

Gutor Battery Management System

Increase your battery availability with advance monitoring process

A single battery failure can seriously hurt your business operations in terms of cost and reputation. The G.BMS standalone battery monitoring and management system maximizes your availability by monitoring the batteries and utilizing an automated warning system to ensure they are always in the perfect state of health. It is the ideal system for lead-acid batteries, NiCad, NiMH and most types of Li-ion accumulators.

Cost effective

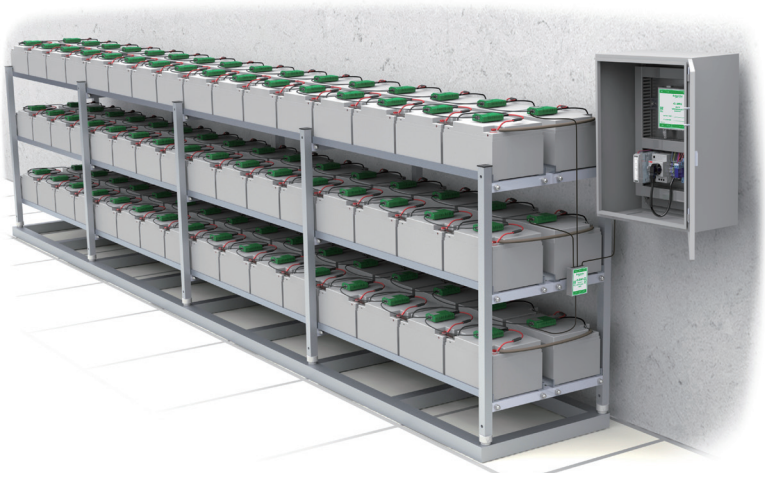
A flexible solution for remote monitoring of the batteries, reducing manpower and lowering operational costs, permitting faster and more accurate responses on site.

Extends battery life

Equalization, a patented balancing voltage process, regulates the voltage of all batteries to the target value defined by the charging controller. It keeps all the batteries in the optimum operating voltage range and supports to reach the batteries design life time.

Reduce turnover rate

The capability of the G.BMS in identifying underperforming cells, result in the ability to specify replacements and save resources. This in turn will drastically reduce the turnover rate of your batteries.



24/7 monitoring

Advanced programmable alarms and a remote monitoring system that gives you access to all measurements via TCP/IP. The data-based operation system can generate open analysis and be integrated into Schneider Electric monitoring solutions.

TOTAL POWER SOLUTIONS

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How does the G.BMS solution work?

Cutting-edge technology

G.BMS Equalization is a patented process that regulates the voltage supply from the charger or UPS for every battery. This process serves to calibrate the batteries and keep them at the ideal state of charge.

- Maintain balance battery voltage levels to prevent unintended overcharging or undercharging. By avoid this, G.BMS helps to limit gassing, dry-out and thermal runaway.
- Maximize battery capacity: Ensures fully charge level and the optimal functioning of the battery system.
- Protect batteries from damage caused by neighbors in the system. A new battery can be swapped into a string of older ones minimizing the risk of overcharge.
- Perfect system for lead acid (enclosed, sealed, wet, gel and AGM), NiCad, NiMH and most types of Li-ion batteries on new or existing installations.

Instant performance information

G.BMS provides real-time performance information (block voltage, block impedance, block temperature and string currents). Constant monitoring makes it possible to detect common battery issues including sulfation, corrosion, gassing, dry-out and thermal runaway. With easy remote access, you are able to identify potential issues and enroll counter measures efficiently.

By capturing the increases in impedance and drafting voltages, the G.BMS is able to detect battery stratification. From time to time, a battery's acid gel mix requires rectification to manage the ill effects of stratification. The positive result is proven by the lower impedance and improved equalizing (balancing) performance.

Reduce turnover rate by up to 70%

Serviceability

G.BMS with the impedance monitoring allows you to detect weak or damaged batteries in the early stages of deterioration and conduct maintenance planning on site with ease. Timely replacement of bad batteries is now possible to improve the lifespan of the battery system. It can be used as an assistant to expedite discharge tests with accurate measurements.

Extension of service life

The equalizing process ensures each of the batteries within the string is maintained at optimal voltage levels, the ill effects of improper charging. The constant care can increase service life of batteries by more than **30%** and supports to reducing the turnover rate of battery replacement **by up to 70%.**

BACS - Training Center Wettingen

Status: Float charging

String UPS A					
No.	Volt. [V]	Temp. [°C]	Ri. [mΩ]	Equalize	Status
1	13.70	25.0	4.55		
2	13.70	24.9	4.71		
3	13.70	25.1	4.76		
4	13.70	27.5	5.37		
5	13.70	24.5	4.64		
6	13.70	24.5	4.73		
7	13.70	25.2	5.17		
8	13.70	24.0	4.70		
9	13.70	24.6	4.66		
∑ Voltage 123.31 V					
13.70 [V] Target Voltage					

String UPS B					
No.	Volt. [V]	Temp. [°C]	Ri. [mΩ]	Equalize	Status
1	13.72	23.0	4.74		
2	13.72	23.6	4.83		
3	13.72	24.2	4.90		
4	13.72	24.0	4.84		
5	13.72	22.5	4.87		
6	13.72	23.8	4.74		
7	13.72	23.5	4.78		
8	13.72	23.6	4.82		
9	13.74	23.5	4.58		
∑ Voltage 123.53 V					
13.73 [V] Target Voltage					

BACS - Gutor Training Center - Abudhabi

Alarm: General Alarm, Communication Lost, Voltage Low

Warning: Voltage Low

Status: Discharging

Please note that logfile timestamps require a timeserver.

String UPS 1					
No.	Volt. [V]	Temp. [°C]	Ri. [mΩ]	Equalize	Status
1	11.82	23.0	n.a		
2	11.86	23.0	n.a		
3	9.92	21.6	n.a		
4	11.73	23.0	n.a		
5	11.81	22.6	n.a		
6	11.71	23.8	n.a		
7	11.88	21.6	n.a		
8	11.81	21.8	n.a		
9	11.73	22.0	n.a		

String UPS 2					
No.	Volt. [V]	Temp. [°C]	Ri. [mΩ]	Equalize	Status
1	4.99	20.0	n.a		
2	n.a	n.a	n.a		
3	4.92	19.5	n.a		
4	4.97	20.0	n.a		
5	n.a	n.a	n.a		
6	4.92	20.5	n.a		
7	n.a	n.a	n.a		
8	4.90	20.0	n.a		
9	4.99	19.6	n.a		

G.BMS Web server displays and stores the data of each batteries cell. Status LEDs show a change of color (normal, warning and alarm levels) if any battery drifts beyond thresholds for immediate attention.

Smart communication

G.BMS remote management increases the visibility on battery performance and alert data, providing you a hands-on approach to manage your batteries.

Advance warning system

G.BMS provides advance warning **via audio, visual notification, and network messages of system events.** Most warning flags can be mapped on dry contact relays to cater to your specific site needs.

Programmable alert

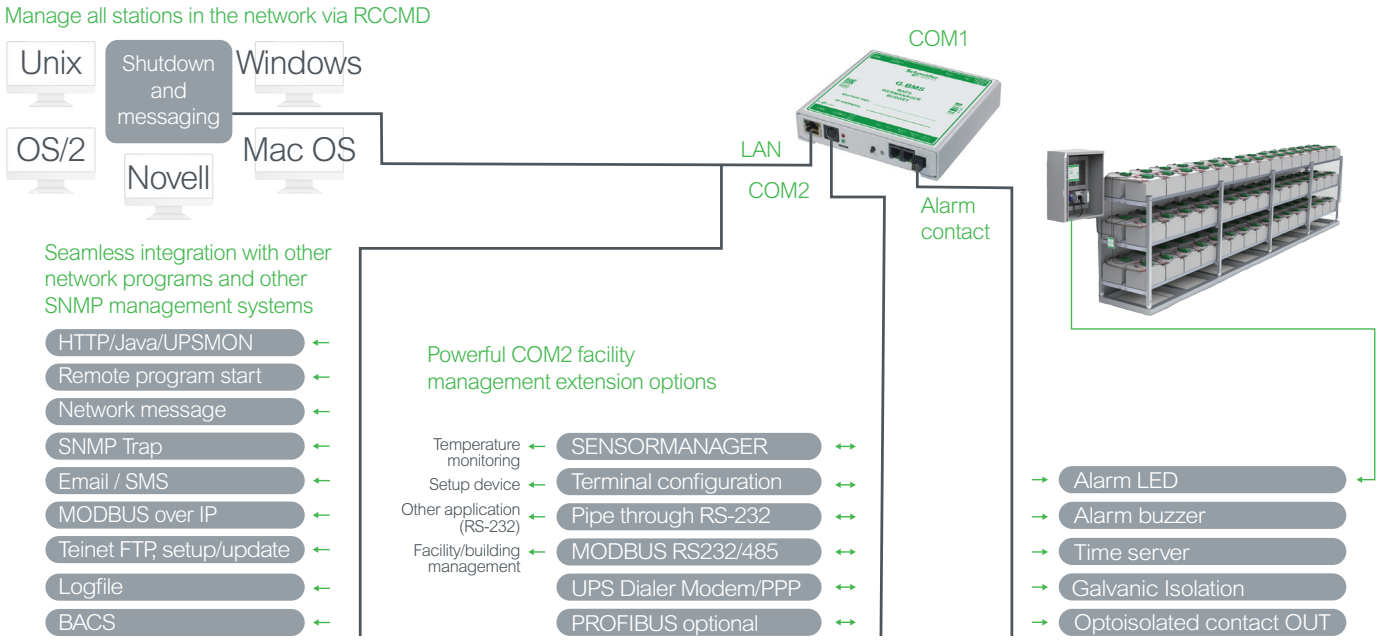
G.BMS monitors UPS system data and environmental parameters (current, temperatures, humidity, hydrogen gas, concentration, dry contacts, etc.). Alerts can be set up and this information can be accessed via multiple communication systems.

Performance and trending analysis

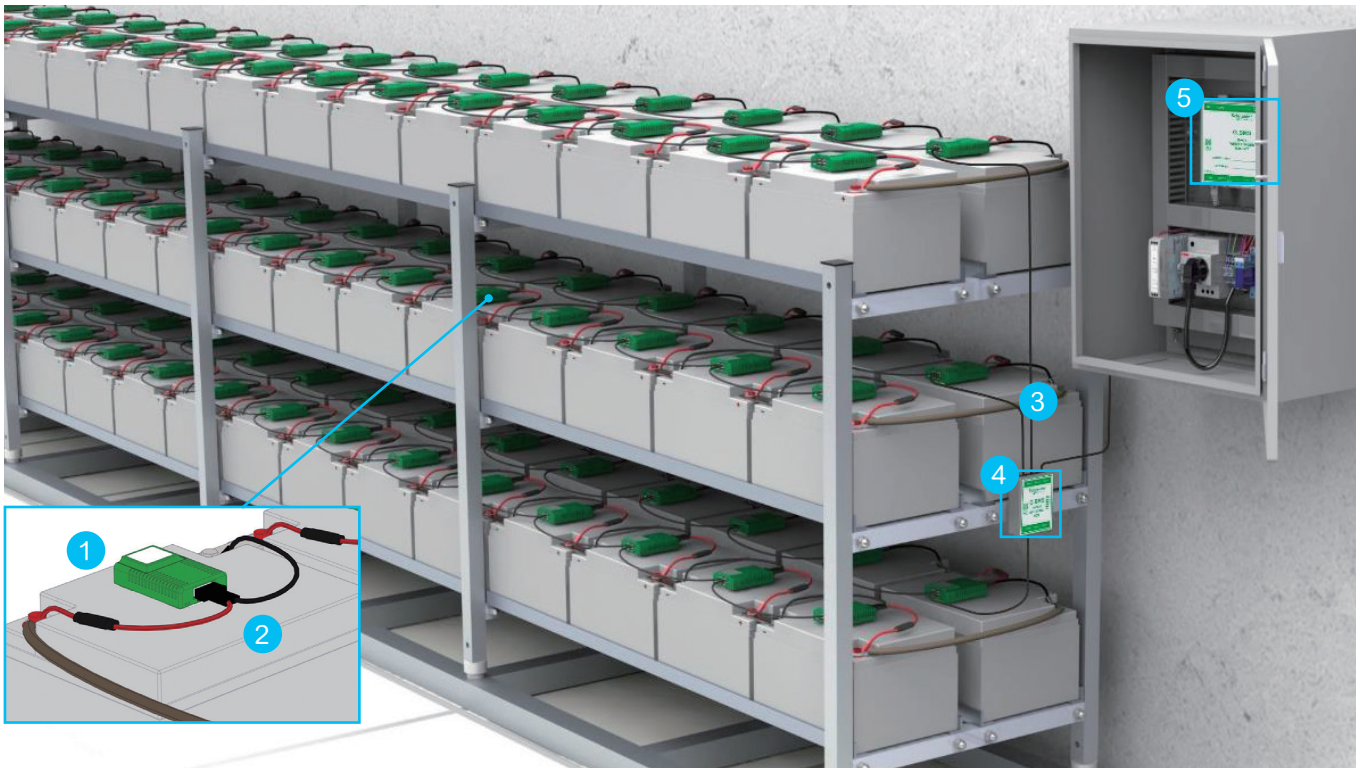
Each system comes with **data visualization and management software.** Over the Ethernet connection, the product can be linked to the control system or be **integrated into EcoStruxure framework** permitting further capabilities.

Multiple communication channels

- A fully qualified SNMP and Modbus and **mail** manager is present.
- Modbus clients can read the system data through TCP/IP, RS232 or RS485.
- Conversion to Profibus and industrial communication protocols is possible through optional converters.
- Free viewer analysis software provides graphical G. BMS data analysis and reports **from multiple installations.**



System overview



1. Module

Takes an active role in regulating battery voltage, managing parameters and measurements of every battery block, and transmitting the data to webmanager.

2. Measuring cable

A fuse-secured connection cable connects to the battery terminals with the module.

3. Bus cable

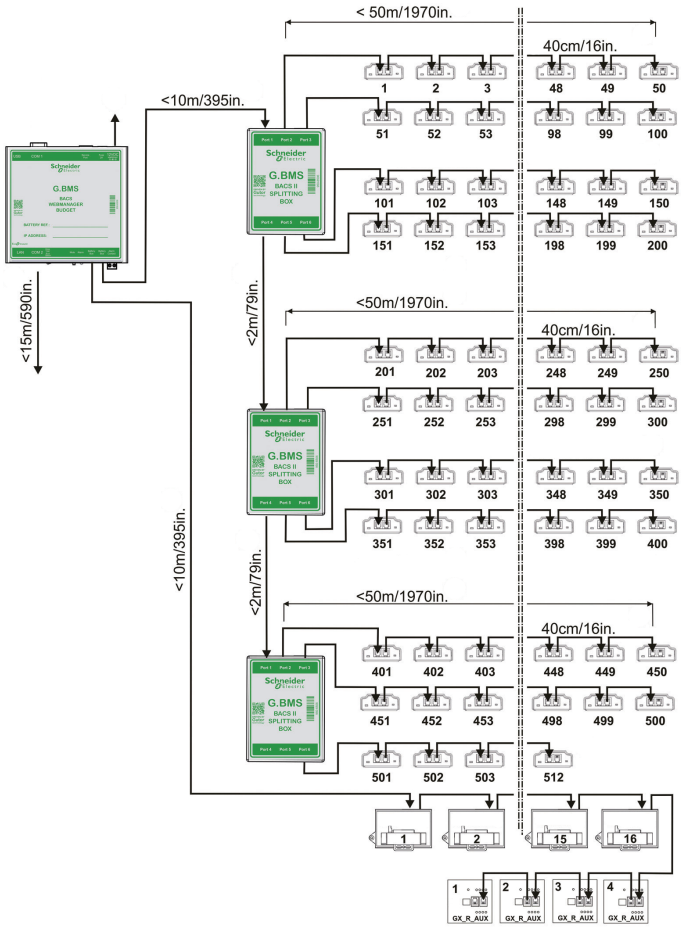
Bus cables connects all the parts in the solution. For long distances between devices, repeaters can be used to extend the bus.

4. Splitting box

The splitting box acts as a switch for proper bus signal and holds 6 ports. For proper signaling, the splitting box can connect up to 50 modules per port.

5. Webmanager

A central unit to manage and store all attached events and measurements on the battery side. Furthermore, the device provides all processed data externally.



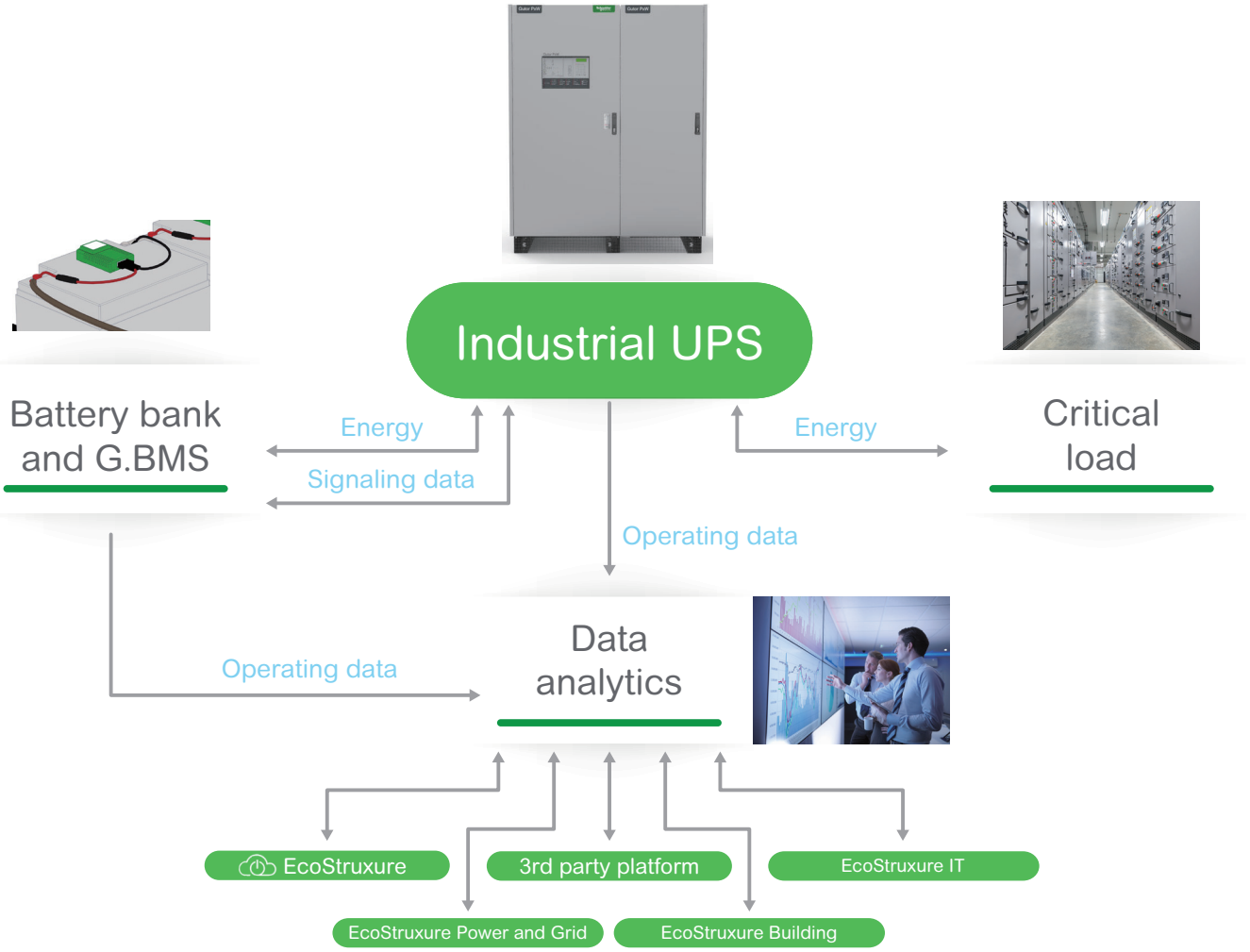
One secure power solution ensures **total peace of mind**

Seamless connectivity between systems hardware and software creates remote centralized monitoring.

With plenty of systems installed on site operators are looking for system connectivity up and down in their operation, especially for secure power systems. These systems play a critical role to secure your business continuity and avoid operational downtime.

Integrate your UPS with G.BMS to achieve one secure power solution

Connections between UPS and battery management system allows your operator to respond quickly and improve process efficiency. The ability to achieve such linkages depends on a platform which not only allows you to combine connected products and software, but also enables advanced analytics and performance monitoring of your secure power assets.



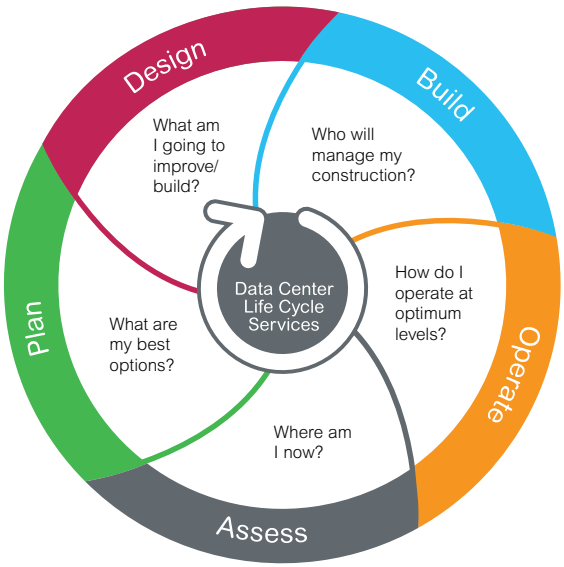
Experts care for your business

Enjoy 24/7 peace of mind with flexible service offerings

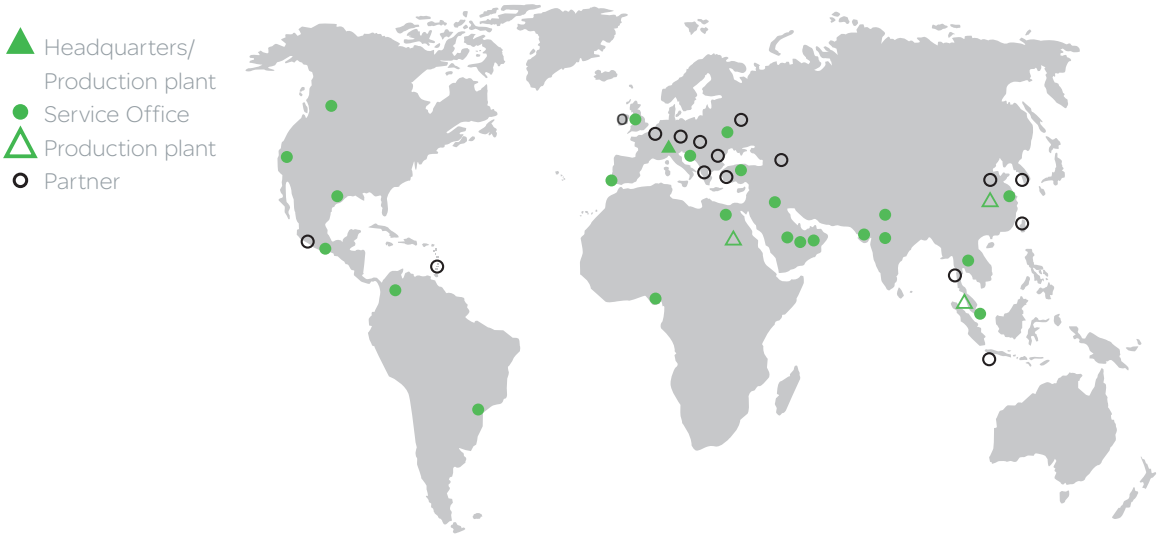
As one of the world's leading Uninterruptible Power Supply (UPS) manufacturers, we not only focus on providing quality products, we also make sure that customers can count on professional and comprehensive support starting from day one. Our aftersales support offers complete customer service customized to your individual needs.

Our mission is to provide best-in-class service to simplify your asset management and reduce your TCO. Gutor offers the following lifecycle services to help you increase reliability, reduce downtime, and optimize OPEX:

- Onsite Installation Supervision and Commissioning
- Preventative Maintenance
- Site Inspection & Audit
- Operation & Maintenance Training
- Spare Parts Management
- Service Contracts
- Digital Services
- Modernization & Upgrade Services
- Battery Replacement
- End of Life Services



"Our worldwide service network ensures professional and comprehensive support starting from day one."



High quality components

Specification	
Storage condition	
Temperature range	-55°C – 70°C
Humidity range	0% - 90% in non-condensing environments
Altitude range	0m - 4000m
Operation condition	
Temperature range	0°C – 60°C
Humidity range	0% - 90% in non-condensing environments
Altitude range	0m – 4000m
Certification	

- Certified CE & approved at WESTEST, at testing labs in Osterrode and according IEC System for Conformity Testing and Certification of Electrical Equipment IECEE Geneva, Switzerland IEC 69050-1:2005.
- CSA C22.2 No. 60950-1 Electrical Safety Standard Council of Canada SCC
- UL 60950-1, UL 60065, UL 61010-1 for North America
- FCC class B and EN 55022
- UKCA certified for United Kingdom

For more information, please visit gutor.com.

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