

User's Manual

The "X-Vario-V2 for Futaba" is a precision variometer sensor with altitude and variometer measurement for the FASSTest telemetry system from Futaba.

A variometer is used by glider pilots to find thermals (upwind) and to optimize the position within the thermal field. It measures the vertical ascent or descent and indicates this to the pilot by an ascending or descending tone.

An integrated altimeter provides information about the current altitude above the ground.

Thanks to its highly accurate barometric sensor and a 32-bit processor, the X-Vario-V2 can process over 500 pressure measurements per second. This leads to a fast response time of the variometer with excellent sensitivity of a few cm/s. These are peak values that are hardly reached by variometers in this price class. The resolution is 1 cm/s.

The X-Vario-V2 was developed especially for model aircraft construction. Smallest dimensions, as well as low weight, easy handling and high quality characterize this product.



Figure 1: Variometer Sensor "X-Vario-V2 for Futaba"

1. Start-up

The X-Vario-V2 is connected to the socket marked "S.BUS2" or "SB2" on the FASSTest receiver (e.g. R7108SB, R7008SB, R7006SB).

After switching on the power supply of the receiver, the sensor calibrates itself to the surrounding air pressure within the first second and transmits an altitude of zero meters. When the sensor is moved up or down, it transmits the rate of climb or descent and the measured altitude to the transmitter.

Some settings must be made at the transmitter so that the received values are displayed and audible. The most important ones are explained below.

The following description refers to the transmitter FX-32, other transmitters have a similar menu structure.

IMPORTANT: Telemetry data will only be transmitted to the transmitter if the receiver has been properly bound with the LINK button. In the menu LINK >> SYSTEM TYPE

- A) "SYSTEM" must be set to „FASSTest 18KA
- B) "RECEIVER ID" must be set to the receiver ID (**IMPORTANT!**)
- C) "TELEMETRY" must be set to „ACT 0.1s“

- 1) In the menu **LINK >> SENSOR** the X-Vario-V2 is programmed on slot 3 and 4: To do this, set slot 3 to "VARIO-F1672". Slot 4 is automatically occupied. Reading in and reprogramming the slots is not supported by the X-Vario-V2. Usually, this does not lead to restrictions or double assignments of slots, since the slot no. of almost all sensors can be reprogrammed.
- 2) In the menu **LINK >> TELEMETY >> 3.VARIO-F1672 >> VARIOMETER** under "MELODY" select the desired MODUSx. Switch the variometer permanently "ON" or select a switch.

The mode determines from which rise or sink rate the variometer tone starts. At very calm weather with weak thermals MODE1 or MODE2 is recommended, in turbulent weather or stronger thermals MODE2 or higher. MODE2 is usually a good compromise for most weather conditions.

- 3) In the menu **LINK >> TELEMETRY >> 3.VARIO-F1672 >> ALTITUDE** the output of the altitude announcement can be activated under "SPEECH" or be put on a switch. The frequency of the announcement can be set in the menu **LINK >> TELE. SETTING** under "SPEECH INTERVAL".
- 4) The volume of the variometer signal (beep-beep-beep) is controlled with **SYSTEM MENU >> SOUND >> WARNING** and the volume of the voice prompts for altitude and climbing speed with **SYSTEM MENU >> SOUND >> VOICE**.

2. Installation of the X-Vario-V2 in the model

As the altitude, as well as the rate of ascent and descent are determined by measuring the surrounding air pressure, the installation location should be as free of draughts as possible. Rapidly moving air over surfaces can create pressure differences that lead to wrong measurement results.

For this reason, variometers should not be mounted outside and especially not above surfaces. Experience has shown that the optimum installation location is inside the fuselage of your model aircraft, protected from the wind.

It is best to use double-sided adhesive tape or servo tape on the back of the X-Vario-V2.

The X-Vario-V2 measures the barometric air pressure, therefore do not wrap the variometer in air-impermeable foil.

3. Technical Data

- Determines the altitude above the ground (AGL)
- Determines the rate of ascent or descent
- Variometer sensor resolution: 1 cm/s
- Slot assignment: Slot 3 and 4
- Altitude sensor: -3000 m bis 9000 m
- Altitude sensor resolution: 1 m
- Dimensions: 19 x 14 x 4 mm
- Supply voltage: 3.4 – 8.5 V
- Average current consumption: approx. 10 mA
- Weight with cable: approx. 2.1 g
- No computer is required for the set-up
- Power supply via the 3-pin cable

4. Compatibility

The following transmitters support the sensor setting "F1672" which is necessary for the X-Vario-V2:

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|-------------------------------|-------------------------------|
| • T6K | • T10J |
| • T12K | • T14SG (since software V4.0) |
| • FX-22 (since software V4.0) | • FX-32 |
| • FX-36 | • T16SZ |
| • T16IZ | • T18SZ |
| • T18MZ | • T32MZ |

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WEEE-Reg.-Nr.
DE 87908722

Electronic devices marked with the crossed-out wheeled bin must not be disposed of with household waste. These devices can be disposed of free of charge at local authority collection points.

Ask your local council, the permanent town hall or a local or municipal waste disposal company.



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X-Vario-V2 for Futaba Schnellstart / Quickstart Guide

The screenshots show the following configuration steps:

- Step 1:** Basis menü (1/2) - Telemetrie selected.
- Step 2:** Servo monitor (1/2) - Empfänger: 3, Höhe: 0m, Ext. batterie: 0.0V, Vario: -0.01m/s.
- Step 3:** Servovompolung (1/2) - Modellwahl: Vario-F1672, Endpunkt-atv: 0m, Servo Speed: 0.00m/s.
- Step 4:** Servomitte (1/2) - Funktion: Vario, Trimmeranzeig: Vario-F1672, Motor-aus: Vario-F1672, Stoppuhr: Vario-F1672.
- Step 5:** Modulat.-art (1/2) - Sensor: Vario-F1672.
- Step 6:** Funktionsname (1/2) - Sensor: Vario-F1672.
- Step 7:** System (1/2) - Empfänger: 195150370, Telemetrie: Aktiv, Downlink Intervall: 0.1sek., B.F/S spannung: 3.7V.
- Step 8:** Vario (1/1) - Vario: -0.01m/s, Bereit: +3.00m/s, Totbereich: +0.05m/s.
- Step 9:** Vario (1/1) - Vario: -0.01m/s, Bereit: -3.00m/s, Totbereich: -0.05m/s.