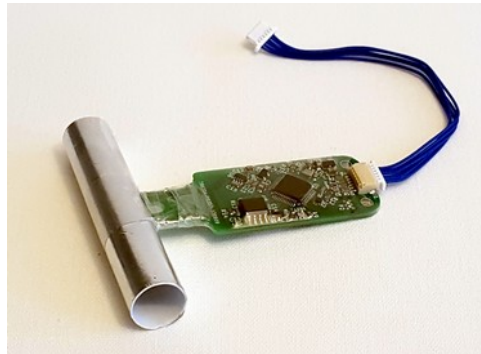# SKS2 Datasheet
Fast-response Temperature and Humidity Sensor

SKS2 is a temperature and relative humidity sensor with very fast response time, designed for UAVs. The sensor elements are protected by a reflective tube that is oriented in the direction of the wind flow.

Sampling frequency	Max 10 Hz, configurable 1 ~ 10 Hz.
Power consumption	Ca 15 mA
Communication	Sparvio SSP
Attachment	Two holes with diameter 2.5 mm, 14 mm center-to-center distance
Size	Circuit board: 21 x 57 mm Radiation shield: 60 mm long
Weight	5 – 6 gram without cable

Parameters	Temperature	Relative Humidity
Measurement Principle	NTC small ceramic bead	Capacitive sensor
Measurement Range	-55 – +50ºC	0 – 100 %RH, non-condensing conditions
Absolute accuracy	0.5 ºC (estimated) *Typical values at reference conditions*	4 %RH (estimated) *Typical values at reference conditions*
Resolution	0.01 ºC	0.05 %RH
Response Time	In still air: 0.8 seconds	0.25 seconds at +20 ºC 0.8 seconds at 0 ºC 3 seconds at -20 ºC

Usage
Mount the SKS2 on the drone with the tube in the expected direction of air flow. Make sure it is mounted away from heat sources like motors and power-demanding electronics.

Using the command line, the sampling interval can be set in milliseconds in this fashion: "set SKS2 samplingInterval 100".

LED signals
On power-up, the LED cycles through red – green – blue.
The LED will then blink every time sampling is done.

> **Red**: An error that prevents either T or RH from being measured. Possible errors include a broken sensor element, missing calibration data or sampled data outside of calibration range.

> **Yellow**: A valid measurement was done, but can't be reported.

> **Green**: Measurement is valid and reported.

Calibration
Temperature and humidity can be calibrated by the customer if a reference instrument is available. Three temperature points and two humidity levels at room temperature are needed. Please contact Sparv Embedded for this option.

Maintenance
On the tip of the SKS2 PCB, in the middle of the silver tube (radiation shield), one tiny wire (thermistor) and one glass plate are mounted across the gap in the PCB. They are exposed by carefully removing the radiation shield. These are the sensor elements and are very fragile. The thermistor can sever at touch. The glass plate performs humidity measurements, using the middle area on the bottom side. Any contamination or scratches in this area will throw off the RH measurements, so contact with the area is not allowed.

The glass plate can be cleaned by one of the following methods:
• Blowing with oil-free, filtered compressed air, hydrocarbon-free air or nitrogen
• 0.5 min ultrasonic rinse in isopropanol at 23°C (73.4°F)

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.

SKS2 is designed and manufactured in Sweden by Sparv Embedded AB.