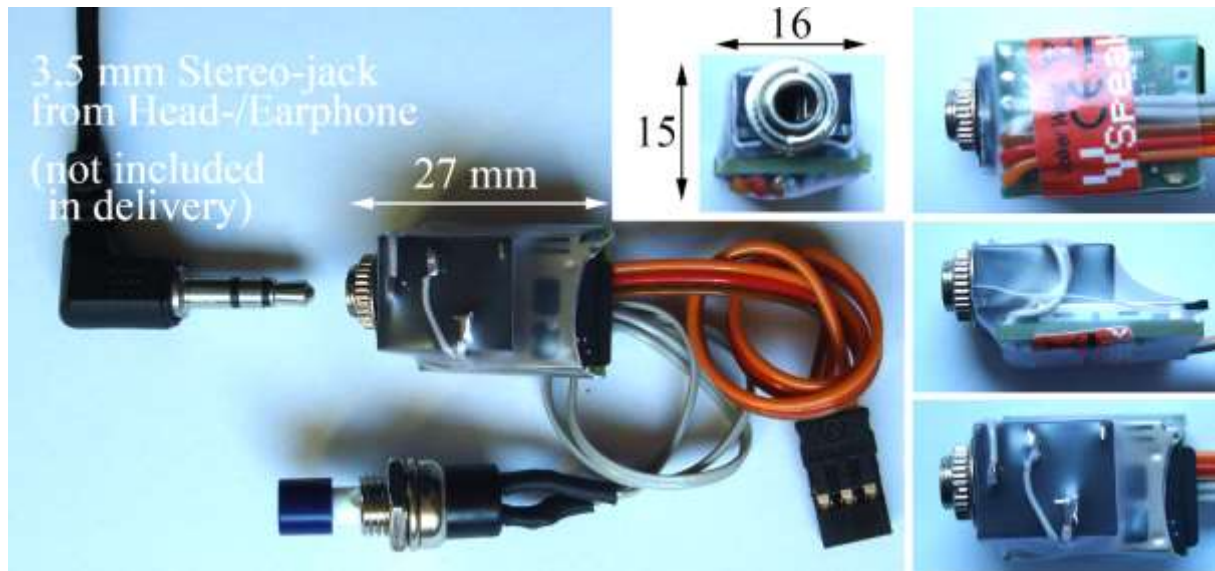




- for -

Spektrum

Manual Version 1.2



Introduction

The speech module "VSpeak for Spektrum" has been developed especially for telemetry capable Spektrum radios.

For the operation of the speech module "VSpeak for Spektrum" the "Spektrum VSpeak adapter" is required. Since there is no connector for "Spektrum VSpeak adapter" inside the radio, some wires have to be soldered to the RF module.

Attention: The necessary modifications of the radio will void your warranty !

When installing "VSpeak for Spektrum" carefully, normal operation of the radio will not be affected.

The operation of the speech module is provided through a switch which is designed as a non-latching switch.

The choice of the announcement of the measured values, the setting of the interval time, volume, etc should be done before the start, in order to focus exclusively on the flight model.

The speech module "VSpeak for Spektrum" has been tested with the following radios:

- DX8 (Airware 2.06)
 - DX10t (Airware 1.05)
 - DX18 (Airware 1.03)
- (also works with DX6, DX7s and DX9)

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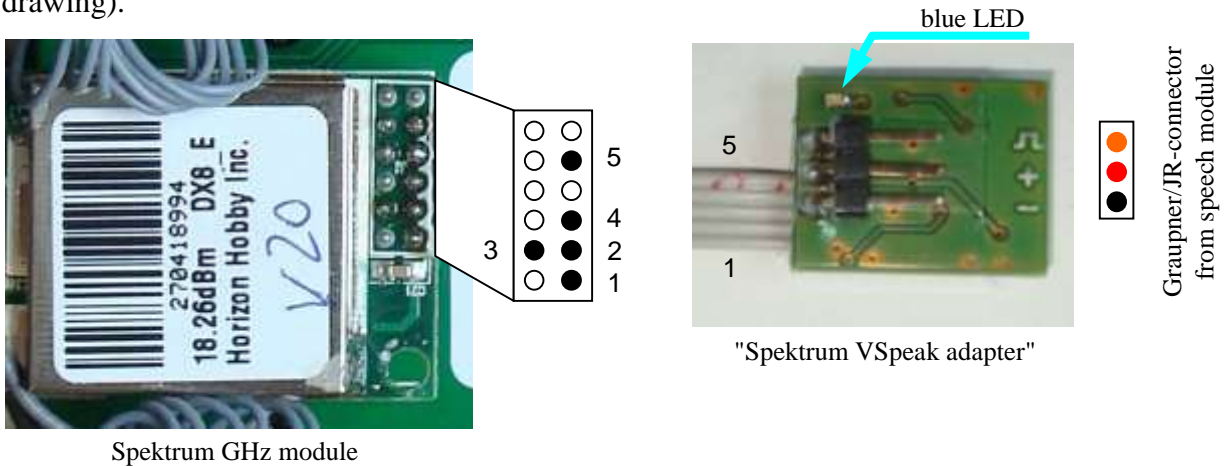
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1 Installation

1.1 Electrical Installation "Spektrum VSpeak adapter"

Prior to opening the radio remove the battery and SD card!

Shorten the 5-pin ribbon cable to the desired length. Split the single wires, remove the insulation (1-2mm) and apply some solder. Solder the pre-tinned wires to the RF module (see the attached drawing).



Use a soldering iron with a small tip. Make sure that you do not short circuit any pins !

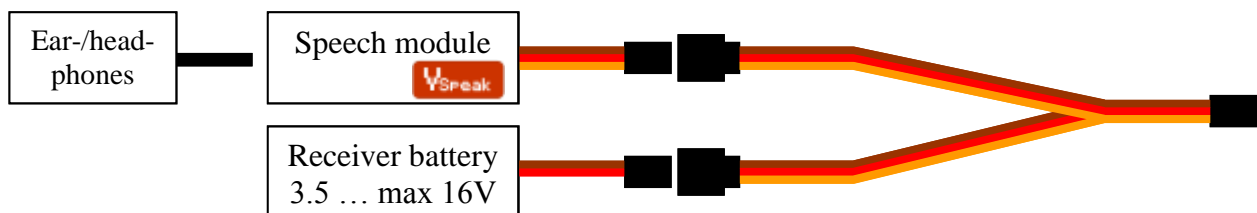
If the "Spektrum VSpeak adapter" is connected correctly, the blue LED will light steadily after you power the radio, and will start blinking with 1 second interval.

You can connect now the "VSpeak for Spektrum" module.

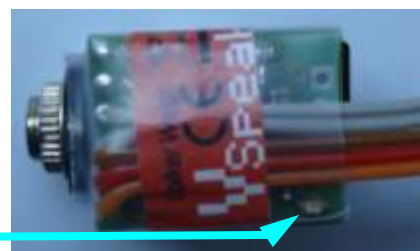
You should hear an announcement as soon as the radio is switched on. If you do not hear announcements, you can check the components as described in the next chapter.

1.2 Function Check "Speech module"

Using a V-cable (Graupner/JR), a receiver battery and ear- or headphones, the speech module can be connected and tested according to the following diagram. The speech module will report the version as soon as the battery is connected.



Error-free operation of the speech module is indicated by the "flashing" blue LED light.



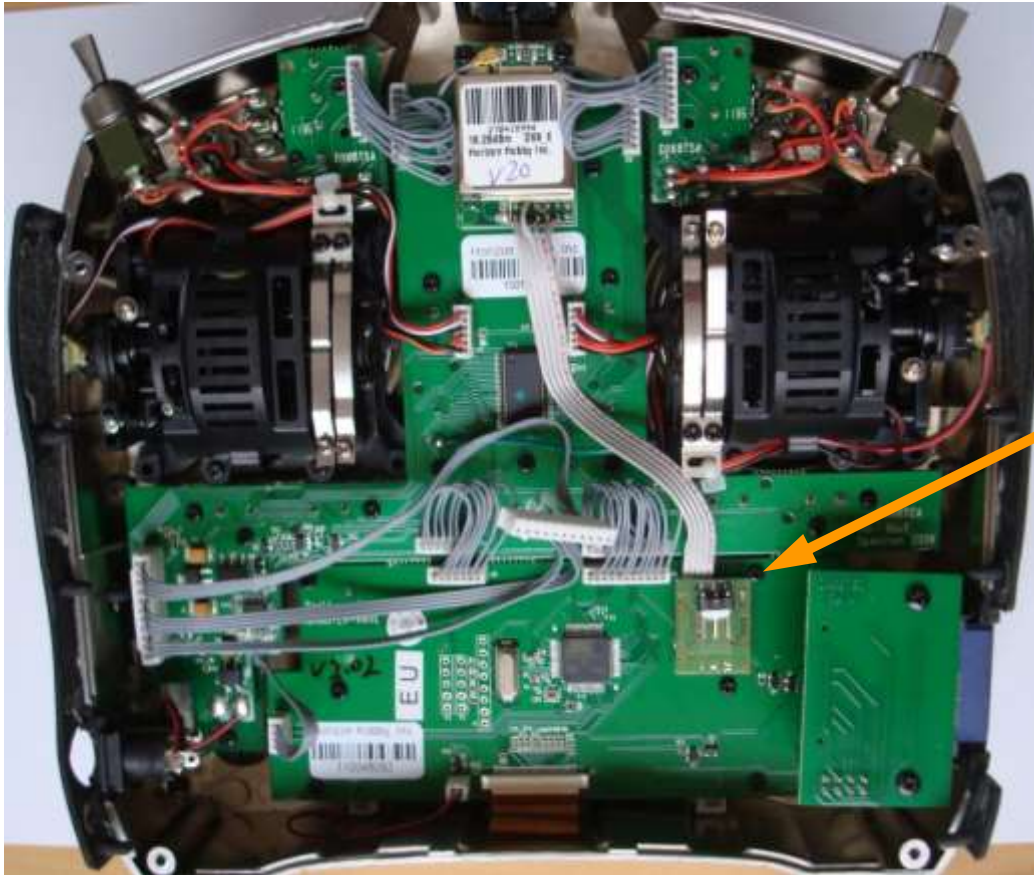
1.3 Installation of the Components

Attach the "Spektrum VSpeak adapter" wherever you find it suitable using double-sided foam tape.

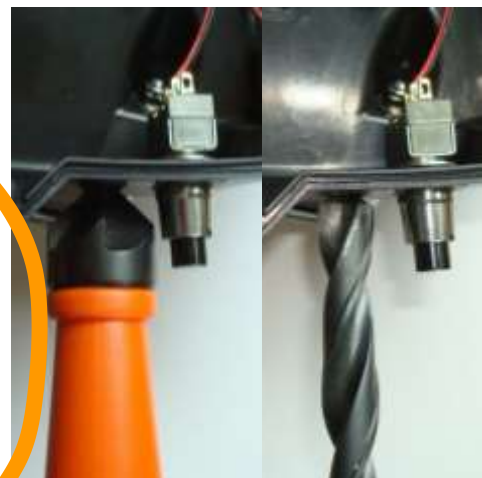
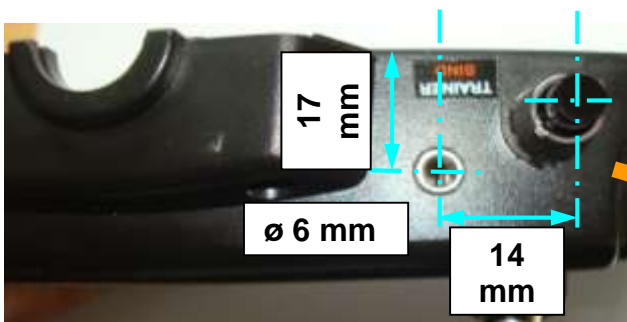
The speech module can be screwed into the radio housing over the male threads of the 3.5 mm stereo jack.

The switch should be placed on an easily reachable position.

Following you see an example installation in a DX8 radio.

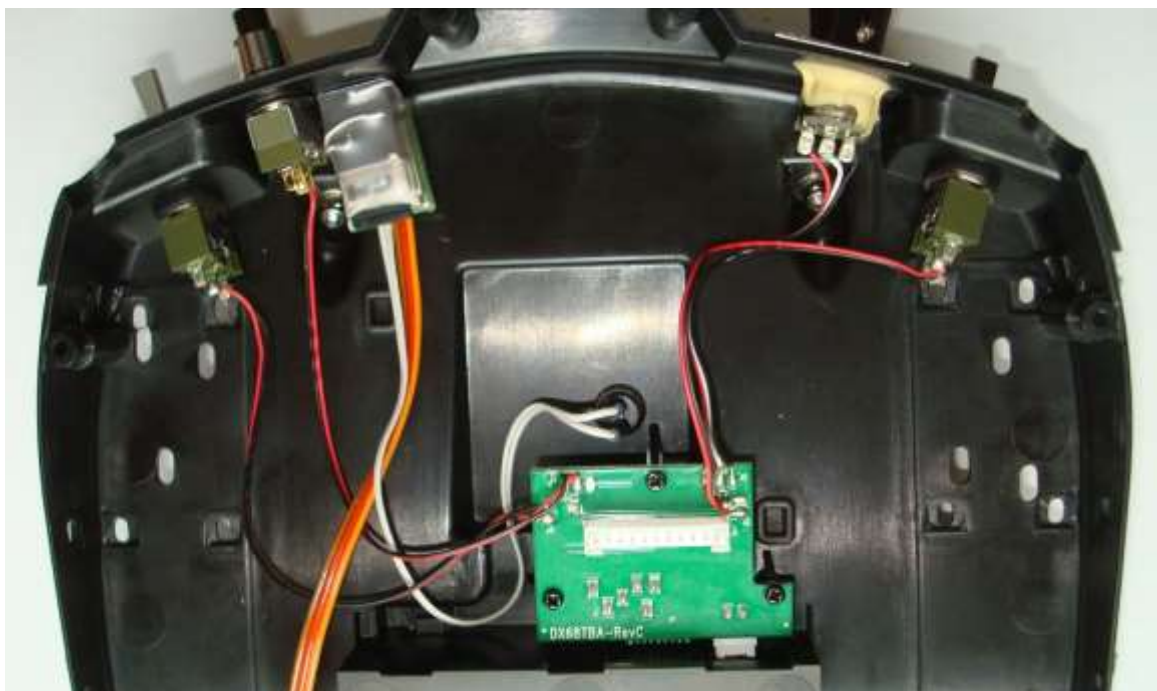
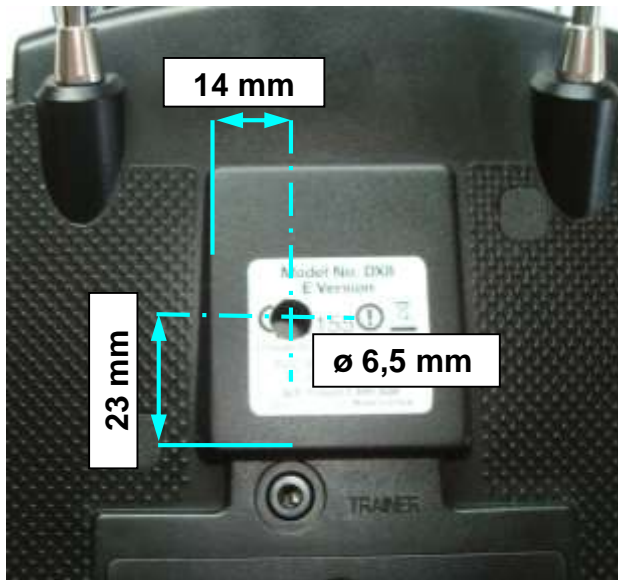


Place the „Spektrum VSpeak Adapter“ here using double sided foam tape.



Remove excess material with a counterbore.





1.4 Communication

If properly installed, the speech module does not affect the functionality of the transmission system.

"Spektrum VSpeak adapter" and speech module does NOT interfere with the data exchange, ie there is no signal output to the transmission system. In a way, the speech module "listens" to the HF module , interprets the data and transfers that as speech as described in the following sections.

2 Speech output

There are 3 types of the speech output:

2.1 Announcement of the sensor values

The start of the announcement of the sensor values is made either by key operation - or timed. Furthermore the announcements of capacity (using current sensor or Powerbox capable sensors) and altitude (Altimeter, Vario or GPS) can be triggered if an adjustable difference is exceeded. The corresponding settings are described in section 4.

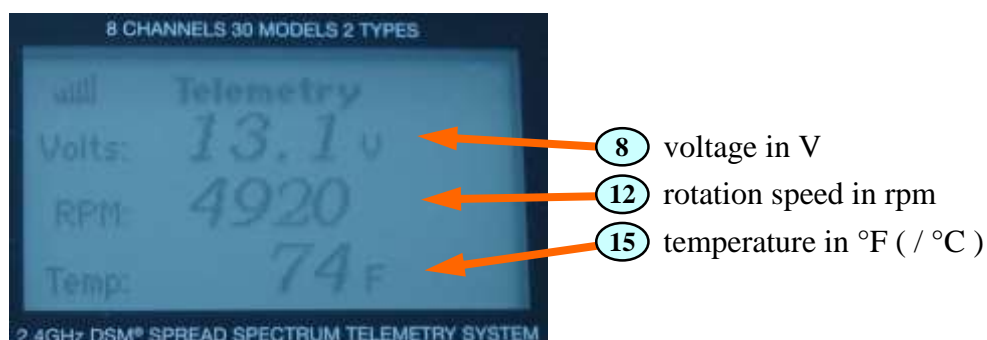
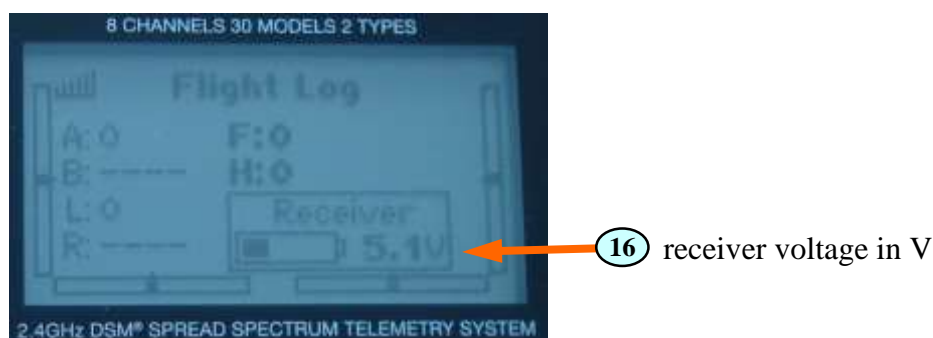
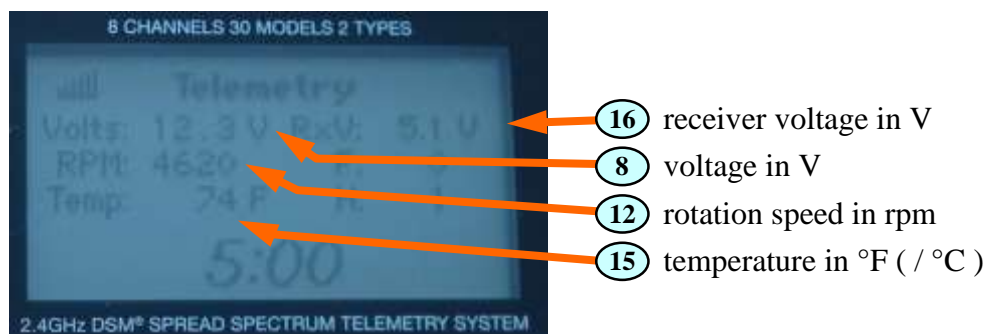
It is possible to select the announced sensor values individually. Also ALL announcements can be switched ON / OFF, whereby it can be selected with ON between MIN / current and MAX - thus the since the last announcement occurred MIN / MAX values or at the time of the announcement actual readings are announced.

Values of non connected sensors are not announced, even if the setup the relevant announcement on "ON" position.

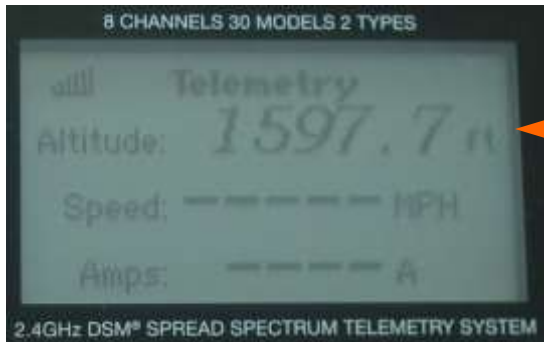
The values are announced according to the order in the table in section 4.3.

The numbers **#** refer to the table settings in section 4.3.

2.1.1 TM 1000 / TM 1100



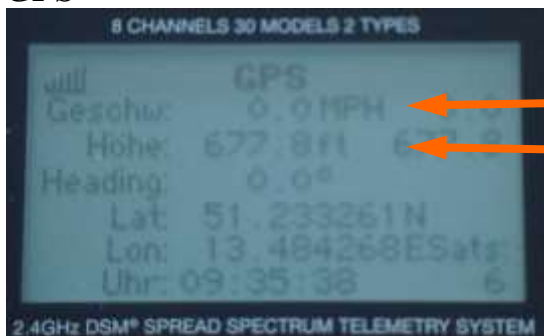
2.1.2 ALTIMETER



21 altitude in ft(/ m)

A vario sound will be generated if a barometric altitude sensor or a vario is attached. The altitude (of the vario) will also be announced.

GPS



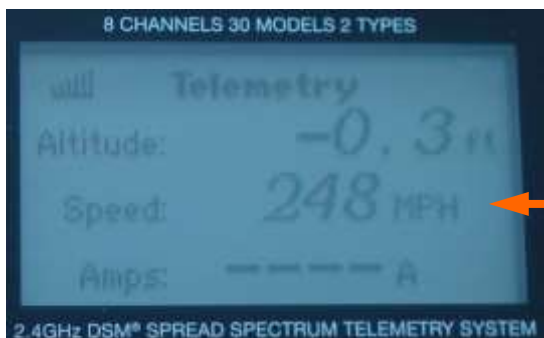
29 speed in mph (/ km/h)

21 altitude in ft(/ m)

By setting Parameter 45 "announcement altitude absolutely / relatively" you can select the announced altitude either absolutely or relatively to the altitude present at the moment of power up.

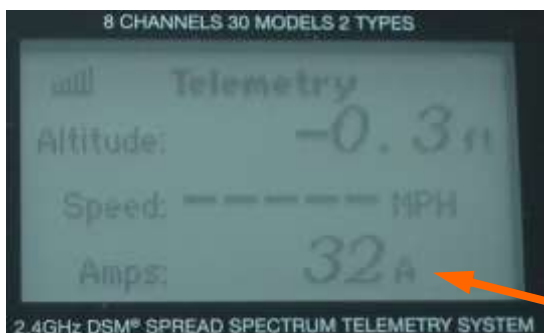
If there is also the barometric altitude and/or speed sensor attached, only these values will be announced and the GPS data is ignored.

2.1.3 AIRSPEED



29 speed in mph (/ km/h)

2.1.4 CURRENT

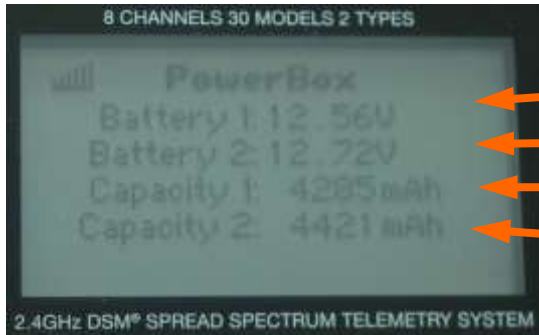


30 current in A

If there is a current sensor attached, the consumed capacity will be also calculated and announced see 31

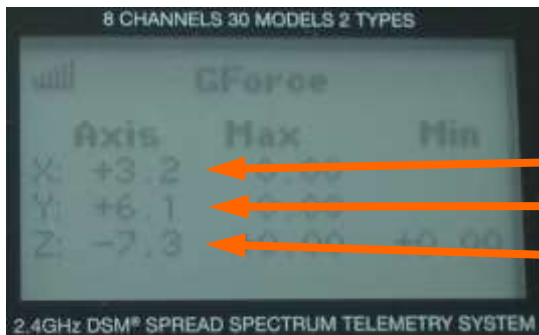
(please keep in mind that the calculated value is highly dependent of the quality of the telemetry transmission and limited by the resolution of the current sensor).

2.1.5 POWERBOX



- 36 powerbox voltage 1 in V
- 37 powerbox voltage 2 in V
- 38 powerbox current consumption 1 in mAh
- 39 powerbox current consumption 2 in mAh

2.1.6 GFORCE

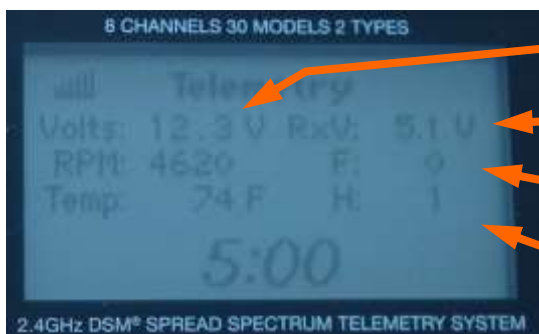


- 40 acceleration X-axis in g
- 41 acceleration Y-axis in g
- 42 acceleration Z-axis in g

2.2 Announcements of the alarms

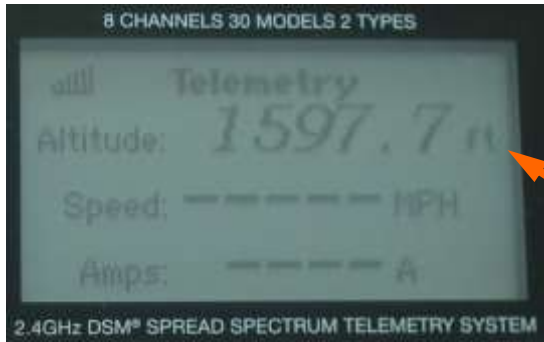
The generation of the alarms is exclusively realised in the "VSpeak module". Therefore it is possible to stagger alarms by setting different values in the radio and in the "VSpeak module".

2.2.1 TM 1000 / TM 1100



- "alarm voltage"
alarm threshold: 9 10 11
- "alarm receiver voltage"
alarm threshold: 17 18
- "alarm frame loss"
alarm threshold: 6 19
- "alarm holds"
alarm threshold: 20

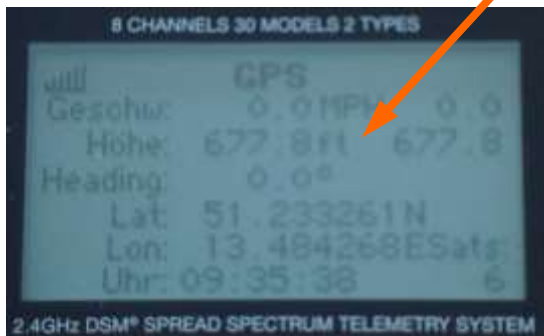
2.2.2 ALTIMETER



"alarm altitude"

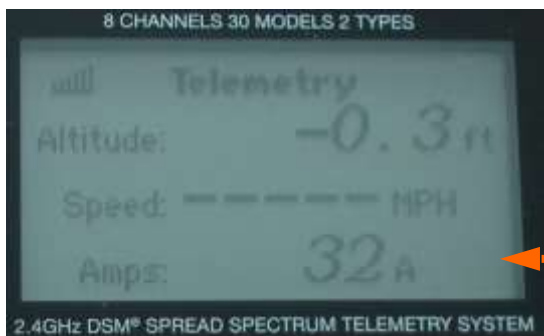
alarm threshold: 22 23 24

2.2.3 GPS



If both GPS and barometric altitude sensors are attached, the GPS data will be ignored for alarm triggering.

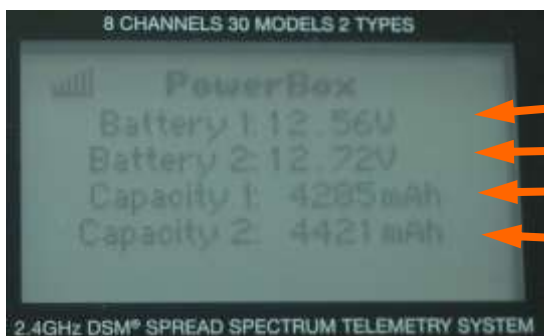
2.2.4 CURRENT



"alarm current consumption"

alarm threshold: 32 33 34 35

2.2.5 POWERBOX



"alarm powerbox voltage 1"

"alarm powerbox voltage 2"

"alarm powerbox current consumption 1"

"alarm powerbox current consumption 2"

Alarms thresholds for the Powerbox sensor are set directly in the sensor.

2.2.6 Alarm pause

To prevent a "permanent" active alarm (e.g. receiver voltage < alarm threshold), blocking the announcement, can the alarm be paused. For this time the alarm message for this sensor value is suppressed - only after the expiry **and** then - still / or again - pending alarm would this be announced again.

2.3 Announcement of the settings (Setup)

A variety of settings on the speech module can be made with the keys (see section 4.3), those will be announced.

3 Vario sound

If a Altimeter or a Vario sensor is connected to the receiver, a in the frequency proportional vario sound for rising/falling can be generated from the speech module during the speech pause. In order to better distinguish between rising and falling, the tone for the rising is also interrupted. The interruption duration decreases with increasing climbing. The zero slide, neither rising nor falling, is soundless.

For the vario sound a number of settings can be made in the settings (see section 4.3):

- ②5 Vario sound rising: ON/OFF
- ②6 Vario sound falling: ON/OFF
- ②7 Vario sensitivity: 1, 2, 3 ... , 8, 9 (1...highest // 9...lowest sensitivity)
... with connected "Vario":
1, 2, 3 ... complies 0.1 m/s
4, 5, 6 ... complies 0.2 m/s
7, 8, 9 ... complies 0.3 m/s
- ②8 Vario sound volume: 1, 2, 3, 15, 16, 15, 14,3, 2

For a long climb passages, e.g. E-gliders, F-trail, or just during "gymnastics" can the Vario-sound be switched OFF and the ON again by double-clicking (2x short activation).

4 Operation of the speech module

The speech module VSpeak is operated with the switch (non-latching switch). To check the function of the key a blue LED is lit for the duration of the operation.

The key can be pressed in four different ways:

4.0 "long key stroke"

If the key is pressed and held (> 2sec) the timed announcement is switched OFF or ON. The setting is announced, either:

"Timed announcement is OFF" - or - "timed announcement is ON"

Thus, only the cyclically recurring announcements of the reading is switched OFF / ON.

Using "single-click" the announcement can be started anytime. Also, the announcement of the alarms is done regardless of the setting made here.

The setting is saved.

4.1 "single click"

Using "single-click" (Button 1 x pressed briefly) the "regular announcement" is started (see section 2.1).

Is the speech module in mode "settings" (see section 4.3), then, by pressing the key, the reading-switching or changing takes place. In addition, the setting menu can also be stopped.

4.2 "double click"

By "double-clicking" (key 2 x pressed in quick succession) the vario tone is turned OFF or ON. The setting is announced, either:

"Vario sound is OFF" - or - "Vario sound is ON"

The setting you make is NOT saved.

4.3 "triple click"

Using "triple-click" (key 3 x pressed in quick succession) you get into the mode "settings" of the speech module. You can configure 3 different parameter-sets, which can be changed quickly.

During the announcement is the key on 'confirmed' always asked in the times that are stored in the table below "yellow", i.e. in the "value" AND "waiting time".

All settings are saved - except for the setting parameter No. 5, "wav test".

During the announcement of the "setting parameters" ("gray" background) the setup can be cancelled by pressing the key. The changes made until the abortion will be saved.

Table settings			
No	Setting parameter	Value	waiting time
1	"VSpeak: settings"	"1" "2" "3"	
2	"language"	< selection language >	
3	"voice of"	< selection voice >	
4	"volume"	< value >	
5	"wav test"	"ON" / "OFF"	
6	"stop timed announcements"	< value > "seconds"	
7	"break alarm"	< value > "seconds"	
8	"announcement voltage in V"	"min" / "actual" / "OFF"	
9	"alarm voltage 10 V"	"0" "1" "2" "3"...."9"	
10	"alarm voltage 1 V"	"0" "1" "2" "3"...."9"	
11	"alarm voltage point V"	"0" "1" "2" "3"...."9"	
12	"announcement rotation speed in rpm"	"min" / "actual" / "max" / "OFF"	
13	"divider 10 rotation speed"	"0" "1" "2" "3"...."9"	
14	"divider 1 rotation speed"	"0" "1" "2" "3"...."9"	
15	"announcement temperature in . . . "	"min" / "actual" / "max" / "OFF"	
16	"announcement receiver voltage in V"	"min" / "actual" / "OFF"	
17	"alarm receiver voltage 1 V"	"0" "1" "2" "3"...."9"	
18	"alarm receiver voltage point V"	"0" "1" "2" "3"...."9"	
19	"alarm frame loss in < <i>break alarm</i> > seconds"	"OFF" "1" "2" "3"...."9"	
20	"alarm holds"	"ON" / "OFF"	
21	"announcement altitude in . . . "	"min" / "actual" / "max" / "OFF" "5"/"10"/"20"/"25"/"50" "..."	
22	"alarm altitude 1000 . . . "	"0" "1" "2"	
23	"alarm altitude 100 . . . "	"0" "1" "2" "3"...."9"	
24	"alarm altitude 10 . . . "	"0" "1" "2" "3"...."9"	
25	"vario sound rising is"	"ON" / "OFF"	
26	"vario sound falling is"	"ON" / "OFF"	
27	"vario sensitivity"	"0" "1" "2" "3"...."9"	
28	"vario sound volume"	< value >	
29	"announcement speed in . . . "	"min" / "actual" / "max" / "OFF"	
30	"announcement current in A"	"min" / "actual" / "max" / "OFF"	
31	"announce. current consumption in mAh"	"ON" / "OFF" "100"/"200"/"500"/"1000" "mAh"	
32	"alarm current consumption 10.000 mAh"	"0" "1" "2"	

Table settings			
No	Setting parameter	Value	waiting time
33	"alarm current consumption 1.000 mAh"	"0" "1" "2" "3"...."9"	
34	"alarm current consumption 100 mAh"	"0" "1" "2" "3"...."9"	
35	"alarm current consumption 10 mAh"	"0" "1" "2" "3"...."9"	
36	"announcement powerbox voltage 1 in V"	"min" / "actual" / "OFF"	
37	"announcement powerbox voltage 2 in V"	"min" / "actual" / "OFF"	
38	"announcement powerbox current consumption 1 in mAh"	"ON" / "OFF" "100"/"200"/"500"/"1000" "mAh"	
39	"announcement powerbox current consumption 2 in mAh"	"ON" / "OFF" "100"/"200"/"500"/"1000" "mAh"	
40	"announcement acceleration X-axis in g"	"actual" / "max" / "OFF"	
41	"announcement acceleration Y-axis in g"	"actual" / "max" / "OFF"	
42	"announcement acceleration Z-axis in g"	"actual" / "max" / "OFF"	
43	"temperature in"	"°C" / "°F"	
44	"altitude in"	"m" / "ft"	
45	"announcement altitude"	"absolutely" / "relatively"	
46	"speed in"	"km/h" / "mph"	
47	"end of settings"		
48	"changes have been saved"		

To 1: < **VSpeak: settings** >

There are 3 sets of different parameters available. You can change the parameter sets here easily.

To 2: < **selection language** >

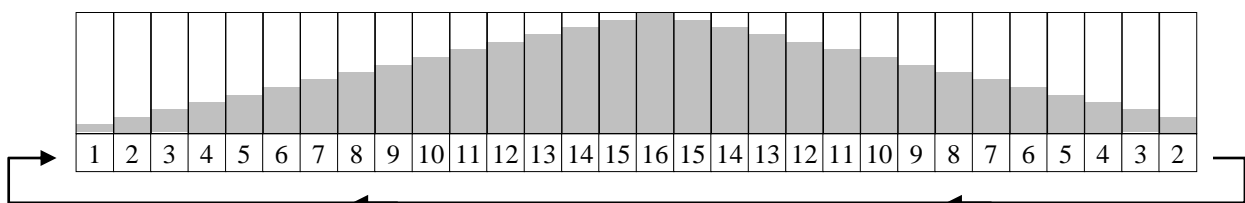
german, english, french, spanish, czech, Russian, portuguese, italian, dutch and hungarian

To 3: < **selection voice** >

(see section 5 "wav files") The voices are in each "Voice directory" in the directory "voice" saved. The directory "XYZ" (available in each "language directory") can be used for self-recorded wav files.

To 4: **"volume"**

The volume of the announcements can be adjusted in 16 steps.



To 5: "wav test"

Is "wav Test ON" selected it is immediately jumped to no. 47. Following this all wav files are played to the selected voice. This is an endless loop which can be stopped by pressing a key.

The wav-test serves "creative" users to test their self-recorded wav files.
The setting is not saved.

To 6: "stop timed announcements" < value > "seconds"

The following values can be set for the interval time (in seconds):

→ 5 → 10 → 15 → 20 → 25 → 30 → 40 → 50 → 60]

To 7: "break alarm" < value > "seconds"

The following values can be set for the interval time (in seconds):

→ 20 → 30 → 40 → 50 → 60]

To 9/10/11: "alarm voltage"

You can select here the digits (10, 1 and 0.1) for the voltage alarm (8).

The alarm will be triggered if the voltage <= alarm threshold.

alarm threshold 00.0V -> no alarm

To 13/14: "divider rotation speed"

You can adjust the divider for the RPM sensor here in order to get a correct RPM announcement (12), you can adjust the two digits independently.

When using brushless motors the divider should be half the pole count multiplied with gear ratio.

To 15: "announcement temperature in . . . "

... "°C" / "°F" according to setting 43.

To 17/18: "alarm receiver voltage"

You can select here the digits (1 and 0.1) for the receiver voltage alarm (16).

The alarm will be triggered if the voltage <= alarm threshold.

alarm threshold 0.0V -> no alarm

To 19: "alarm frame loss in < break alarm > seconds"

(break alarm (7) is the timeframe for this alarm)

You can activate an alarm if a set number of "frame losses" occurs in a given timeframe.

This is more useful than triggering an alarm at a fixed value, since single "frame losses" can occur and do not influence the flight. Consecutive "frame losses" should encourage you to reduce the distance to the model before critical "hold" situations occur.

The alarm will be triggered if the number of holds in timeframe => alarm threshold.

To 20: "alarm holds"

If you activate this alarm, you get an alarm announcement for every "hold" condition.

To 21: "announcement altitude in . . . "

... "Meter" / "Feet" according to setting 44.

If you set the value to 5,10,20,25 or 50, you will get the current altitude if you press the button or if you have timed announcements. Additionally you get an announcement if the altitude changes by the set value.

To 22/23/24: "alarm altitude"

You can adjust the alarm altitude in 1000, 100 and 10m/ft

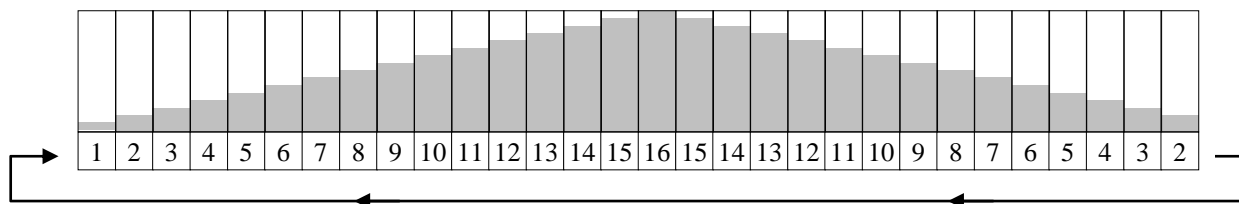
The alarm announcement will be triggered when the altitude => alarm threshold
alarm threshold 0000 m (/ ft) -> no alarm

To 27: "vario sensitivity"

1, 2, 3 ... , 8, 9 (1... highest // 9... lowest sensitivity)

To 28: "vario sound volume"

The vario sound can be adjusted in 16 steps in its volume. While setting a tone is generated, which corresponds to the "least falling".



To 29: "announcement speed in ... "

... "km/h" / "mph" according to setting 46.

To 32/33/34/35: "alarm current consumption"

You can set an alarm for consumed capacity (31), you can set the 10.000, 1.000 and 100 and 10mA values.

The alarm is triggered when consumed capacity >= alarm threshold
alarm threshold 00000 mAh -> no alarm

To 31 and 38/39: " announcement current consumption in mAh"

If you set the value to 100,200,500 or 1000 mAh, you will get the current consumption if you press the button or if you have timed announcements. Additionally you will get an announcement if the consumption changes by the set value.

To 40/41/42: "announcement acceleration X/Y/Z axis in g"

When setting to max, you get the maximum acceleration of the selected axis since the last announcement.

To 43: "temperature in"

Select the unit of temperature (°C, °F).

To 44: "altitude in"

Select the unit of altitude (m, ft).

To 45: "announcement altitude"

(only active with GPS-sensor)

When setting to "absolute", the GPS altitude will be announced according to 21 relative to sea level.

Setting to "relative", the altitude will be subtracted from the value transmitted during startup. You will get the altitude relative to your starting point.

To 46: "speed in"

Select the unit of speed (kph, mph).

To 48: "changes have been saved"

If settings were made under the previous points they are only saved **now at this point** - if no changes were made - this announcement is not applicable.

Accidental - or - incorrect entries can thus be discarded by switching off the radio before reaching this announcement.

4.4 Notes on useful settings and operation

As described above, a number of settings can be made for the speech module VSpeak.

If the sensor values are present and not turned to the "OFF" position, the sensor values are all announced at once (without a break), according to the order of the table in section 4.3. The start of the announcements can be either timed (at the end of time "stop timed announcements") or requested ("single-click").

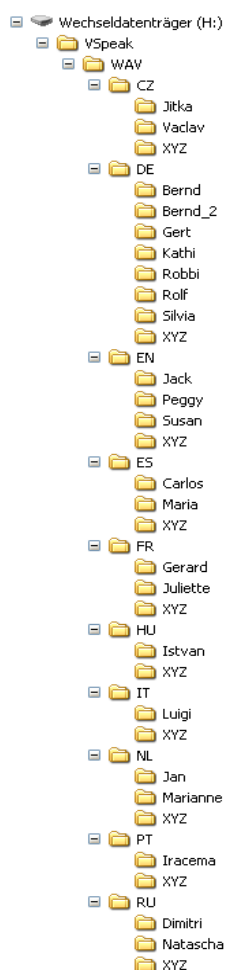
Furthermore you can enable the announcement of altitude and current consumption on a set difference (and no other announcement is happening at this moment).

In order to focus on the model you should only activate a few necessary alarms for automatic/single announcement.

If you have sensors for voltage or current/capacity, it is suggested to only activate the alarm. The alarmmessage will be repeated as long as the alarm condition is present.

Alarms will be announced always if activated, regardless of the "normal" announcement!

5 way files



The wav files (audio files of the announcements) are arranged in accordance with the adjacent picture in directories according to the country code (e.g. DE for German) and voices: (e.g., Robbi, Rolf, Silvia ...).

The directory "XYZ" is available in any language. The available wav files can be replaced by "diligent" users of the VSpeak module by own recordings, i.e. can be overwritten.

To create your own wav files there's useful information on the website: www.VSpeak-modell.de under downloads.

The self-generated wav files can be easily tested in VSpeak (see section 4.3):

1. Settings choose <language> and <voice>
2. settings "wav test ON"
(the wav files are played in an infinite loop)

"Creative self-generated voices" can be mailed for review and inclusion in the selection of voices by VSpeak at the address mentioned in section 12.

6 Update

The processor on the speech module contains a SD bootloader with a version counter.

If firmware updates are available they will be sent via mail. The information in the mail files are copied on the Micro SD card (formatted FAT or FAT16), this is inserted into the speech module and power turned on. The boot loader will recognize the new software version, boots (blue LED "flickers") and is now up to date.

Everytime with the first turning on the current version number is announced.

7 Accessories

V-cable and earphones are not included as these are often already present.

Suggestions for receiver / speaker / BT devices:

1. **Wired earphones** www.conrad.com article no.: **386308**.
(in our opinion the best price-performance ratio)
2. Hama mini-speaker www.conrad.com article no.: 343151.
3. Wireless via Bluetooth transmitter "B-SPEECH TX2" from www.reichelt.de
The BT transmitter functions with just about every BT headsets except those devices specified in the manual (mobile phone accessories).
Note: In order to enable the B-SPEECH TX2 in pairing mode, hold down the On button until the red **AND** the blue LED flashes (about 7s). At this point, the manual is a bit "thin".

Position BSpeech module and active speaker at a sufficient distance to 2.4 GHz radio antenna!

8 Technical data

8.1 Spektrum VSpeak adapter

Power supply	3.0 ... max. 5V
Power usage	ca. 7 mA
Dimensions	20 x 16 x 7 mm
Weight	4 g
Connections	Output: 3-pole connector for voice module "VSpeak" 5-pin ribbon cable for connection to Spektrum GHz module

8.2 Speech module "VSpeak"

Power supply	3.5 ... max. 16V
Power usage	ca. 18 .. 30 mA
Dimensions	27 x 16 x 15 mm
Weight	7 g
Connections	3.5 mm stereo jack, short-circuit-proof output for earphone Graupner / JR servo plug input

9 EG Declaration of Conformity

Manufacturer

VSpeak-Modellbau (Volker Weigt)
Priestewitz



We hereby declare that the product

Speech module VSpeak

complies with the following European directives:

2004/108/EC	EMC Directive
2006/95/EC	Low Voltage Directive (LVD)
2011/65/EC	Restriction of Hazardous Substances (RoHS)

The presumption of conformity is taken by applying the following harmonized standards:

EN60065	Audio-, video- and similar electronic apparatus - Safety requirements
EN60332	Tests on electric and optical fibre cables under fire conditions
EN60950	Information technology equipment - Safety
EN61000-6-1	Electromagnetic compatibility (EMC)
EN61000-6-3	
EN55022	Information technology equipment - Radio disturbance characteristics

Priestewitz, 2013/02/01

.....
Signature
Volker Weigt
Managing Director

10 Instructions for disposal



Equipment marked with the symbol should not be disposed of within household waste.

11 Version history

Vers.-No	Date	Comment
1.0	02.2013	first retail version
1.1	09.2013	Corrected wrong G-Force values and rotation speed Support of the TM1100 module Support of the "VSpeak-Vario" new voices in portuguese, italian, dutch and hungarian
1.2	01.2015	Full Supprt for Spektrum Vario SPMA9589 Altitude and capacity difference triggered announcement is possible Support for 3 different parameter sets

12 Contact

Volker Weigt

www.VSpeak-modell.de

mail: volker.weigt@vspeak-modell.de