

PowerBox Systems®

World Leaders in RC
Power Supply Systems

Instruction Manual



PBR-12X

Dear PowerBox Customer,

Congratulations on your decision to install a PowerBox **PBR-12X** in your model. This unit represents the most compact power supply system available anywhere at present.

The **PBR-12X** offers full telemetry capability in addition to its role as high-performance power supply system with electronic switch.

We are confident that you will have great pleasure and success with your **PBR-12X**!

1. Installation, connections

In order to minimise the unit's dimensions, the case does not feature mounting lugs; instead the **PBR-12X** is installed using the self-adhesive pad supplied in the set. Since the unit is so light and compact, this represents an excellent method of mounting.

The **PBR-12X** can be used with any of four radio control systems: **PowerBox CORE/ATOM** P²BUS, Jeti EX-BUS, Spektrum SRXL2 and Futaba S.BUS2. All four systems share a particular characteristic: servo-signals and telemetry data are carried on a single bus cable. This eliminates the need for a second patch lead for telemetry data, as is still required for other systems.

The **PBR-12X** automatically detects the system to which it is connected; it may take a few seconds for the system to be recognised unambiguously the first time it is plugged in. However, once detected, the type is saved, and the system starts without delay next time it is switched on.

This means that the system is Plug'n Play, unless you wish to adjust the fail-safe

positions, the frame rate or the capacity reset channel.

CORE- and Jeti-users have the facility to carry out all adjustments from the transmitter. Alternatively a USB-adapter can be used; this is a requirement for Futaba and Spektrum pilots. With this arrangement everything can be set up using the associated Terminal-App.

Connecting the battery

It is essential to maintain correct polarity. Use the adapter lead; if you wish to use a connector other than the MPX connector, note that red = positive and black = negative.

Connecting the switch

Plug the switch into the appropriate socket. The **PBR-12X** can be supplied either with a button switch or the MicroMag magnet switch.

The button switch operates in the same way as with all PowerBox systems: hold the button pressed in until the LED starts flashing at a high rate. Release the button briefly, then press it again briefly: the LED now glows a constant green to indicate that it is switched on. Repeat the procedure to switch off.

If you have a MicroMag switch, hold the magnet over the switch until the, **PBR-12X** switches on. The LED turns blue as soon as the switch registers a magnet. When the switching process is complete, the LED turns red. The LED then glows green to indicate that it is switched on.

Connecting the USB interface adapter

If required, the USB interface adapter should be plugged into the input socket marked RX2. The RX2 input can only be activated for Terminal when it is switched on. If you have already connected a receiver to RX2, you must restart the **PBR-12X** without a receiver at RX2 in order to activate the Terminal function.

If you wish to enter the fail-safe positions with a Futaba or Spektrum system, you must first bind RX1 to the transmitter; you can then start the Terminal-App on your PC. The **PowerBox** Terminal-App is available for downloading from our website. PowerBox and Jeti pilots have the facility to carry out all adjustments from the transmitter.

2. Connecting to the radio control system

PowerBox CORE

Connect the P²BUS output of one or two receivers to the sockets marked RX1 and RX2. If you are only using one receiver, this must be connected to RX1 in order to transfer telemetry data.

Jeti EX-BUS

Set one output of the receivers you intend to use to EX-BUS. The frame rate should be set to 10ms, and the Failsafe-function must be switched "OFF". If only one receiver is connected, this must be connected to RX1 in order to transfer telemetry data.

Futaba S.BUS2

Connect the S.BUS2 output of one or two receivers to the sockets marked RX1 and RX2. If only one receiver is connected, this must be connected to RX1 in order to transfer telemetry data. At the transmitter this receiver must also be set as the Telemetry receiver.

To receive telemetry data you must carry out a "Load New" process at the transmitter in the Telemetry Sensor menu; this action completely erases the sensor list. Now select Slot 1 in the sensor list, and choose "Cur.F1678". The telemetry data now appear in Slot 1 onwards.

Spektrum SRXL 2

Use the optional adapter lead set (#9192) to connect one or two SPM4651T satellites to the **PBR-12X**. If only one receiver is connected, this must be connected to RX1 in order to transfer telemetry data. The battery data are now displayed at the transmitter under **PowerBox Sensor**. The receiver data can be seen in RX data at the transmitter in the usual way.

By default the **PBR-12X** operates in DX18 compatibility mode.

3.Settings

The **PBR-12X** requires only a few adjustments. You will find all the settings either in the transmitter menu (CORE, ATOM, Jeti), in PC-Terminal or in Mobile-Terminal.

To reach the menu with a **PowerBox CORE/ATOM** transmitter, set up any telemetry widget for the **PBR-12X** in the usual way-. You will then see the Menu button in the widget.

With a Jeti system you will find the Jetibox point under Auxiliary Functions. Select this point, and press **MX** at far right. If you now press at the bottom, you will find yourself in the **PBR-12X** menu again.

a) Frame rate

This function is used to adjust the signal repeat rate to match the servo. For older analogue servos we recommend the 18ms setting; for more recent digital servos you can select 12ms. The default setting is 16ms.

b) Capacity reset channel

This function can be used to select the channel which resets the consumed capacity; the default setting is channel 16. This channel resets the consumed capacity when the travel exceeds 100%. You can use a switch or a button for this, and reset the capacity value once the battery has been charged.

c) Failsafe

In this menu you can select an output which you wish to run to a particular servo position if the radio signal should be lost. You should always assign this function to throttle, as this is a legal requirement in many countries.

Select your preferred output, and set the Failsafe mode to Failsafe. Pressing the Teach button accepts all the current servo positions for all outputs which are set to Failsafe. RX1 must be bound to the transmitter when you make this setting.

4. Meaning of the LED codes

The integral LED indicates various states relating to the receivers. This enables you to ascertain whether the receivers are working properly.

LED flashes slowly, alternating red and blue	No receiver connected, RX2 in Terminal mode	
LED constant blue	RX1 connected	
LED constant red	RX2 connected	
LED constant violet	RX1 and RX2 connected	
LED flashes blue at high rate	RX1 lost	
LED flashes red at high rate	RX2 lost	
LED flashes violet at high rate	RX1 and RX2 lost	

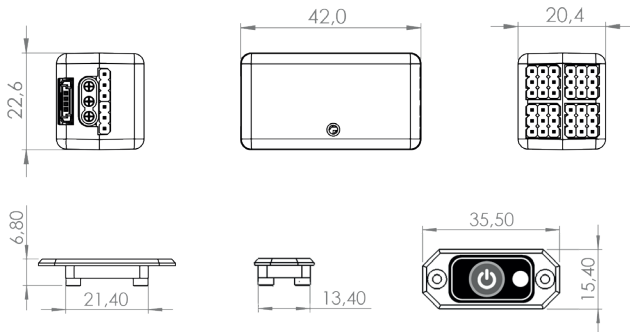
5. Technical Data

Operating voltage	4,0V - 9,0V
Power supply	2S LiPo/Lilon, 2S LiFePo, 5S NiCd/NiMH
Current drain, operating	25mA
Current drain, standby	20µA
Maximum current	Continuous 12A (< 30s: 20A)
Output voltage	Unregulated
Signal input	Serial
Supported RC systems	CORE P ² BUS, Jeti Ex-Bus, Spektrum SRXL2, Futaba S.BUS2, S.BUS
Receiver redundancy	SRS
Channels	26
Servo outputs, total	12
Servo signal resolution	0,5µs
Signal repeat rate (frame rate)	10ms, 12ms, 14ms, 16ms, 18ms
Supported telemetry systems	CORE P ² BUS, Jeti Ex-Bus, Spektrum SRXL2, Futaba S.BUS2
Dimensions	22 x 23 x 42 mm
Weight	15g
Weight sensor switch	6g
Temperature range	-30°C to +85°C

6. Set contents

- PowerBox **PBR-12X**
- MicroSwitch
- 2 x Patchleads
- MR30 / MPX adapter
- Self-adhesive pad
- Operating instructions

7. Dimensions



8. 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. At the same 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 can find the forum at the following address:

www.forum.powerbox-systems.com

9. 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 **PBR-12X** 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 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
Ludwig-Auer-Straße 5
86609 Donauwoerth
Germany

10. Liability exclusion

We are not in a position to ensure that you observe our instructions regarding installation of the **PBR-12X**, 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 **PBR-12X**, or which are connected with such use in any way. Regardless of the legal arguments employed, our obligation to pay compensation 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 with your new PowerBox **PBR-12X**!



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