LCR
YOUR INDUSTRIAL PARTNER

LCR d.o.o.
Hrastovec 1, 1236 Trzin, Slovenia - EU SI89968654
+386 1 542 99 10 +386 1 542 98 10
info@lcr.si www.lcr.si www.meanwell.si

Li-Ion

Selftest

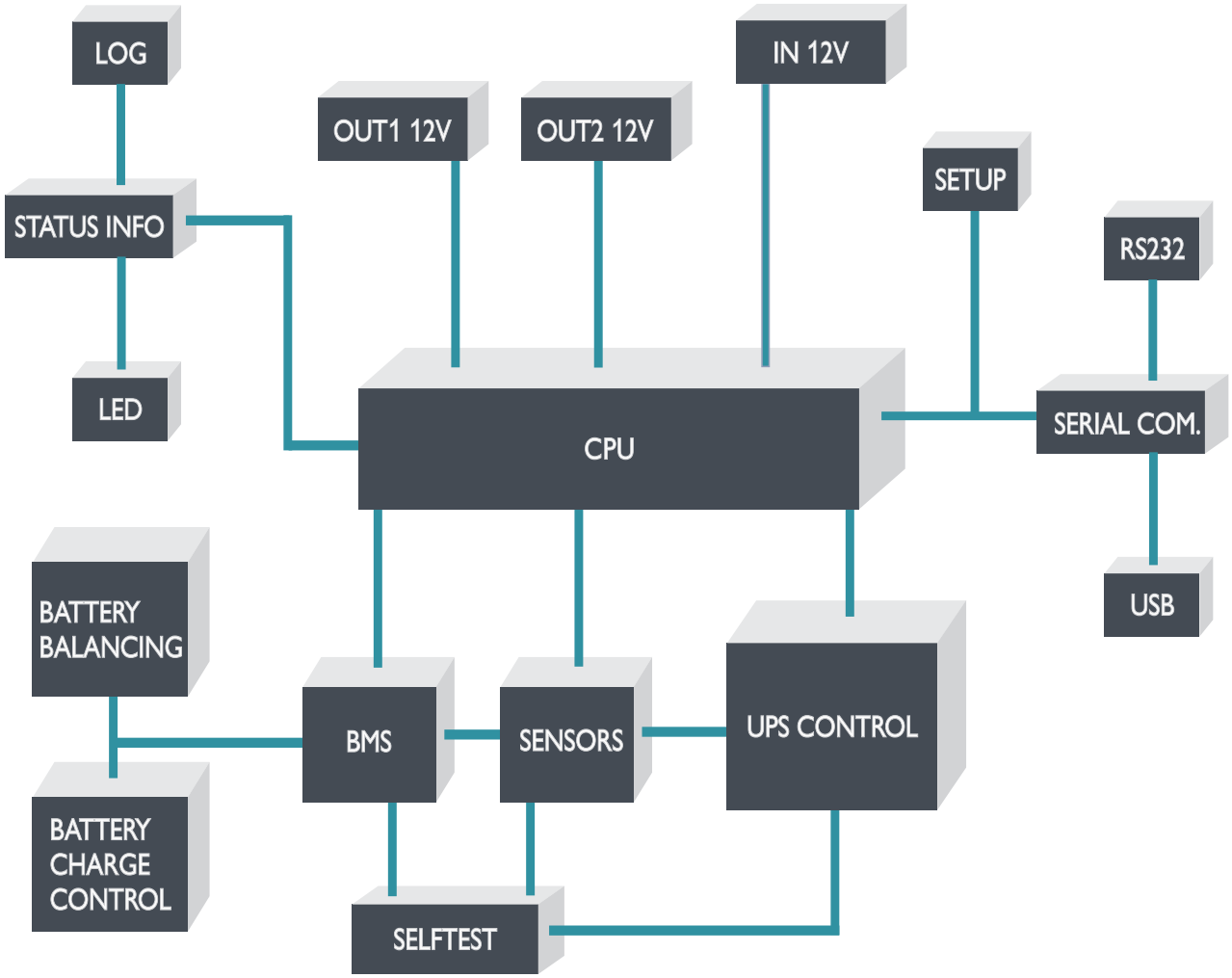
Thermal protection

Software interface

SmartUPS 120

The SmartUPS 120 is intended for use on all systems that use critical applications for data processing and storage. The device operates in ON-LINE mode, which ensures safe execution of open processes even in the event of a power failure, enabling the system to safely shut down. At the same time it eliminates any malfunction of the system, when the input voltage fluctuates and protects it from power surges.

The SmartUPS 120 is intended for 12V powered devices with continous power loads of up to 10A and peak loads of up to 15A. Depending on the battery level, UPS provides stable power source in the range from 11.3V to 13.0V. Up to 2 different electrical devices can be connected to the device. With a full load on the device and a factory preset running time of 60 seconds, the UPS allows the connected system to be turned on and powered repeatedly, allowing all critical processes to be safely completed and essential data stored.



Device Structure

The device incorporates an IMS control system, that maximizes the power of the ON-LINE power supply and provides more than 99% energy efficiency in the normal operation of the device.

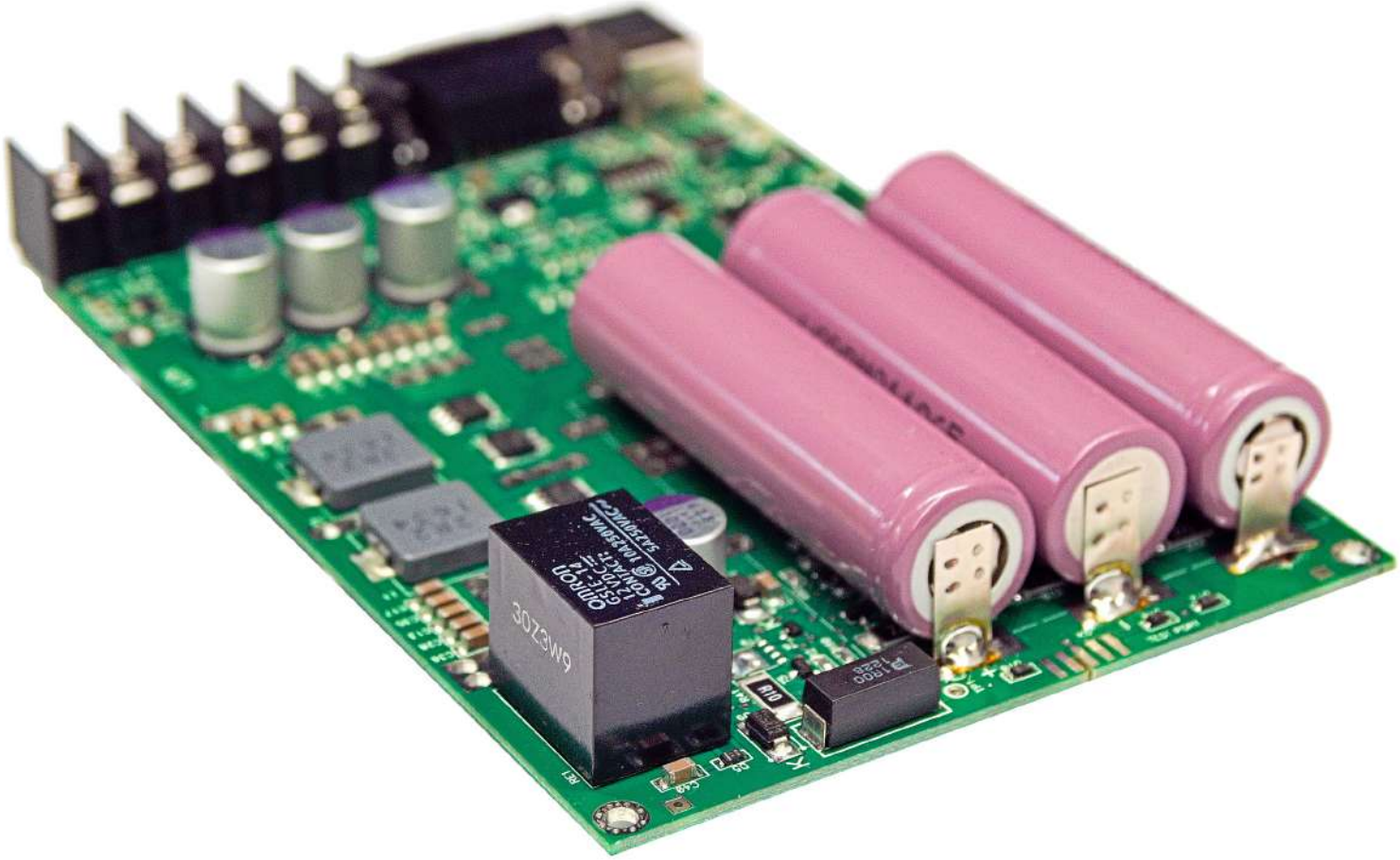
As with all such UPS systems, the device operates all the time and assumes power when it detects a drop in power supply of more than 5%. The built-in BMS system is responsible for properly charging the built-in Li-Ion batteries.

For monitoring, diagnostics and data exchange purposes, an ARM microcontroller is built into the device. Microcontroller manages the operation of the device according to a predefined factory operating profile, or adjusts the operation according to current events, detected by the system operation.

Energy circuit

SmartUPS 120 uses Li-Ion batteries to store electricity. This type of battery chemistry offers maximum device life time, largest number of charge/discharge cycles and shelf life of the product (from minimum 300 full charge and discharge cycles up to 1000). Industry standard 18650 lithium ion battery cells are used, offering a wide range of performance optimization, tailored to specific customer needs.

Especially designed with small compact systems in mind, SMARTUPS120 offers largest energy density in a sleek 3.5” sized unit on the market. At the same time, a custom BMS system is installed in the device, which ensures optimal charging / discharging and maximizes the life of the batteries. Integrated state of charge (SoC) algorithm takes care of optimal charge/discharge curve and informs the central system on the UPS energy level status. Redundancy battery measurement protection prevents that the potential device over discharge or overcharge, as well as current overload is evaded, offering safe use in all systems.



Selftest

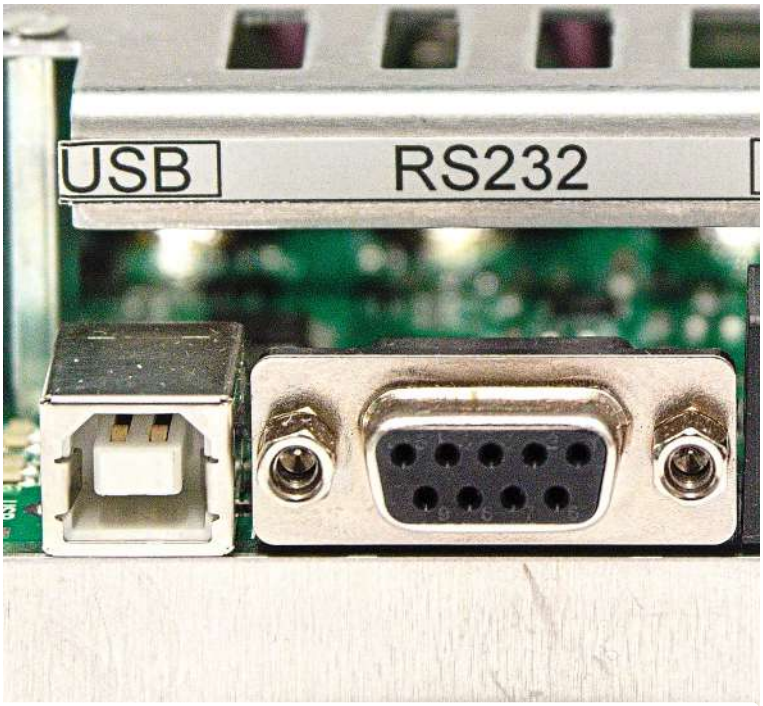
SmartUPS 120 has a built in hardware monitor test, which periodically tests the device hardware and operating environment. Additionally, a unique battery test feature is initiated each week. This process tests the quality of the battery optimizing balancers and installed onboard lithium ion batteries and recalculates the estimated battery state of health (SoH). Both features are initiated automatically; the battery quality test feature can also be started manually by the system operator.

Thermal protection

Device has a built in double thermal protection. These are designed to monitor the environment temperature of the UPS. A second thermal protection is specifically added for accurate lithium ion battery temperature measurement insuring optimal and safe UPS operation in different temperature environments.

Software interface

The device is equipped with a control sensor, which ensures the optimum performance of the device and connected consumers and provides user insight into the operation of the module, enabling complete remote control of the UPS from the central system connected via COM (DB9) or USB (Type B) port.
SmartUPS 120 automatically stores full event history and essential system performance data. For example, it records the number of power outages, under voltage and overload events, exceeded temperature limits, up-time and UPSmode statistic etc.
The statuses of the individual vital parts of SmartUPS are exchanged between the device and the monitoring application in real time via the built-in communication interface. We offer Implementation and optimisation according to end system.
Standard Watchdog feature keeps the system working continuously.



User interface features

Through the communication interface user can see the current state of the system operation, such as input voltage, output voltage, battery charge, etc.
Interface is equipped with information that enables the device to be used properly and to diagnose it.
Information collected is divided into following groups:

- factory information about the device,
- status information of current measured values,
- statistic information,
- values of set alarm limits,
- values of factory-set alarm limits,
- on-line operating time settings, factory-limited to up to 60 seconds.

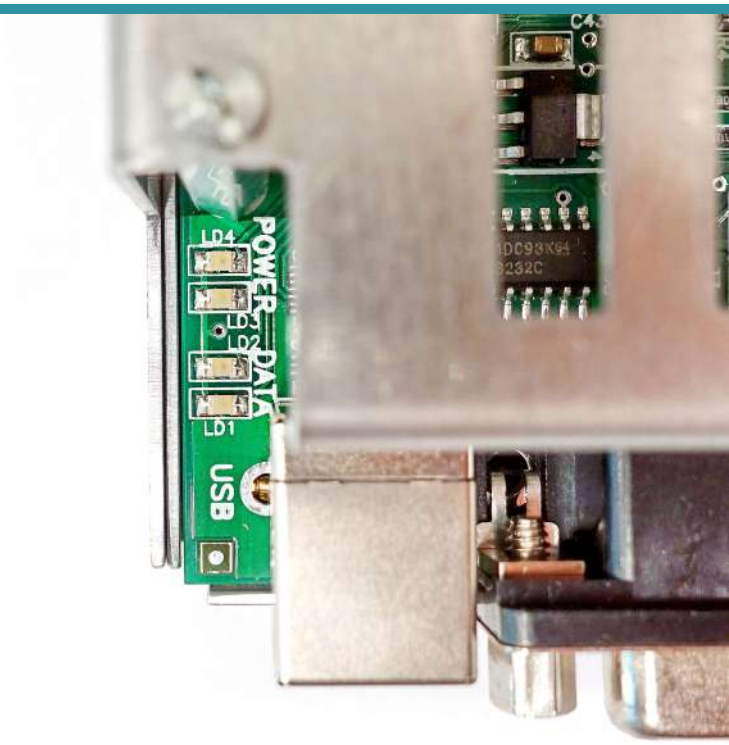
All modules have a unique factory assigned ID number and production date timestamp, hardware and software version data, but device also boosts integrator specified data, such as serial number and special ID group denomination.

Status information

Device operation is divided into two groups, software and hardware notification.

For quick device troubleshooting and device info we have equipped the module with four LED notification lights, which enable swift integration and on the fly device status overview.

Device alarm notifications, which refer to critical operational states, are recorded within the device internal memory and sent via control interface to the control unit. Since all event data is stored internally, it is always available for system administration overview.



Installation

We offer the device either as an integration module (no housing, basic protection) or stand-alone module with customized housing.

The module size also allows for installation in a 3.5 "slot of the hard drive enclosure.

Due to its unique design, the SmartUPS 120 is suitable for use in demanding temperature environments and systems. It does not require additional cooling sources for normal operation.

The unique architecture also makes SmartUPS 120 currently the most affordable ON-LINE UPS solution on the market, providing worry-free data processing to even more cost-sensitive systems and applications where the use of such solutions has not been financially viable so far.