PowerBox Systems PBS-TAV High Quality Speed Sensor Instruction Manual

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PowerBox Systems PBS-TAV High Quality Speed Sensor

Dear PowerBox customer,

Congratulations on your decision to install a PowerBox PBS-TAV sensor in your model. TAV stands for True Airspeed Vario, and, as the name implies, the PBS-TAV sensor is able to measure the model's flying speed, altitude and rate of climb. Since the speed and height information are presented with unprecedented precision, the climb rate can be calculated from the data with Total Energy Compensation. This means that the vario only indicates
"genuine" thermal activity, and any rise and fall due to control commands is excluded from the calculations.
We hope you have many hours of pleasure and success with your PBS-TAV!

MECHANICAL INSTALLATION

The Pitot tube can be fitted in the wing, the fin or the fuselage nose. The tube itself should be located as far as possible away from the model, to ensure that it projects beyond the air cushion over the fuselage or wing. The projecting Pitot tube presents a risk of transport damage, so we recommend using the (optional) mounting set for the Pitot tube slide, as this enables you to retract the Pitot tube into the model for transport.
We recommend that the PBS-TAV sensor itself should be installed close to the Pitot tube, so that the pressure lines can be kept short. There are two reasons for this: it is much easier in practice to disconnect a single cable at the wing root than two pressure lines, and very long pressure lines may cause false readings, or at least a delay, in the measured pressure.

Connect the tube to the PBS-TAV sensor as shown above, taking care to use the correct connections.

CONNECTING THE SENSOR TO THE RADIO CONTROL SYSTEM

The PBS-TAV can be used with various radio control systems: PowerBox CORE P²BUS, FastTrack for PowerBox gyros, Jeti EX-BUS, Spektrum SRXL2, Futaba S.BUS2, Multiplex M-Link and Graupner HoTT.
The PBS-TAV automatically detects the system to which it is connected. The first time the unit is plugged in, it may take a few seconds for the system to be positively recognised. However, the system type is stored once detected, and the system will start without delay next time it is switched on.

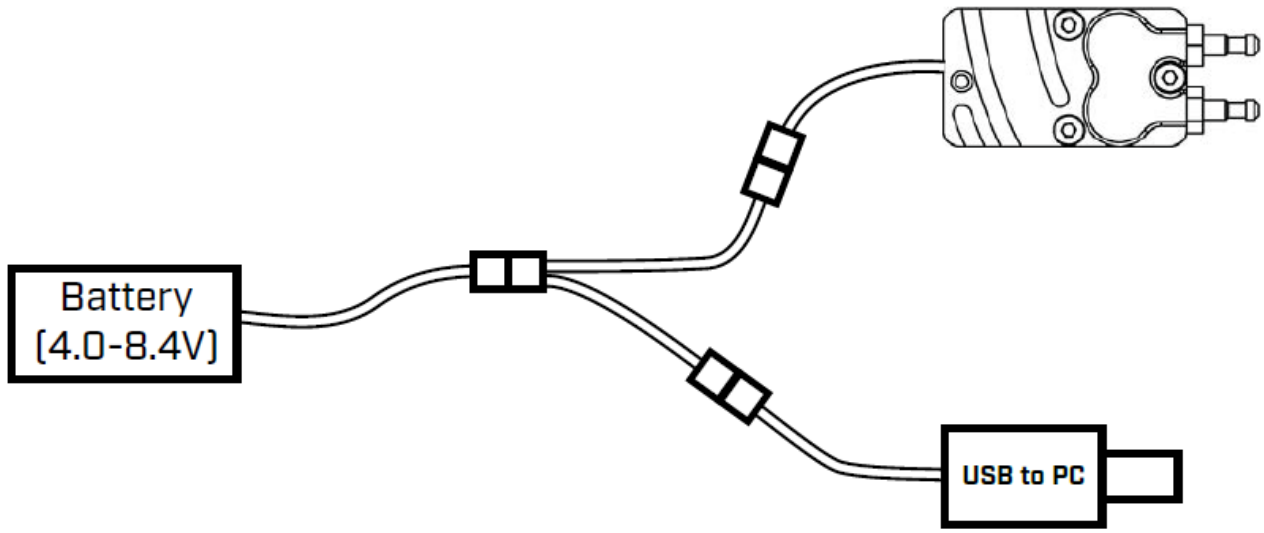
This means that the system is Plug'n'Play, unless you wish to convert the vario type from the standard TEK to a normal vario, or change the electronic adjustment channel for the TEK. CORE and Jeti users can carry out all the adjustments from the transmitter. For all other RC systems you will need to use our USB Interface Adapter with PC-Terminal or the MobileTerminal.

- **CORE P²BUS**
  If you intend to use the PBS-TAV purely as a telemetry sensor, plug it directly into the receiver's P²BUS input; the system is automatically detected. You may need to carry out a rescan the first time you plug it in.
  You can now use the Telemetry menu to set the channel for electronic adjustment of Total Energy Compensation; the default channel is No. 15.
- **FastTrack**
  If you have any PowerBox receiver and a Pioneer, Competition SR2 or Royal SR2, the PBS-TAV can be plugged into the FastTrack input. This configuration allows the speed data to be used for the gyro's speed compensation, and the TAV's telemetry data are available to the radio control system to which it is connected.
  Note: the receiver or the PowerBox must include support for the PBS-TAV; you may need to update the device's software.
- **Jeti EX-BUS**
  Working from the transmitter, switch one of the receiver's telemetry inputs to Jeti Ex-BUS, and connect the PBS-TAV to that input. The protocol is automatically detected, and you will find all the available data in your sensor list.
  The channel for electronic adjustment of Total Energy Compensation can be set using the JetiBox menu; the default channel is No. 15.
- **Futaba S.BUS2**
  The PBS-TAV should be plugged into the receiver's S.BUS2 input. If additional sensors are to be connected, you should use either a Y-lead or the P²-Dock, which allows up to five sensors to be connected simultaneously. The PBS-TAV detects the S.BUS2 automatically.
  As standard the PBS-TAV is generated as GPS-1675 on Slot 8. It is possible to change the Start slot to Slot 16 or Slot 24 with the help of Terminal and the USB Interface Adapter.
  The PBS-TAV is not registered at the transmitter. Tap on Slot 8 in the Sensor menu, and select GPS-1675. The telemetry data are then immediately available.
- **Spektrum SRXL2**
  The PBS-TAV can be used with the new Spektrum SRXL2 telemetry bus. Since the system does not support a True Airspeed sensor with vario function, the sensor information is generated separately as GPS sensor and vario sensor. Activate these two sensors at your transmitter, and you will see the sensor data in the Telemetry display.
- **Multiplex M-Link**
  With the M-Link system you can freely select the sensor addresses, the alarm thresholds and the channel for the electronic adjustment of Total Energy Compensation using Terminal.
- **Graupner HoTT**
  In the HoTT system the PBS-TAV is registered as GPS and vario. The alarm thresholds and the channel for the electronic adjustment of Total Energy Compensation can be set with the help of Terminal.

CONNECTING TO POWERBOX TERMINAL

If you wish to carry out settings to the PBS-TAV with your Futaba, Spektrum, Multiplex or HoTT system, you should

connect the USB adapter as follows:



PowerBox Terminal for the PC can be downloaded from our website.
The PBS-TAV can be connected directly to the MobileTerminal, which also powers the sensor.

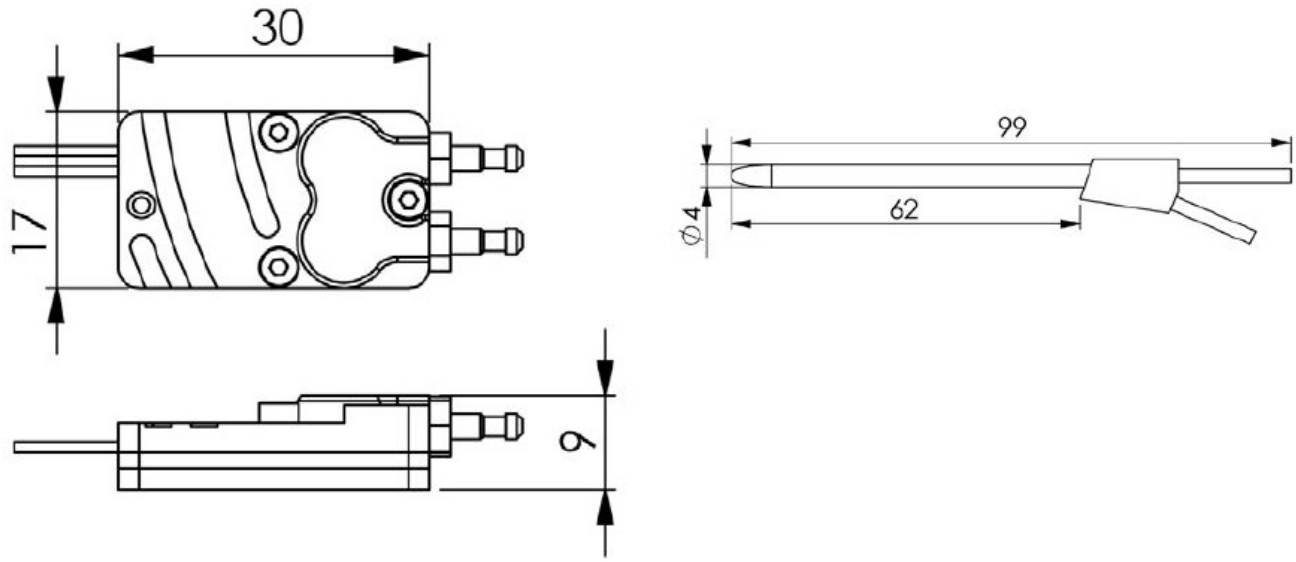
SET-UP PARAMETERS IN TERMINAL

If the sensor is used in conjunction with a PowerBox CORE / ATOM or Jeti system, both vario values – i.e. standard vario and TEK vario – are available at the transmitter.
None of the other systems allow the transfer of two different vario values. For this reason you need to run Terminal and select whether you want the normal vario value or the TEK vario value to be transferred via the Telemetry interface.
The system implements a correction factor which is designed to enable you to adjust Total Energy Compensation to suit your particular installation, as well as other Pitot tubes. This feature allows an adjustment in the range -20% to +20%. The correction factor can be set in flight using a rotary control (default: channel 15) at the transmitter. The factor is correctly set when the climb rate shown by the vario is zero or insignificant even when you give an elevator command.
Once you have set the value by test-flying the model, you can set the factor permanently in the PBS-TAV. The set-up channel is then automatically disabled and displayed as –.

TECHNICAL DATA

- **Operating voltage:** 4.0 V – 9.0 V
- **Current consumption operation max:** 30 mA
- **Supported remote control systems**: PowerBox, Jeti, Futaba, Multiplex, Graupner
- **Supported telemetry systems:** P²-BUS, FastTrack, Jeti-EX, S.BUS2, M-Link, HoTT
- **Dimensions:** 30 x 17 x 9 mm
- **Weigh:** 14 g
- **Temperature range:** -30 °C to +85 °C

DIMENSIONS



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**

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 PBS-TAV 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 guaran-tee 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 Donauwörth Germany

LIABILITY EXCLUSION

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

Donauwoerth, January 2022

PowerBox-Systems GmbH

Ludwig-Auer-Straße 5
86609 Donauwoerth
Germany
+ 49-906-99 99 9-200
+ 49-906-99 99 9-209
www.powerbox-systems.com

Documents / Resources

	PowerBox Systems PBS-TAV High Quality Speed Sensor [pdf] Instruction Manual PBS-TAV, High Quality Speed Sensor, PBS-TAV High Quality Speed Sensor, Sensor

References

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