T/RH Sensor

Measures the temperature and relative humidity of the environment. This device, belonging to the PRO sensor series, includes Aranet Sub-GHz ISM band radio which wirelessly transmits sensor measurements to the Aranet PRO base station.

Product numbers

European Union	TDSPT001
United States	TDSPT0U1
Asia	TDSPT0U1

Sensor performance

General notes

- 95 % of the sensors perform within the specified accuracy limits at the time of purchase, assuming they are in an equilibrium state. For evaluation of the total measurement error, long-term drift has to be taken into account.
- Measurement time constant τ is determined at 1 m/s airflow. This constant refers to the time it takes for the sensor reading to reach 63 % of a new steady-state value in response to a step change in the environment. It essentially represents the speed at which the sensor adjusts to changes in the measured quantity.

Temperature

Range	-40–60 °C	-40–140 °F
Resolution	0.1 °C	0.1 °F
Accuracy	±0.3 °C	±0.5 °F
Long-term drift	0.03 °C/year	0.05 °F/year
Time constant τ	10 min	

Relative Humidity

Range	0–100 %
Resolution	1 %
Accuracy	±2 %
Long-term drift	0.5 %/year
Time constant τ (63 %)	TBD

- Provided accuracy is relevant for the relative humidity measurement range 0–80 % at 23 °C (73 °F).
- Long-term drift value is provided at laboratory conditions: 23 °C (73 °F) and 30–70 % relative humidity. In significantly different conditions, higher long-term drift might occur.
- Long-term exposure to high humidity conditions (>80 %, especially condensing atmosphere) might temporarily increase the relative humidity reading above the actual value. To rectify this, it's advisable to dry the probe in an environment with low relative humidity.

General specifications

Ingress protection rating	IP42	
Maximum operating temperature	-40–60 °C	-40–140 °F
Dimensions	111×44×25 mm	4.5×1.7×1.0 in
Weight (incl. battery)	65 g	2.3 oz
Enclosure material	ASA plastic	
Packaging includes	2 pcs AAA alkaline batteries, polyester string for hanging the device	

Battery lifetime

Measurement interval	Alkaline battery lifetime	Lithium battery lifetime
1 min	2.4 years	2.6 years
2 min	4.3 years	4.9 years
5 min	8.3 years	10 years
10 min	10 years	>10 years

- Battery lifetime data has been obtained by mathematical extrapolation and is provided for descriptive purposes only and is not intended to make or imply any guarantee or warranty.
- Battery lifetime tests and calculations performed assuming device is at 20 °C (68 °F) and using *Fujitsu LR03G07* (alkaline) and *Energizer Ultimate Lithium L92* (lithium) AAA batteries as reference.
- The operating temperature range may vary based on the battery type used. Generally, the range for alkaline batteries is between -20–50 °C (-4–122 °F), whereas for lithium batteries, it is -20–60 °C (-40–140 °F).

Aranet radio parameters

Line of sight range	3 km	1.9 mi
Transmitter power	14 dBm	25 mW
Data transmission interval	1, 2, 5 or 10 min	
Data protection	XXTEA encryption	

Important notes

- Device is qualified to work properly within ambient clean air. Qualification for use in harsh environment is the duty of the user of the sensor. Exposure to volatile organic compounds, acids or bases, etching substances such as H_2O_2, NH_3, shall be avoided.

Compliance information

CE Conformité Européenne

FC Federal Communications Commission (USA)

IC Innovation, Science and Economic Development Canada