PowerBox Systems®

World Leaders in RC
Power Supply Systems

POWERBOX
SOURCE

Dear customer,

we are delighted that you have decided to purchase the **PowerBox Source** power supply from our range. We hope you have many hours of pleasure and great success with your **PowerBox Source**.

The **PowerBox Source** is a logical development of the successful **BaseLog**, taking due account of requests from customers and modern telemetry system requirements. We have managed to reduce the backer's size by optimising the heat-sink design, and as a result the **PowerBox Source** is now also suitable for small models with high power requirements. This small energy package offers enormous performance reserves, and compares very well even with larger battery backer systems.

The unit can be connected to an optional small O-LED screen which provides a display of all battery data even when the backer itself is inaccessible in the model. However, the full capability of the **PowerBox Source** can still be exploited even without the screen: the **Data** socket enables the user to access all settings either using a laptop or PC and using our **USB interface**.

ATOM/CORE pilots, in particular, can control all aspects of the **PowerBox Source** from the transmitter without any extra accessories.
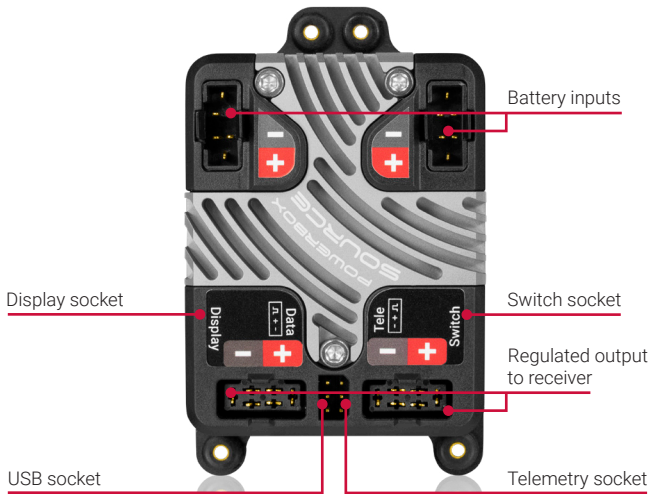
Reflecting the current state of technology, all battery-relevant data can now be transferred to the transmitter via the telemetry system. The **PowerBox Source** can transfer telemetry data to Jeti, Graupner, Multiplex and Futaba transmitters as well as the **ATOM/CORE** telemetry system. An additional teleconverter is not required for Futaba.

The **PowerBox Source** can be set to any of four different output voltages: 5.9 V – 7.4 V – 7.8 V and unregulated; in the latter case the battery voltage is passed through with minimal loss. The MPX inputs and outputs are fitted with retaining clips / lugs to prevent the connectors slipping out when subjected to severe vibration.

FEATURES:

+ High performance
+ Optimised cooling
+ Small size
+ Optional OLED screen, 128 x 64 pixels
+ Four different output voltages
+ Suitable for use with all battery types
+ Can be controlled by the switch or USB interface
+ Supports five different telemetry systems: PowerBox P²BUS,
  Jeti EX-Bus, Futaba S.BUS2, Multiplex M-Link, Graupner Hott
+ Redundant regulator design
+ Suppression of servo feedback currents
+ Protection against electro-static discharge
+ Integral regulator monitoring
+ Can be updated using the USB Interface

1. CONNECTIONS, CONTROLS

Battery inputs

Display socket

Switch socket

Regulated output to receiver

USB socket

Telemetry socket

2. INITIAL STEPS, OPERATING THE BACKER

a) Connections

First connect the receiver to the **PowerBox Source** using the patch leads supplied in the set. If your receiver features an MPX high-current input, use the MPX/MPX patch lead. If you have any vacant sockets, the second connection can be made by connecting an MPX/JR patch lead to a servo socket on the receiver.

CAUTION: If your receiver is fitted with an integral battery backer, connect both sockets to the servo sockets; in this configuration the receiver's battery backer function is bypassed. Now connect the Sensor Switch to the appropriate socket on the backer. If your model is subject to severe vibration, we recommend securing the ribbon cable at one additional point at least. If the connector should fall out, this would have no effect on the backer's switched state, but it would prevent you switching it off.

The batteries can now be connected to the backer's MPX inputs, taking care to maintain correct polarity. We recommend the **PowerPak 2.5X2 ECO** or **PRO**, or - for larger models - the **PowerPak 5.0X2 ECO** or **PRO**.

If you prefer to use other makes of battery, or packs you have prepared yourself, please take particular care over polarity, as the regulator ICs will be destroyed if you connect a battery with reversed polarity. In order to minimise power losses we decided against providing reverse polarity protection. The **+** symbol is visible on the case cover.

If you wish to display all the battery-relevant data on your transmitter screen, connect the *Tele* output of the **PowerBox Source** to the receiver's Telemetry input before switching the system on.

- PowerBox ATOM/CORE
By default the **PowerBox Source** is set up for the **P²BUS**. Connect the *Tele* output on the **Source** to the receiver's *P²BUS* socket. The PowerBox can now be set up from the transmitter, and the telemetry data can be transferred.

- Jeti EX-Bus
Connect the backer's *Tele* output to an EX-BUS capable receiver input.

- Futaba S.BUS2
Connect the backer's *Tele* output to the receiver's S.BUS2 port. A teleconverter is not required. Select the "Load new" point in the Telemetry Sensor menu in order to empty all the telemetry fields. Set the "PowerBox sensor" to slot 16.

- Multiplex M-Link
Connect the backer's *Tele* output to the receiver's Tele port. The telemetry value addresses can be set on the **PowerBox Source**.

- Graupner Hott
Connect the backer's *Tele* output to the receiver's Tele port. The **PowerBox Source** appears as a "General Electric" module at the transmitter.
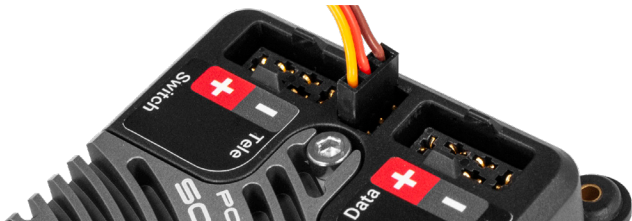
b) Switching on and off

The procedure for switching on and off is very simple, and represents an effective means of preventing accidental switching. This is the procedure:
Press the SET button on the Sensor Switch, and hold it pressed in: the central LED lights up red to indicate that the unit is ready for switching. Continue holding the SET button pressed in while you press buttons I and II in turn. The backer is now switched on with both batteries.
Switching off requires the same procedure, exactly as described: hold the SET button pressed in and wait until the central LED lights up red. Now press buttons I and II in turn.

Note: The **PowerBox Source** stores its last switched state. This means that a backer switched off using the Sensor Switch remains switched off. Once switched on, the backer can only be switched off again using the Sensor Switch. Intermittent contact or a break in contact while the unit is operating cannot switch the backer off.

c) Settings

There are several methods of entering settings, such as battery type and output voltage:

- Using the Sensor Switch and the optional OLED screen (Order No. 4766)
Locate the SET button on the switch, and hold it pressed in for about four to five seconds: this causes the menu to open. The cursor can be moved using buttons I and II. If you wish to adjust a value, press the SET button. The value can now be altered using buttons I and II. Press the SET button again to confirm the selected value.
In this menu you can set the battery type, battery capacity, your preferred output voltage and the telemetry system in use.

- Using the USB Interface and PowerBox Terminal

Download the free **PowerBox Terminal** program from our website, and install it on your computer. Connect the **USB Interface** to the PC or laptop and connect the Uni connector to the **PowerBox Source**'s Data input. Select **PowerBox Source**, and follow the on-screen instructions.

CAUTION: If you intend to select an output voltage higher than 5.9 V you must make certain that **all** the consumer units connected to the system – including servos, receiver and gyro – are approved for HV use. You will find information on this point in the operating instructions supplied with these components.

d) Resetting residual capacity

After each charge process it is important to reset the residual capacity display. The crucial factor determining the remaining battery charge is always battery voltage, and the capacity display can also be very helpful in detecting defective or ageing batteries. For example, if little capacity has been drawn from the pack, but the voltage display already indicates a flat battery, it is essential to check that battery.
The residual capacity can be reset by holding buttons I and II pressed in simultaneously for about two seconds.

3. SPECIFICATION

Operating voltage	4.0V - 9.0V
Power supply	2S LiPo, 2S Li-Ion, 2S LiFePo, 5S NiCd/NiMH
Current drain Power-on state	85mA
Current drain Standby	10µA
Maximum load current	Peak 2x20A
Drop-out voltage	0.3V
Output voltage	5.9V / 7.4V / 7.8V / 8.4V
Screen	OLED 128 x 64 pixels (optional)
Supported telemetry systems	PowerBox, Jeti, Futaba, Graupner, Multiplex
Dimensions	54 x 88 x 23 mm
Weight	77 g
Weight Sensor Switch	15 g
Temperature range	-30°C to +85°C

4. SET CONTENTS

- **PowerBox Source**
- SensorSwitch
- 3 PowerPatch-leads (1x MPX / MPX and 2x MPX / JR)
- 4 rubber grommets and brass spacers
- 4 retaining screws
- Operating instructions in English and German

5. DIMENSIONS
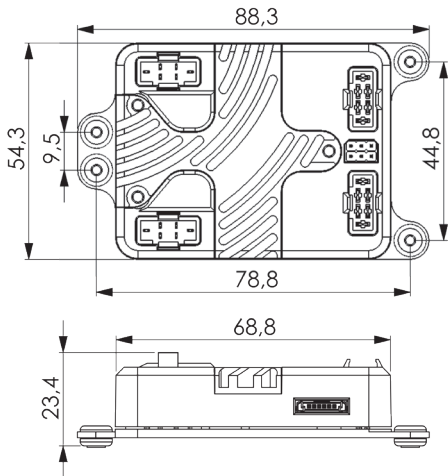
6. SERVICE NOTE

We are anxious to offer good service to our customers, and to this end we have set up a Support Forum which deals with all queries concerning our products. This relieves us of a great deal of work, as it eliminates the need to answer frequently asked questions time and again, and it gives you the opportunity to obtain help quickly all round the clock - even at weekends. All the answers are provided by the **PowerBox Team**, guaranteeing that the information is correct.

Please use the Support Forum **before** you telephone us. You will find the forum at the following address: **www.forum.powerbox-systems.com**

7. GUARANTEE CONDITIONS

At **PowerBox-Systems** we insist on the highest possible quality standards in the development and manufacture of our products.
They are guaranteed **"Made in Germany"**!

That is why we are able to grant a **24 month guarantee** on our **PowerBox Source** from the initial date of purchase. The guarantee covers proven material faults, which will be corrected by us at no charge to you. As a precautionary measure, we are obliged to point out that we reserve the right to replace the unit if we deem the repair to be economically unviable.
Repairs which our Service department carries out for you do not extend the original guarantee period.
The guarantee does not cover damage caused by incorrect usage, e.g. reverse polarity, excessive vibration, excessive voltage, damp, fuel, and short-circuits. The same applies to defects due to severe wear.

We deny any further liability, e.g. for consequent demage. We also deny liability for demage caused by the device or the use of de device. We accept no liability for transit damage or loss of your shipment. If you wish to make a claim under guarantee, please send the device to the following address, together with proof of purchase and a description of the defect:

SERVICE ADDRESS

PowerBox-Systems GmbH
Dr.-Friedrich-Drechsler-Str. 35
86609 Donauwörth
Germany

8. LIABILITY EXCLUSION

We are not in a position to ensure that you observe our instructions regarding installation of the **PowerBox Source**, fulfil the recommended conditions when using the unit, or maintain the entire radio control system competently.

For this reason we deny liability for loss, damage or costs which arise due to the use or operation of the **PowerBox Source**, or which are connected with such use in any way. Regardless of the legal arguments employed, our obligation to pay damages is limited to the invoice total of our products which were involved in the event, insofar as this is deemed legally permissible.

We wish you every success using your new **PowerBox Source**.

Donauwörth, June 2023

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