

# **RDC Charger**

# **User manual**



#### Robotina d.o.o.

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# **BTMS - Battery Monitoring System**

BTMS is a battery monitoring system for larger UPS systems. Enables:

- cell status monitoring
- equalization of cell load within the string
- switching off strings where an error is detected on at least one cell

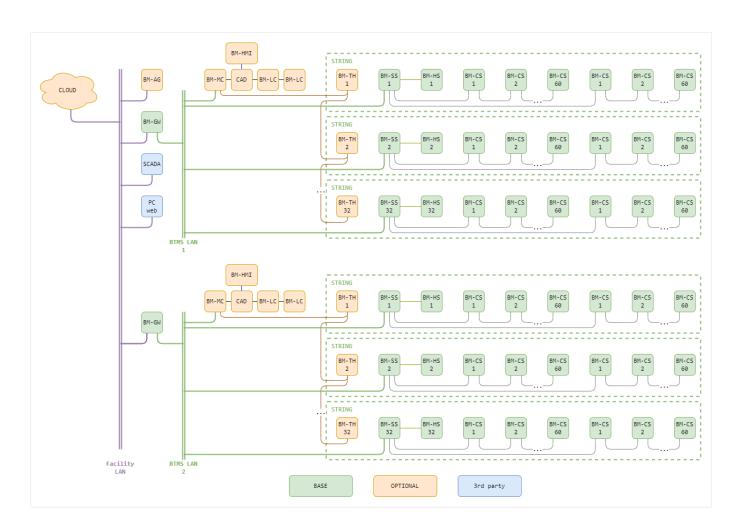
#### **Dictionary of terms and abbreviations**

BTMS         Battery Monitoring System         Battery monitoring system for larger UPS systems.           battery         -         Lead-acid rechargeable battery stores electricity to operate the UPS during a power outage.           cell         -         Basic battery building. A battery usually consists of several cells connected in series.           string         -         Multiple batteries connected in series.           UPS         Uninterruptible Power Supply         A device that provides battery backup when the electrical power fails or drops to an unacceptable voltage level.           BM-AG         BTMS Aggregator         When several BM-GW's are needed at the Datacenter, aggregate all BM-GW and provide site functionality + Cloud connectivity and alarming.¹           BM-GW         BTMS Gateway         Visualization (browser) of batteries and installed systems connected to the GW logically grouped into strings and UPS's in real time and their historical data. Alarming, Cloud connectivity           SCADA         3rd party SCADA         Any SCADA that accesses battery, stringig and/or UPS data via Modbus TCP/IP protocol.           PC web         PC with WEB Browser         Viewing the user interface from BM-AG or BM-GW via any web browser.           BM-MC         BTMS Master Controller         It allows the connection of BM-TH sensors and configurable digital inputs for monitoring additional alarm signals and outputs for alarming or switching off strings where an error occurs.           BM-HMI         BTMS Human-Machine Interface			
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<b>BM-HS</b> BTMS Hall Sensor It measures the string current	BM-SS	BTMS String Master	battery data (total string voltage, average SOC,
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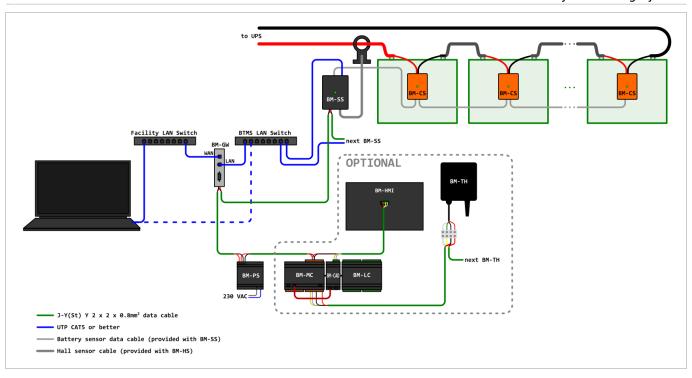
BM-CS	BTMS Cell / Battery Sensor	Control of each individual battery / cell. It allows monitoring the status, voltage, internal resistance, temperature of the cell and calculates SOC and SOH.
SOC	State Of Charge	Calculated battery charge; it is calculated from the actual voltage on the battery and by integrating the charge and discharge current.
SOH	State Of Health	Informative battery state calculation that takes into account internal resistance, battery temperature, rise/fall of voltage during charge/discharge and other parameters that affect battery performance.
Balance	Voltage balance within string	Calculation of voltage inequality on the batteries within the string. Battery sensors can actively equalize the voltage between the batteries within the string during the floating charge phase.

# **System diagram**



## Wiring diagram

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