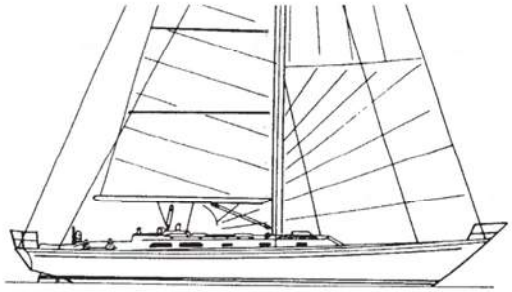
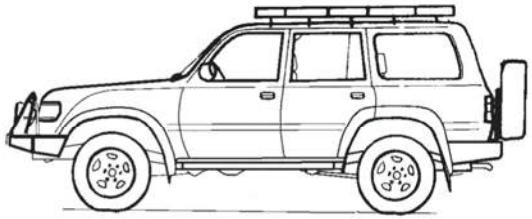


AUTOELETTRIC

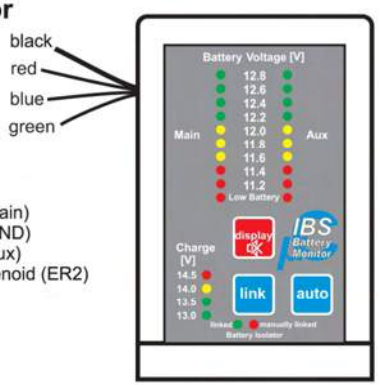
Sistema per Doppia Batteria

Dual Battery System



Installation

Battery Monitor



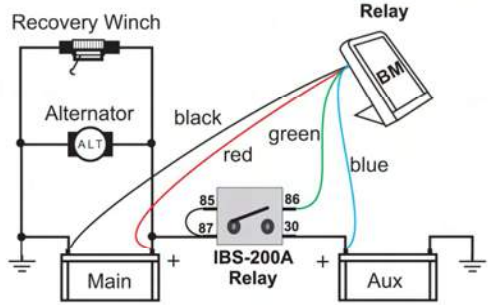
Wires:

red	+Battery (Main)
black	- Battery (GND)
blue	+Battery (Aux)
green	Control solenoid (ER2)

Battery Isolator

Relay

Wiring



New MicroController Technology offers great features:
The new battery monitors are equipped with latest micro power RISK MicroControllers. The basic functionality is unchanged but a lot of user friendly functions have been added:

- Low Battery Alarm on both batteries (Beep and flashing 11V LED), Beep alarm can be de-activated by pressing display.
- Display toggles between bright and dim when display is pressed for 2 seconds, great for night driving.
- Link failure alarm (Beep and flashing linked LED) indicates immediately a link problem between main and aux battery.
- Forced link de-activation in case of aux battery failure; activated by pressing link for more than 5 seconds. Deactivation by by pressing auto for 5 seconds. Beep indicates reset of function.
- 30 and 120 Min manual battery link

Users Manual

•Display of Battery Voltage (Energy Level)
The battery voltage of each battery is visible for 45 sec after pushing the **display** button.

LED indicators:

green: Batteries are in the safe working range
yellow: Check batteries
red: Batteries should be charged

The LED's show the energy level if all loads are switched off.
12.6V = 100%
12.4V = 75%
12.2V = 50%
12.0V = 25%
11.0V = flashing and beeping indicates low battery situation
During first start-up software version is displayed
(SW Version 3.6: **Main** shows 3 and **Aux** 6 LEDs)

•Display of Charge Voltage while charging

LED indicators:

red: >14.5V: Batteries will be overcharged, damage to batteries may occur.
yellow: >14.0V: Proper charge mode.
green: <14.0V: Save charge mode, no damage to batteries.

•Bi-directional Automatic Battery Link

While the engine is running the Main and Aux batteries are linked together for parallel charging from the alternator (green LED **linked** is on). If the engine is stopped, the two batteries will be disconnected automatically with some delay. Appliances as fridges, lights, compressors, inverters are now safely fed from the Aux battery. Extra charge on Aux battery (Solar) is detected and batteries are linked (green LED **linked** is on).

•Manual Battery Link

In an emergency situation (defective or empty Main Battery) or in case of higher power consumption the two batteries (Main & Aux) may be linked together by activating the **link** button once for 30 Mins. or twice in slow interval for 120 Mins. (red LED **manually linked** is on and additionally flashes every 20 Sec. if in 120 Mins mode). After a laps of selected time or immediately after activating the **auto** button, the system returns to the automatic mode. The **Load Sharing Function** with the manual battery **link** reduces the stress on alternator, wiring and the batteries in conjunction with the use of electrical winches. Avoid to activate the **auto** button under full load.

•Winch application

Connect an electrical recovery winch to the main battery as shown in the wiring diagram.

Installation Instructions

Connect the black, red and blue wires **directly to the battery terminals** as shown in the wiring diagram. Use protection hose for secure installation (passing firewall), otherwise use 6A fuse for blue and red wire at battery terminals. Extension of wires: black, red: 1.5mm²; blue, green: 0.5mm², no restriction in lenght <10m total).

Use adequate wires (25mm²) for the heavy duty wiring from the batteries (+) to the IBS 200A relay (85/86 terminals), install a by-pass wire (25mm²) between Main Battery Minus (Starter) and Aux Battery Minus to increase winching performance. The terminalkit is included.

Check the polarity of the supply wires from the Battery Monitor: **red** = Battery **PLUS**, **black** = Battery **Minus**.

Check the correct wiring of the relay. The link of the relay terminals 85 to 87 has to be connected to Main Battery Side as shown in the wiring diagram! Do not over tighten power terminals 30 and 87 of relay. The relay is hot in normal application to keep the contacts securely closed.

The installation into a Toyota LandCruiser HDJ80 (version Europe) requires special instructions. Please contact IBS or your local dealer.

System information (for the computer minded)
This new system with microcomputer is designed in interrupt software architecture, in very rare cases it might be the display is flickering. Several tasks with different priority might be processed at the same time. Reloading the display LEDs has the lowest priority and therefore has to wait sometimes for a split of a second. Most of the time the system remains in the sleep mode, for very low power consumption, processor then only draws 10uA.

DISTRIBUITED BY:

AUTOELETTRIC

Autoelettric S.r.l.
Via Dell'Impresa, 9
Brendola (VI), I 36040 ITALY
Tel. 0444401001
Fax. 0444406364
www.autoelettric.com info@autoelettric.com

Applications

General Functions
This Battery Monitor has been designed for Dual Battery Systems. The Monitor displays the stored energy of both batteries and the charge voltage while charging them with an alternator, a solarpanel or any other source. The Batteries are automatically linked for charging and isolated when discharging. In emergency situations a manual override function to link the batteries can be actuated.

Applications:
- Commercial trucks and 4WDs
- 4WDs / Expedition Vehicles
- Yachting, Mobil homes
-

IBS RBM Sytem Upgrade (Relay Booster Module)
For maximum request in system availability the optional RBM module offers full link start support from auxiliary battery even if starter battery has failed totally and shows less than 10V.

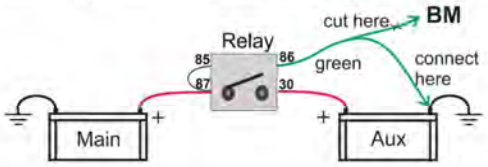
Warranty:
This warranty shall not apply to any product which has been subject to any misuse, negligence, accident or has been used (or opened, broken seal) for any other purpose than was designed.

5 year: Installation done by an IBS **approved** auto electrician.
2 year: Other installations.

Emergency Instructions

DO MODIFICATION ONLY IF HEAVY DUTY WIRING AND RELAY ARE STILL IN WORKING ORDER!

In case of a system damage by fire, welding spikes, salt water, accident/crash or total loss by theft of the battery monitor follow the instructions, how to link the batteries by a simple modification of the wiring close to the relay.
- Cut the green wire leading to the relay (Terminal 86), so that the remaining length of the green wire to the relay is long enough to make contact to the minus of one battery or a panel (GND).
- Connect this green wire from the relay to the minus of one battery or the panel. You hear the 'CLACK', when the relay links the batteries.
- As long as the green wire is connected to minus, the relay is on and draws energy! There is no automatic disconnection anymore!



Specifications

System Setup	MicroComputer
Architecture	RISK MicroPower Interrupt based
Supply Voltage	4..16V
System Voltage	12V
Measuring Range (sense wire blue)	4..16V
Display Range (Battery Voltage)	11.0V..12.8V
Display Range (Charge; Alternator, Solar)	13.0V..14.5V
Linking threshold starter battery (link/sep)	13.1V/13.0V
Linking threshold Aux battery (link/sep)	13.1V/13.0V
Accuracy	+/-1%
Consumption stand-by	<0.5mA
Consumption max display active (20 sec)	80mA
Link failure detection / green LED	slow blink/buzzer
Low battery alarm threshold main red LED	<12V/buzzer
Low battery alarm threshold aux / red LED	<12V/buzzer
Relay Consumption on-state	0.6A
Relay Max/Continuous load/inrush current	200A/500A
Relay contact material	silver
Starter and Gel batteries may be combined	yes
Operating Temperature	-40°..+80° C
Housing	ABS black IP40
Size	100x65x24 [mm]
Protection level	IP52
Mount	IBS RMS System

Wires:

red:	Supply/Sense (Main Battery)
black:	GND (Main Battery)
blue:	Sense (Aux Battery)
green:	Control Relay (open collector)

Protection:
- against wrong polarity
- against overload of solenoid driving circuit on PC Board with SMD Electronically Security Devices, no fuses have to be replaced

CE RoHS OK

No liability for damages as a result of misuse, negligence, accident or wrong installation will be accepted