BVSMP/LT
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# BVSMP / BVSMPLT

Firmware Version SMP V7.0 & SMPLT V7.0

# Installation Manual

From Batch Number 30697 incorporating
Local Battery Temperature Compensation


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BALDWIN BOXALL

# BVSMP / BVSMPLT Power Supply & Charger

## Introduction

The BVSMP contains two independent PSU modules and can power either two BV225, two BV125D or two BV050Q power amplifier modules.

The BVSMPLT contains a single PSU module and can power either one BV225, one BV125D or one BV050Q power amplifier.

Both the BVSMP and BVSMPLT employ “switch mode” techniques that improve efficiency, reduce unwanted heat dissipation and weight.

A third fused output is provided to power a mixer or auxiliary circuits. All these outputs together with a fault volt free changeover contact are provided by a 9 way crimp connector plug and socket.

## Protection and Fuse Monitoring

The power supplies have over Current and over Voltage protection circuits and provide full monitoring of the Charger and all DC outputs to ensure system reliability.

In the event of mains failure the DC supplies are maintained using an external standby battery.
The unit has built in deep battery discharge cut off; this prevents total discharge that can destroy the standby batteries in the event of AC power failure for any long periods.

The charger section is totally monitored and has front panel LED fault indicators for the following states:

- AC Supply Healthy,
- Fuse failure,
- Charger failure,
- Battery High Resistance,
- Battery Low Voltage.

Should any of the above fault conditions occur an internal relay releases providing a changeover contact. This fault contact is normally connected to a fault input on a router or used to indicate a fault at the fire detection panel.

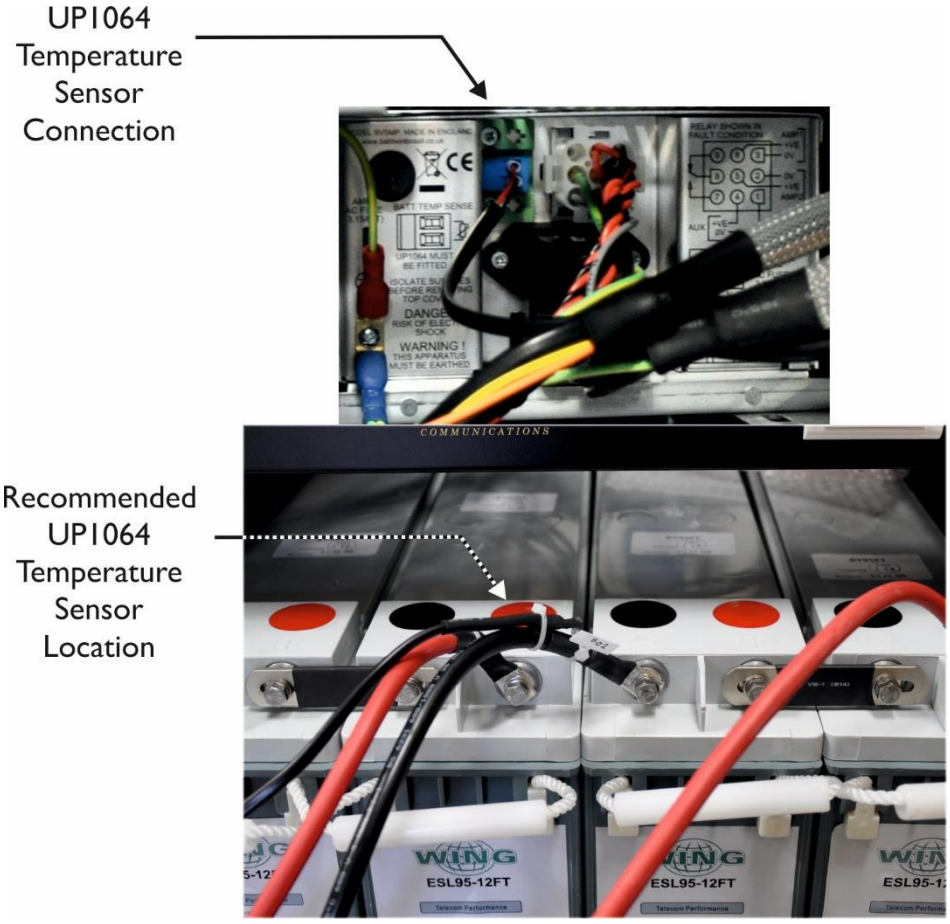
When a fault has been detected the relevant fault LED will illuminate and the OK LED will extinguish.
If the fault is subsequently cleared, the OK LED will illuminate but the relevant fault LED will flash to indicate the fault that existed. This is useful when fault finding.
To clear these “previously announced” faults press the Lamp Test button.

The charger incorporated is of the constant voltage type set for the recommended float charge. Should the battery be below this voltage the BVSMP will charge in a constant current mode at the rate of 3 amps which progressively reduces once the battery has achieved its nominal float level. Upto 4 chargers may be paralleled together when used for larger systems, however they must be synchronised together.
When paralleling units the “SYNC” connection on the 3 way battery connectors must all be connected together.

## Local Battery Temperature Compensation (from B/N 30697 onwards)

The charger incorporates automatic battery temperature compensation to adjust the charge voltage supplied to the batteries.
For units with batch number 30697 onwards this function requires a UP1064 Temperature Sensor Cable. The UP1064 Temperature Sensor cable must be connected to the BATT TEMP SENSE connection on the rear of the BVSMP and the sensor must then be attached to one of the battery cables. Where multiple sensors (for multiple BVSMP units) are fitted they should all be located in approximately the same location.

***Note: If the UP1064 Temperature Sensor cable is not connected to the BVSMP the Charger Fault LED will be illuminated and the charger output will be switched off*.**




## Battery Resistance Monitoring

The Battery Resistance Monitoring function ensures the battery condition is continuously monitored, and is a more accurate method than simple voltage measurement.
The BVSMP monitoring meets the requirements of BS EN54-4.

Monitoring is controlled by a 2way DIL switch located behind the front panel.
*Note: To ensure compatibility with previous versions of BVSMP the Resistance Monitoring can be disabled (see "Compatibility Mode" instructions below).*

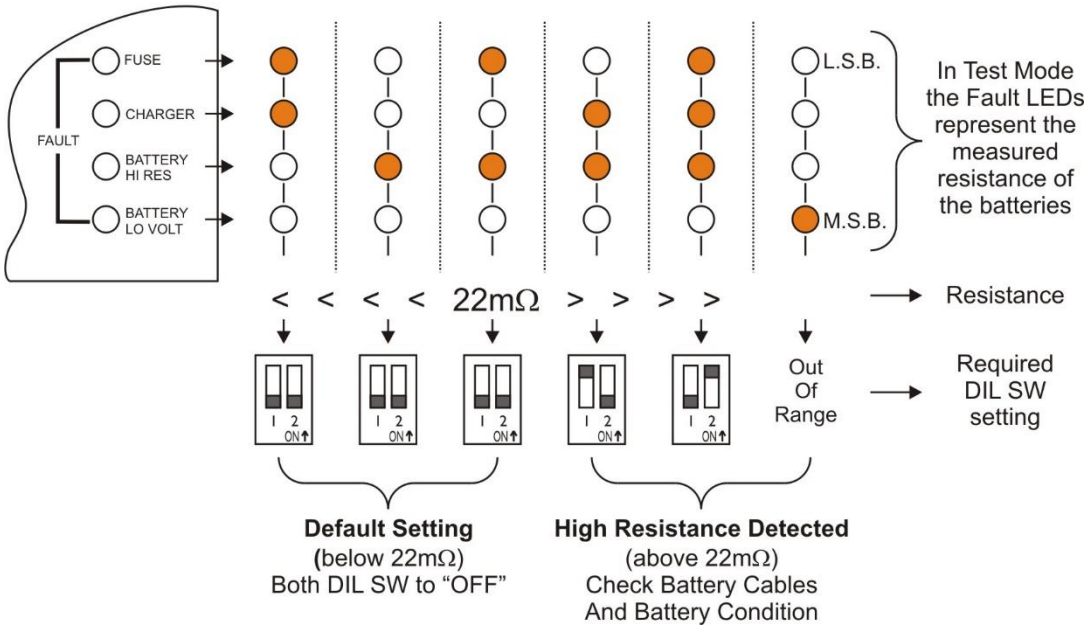
The BVSMP has a factory preset default threshold of 22mΩ for the overall resistance of the cables and batteries. If the BVSMP detects a reading above this threshold then a fault will be announced.
Depending on the cables and batteries in use it may be necessary to adjust this threshold to ensure correct fault detection.

## BVSMP "Diagnostic Mode"

Press and hold the front panel "Lamp Test / Fault Accept" button for 10 seconds.

The unit will then enter a "Diagnostic Mode" and the Front Panel LEDs will display the Resistance Value the BVSMP has detected.
This is shown in the following figure:

**BVSMP Resistance Values in "Diagnostic Mode"**




Set the front panel DIL SW to match the detected resistance.
To leave "Diagnostic" mode and return the BVSMP to normal operation press the "Lamp Test / Fault Accept" for 10 seconds.

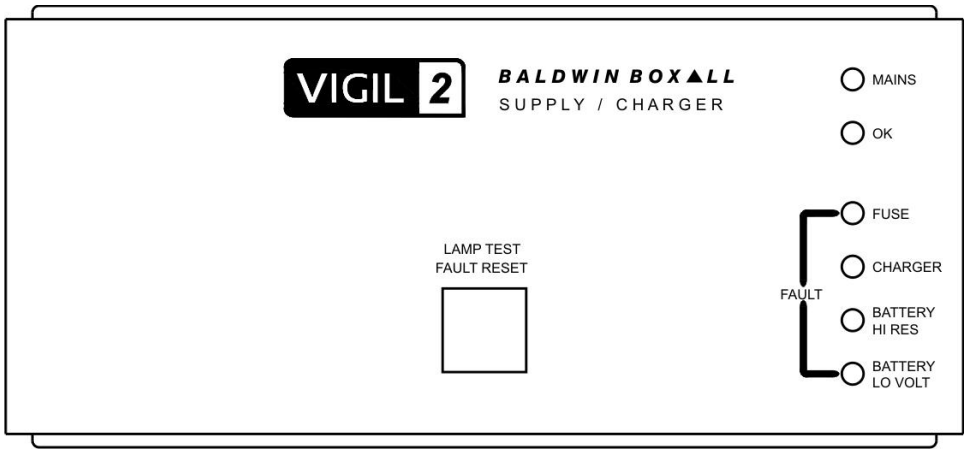
## Compatibility Mode (Both DIL SW "ON")

The resistance monitoring function must be disabled if the BVSMP is being retro-fitted to a system with other non-resistance monitoring BVSMP units.
*Set both DIL SW to "ON" to disable resistance monitoring.*
In "Compatibility Mode" the battery monitoring detects and displays "Battery Low Voltage" faults.

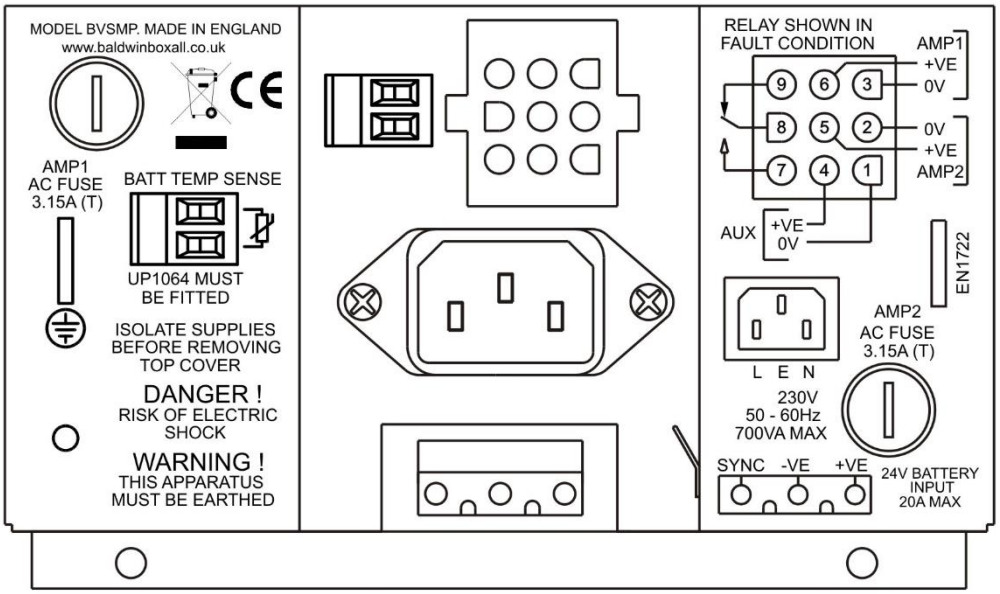
# BVSMP / BVSMPLT SPECIFICATIONS

| | BVSMP | BVSMPLT |
|---|---|---|
| AC supply input Voltage | 230V 50 – 60Hz | 230V 50 – 60Hz |
| Maximum power consumption: | 700VA | 350VA |
| Maximum inrush current @ 230V: | 18A | 9A |
| DC output 1 to amplifier 1 | 18V-32V @ 12A | 18V-32V @ 12A |
| DC output 2 to amplifier 2 | 18V-32V @ 12A | -- |
| V ripple peak-to-peak | 700mV | 700mV |
| Imax.a amplifier 1: | 3.5A | 3.5A |
| Imax.a amplifier 2: | 3.5A | -- |
| Imin amplifier 1: | 0.1A | 0.1A |
| Imin amplifier 2: | 0.1A | -- |
| DC output 3 auxiliary mixers etc | 18V-32V @ 2A | 18V-32V @ 1A |
| **Battery charger output:** | | |
| Voltage @ 25 °C: | 27.12V | |
| Temperature compensation: | -10mV/°C | |
| Maximum current: | 3A | |
| Battery deep discharge cut off Voltage: | 18V | |
| Volt free fault relay output contacts: | 100V @ 1A max | |
| **Fuse protection:** | | |
| AC supply (5 x 20mm): | 2 x 3.15A(T) | 1x 3.15A(T) |
| Battery (automotive blade): | 2 x 20A | 1 x 20A |
| Charger input (self-resettable): | 6A | 6A |
| Charger output (self-resettable): | 4A | 4A |
| Aux output (self-resettable): | 2 x 1.1A | 1.1A |
| **Front panel indicators:** | | |
| AC supply | AC supply 'ON' | |
| OK | No Fault | |
| Fuse | Fuse Fault | |
| Charger | Charger Fault<br>(Charger Input <29V)<br>(Charger Output either <21V or >29V)<br>(Charger Regulator not operating) | |
| Battery High Resistance | Battery High Resistance Fault (default >22mΩ) | |
| Battery Low Voltage | Battery Voltage Low fault (<21V) | |
| Lamp test for the above indicators | | |
| **Terminations:** | | |
| AC supply input: | IEC 6A filtered connector | |
| 24V battery input: | 3-pin screw terminated connector (4mm$^2$ Cable) | |
| DC outputs & fault relay contacts: | 9-pin crimp terminated connector (1mm$^2$ Cable) | |
| UP1064 Thermistor Connection: | 2-pin crimp terminated connector | |
| **Battery Capacities:** | | |
| Minimum Battery Capacity: | 35Ah | |
| Maximum Battery Capacity (Single BVSMP): | 70Ah | |
| Maximum Battery Capacity (4 BVSMP's): | 150Ah | |
| **Environmental:** | Rack or Eclipse Unit Mount Only | |
| Minimum Temperature (Operational) | -5°C | |
| Maximum Temperature (Operational) | +40°C | |
| Maximum Relative Humidity (Operational) | 93% | |

# Front Panel View




# BVSMP Rear Panel View




# BVSMPLT Rear Panel View