

PowerBox Systems®

World Leaders in RC
Power Supply Systems

Instruction Manual



POWERBOX PIONEER



Dear PowerBox customer,

Congratulations on your decision to install a **PowerBox Pioneer** in your model. This unit is currently the most modern integrated power management system available anywhere in the model world. The **Pioneer** offers full telemetry capability in addition to a high-performance power supply featuring electronic switches. Furthermore, in conjunction with an **iGyro SAT** the **Pioneer** operates as a highly sophisticated gyro system. Nine gyro axes can be set up in just a few minutes, while the multitude of expert settings enable you to fine-tune the unit perfectly to meet your personal preferences.

We wish you many hours of pleasure and success with the **PowerBox Pioneer!**

1. INSTALLATION, CONNECTIONS

In order to minimise the **Pioneer's** physical size the case does not feature mounting lugs; the unit is simply installed using the self-adhesive pad supplied. This mounting method is extremely secure since the unit is so light and compact.

The Pioneer can be used with three types of radio control system: **PowerBox CORE** P²BUS, Jeti EX-BUS and Futaba S.BUS2. These three systems share one common attribute: 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 required with older systems.

The Pioneer automatically detects the system to which it is connected – the first time you plug it in, it may take a few seconds until it unambiguously recognises the system. However, the system type is stored once detected, and the unit subsequently starts without delay the next time it is switched on. This means that the

basic system is Plug 'n' Play, and no further adjustments are required to operate it. This does not apply if an **iGyro SAT** is installed, or if you wish to change the frame rate or the capacity reset channel.

Users of Core and Jeti systems have the facility to carry out all adjustments at the transmitter. The alternative - which must be used by Futaba pilots - is to use a USB lead or **BlueCom** adapter. In this case all set-up work can be carried out using the associated App.

Connecting the receivers

- PowerBox CORE

Connect the P²BUS output of one or two receivers to RX1 and RX2. If only one receiver is connected, then it must be connected to RX1 for telemetry transmission.

- Jeti EX-BUS

Set one output of the receivers you wish to use to EX-BUS. The frame rate should be set to 10 ms, and the Failsafe function must be set to "OFF". If only one receiver is connected, then it must be connected to RX1 for telemetry transmission.

- Futaba S.BUS2

Connect the S.BUS2 output of one or two receivers to RX1 and RX2. If only one receiver is connected, then it must be connected to RX1 for telemetry transmission. This receiver must also be set as the telemetry receiver at the transmitter.

In order to receive telemetry data you must enter the Telemetry Sensor menu at the transmitter, and carry out a "Load New" process; this completely erases the list of sensors. Now move to Slot 16 of the sensor list and select "PowerBox". The telemetry data are now displayed in Slot 16 and above.

Connecting the batteries

Ideally the two batteries connected to the **Pioneer** should be of the same type and capacity. It is essential to maintain correct polarity. It is also possible to connect batteries of different capacity, but this always results in a more severe load on the larger battery. The basic rule is that each battery should be of a size capable of securely supplying power to the model on its own.

Connecting the switch

Plug the switch into the appropriate socket. As an option, the **Pioneer** is supplied with a button switch or a **MicroMag** magnetic switch.

The method of operating the button switch is the same for all **PowerBox** systems: press the button until the LED starts to flash green at a high rate. Release the button for a moment, then press the button again briefly: the LED now lights up solid green to indicate that it is switched on. Repeat the procedure when switching off.

Using the MicroMag switch: hold the magnet against the switch until the **Pioneer** is switched on. The LED lights up blue as soon as a magnet is detected, then changes to red to indicate the end of the switching process. After this the LED lights solid green to indicate that the system is switched on.

Connecting an iGyro SAT

If you wish to exploit the **Pioneer's** gyro functionality by fitting an **iGyro SAT**, it is essential to install the unit at the correct angle in the model.

In turbinepowered models the **iGyro SAT** should be located as far as possible from the engine in order to prevent turbine noise influencing the sensor. The lead attached to the **iGyro SAT** can be extended to any length. The **iGyro SAT** should be connected to the Pioneer's FastTrack input.

Connecting the GPS for the gyro

At the moment this feature can only be used by **PowerBox CORE** customers, but in the near future it will also be available for all systems. If you are using the GPS II, set the telemetry system to P²BUS. Connect the **GPS II** to the receiver's RX1 socket using a Y-lead or the **PBS-DOCK**.

Connecting the USB or BlueCom adapter

Plug the USB or **BlueCom** adapter into the Data input. For ease of access this input is located separately on the top of the case. The **BlueCom** adapter draws current from the Data output, and therefore requires no additional power supply. The adapter can be plugged in at any time – even when the system is operating. Now start the App on the smartphone or your PC. You can download the **PowerBox Terminal** App to your PC from our website. Mobile Terminal is available from the corresponding App Store for Android or iOS.

2. BASIC SETTINGS

If you are not using an **iGyro** with the **PowerBox Pioneer**, only a few settings have to be entered. You will find all the settings either in the transmitter menu (CORE, Jeti) or the Mobile App and the PC program.

To access the menu on the **PowerBox CORE** transmitter, create any Telemetry widget for the **Pioneer**; you will then find the Menu button in the widget. On a Jeti transmitter you will find the **Jetibox** point under **Additional functions**. Select this point, then select **MX** at far right. If you now press at the bottom, you will find yourself in the **Pioneer** menu again.

a) Frame rate

This menu point allows you to set the servo signal repeat rate. If you are using older analogue servos, use the 18 ms setting. For more recent digital servos the 12 ms setting can be selected.

The default setting is 16 ms.

b) Capacity reset channel

The purpose of this function is to select the channel you wish to use for resetting consumed battery capacity; the default setting is Channel 16. This channel resets the consumed capacity as soon as the travel exceeds 100 %. You can use a switch or button for this and reset the capacity every time you charge the batteries.

c) Reset Gyro

Selecting this function resets all gyro settings.

Caution: there is no security query for this function!

d) Failsafe

This menu is used to select an output which will move to a pre-defined servo position if the radio signal is lost. Always use this function for Throttle. It is a legal requirement in many countries!

Select the output you wish to use, and set the Failsafe mode to **Failsafe**. Pressing the **Teach** button stores the current servo positions for all outputs for which Failsafe has been set.

3. GYRO SETTINGS

None of the **iGyro** settings have a function unless an **iGyro SAT** is connected. The procedure differs according to whether the model is new, or has already been test-flown without a gyro:

a) A new model

- Set all model functions including a channel for gyro gain
- Set up all model functions (travel, centre, Expo, etc.)
- Test-fly the model, including trims, differential etc.
- Assign the gyro outputs
- Learn the installed position
- Learn the centre and end-points
- Adjust the **iGyro** in flight using the gain control
- Fine-tune the individual axes if necessary
- Store the established gain value on a switch

b) an already test-flown model

- Assign the gyro outputs
- Learn the installed position
- Learn the centre and end-points
- Adjust the **iGyro** in flight using the gain control
- Fine-tune the individual axes if necessary
- Store the established gain value on a switch

As you can see, while you are carrying out basic adjustments to a new model, or test-flying a new model without the gyro, no adjustments of any kind are required at the **iGyro SAT** or the **Pioneer**. For this reason we start the set-up procedure in the menu where the gyro outputs are assigned.

The **Pioneer**'s gyro functions are identical to the settings in **PowerBox** PBR receivers with an **iGyro SAT** connected. The only difference is that the Pioneer provides nine gyro axes, whereas the PBR receivers provide six.

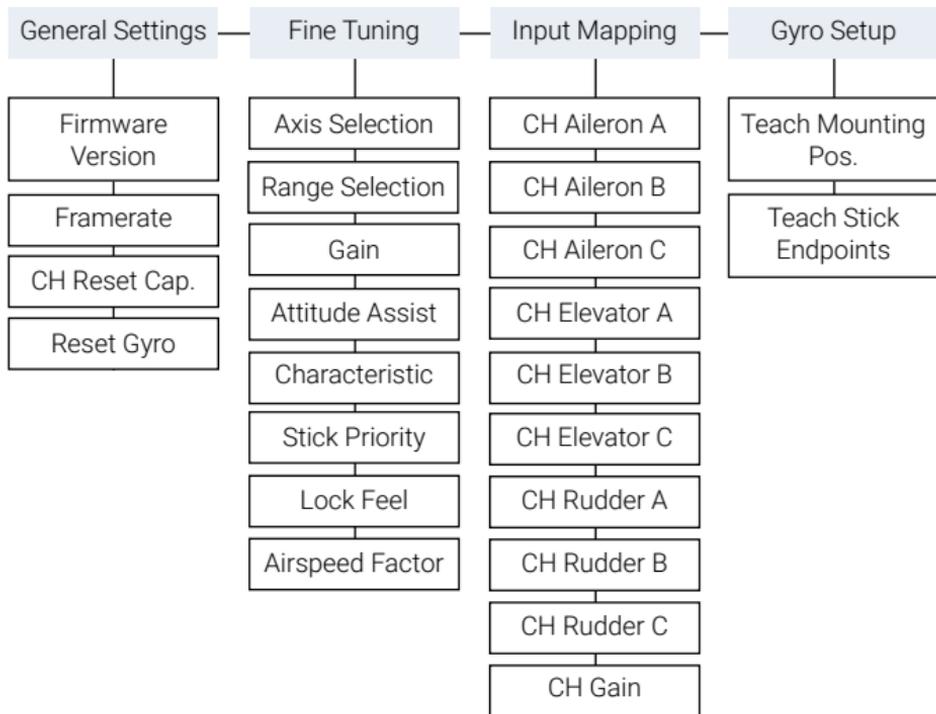
Start with setting up the **iGyro** as described in the **iGyro SAT** Instructions, starting at Point 3.2.

Note: **CORE** and Jeti transmitter menus are arranged identically, and differ only in their appearance and the method of operation using touch-screen or buttons.

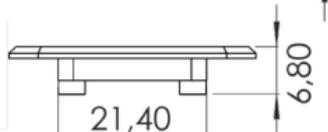
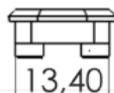
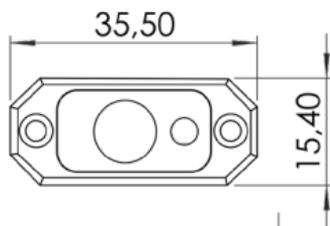
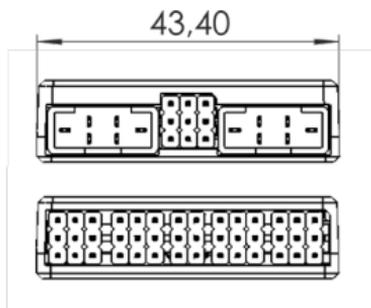
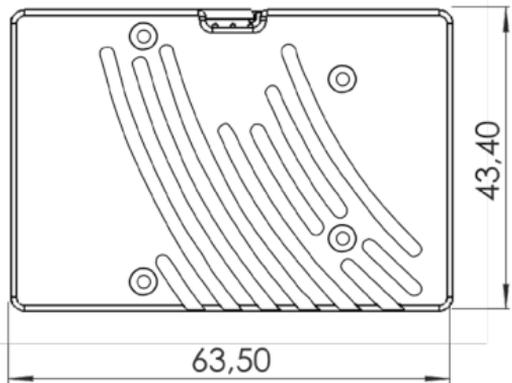
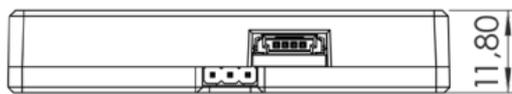
The **Pioneer**'s gyro functions are identical to the settings in **PowerBox** PBR receivers with an **iGyro SAT** connected. The only difference is that the Pioneer provides nine gyro axes, whereas the PBR receivers provide six.

Start with setting up the **iGyro** as described in the **iGyro SAT** Instructions, starting at Point 3.2.

4. MENU STRUCTURE



5. DIMENSIONS



6. SERVICE

We make every effort to provide a good service to our customers, and have now established a Support Forum which covers all queries relating to our products. This helps us considerably, as we no longer have to answer frequently asked questions again and again. At the same time it gives you the opportunity to obtain assistance all round the clock, and even at weekends. The answers come from the **PowerBox team**, which guarantees that the answers are correct.

Please use the Support Forum **before** you contact us by telephone.

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 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 wish 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 damage. We also deny liability for damage caused by the device or the use of the 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

Ludwig-Auer-Straße 5
D-86609 Donauwoerth
Germany

8. LIABILITY EXCLUSION

We are not in a position to ensure that you observe our instructions regarding installation of the **PowerBox Pioneer**, 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 Pioneer**, 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 Pioneer**.



Donauwoerth, July 2020

PowerBox-Systems GmbH

certificated according to DIN EN ISO 9001

Ludwig-Auer-Straße 5
D-86609 Donauwoerth
Germany



+49-906-99 99 9-200



+49-906-99 99 9-209

www.powerbox-systems.com