# BACS

## Battery analysis and care system

### BACS: the 3rd generation of the battery management system

Monitoring, regulation and alarm system for lead-acid batteries. Ensuring full battery system operability, preventing unexpected or unnoticed faults caused by defective batteries, extending the lifetime of the batteries and helping to presence system reliabitily.

The 3rd generation of the Battery Analysis and Care System, **BACS**, is a network-integrated battery monitoring and management system. It regularly checks the internal resistance, temperature and voltage of each individual battery. It is also possible to adjust the charging voltage of each battery and manage environmental measurements (temperature, humidity, hydrogen gas content) and applications (UPS systems, rectifiers, DC systems, inverters and other devices). This ensures that the batteries always remain in optimum operating conditions. The system's ability to constantly monitor and individually control the charging voltages for each battery ensures battery availability at all times - making the so-called Achilles heel of UPS systems (or any other power device) a thing of the past.

**BACS** is suitable for all lead-based (AGM, gel, sealed and open lead-acid), nickel-based and lithium-ion batteries.
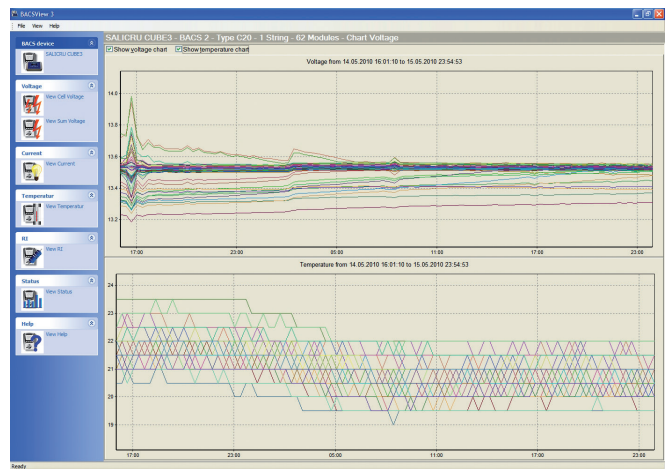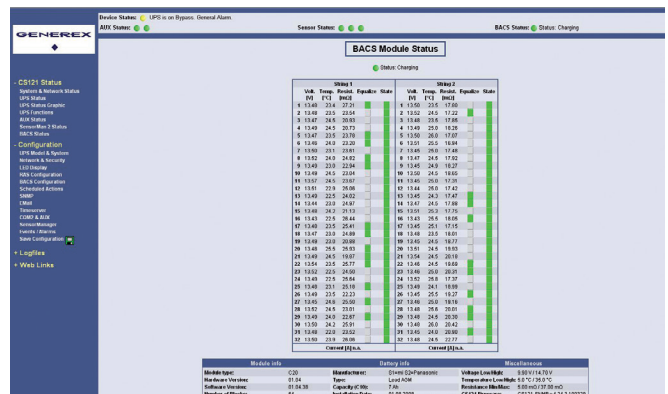




Monitoring software

# Technology

· The system is designed to monitor and control batteries individually or in battery blocks, providing a symmetrical charging process.
· Individual voltage regulation: even distribution of the voltage supplied by the charger.
· Protection against any unexpected individual overcharging (gassing), drying out or full discharge of batteries.
· Sulphation problems are prevented through visualisation and communication of sulphation levels.
· Protection for nearby batteries against charging voltage faults in one battery.
· Through its equalising system, it ensures optimum capacity for battery systems throughout their lifetimes.
· Intensive and comprehensive analysis in one battery of the power supply system.
· Available for sealed lead batteries (2, 6, 12 and 16 V)  and Ni-Cd, Ni-MH, lithium-ion batteries (1.2 to 3 V) with capacities ranging from 7 Ah to 5000 Ah.
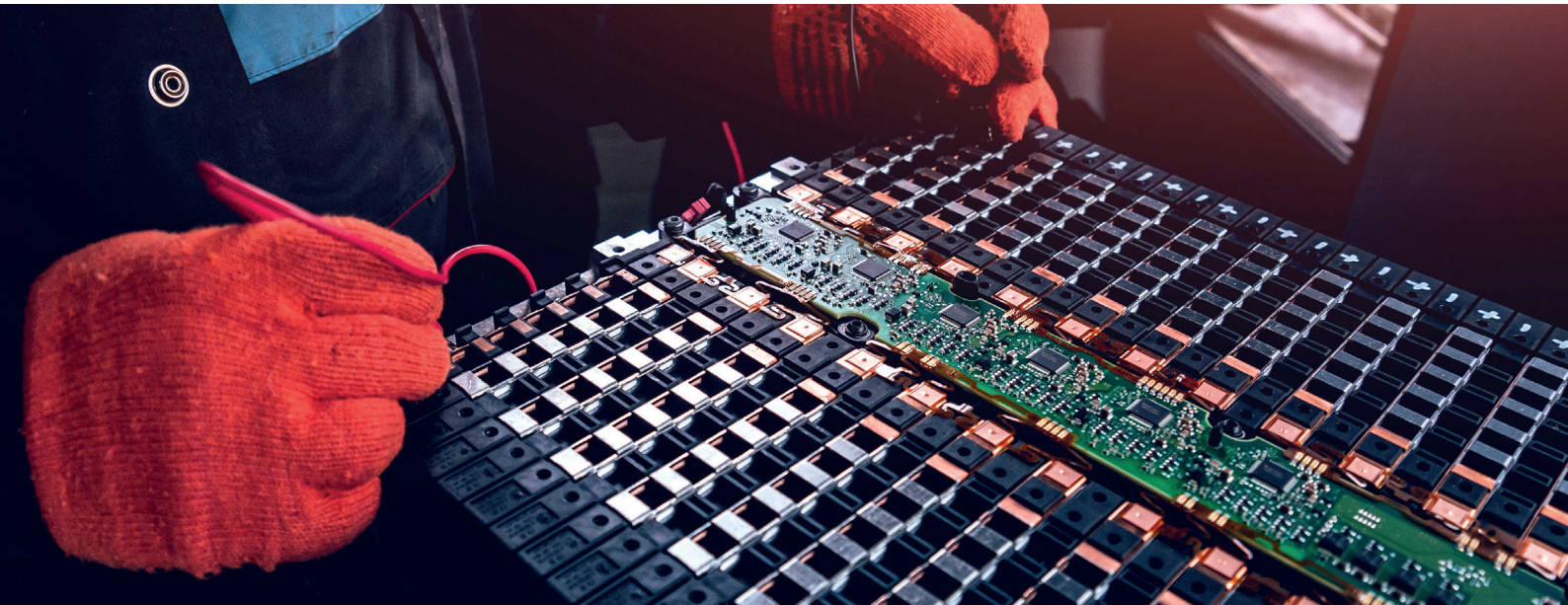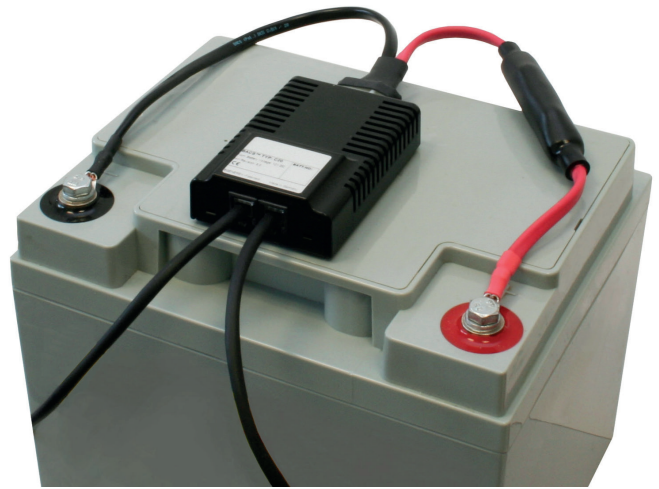




# Advantages

· Increased durability and battery pack capacity.
· Replacement of full battery packs as a precautionary measure is not necessary.
· Batteries can be used up until the end of their useful lives.
. Costly monitoring and maintenance routines are no longer required.
· Unexpected or unnoticed battery faults are avoided.
· Optimisation of battery capacity.
· Cheaper monitoring per battery.
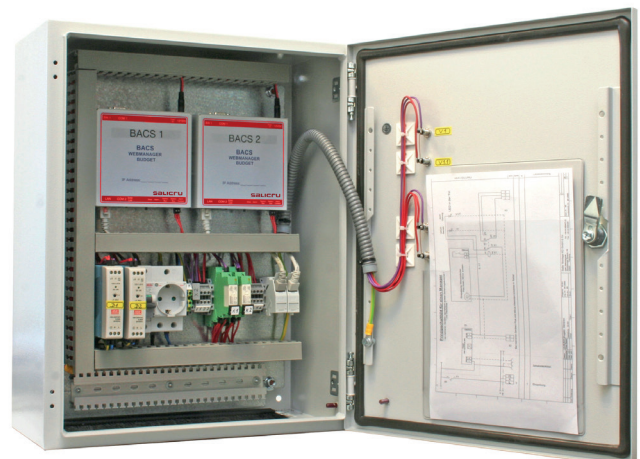
# Technical specifications

| MODEL | WEBMANAGER |
|---|---|
| PROCESSOR AND MEMORY | 32-Bit RISC processor, 32 MB storage / 64 MB RAM |
| POWER CONSUMPTION | At 24 V / 100 mA for BACS module +10 mA |
| INTERFACE | 3 x RS-232 interfaces, including 1 for the battery bus<br>1 x RJ10 for the battery bus converter<br>1 battery bus converter included<br>1 x RJ45, 10/100 Mbit Ethernet connector |
| DIMENSIONS | Housing: 69 x 30 x 126 mm (L x W x H)<br>Card: 60 x 20 x 130 mm (L x W x H) (slot format) |
| WEIGHT | Housing: 110 g<br>Card: 90 g |
| TEMPERATURE | 0-60°C, maximum humidity 90% non-condensing |

| MODEL | BATTERY MODULE |
|---|---|
| POWER CONSUMPTION | 30 mA en modo normal<br>< 8 mA en Modo Sleep (Rev 1.4)<br>< 1 mA en Modo Sleep (Rev 1.6) |
| MEASUREMENT TOLERANCE | Internal resistance <10%<br>Voltage <0.1%<br>Temperature <5% |
| INTERFACES | 2 x RJ10 for BACS battery bus<br>Internal RS-232 interface<br>1 x button for addressing<br>Temperature sensor -10 to 100°C<br>Measurement value (depending on type) 1.3V - 16V<br>LED display (green LED) |
| HOUSING | ABS housing (UL certified, cooling by non-flammable fins) |
| DIMENSIONS | 80 x 55 x 27 mm (L x W x H) |
| WEIGHT | 75 g |
| TEMPERATURE | 0-60°C, maximum humidity 90% non-condensing |
| PROTECTION DEGREE | IP30 |

# Webmanager

· **BACS** WEBMANAGER manages up to 330 BACS modules in 10 series/strings of batteries.
· Each battery is managed individually.
· The power supply voltage range is 9-30 V.
· It fully replaces the UPS' SNMP adapter.
· Simple DIN rail installation.
· Relay alarms for use in the network.
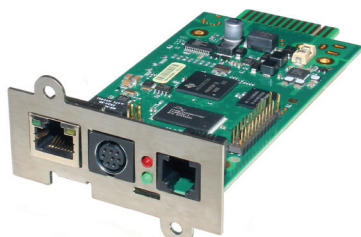
# Battery modules

· Individual monitoring of batteries in a 7 to 5000 Ah range.
· Pb-Ca batteries: 2, 6, 12 and 16V.
· Ni-Cd, Ni-MH, Litium- Ion batteries: 1.2 to 3V.
· "Equalising" principle: even distribution of charging voltage across all batteries, up to 150 mA for each one.
· Efficient uniformity of voltage levels in batteries of up to 300 Ah.
· Minimal heat dissipation at the highest voltage regulation.







**salicru**

# Technical specifications

| MODEL | BUS CONVERTER 2 (standard) |
|---|---|
| CONSTRUCTION | Conversion and galvanic separation of the BACS battery bus to the WEBMANAGER |
| POWER CONSUMPTION | Wall wart 12 V/ 800 mA (default for up to 160 modules)<br>Optional 12 V/ 1400 mA for up to 256 modules |
| INTERFACES | 2 x RJ10 for BACS battery bus<br>1 x RJ12 for COM3 of the WEBMANAGER<br>1 x MiniDin8 interface/RS-232 for serial connection to PC<br>For CONVERTER 3, an adapter is required (see below)<br>1 x DC connector for mains power supply |

| MODEL | BUS CONVERTER 3 (optional) |
|---|---|
| CONSTRUCTION | The same as CONVERTER 2, but with an additional LED display, acoustic alarm with acknowledge button and potential-free contacts (2-pole screw terminals for maximum 1 mm² cross section, 125 Vac, 60 Vdc and 1 A). Also included is a second RJ10 bus for the BACS battery bus (ring) |
| OPCIONAL | Adapter from mini-8 to RS-232 with 1.5 m mini-8 connection cable |
| HOUSING | Grey polystyrene housing |
| DIMENSIONS | Measurements: 91.5 x 67 x 25 mm (L x W x H) |
| WEIGHT | 120 g |
| TEMPERATURE | 0-60°C, maximum humidity 90% non-condensing |

Information subject to change without notice.

# Bus coupling

Easy installation through rapid connection of bus cables with Velcro fastening.
· Cables with special crimping are not necessary.
· Pre-assembly of the measurement cables prior to the installation of the batteries.
· Easy and rapid reinstallation of modules.

Bus cable

Measurement cable

@salicru_en    www.linkedin.com/company/salicruen/

**WWW.SALICRU.COM**

AVDA. DE LA SERRA 100 · 08460 PALAUTORDERA (SPAIN) · FAX +34 93 848 11 51 · salicru@salicru.com

salicru