emergency button activated.	ACTIVE	00000000
127	29/04/2024 20:32:36	Event	BMU	Input 3 active.	OLD	00000000
121	29/04/2024 20:32:33	Event	BMU	Output 3 Multipurpose activation requested.	OLD	00000000
131	29/04/2024 20:32:32	Event	BMU	Positive Man Power Relay activation requested.	OLD	00000000
1	29/04/2024 20:32:27	Event	BMU	BMU activation requested (Start signal).	OLD	00000000
9	29/04/2024 20:32:27	Warning	BMU	Stop discharge flag is active (Discharging not allowed).	ACTIVE	00000000
8	29/04/2024 20:32:27	Warning	BMU	Stop charge flag is active (Charging not allowed).	ACTIVE	00000000
236	29/04/2024 20:32:27	Event	SYSTEM	System activation requested (Start signal).	OLD	00000000
141	29/04/2024 20:31:42	Event	BMU	Precharge relay activation requested.	OLD	00000000
131	29/04/2024 20:31:41	Event	BMU	Positive Man Power Relay activation requested.	ACTIVE	00000000
9	29/04/2024 20:31:41	Warning	BMU	Stop discharge flag is active (Discharging not allowed).	OLD	00000000
8	29/04/2024 20:31:41	Warning	BMU	Stop charge flag is active (Charging not allowed).	OLD	00000000
141	29/04/2024 20:31:41	Event	SYSTEM	Parallelisation complete.	ACTIVE	00000000
141	29/04/2024 20:31:39	Event	BMU	Precharge relay activation requested.	ACTIVE	00000000
121	29/04/2024 20:31:38	Event	BMU	Output 3 Multipurpose activation requested.	ACTIVE	00000000
1	29/04/2024 20:31:38	Event	BMU	BMU activation requested (Start signal).	ACTIVE	00000000
236	29/04/2024 20:31:38	Event	SYSTEM	System activation requested (Start signal).	ACTIVE	00000000
2	29/04/2024 20:27:52	Event	BMU	BMU reset requested (Reset signal).	ACTIVE	00000000
237	29/04/2024 20:27:52	Event	SYSTEM	System reset requested (Reset signal).	ACTIVE	00000000

Diagnostics & Access

- Detailed diagnostics.
- View system maximum lifetime measurements and statistics.
- Firmware update of the wBMS™ devices.
- API for integration with customer tools.
- Multiple access levels.