INSTRUCTION MANUAL

PowerBox Systems®

World Leaders in RC
Power Supply Systems

GPS V3

Dear customer,

we are delighted that you have decided in favour of the **GPS-V** from our range.

PRODUCT DESCRIPTION

The **GPS-V** is a high-end GPS system equipped with the latest GPS technology and a high-precision MEMS altitude sensor. This combination supplements the often inaccurate altitude measurement of the GPS system with barometric altitude data with an impressive resolution of 10 cm. This makes it possible to determine altitude far more precisely. In addition, the climb rate is calculated in real time to provide the vario output for the telemetry system.

Another highlight of the **GPS-V** is the latest µBlox Max10 receiver, which ensures fast logging, even in difficult installation conditions. Thanks to additional filter technology in the power supply, the **GPS-V** is insensitive to external interference and guarantees stable reception.

An outstanding unique selling point of the PowerBox **GPS-V** is the helix radial antenna, which ensures reliable GPS reception in all flight positions. This technology ensures that reception remains optimal regardless of the orientation of the system.

Automatic recognition of the connected telemetry system makes the **GPS-V** a plug-and-play solution – it is ready for immediate use without any prior settings.

FEATURES

+ Latest u-blox MAX10 GPS generation
+ Integrated high-precision barometric MEMS sensor
+ Helix antenna for reception independent of flight attitude
+ GPS reception even under difficult conditions
+ Fast response to speed changes
+ Automatic recognition of the telemetry system
+ LED for status display
+ Precise 3D speed
+ Altitude measurement with GPS and barometric
+ Climb rate in real time
+ Distance, optionally as 2D or 3D value
+ Distance travelled
+ Geo-coordinates
+ Number of satellites and measurement accuracy
+ Supports the following telemetry systems: PowerBox P^2-BUS, Futaba S.BUS2, Multiplex M-Link, Jeti EX-BUS, Graupner HoTT

1. COMMISSIONING

As already mentioned, the **GPS-V** automatically recognises which system it is connected to. This applies to both the PowerBox's internal protocols and those of third-party manufacturers. When connecting for the first time, it may take a few seconds for the connected telemetry system to be recognized. This is then saved and is immediately set the next time.

- PowerBox P²-BUS
If the **GPS-V** is to be used purely as a telemetry sensor, plug it directly into the P²-BUS input of the receiver. The system will be recognized automatically. A rescan may be necessary the first time it is plugged in.

- FastTrack: Pioneer / Mercury SR2 / Competition SR2/SHV / Royal SR2
These PowerBox systems work with the FastTrack protocol, which was developed by PowerBox-Systems for real-time applications. Connect the **GPS-V** to the **Fast-Track** input using a Y-harness with the **iGyro SAT**.

The system is automatically recognized and the GPS telemetry data is also visible on your transmitter. The **iGyro SAT** is therefore speed-compensated, which significantly improves gyro performance at slow speeds!

- iGyro 3xtra
To use the speed-dependent **iGyro** control with this system, connect the **GPS-V** to the ***MISC*** input. The **GPS-V** is automatically recognized and is immediately ready for use. The **iGyro 3xtra** thus works in a speed-compensated manner.

- Jeti EX-BUS
From the transmitter, switch a telemetry input of the receiver to Jeti Ex-BUS. Connect the **GPS-V** there. The protocol is automatically recognized and you will see all GPS data in your sensor list.

- Futaba S.BUS2
The **GPS-V** is plugged into the S.BUS2 input of the receiver. If additional sensors are to be connected, use a Y-harness or the P²-Dock to connect up to 5 sensors simultaneously. The **GPS-V** recognizes the S.BUS2 automatically.

By default, the **GPS-V** is output in **slot 8** as **GPS-1675**. You can also move the start slot to slot 16 or slot 24 using the Mobile Terminal.

The **GPS-V** is not registered in the transmitter. Tap on Slot 8 in your sensor menu and simply select the GPS-1675. The GPS and vario data are immediately available.

- Multiplex M-Link and Graupner Hott
These two systems are also recognized automatically. The alarm settings for both can be changed with the Mobile Terminal, for example if you want a warning when the distance is exceeded.

With M-Link, the addresses can be freely set using the terminal.

With Hott, you can also select whether the 2D or 3D distance should be displayed.

2. PLACEMENT IN THE MODEL

When installing the **GPS-V**, take care not to place it too close to other power or data lines. The GPS satellite signals from space are very weak, so a highly sensitive RF signal amplifier is used in the **GPS-V** to condition the signals. Possible interference from the immediate vicinity is also amplified and interferes with reception. If possible, keep a distance of at least 5 cm, preferably 10 cm, from all other cables in the model.

In addition, no signal-shielding materials such as carbon fibre or metal should be installed in the vicinity of the **GPS-V**.

The patch cable to the **GPS-V** can be extended by up to 5 meters – the digital bus systems will also work faultlessly with this.

3. AFTER SWITCHING ON

After switching on, the **GPS-V** searches for available satellites and synchronizes the barometric sensor. This process takes approx. 30-60 seconds for the GPS. The colored LED of the **GPS-V** indicates the status as follows:

a) Flashing red
The GPS is searching for satellites, the barometric sensor has not yet been calibrated.

b) Flashing green
The GPS is searching for satellites, the barometric sensor has been calibrated.

c) Blue double flashing
The GPS has a 2D fix, the barometric sensor has been calibrated.

d) Continuous violet light
The GPS sensor or the barometric sensor has an error.

e) Continuous blue light
The GPS has a 3D fix, the barometric sensor is calibrated. The **GPS-V** is ready for operation.

Rapid flashing of the LED means that no bus system has been recognised 5 seconds after switching on. The **GPS-V** goes into terminal mode, with which various settings can be made.

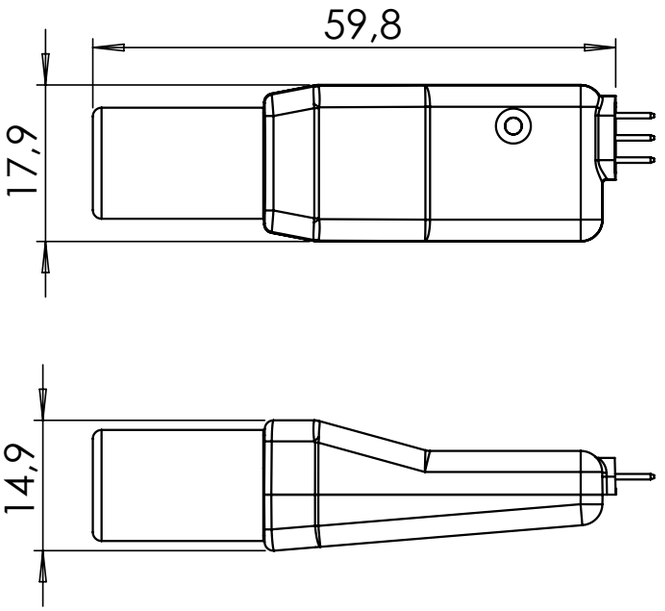
4. INFORMATION ON ACCURACY

Contrary to popular belief, a GPS is indeed capable of measuring accurate speed information in three-dimensional space. **GPS-V** uses a receiver of the latest generation. Here, the speed is not measured by comparing the last position with the current position, but with the help of the Doppler effect. This measuring method is very precise and fast. The accuracy of the position determination of a **GPS-V** is subject to the usual fluctuations, which cannot be improved even with the latest receivers. However, the dispersion is usually in the range <10 m and is therefore negligible for use in modelling.

5. SPECIFICATION

Max. horizontal speed:	1200 km/h
Max. vertical speed:	360 km/h
Barometric sensor resolution:	10 cm
Operating voltage:	4.0 V – 9.0 V
Power consumption:	max. 60 mA
Weight:	14 g incl. patch cable
Dimensions:	60 x 18 x 15 mm

6. DIMENSIONS



7. SET CONTENTS

- **GPS-V**
- Patch cable
- V-cable
- Adhesive pad
- Operating instructions

8. SERVICE NOTE

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

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 **GPS-V** 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
Dr.-Friedrich-Drechsler-Str. 35
86609 Donauwörth
Germany

10. LIABILITY EXCLUSION

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

Donauwörth, April 2025

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