

AMPERIS BATTERY MONITOR

The ultimate battery control and protection system

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This Amperis' Battery monitoring Solution is an integrated battery Monitor, Controller and Data-logger, designed to be installed on batteries of any type, voltage and capacity.

amperis

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This Amperis' Battery monitoring Solution is an integrated battery Monitor, Controller and Data-logger, designed to be installed on batteries of any type, voltage and capacity. It measures and logs all relevant operating parameters of the battery and it communicates in real time through CANBUS, PWM or RS-232 interfaces, allowing a complete integration with the vehicle Control System, the Charger and other accessories.

- ✓ **Dust-proof and vibration proof**
- ✓ **HV isolated CANBUS interface**
- ✓ **Sealed connections**
- ✓ **Very easy to install and configure**
- ✓ **Robust enclosure, made of acid and oil resistant materials (IP 54)**

● **These are the main parameters measured by the monitor:**

- ▶ Total battery voltage
- ▶ Half battery voltage
- ▶ Current (Integrated Hall-effect sensor)
- ▶ Temperature (Submersible probe)
- ▶ Electrolyte level (Submersible probe)
- ▶ Ah charged/discharged per cycle
- ▶ Ah charged/discharged in total
- ▶ State of Charge (SOC)
- ▶ Number of cycles

**All the measured values are saved in Micro-SD card.

● **Physical characteristics:**

- ▶ Robust enclosure, made of acid and oil resistant materials (IP54)
- ▶ Dust-proof and vibration proof
- ▶ Sealed connections
- ▶ High-voltage isolated CANBUS interface
- ▶ Very Easy to install and configure

Interfaces

The monitor can be interfaced with external devices like vehicle ECU and chargers. All the parameters, events and alarms are made available through CANBUS and RS232

These are the main warning messages:

- ▶ Undervoltage / Overvoltage
- ▶ Unbalanced battery voltage
- ▶ Low electrolyte Level
- ▶ Over-current during operation
- ▶ Over-current during charge
- ▶ Low / High temperature


All the thresholds are customizable by the user, through a simple PC based interface (Configurator Software).

The monitor can manage the entire charge process, by controlling battery chargers through CANBUS and/or PWM signals.

A built-in auxiliary relay provides an additional level of protection and can be used as a remote alarm signal

Typical Applications

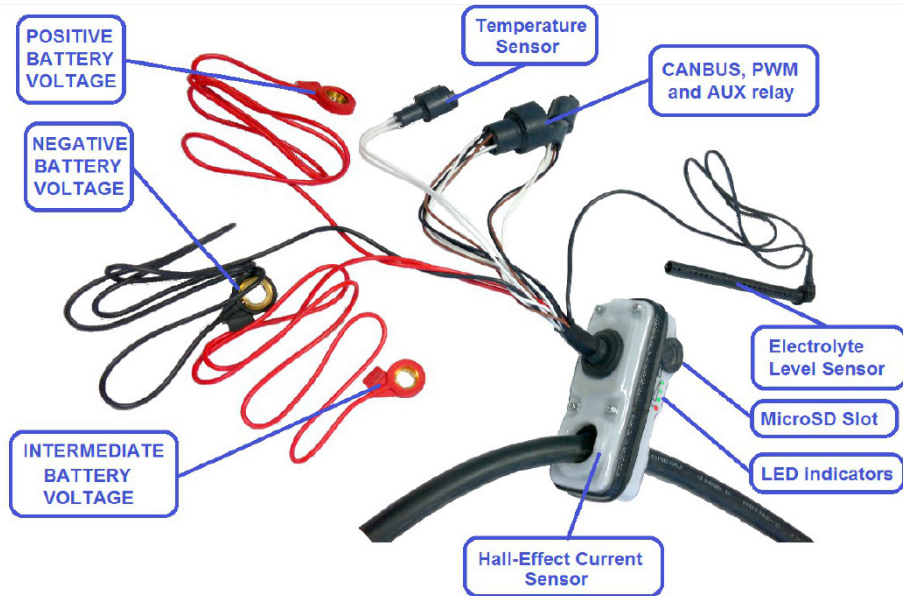
- ▶ Forklifts and other Industrial Vehicles
- ▶ Airport Ground Support Equipment
- ▶ Stand-by power batteries

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CONNECTIONS AND PERIPHERALS:



AMPERIS BATTERY MONITORING SYSTEM	
• INPUT	
Voltage	Battery nominal voltage from 12V to 120V
• FEATURES	
Serial Interface	RS-232@ 115200 kb/s
Can-Bus	J1339 compliant protocol. See the User Manual for the specifications
Storage	1GB MicroSD allows data-logging of the entire battery life (using appropriate settings)
Auxiliary Relay	The Normally-Closed contact opens in case of alarms. Intended to provide an additional level of protection to the battery

ELECTROLYTE LEVEL	The System generates Warning/Alarm messages if the battery electrolyte level drops below a minimum threshold.
HIGH CURRENT ON CHARGE	Keeps track of the current on charge and on discharge. If the value goes over the limit specified on the configuration file, an alarm is generated.
OVERTEMPERATURE / UNDERTEMPERATURE	The System uses the same algorithm as shown for the voltage tracking. In case of overtemperature or undertemperature it can keep track of it by generating a warning and an alarm.
• MECHANICAL AND ENVIRONMENTAL	
DIMENSIONS	128X55X52 (mm)
ENCLOSURE	Plastic enclosure, Oil and Acid resistant.
COOLING	Natural
PROTECTION DEGREE	IP 54
AMBIENT TEMPERATURE	Operation: -10/+50 oC Storage: -20/+70 oC

USER INTERFACE AND CONNECTIVITY

<p>USER INTERFACE PC SOFTWARE</p>	<p>RS-232 port (real time control) Micro SD card (mass memory for data-logging) AMPERIS PC Suite, compatible with Microsoft Windows XP/Vista/7, composed by: • SOFT. Configurator (Easily configure alarm thresholds and options)</p> <ul style="list-style-type: none"> • SOFT. Real-time Monitor (View measurements in real-time) • SOFT. Data Analyzer (Analyze, Plot and Export data off-line)
<p>STANDARDS</p>	<p>EMC: IEC EN 61000-6-2, IEC EN 61000-6-4 Safety: IEC EN 50178, IEC EN 62040-1 CE marking</p>

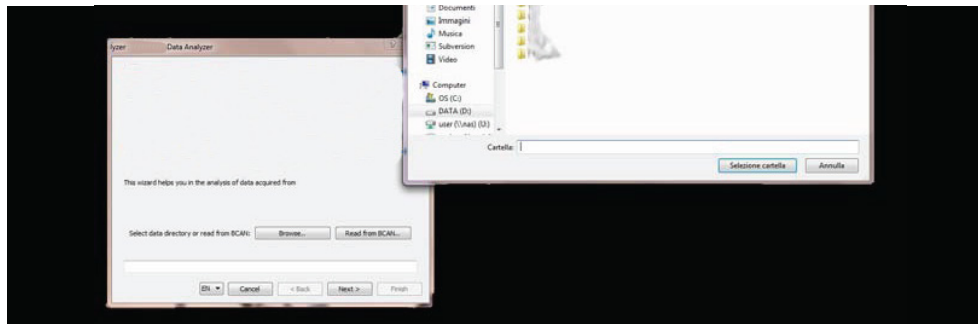
SOFTWARE:

This Suite is a complete tool set that allows you to control, manage and configure your device.:

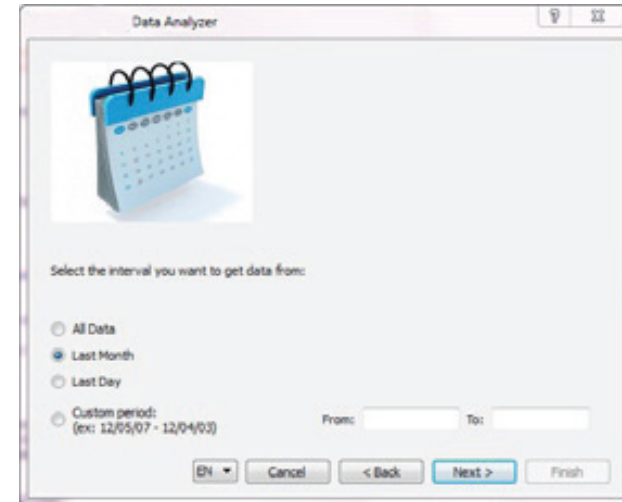
1. Data analyzer: a simple wizard interface will drive you through the entire analysis process:

OFF-line analysis of data taken from SD card.

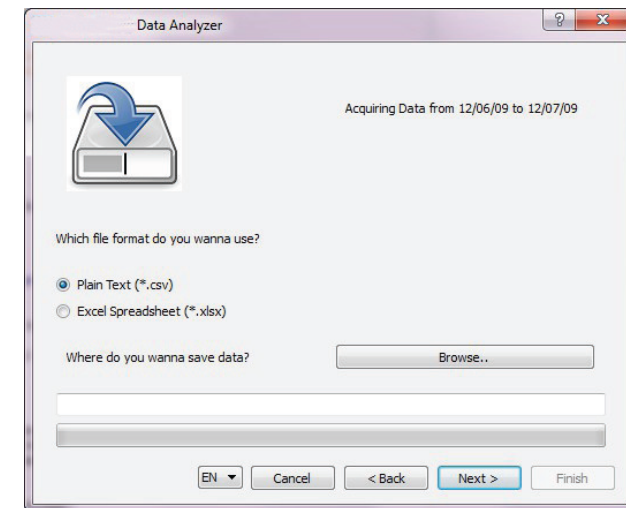
Serial acquisition directly from monitor.



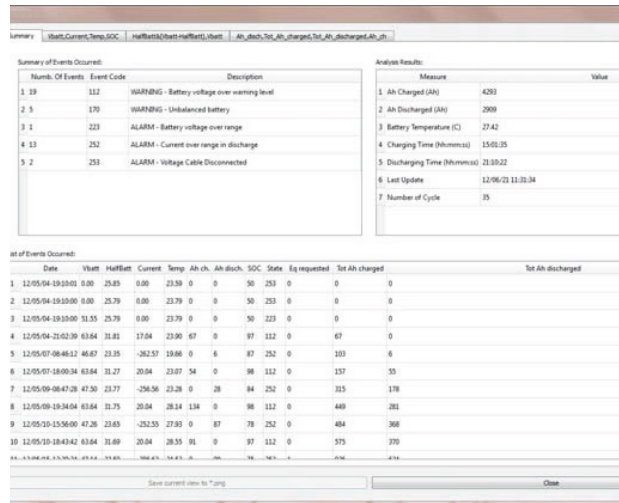
a. Selection of the time period to be analyzed



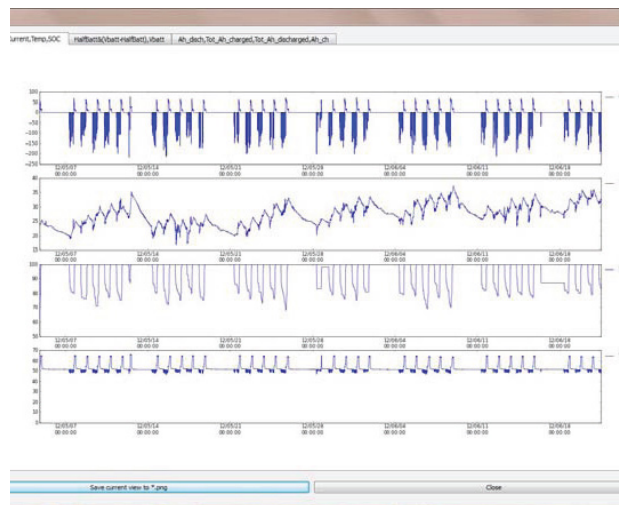
b. Selection of the file format to be generated: CSV o XLSX (Excel)



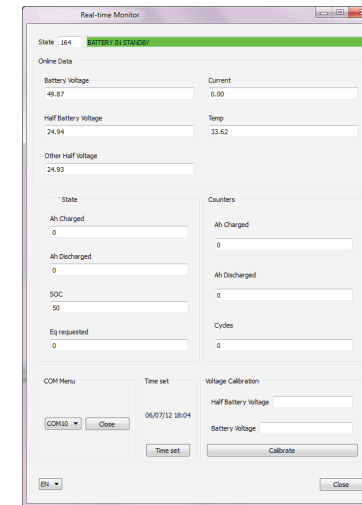
c. An integrated interface shows the complete set of data, for an immediate understanding of the performances of the System



d. Intuitive visualization of all logged data (Voltages, Current, Temperature, SOC, AH, partials and totals)



2. Real time monitor: connect to your monitor and see all measurements in real time. The quickest tool to verify the proper operation and configuration of the module.



3. Monitor configurator: easily configure the monitor alarm thresholds and data-logging options.

