

User's Manual

The **Vario-DX** is a vertical speed sensor for Spektrum telemetry receivers with X-BUS port or the Spektrum telemetry module TM1000.

A variometer is used in sailplanes and indicates the rate of ascent and descent via an audible tone. By this the pilot knows when the sailplane is in a thermal of rising or sinking air.

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

The **Vario-DX** is designed specifically for model aircrafts, where smallest dimensions, very low weight and simple handling is required.

It is equipped with two barometric sensors and a 32-bit processor and therefore has an excellent sensitivity and a fast response time.

Vario-DX is connected directly to a Spektrum telemetry receiver or the Spektrum telemetry module TM1000. No separate power supply is required.

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Figure 1: Variometer-Sensor **Vario-DX**

1. Installation

Vario-DX is connected to the X-BUS port of a Spektrum telemetry receiver or the Spektrum telemetry module TM1000 via the cable supplied.

After power on the receiver, the **Vario-DX** calibrates to the surrounding air pressure and transmits an altitude of zero meters. If the sensor is moved up or down, the measured altitude and the vertical speed is transmitted to the transmitter via the telemetry system.

The height can be displayed in feet or meters. The corresponding setting must be made on the transmitter.

The following pictures show how to setup the Spektrum DX6 G2/G3 transmitter (software version 2.05).

The setting process for other transmitters, receivers and software versions may differ slightly from the procedure described here. The description is therefore only for guidance:

1. Power off the transmitter
2. Connect **Vario-DX** to the "X-BUS" port and if the TM1000 is used connect the "DATA" port to the "DAT" port of the receiver.

Variometer Sensor **Vario-DX**

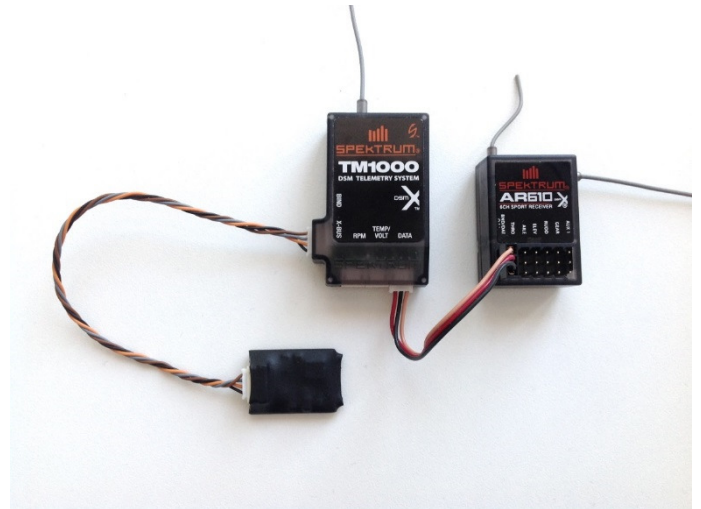


Figure 2: Connection Scheme **Vario-DX** - TM1000 - Receiver

3. Press and hold the "BND" button on the TM1000 while the receiver is connected to the power supply. The LED of the receiver starts flashing and is waiting for the "bind" signal from the transmitter.
4. Switch on the transmitter for with the scroll wheel pressed. Select "Bind" in the "System Setups" menu (Fig. 3).

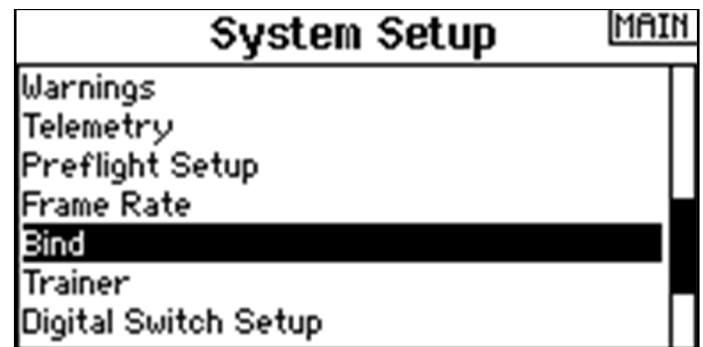


Figure 3: The "Bind" function in the System Setup

5. In the "Bind" menu click "Bind" (Fig. 4)

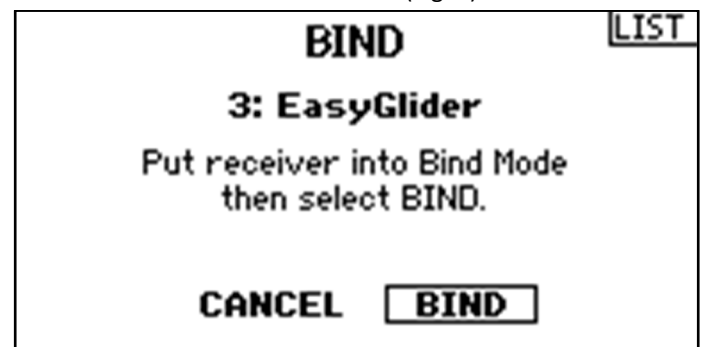


Figure 4: The "Bind" menu

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6. The binding process was successful when both the receiver (DSMX 22ms) and "Telemetry" were recognized (Fig. 5).



Figure 5: Binding was successful: Receiver and Telemetry detected

7. Press the scroll wheel to access the "Function List" and select "Telemetry" (Fig. 6).

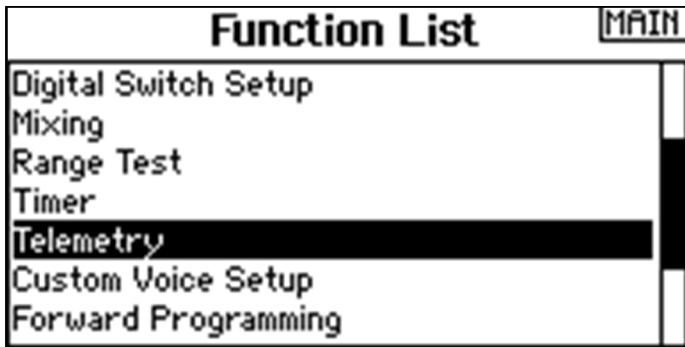


Figure 6: "Telemetry" in der Function List

8. To integrate **Vario-DX** the "Auto Configuration" function must be used:
- Power on the transmitter, then power on the receiver
 - Delete all Altitude and Vario sensors in the telemetry menu
 - Select Telemetry >> Settings >> Auto-Config in the Function List (Fig. 7)

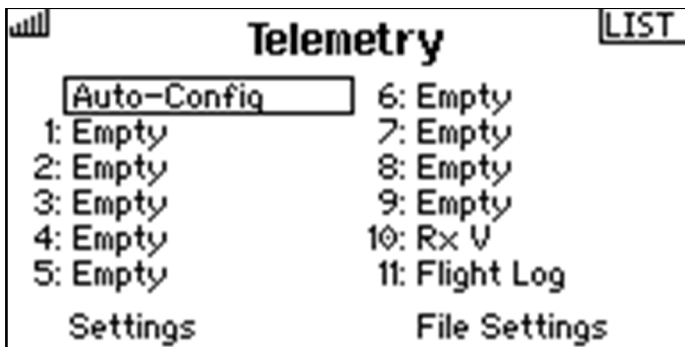


Figure 7: "Auto-Configuration" Function in the Telemetry menu

9. Click on "Vario" at position "3".
10. Fig. 8 shows a sensitive variometer setting for calm weather conditions. Fig. 9 shows a less sensitive setting. The more sensitive the setting, the more restless the variometer is. Sensitive settings lead to immediate indication of small change in height.

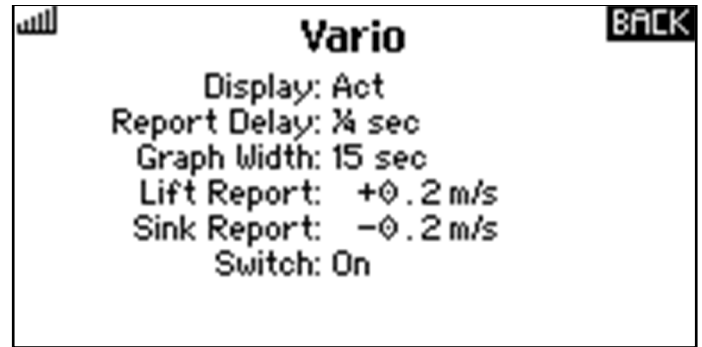
Variometer Sensor Vario-DX


Figure 8: Sensitive setting for the **Vario-DX**

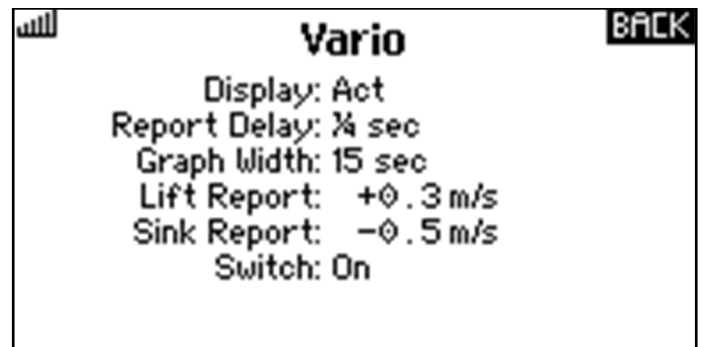


Figure 9: Insensitive setting for the **Vario-DX**

2. Installation in the model aircraft

Since the altitude, as well as the rate of climb and descent are determined by measuring the surrounding air pressure, the installation location should be as free from drafts as possible. Rapidly moving air over surfaces can create pressure differences that lead to deviating measurement results.

For this reason, variometers should never be installed outside the model aircraft. The optimal installation location is usually protected from wind within the fuselage of your model aircraft.

Use double-sided adhesive tape or servo tape on the back of the **Vario-DX** for fastening.

The **Vario-DX** measures air pressure. Therefore, do not wrap the **Vario-DX** in air-impermeable plastic film.

3. Technical specification

- Determines the altitude above ground level (AGL)
- Determines the rate of descent or climb
- Resolution: 10 cm
- Measures altitudes from -3000 m to 3000 m
- Dimensions: 23 x 15 x 6 mm
- max. Current Consumption: 10 mA
- Supply Voltage: 3.4 - 8.5 V
- Weight: less than 2.2 g (with cable ~3.0 g)
- Power supply via the X-BUS cable

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WEEE-Reg.-Nr.
DE 87908722

This product must not be disposed of with other waste. Instead, it has to be taken to a waste collection center for treatment, recycling, or disposal. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

