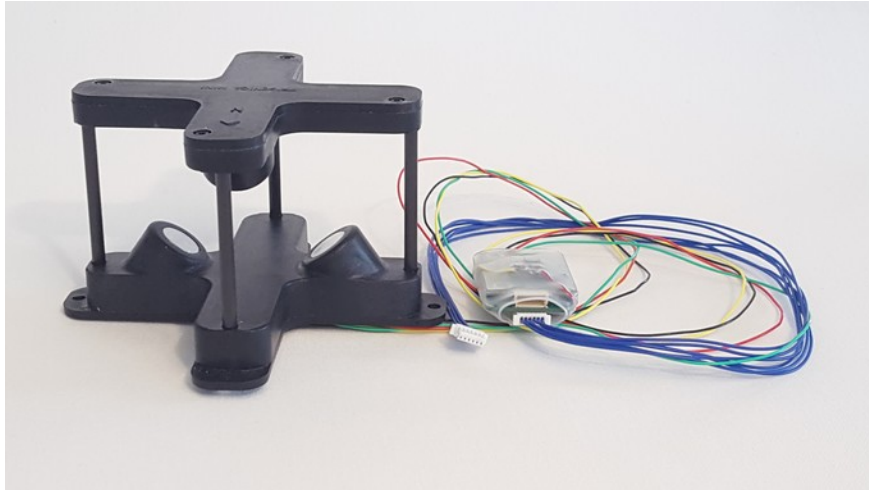




SKS31 Datasheet

Wind Sensor - 3D Ultrasonic Anemometer



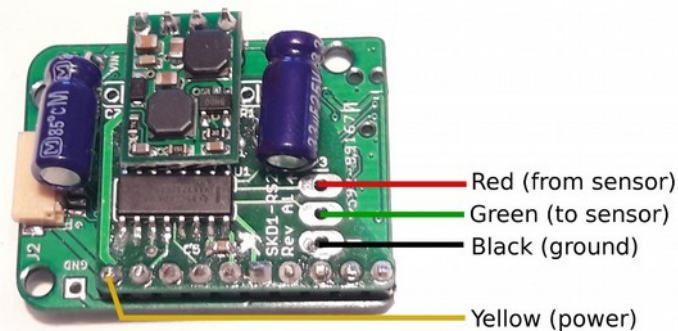
Parameters	Specifications
Measured Parameters	Wind speed and direction in 3D (U, V, W). Air temperature. Humidity. Absolute pressure. Tilt and heading.
Measurement Range	0-50 m/s for wind speed 0-359° for wind direction (x, y) ±30° for wind direction (z) -30 °C to +80°C for temperature ± 2 g for accelerometer (x, y, z) ±16 Gauss for magnetometer (x, y, z) ± 90° for tilt (Pitch, Roll)
Accuracy	Wind speed (0-10 m/s): ±0.1 m/s Wind speed (11-30 m/s): ±1% Wind speed (31-50 m/s): ±2% ±1.0° for wind direction ±2 °C (absolute) Temperature ± 3 % RH for humidity Heading Accuracy: ±5.0°
Resolution	0.1 m/s for wind speed 1.0° for wind direction ±0.1 °C for temperature 0.1% RH for humidity
Sampling frequency	1 – 10 Hz
Operating Temperature	-40 °C to +80 °C
Warm-up time	1 second
Supply Voltage	3.4 – 15 V _{DC} (Possible to power from USB, via SA1)
Power Consumption	Scales inversely with supply voltage; average 20 mA at 12 V



Communication	Sparvio SSP
Size	Sensor 92x92x54 mm, adapter 33x25x12 mm
Weight	Sensor 50 gram plus adapter 8 gram. In addition some mounting hardware is needed.

Electronics integration

If not mounted at delivery, the SKD1 adapter can be soldered to the four sensor wires by the user. This picture shows where the sensor wires attach, by the color of the wires:



Afterwards, insert the SKD1 in the heatshrink and heat to a tight fit, to protect the electronics.

Calibration

To calibrate, put the black sensor in a box, connect to SA1 and run Sparvio Toolbox:
python bridge.py Trisonica

You should see the raw data from Trisonica, looking something like this:
00.49 063 00.21 00.42 00.14 23.9

Press Ctrl+C. The output should stop.

Now you are in Trisonica command mode. Put the Trisonica into a box to shield it from noise. From the Trisonica manual:

Type
calibrate <temp> [<rh>]

Where <temp> = xx.x in °C temperature and <rh> = xx.x in % relative humidity. If humidity is not supplied, then 50% is assumed.

The calibration cycle takes ten seconds. You will see dots printed on the serial console indicating progress, and the serial prompt will return. Then type nwrite to store the values in non-volatile memory.

Then type exit to resume the data mode.

Exit bridge.py by Ctrl+D.



Sparvio background

The Sparvio system provides a modular, plug-and-play solution for measuring various quantities for UAVs, other environmental studies, lab experiments and education. The system is designed to start immediate measurements without any further integration.