PM Sensor

A device designed to monitor air pollution levels and safeguard against harmful particulate matter (PM) present in the air. 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

Product number	Radio band	To be used in
TDSPPM02	EU868	European Union
TDSPPMU2	US920	United States of America, Canada, South America
TDSPPMU2	AS923	Brunei, Cambodia, Hong Kong, Indonesia, Laos, Taiwan, Thailand, Vietnam
Not available	JP923	Japan, Malaysia, Singapore
Not available	KR923	South Korea

Particulate matter concentration measurement performance

	PM1.0	PM2.5	PM10
Range	0–1000 μg/m^3	0–1000 μg/m^3	0–1000 μg/m^3
Resolution	1 μg/m^3	1 μg/m^3	1 μg/m^3
Accuracy (up to 100 μg/m^3)	±10 μg/m^3	±10 μg/m^3	±25 μg/m^3
Accuracy (100–1000 μg/m^3)	±10 %	±10 %	±25 %
Maximum long-term drift	±1.25 %/year	±1.25 %/year	±1.25 %/year

- The concentration metrics provided for PM1.0, PM2.5, and PM10 indicate particle concentration with overlapping size ranges:0.3–0.5 μm, 0.3–1.0 μm, and 0.3–10 μm, respectively.

General specifications

Ingress protection rating	IP42	
Operating temperature range	-10–60 °C	14–140 °F
Operating relative humidity range	0–95 %	
Dimensions	104×67×37 mm	4.10×2.64×1.46 in
Weight (excl. wall mount)	116 g	4.1 oz
Packaging includes	Power supply unit, wall mount	

Power supply specifications

Power supply	External 12–24 VDC power supply unit
Power consumption	0.5 W

LED mode description

LED mode	Air quality index	Category
Green	0–50	Good
Yellow	51–100	Moderate
Orange	101–150	Unhealthy for sensitive groups
Red	151–200	Unhealthy
Purple	201–300	Very unhealthy
Flashing	>301	Hazardous

- The calculation of the air quality index and the corresponding implementation of LED modes were guided by the document titled: *U.S. Environmental Protection Agency, "Technical Assistance Document for the Reporting of Daily Air Quality" (2018)*.

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	

Aranet radio bands and channels

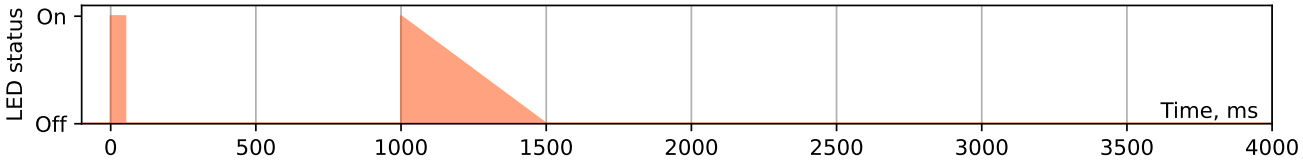
Radio band	Channel 1	Channel 2	Channel 3	Channel 4
EU868	868.1 MHz	868.3 MHz	868.5 MHz	—
US920	917.3 and 922.9 MHz	917.5 and 923.1 MHz	917.7 and 923.3 MHz	917.9 and 923.5 MHz
AS923	923.1 MHz	923.3 MHz	—	—
JP923	923.0 MHz	923.4 MHz	—	—
KR923	923.1 MHz	923.3 MHz	—	—

- This table outlines the radio channels utilized by Aranet Sub-GHz radio technology for transmitting sensor data to the base station, complying with the legislation in various regions. To determine availability of this product in your region and the corresponding channels used, refer to the “Product numbers” table located at the beginning of this document.

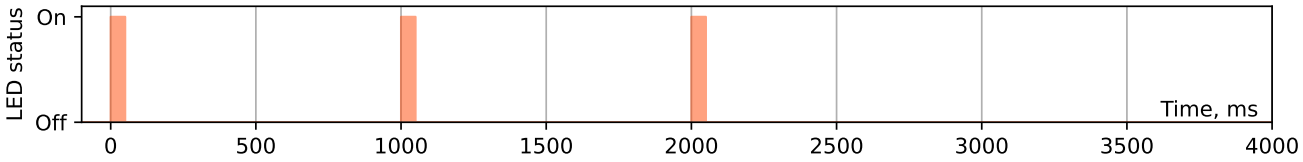
Pairing process description

As part of the Aranet PRO product series, this device enables wireless sensor reading transmission to the Aranet PRO and PRO Plus base station. Here’s how to pair the sensor with the base station:

- Place the sensor within 20 m (60 ft) of the base station during pairing. Once paired, it can communicate over a much greater distance (up to 3 km / 1.9 mi line of sight).
- If the sensor uses a power supply unit, unplug it. Open the sensor casing and remove the battery for at least 20 seconds. Alternatively (for newer hardware revisions), locate the PAIRING button on the sensor PCB which can be used to initiate pairing without the removal of battery.
- Access the SENSORS menu in the base station Web GUI. Set the measurement interval and select PAIR SENSOR to start the pairing process.
- Within a 2-minute window, insert the battery or press the PAIRING button on the sensor PCB (for newer hardware revisions) to initiate pairing.
- A successful pairing is indicated by the sensor appearing in the Web GUI and a specific LED blink sequence on the sensor PCB (one to three short blinks followed by a longer fade-out blink of the LED):



- If pairing fails, the sensor won’t appear in the Web GUI, and the LED blink sequence will consist only of three short blinks. In this case, repeat the procedure closer to the base station.



- After successful pairing, customize parameters like name and tags in the Web GUI. Close the sensor casing and install it in the desired location.

Important notes

- The sensor best performs when operated within 10–40 °C (50–104 °F) and 20–80 % RH, should be placed in stable temperature and relative humidity locations. Avoid operating in a heavily contaminated environment, under excessive ambient light, and/or wind.

Compliance information

CE	Conformité Européenne
FC	Federal Communications Commission (USA)
IC	Innovation, Science and Economic Development Canada