**Installation**

**Appliances:**
- 12V energy light
- heating system
- charger
- uP-input (pull up)

**Features**
- LED off on
- Change Voltage Setting 12V=>24V
- solder pads b and c

**Wiring**

**LBP5**

**LBP**

Red - +

Blue - -

Black - 12V

**LBP70**

**Wiring**

**LBP**

Red - +

Blue - -

Black - 12V

**LBP180**

**Wiring**

**LBP**

Relay

**70A Relay**

**200A Relay**

Main Switch

**Fuse Circuit Breaker**

**Appliances controlled by LBP**

**Dual Battery Set-up**

The low battery protection device may be installed on the starter battery (SBS = Single Battery System) on the auxiliary battery in a Dual Battery System (DBS) with a 0.3V lower cut off level. Therefore the solder bridge DBS on the interface has to be cutted.

**Cutting/reconnecting solder bridges on interface**

The solder bridges on the print should be cutted with a fine cutter. A cutted linkage may be reconnected anytime with a soldering iron (placing a solder bridge). If you are not familiar with such work, please contact your dealer or IBS.

**Users Manual**

**Cut DBS for dual battery installation (Auxiliary Battery)**

**Connection a-b for Reset**

**Cut b-c for 24V**

**LED**

**Features**

The Low Battery Circuit disconnects the load at 11.6V, the red LED off turns on. If the battery is recharged the load is turned on automatically if the voltage reaches 12.1V, the red LED off turns off.

**Instal manual Reset**

At the two solder pads a and b a remote reset switch may be installed. If the LBP did disconnect the load the unit can be reseted by actuating the remote reset switch. The load stays on until the low battery level is reached again. If the unit is not resetting anymore the battery level is low and the battery has to be recharged first.

**Interface**

**Change Voltage Setting 12V=>24V**

If the junction between the two solder pads b and c is cutted the unit works in 24V.
Installation Instructions

General note
A 10A switch in the red supply wire (+B) may be used as main switch to shut down all accessories if not in use. (Recommended in applications with LBP70 and LBP180). Depending on battery size and condition an automatic reset may occur until the proper shut-down level is reached.

LBP5
The LBP is configured for the supplied wiring length of +B (red) and -B (black). Use two wires to connect the batteries to the battery without shortening. If the wires have to be extended cut these two wires +B and -B close to the module and extend with 1.5mm² (for 3m extension) or 2.5mm² (for 5m extension). The wires +L and -L can be shortened or extended without any restrictions. The module is fully protected with electronic circuitry against overload and short circuit.

LBP70 und 180 with Main Switch
No resistor apply to the LBP wiring. Use adequate power wiring for the load current: 80A => 16mm², 120A => 25mm², 150A => 35mm². The power wiring should be fused or equipped with a circuit breaker. If vehicle is left unattended for longer period, use the main switch to disconnect all load.

Applications

LBP5
Low battery protection for loads up to 5A.
The output -L (open collector) can be used to drive a load (light, small appliances) directly. Additionally this output can be used in combination with a pull up resistor to send an alarm signal to a uP system or SMS box. For various applications the switching levels can be adjusted. Restricted to technical people with required equipment.

LBP70 and LBP180 with Main Switch
With this protection circuits heavy loads can be supervised and disconnected if energy levels are getting low.

Technical features
The LBP is equipped with a time delay to protect the LBP from turning off while a heavy load (fridge) surges. The LBP is protected against wrong polarity, over load, short circuit, reverse feeding and spike pulses. The unit is manufactured in Surface Mount Technology (SMT) in combination with the latest Hybrid Cooling Technology (HCT).

Additional IBS Products:
Dual battery systems for vehicle applications
Ultra Sine Inverter 150W-800W 12V and 24V
Mobile and portable solar systems

Warranty: 2 year
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

Warranty is restricted to the repair or replacement of a defective unit.

Specifications

Supply Voltage
System Voltage
Consumption Modul LBPxx

LBP5 12V or 24V
Load current electroncally protected
Switch level SBS (off/on)
Switch level DBS (off/on)
LBP70/12V with relay
Load current relay
Switch level SBS (off/on)
Switch level DBS (off/on)
Coil current relay
LBP180/12V with relay
Load current relay
Switch level SBS (off/on)
Switch level DBS (off/on)
Coil current relay

Recommended battery types
Temperature range
-20°C to +80°C
Casings
GFK, Silicone
Dimensions
78x41x8 [mm]
Sealing
IP65
Wires:
+B red: Battery Plus
+l red: Load Plus
-B black: Battery Minus
-L blue: Load Minus. OC, Relay-control

Protection Circuits:
- wrong polarity
- overload, short circuit
- reverse feeding
- surge and spike pulses

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