PowerBox Systems®

*World Leaders in RC
Power Supply Systems*

GPS III

Dear customer,

congratulations on your choice of the **GPS III** from our range of products.

1. PRODUCT DESCRIPTION

The new **GPS III** is the result of a continuing programme of development of the **GPS II**, which has now been on the market for a good eight years. The software has been completely restructured, enabling us to improve the unit's performance significantly. Amongst other new features, measured values are now transferred with greater precision.

The **GPS III** automatically detects the make of radio control system or **PowerBox**/iGyro to which it is connected, and sets up correct communication completely automatically.

Futaba users can select different slots using **PowerBox Terminal**. For HoTT and Multiplex systems it is possible to set up various alarms for altitude or distance.

With most systems the **GPS III** can display additional information, such as the number of satellites, the accuracy of the positional information and the 2D distance.

The new unit utilises the proven Helix Radial antenna introduced with the **GPS II**. This provides an important feature which is unique to the **PowerBox GPS III**: it is the only unit to guarantee GPS reception in all flight attitudes.

FEATURES

+ Latest generation of GPS
+ Helix antenna for reception regardless of flight attitude
+ Reception even under difficult conditions
+ Fast response to speed changes
+ Automatic system detection
+ LED status indicator
+ Accurate 3D speed
+ Height measurement (altimeter)
+ Distance, optionally as 2D or 3D value
+ Distance covered
+ Geo-coordinates
+ Number of satellites, measurement accuracy
+ Supports the following telemetry systems: PowerBox CORE P²BUS,
  iGyro/Royal SRS/Mercury, Futaba S.BUS2, Multiplex M-Link,
  Jeti EX-BUS, Graupner HoTT

2. FIRST USE

As already mentioned, the **GPS III** automatically detects the system to which it is connected. This applies both to internal **PowerBox** protocols and those of other manufacturers. When first plugged in, the unit may take a few seconds to detect the connected telemetry system. This information is then stored, and will automatically be set next time the system is switched on.

- CORE P²BUS
If you intend to use the **GPS III** purely as a telemetry sensor, you should plug it directly into the receiver's P²BUS input; the system will be detected automatically. You may find that a rescan is required the first time you switch on after connecting the unit.

- Royal SRS / Mercury SRS / iGyro SRS / iGyro 3xtra
Connect the GPS to the *GPS* or *MISC* input as appropriate. The system will be detected automatically, and is immediately ready for use. If you are using a **Royal** or **Mercury**, you should see the GPS data displayed on your transmitter. With immediate effect, the installed gyro now operates with speed compensation.

- Jeti EX-BUS
A new feature of the **GPS III** is inclusion of the faster Jeti Ex-BUS protocol; the Jeti-Box protocol is no longer implemented. Please switch one of the receiver's Telemetry inputs to Jeti Ex-BUS from the transmitter, and connect the **GPS III** to that socket. The protocol will be detected automatically, and you will see all the GPS data in your sensor list.

- Futaba S.BUS2

The **GPS III** should be plugged into the receiver's S.BUS2 input socket. If other sensors are also connected, use a Y-lead or the P²-Dock, which allows up to five sensors to be connected simultaneously. The **GPS III** detects the S.BUS2 automatically.

By default the **GPS III** will be present at **Slot 8** as **GPS-1675**. You can also shift the Start Slot to Slot 16 or Slot 24 using Terminal and the USB interface or BlueCom adapter.

The transmitter will not inform you of the presence of the **GPS III**. Press *Slot 8* in your Sensor menu, and simply select GPS-1675. The GPS data are now immediately available.

**- Multiplex M-Link und Graupner HoTT**
These two systems are also detected automatically. In both cases it is possible to alter the alarm settings using a USB interface or the **BlueCom™ Adapter**, if – for example – you wish to set up a warning when a particular distance is exceeded.

M-Link system users can set any address using **Terminal**.

Users of HoTT systems can also select whether 2D or 3D distance is to be displayed.

3. CONNECTING THE UNIT TO POWERBOX TERMINAL

If you are a Futaba, Multiplex or HoTT user and wish to adjust the **GPS III** settings, you should connect the USB interface or **BlueCom™ Adapter** in the following way:

USB to PC

Battery
4.8 - 8.4V
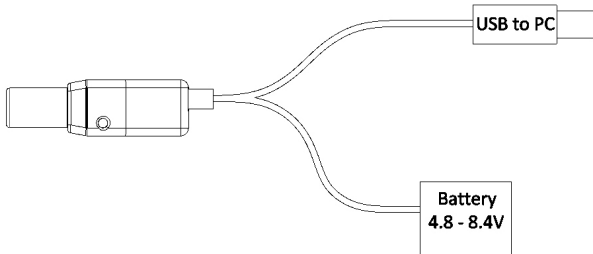
PowerBox Terminal for the PC is available for downloading from our website. The mobile apps can be found in the Play or App store under ***Mobile-Terminal***.

4. POSITIONING IN THE MODEL

When installing the **GPS III** please ensure that it is not too close to other cables carrying current or data. The GPS satellite signals from space are very weak, so the **GPS III** is fitted with a highly sensitive RF signal amplifier in order to condition the signals. The amplifier also magnifies potential interference from the immediate environment, which could have an adverse effect on reception. If possible, keep the unit at least 5 cm – better 10 cm – from all other cables in the model.

It is also essential to keep the **GPS III** well away from materials such as carbon fibre or metal, which would shield the signal.

The patch leads to the **GPS III** may safely be extended up to a length of 5 m – the digital bus systems still work without error with extended cables.

5. AFTER SWITCHING ON

Once switched on, the **GPS III** searches for as many satellites as it can find; this process takes about 30 – 60 seconds. Four different operating modes are available with the **GPS III**:

a) No fix
The LED flashes slowly – The bus system has been detected, satellite search in progress.

b) Speedfix
Double flashing of the LED – The unit has located sufficient satellites to guarantee reliable speed detection. Positional accuracy is greater than 5 m, providing the basis for speed compensation in combination with iGyro units.

c) Positional fix
LED glows continuously – The unit has located sufficient satellites to guarantee reliable speed and position detection. Positional accuracy is less than 5 m.

d) No fix, no system detected
Rapid flashing of the LED means that no Bus system has been detected within five seconds of switching on. The **GPS III** switches to Terminal mode, in which various settings can be altered.

6. INFORMATION ON ACCURACY

There is a widespread belief that GPS cannot measure speed accurately in three-dimensional space, but this is not so. The **GPS III** employs the latest generation of receivers which measure speed by exploiting the Doppler effect, rather than by comparing the current position with the previous one. This measurement process is fast and very accurate.

The positional accuracy of a GPS system is subject to the usual fluctuations, and even the latest receivers have not improved on this aspect of performance. However, the error is generally less than 10 m, and is therewith negligible for modelling applications.

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7. SPECIFICATION

Max. horizontal speed:	1200 km/h
Max. vertical speed:	360 km/h
Operating voltage:	4.0 V − 9.0 V
Current drain:	max. 60 mA
Weight:	14 g incl. patch-leads
Dimensions:	58 x 18 x 17 mm
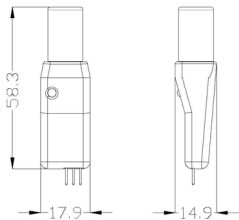
8. SET CONTENTS

- **GPS III**
- Patch-lead, 24 cm
- Y-harness

- Self-adhesive pad
- Operating instructions

9. 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.

10. 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 **GPS lll** 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
D-86609 Donauwoerth
Germany

11. LIABILITY EXCLUSION

We are not in a position to ensure that you observe our instructions regarding installation of the **GPS III**, 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 **GPS III**, 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 **GPS III**!

Donauwoerth, December 2020

12/2020

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