

Audio-only variometer customisation instructions

Description

This audio only variometer measures air pressure and sounds a variable tone if you are going up and is quiet when descending unless the sink rate is below a set threshold, at which point a continuous stuttering tone will sound.

There are no user controls except an on-off switch. The vario settings can be changed using a Personal Computer and USB cable.

One 9V alkaline battery is required. Battery life should exceed 10 hours with a quality fresh battery. The vario will test the battery on startup and emit a tone as follows:

- **Barp_Beep**, (ascending tones) followed by a number of following beeps (1-5): The battery is OK, should last some hours. Full charge is 5 beeps, no following beeps means you probably have one or two hours of use left.
- **Beep Barp**: (descending tones) The battery is low, you have maybe an hour left.
- **Two Beep Barps**: The battery is almost flat, expect it to fail soon.
- **The unit will go permanently silent after playing 5 beep barps** so as not to confuse you with unpredictable readings if the voltage of the battery drops below 6.4V in use. (checked every 2 minutes)
- If you leave the vario on on the ground, it will beep at you occasionally to remind you it's using up battery.

In the air

- The vario will indicate lift by beeping. It will usually be silent unless you are actually ascending (the ascent rate that triggers beeps can be set in the software from 0 to 30fpm.)
- The faster you ascend, the quicker it will beep and the higher the pitch of the beeps will get. It sounds more "excited".
- If you descend quicker than the sink alarm setting, the vario will make a stuttering continuous tone.

Volume:

There is no volume control. If it's too loud, stick some tape over the speaker.

Customizing the vario.

The Sink alarm threshold, lift threshold before audible response, beep frequency (start) and beep rate increase and beep frequency increase can all be set using a PC attached to the vario via a USB cable. This requires installation of a terminal program and a USB driver.

Defaults:

- Sink alarm threshold -500fpm (approx.) Range is 200-800fpm

- Audible response threshold – 10fpm (approx.) Range is 0-30 fpm
- Starting vario sound frequency – 460Hz. Range is 400-600Hz
- Beep frequency increase rate – 4. Range is 0-8
- Beep rate increase -50. Range is 25-100

Setting vario parameters via PC

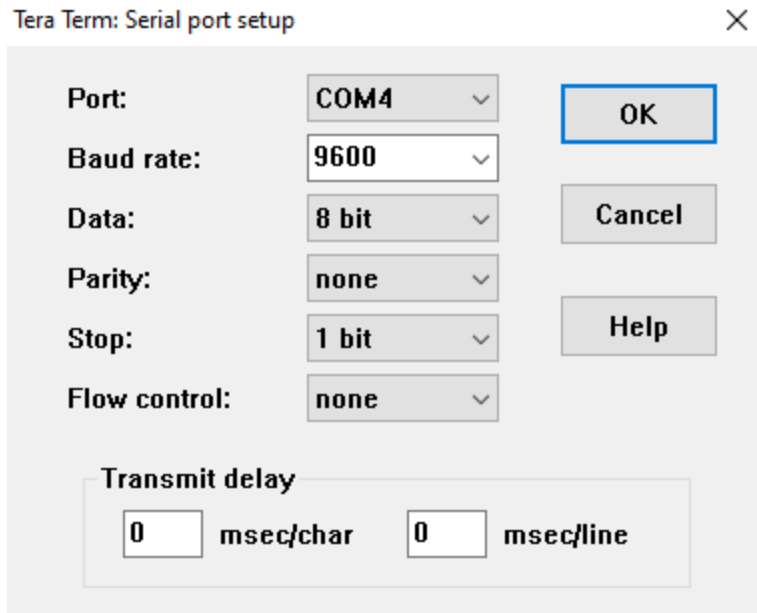
1. Install CH340 USB/Serial drivers. One source is <https://www.arduined.eu/ch340-windows-10-driver-download/>
2. Install free open source Tera Term terminal program. One source is: <https://osdn.net/projects/ttssh2/releases/>

If you plug the vario in using a mini USB cable after installing these, your computer should automatically detect it.

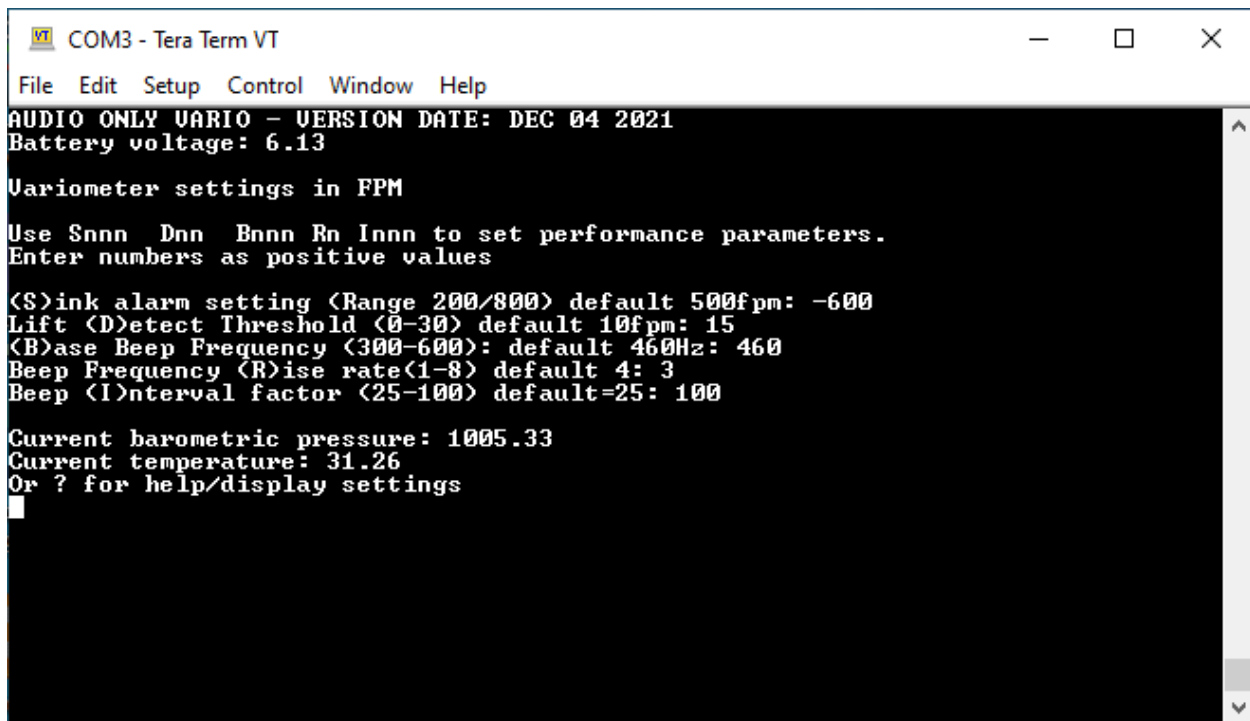
Then start Tera Term and configure the Terminal and Serial Port settings as follows. Note that you will probably not see COM4, but a different COM port number (Ignore COM1).

Tera Term: Terminal setup ×

<p>Terminal size</p> <p><input type="text" value="80"/> × <input type="text" value="49"/></p> <p><input checked="" type="checkbox"/> Term size = win size</p> <p><input type="checkbox"/> Auto window resize</p>	<p>New-line</p> <p>Receive: <input type="text" value="CR"/></p> <p>Transmit: <input type="text" value="CR"/></p>	<p><input type="button" value="OK"/></p> <p><input type="button" value="Cancel"/></p> <p><input type="button" value="Help"/></p>
<p>Terminal ID: <input type="text" value="VT100"/></p> <p>Answerback: <input type="text"/></p>	<p><input type="checkbox"/> Local echo</p> <p><input type="checkbox"/> Auto switch [VT<->TEK]</p>	
<p>Coding (receive)</p> <p><input type="text" value="UTF-8"/></p>	<p>Coding (transmit)</p> <p><input type="text" value="UTF-8"/></p>	
<p>locale: <input type="text" value="american"/></p>	<p>CodePage: <input type="text" value="65001"/></p>	



You should see the following screen



Modify parameters as required by typing, for example:

S600<enter>

The terminal will reply:

Sink Alarm Setting: -600

```
s600
Sink alarm setting: -600
d15
Lift Detect Threshold: 15
█
```

The vario setting will be updated and saved.

Pressing: ?<enter> will display all parameters.

```
?
Variometer settings in FPM
Use Snnn Dnn Bnnn Rn Innn to set performance parameters
Enter numbers as positive values

(S)ink alarm setting (Range 200/800) default 500fpm: -600
Lift (D)etect Threshold (0-30) default 10fpm: 15
(B)ase Beep Frequency (300-600): default 460Hz: 460
Beep Frequency (R)ise rate(1-8) default 4: 3
Beep (I)nterval factor (25-100) default=25: 100

Current barometric pressure: 1005.36
Current temperature: 31.13
Or ? for help/display settings
```