4-20 mA Transmitter

Measures analog signal of a 3rd party sensor. 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
TDSPCL02.010	EU868	European Union
TDSPCLU2.010	US920	United States of America, Canada, South America, Australia, New Zealand
TDSPCLU2.010	AS923	BRN, KHM, HKG, IDN, LAO, TWN, THA, VNM, MYS, SGP
Not available	JP923	Japan
TDSPCLU2.010	KR923	South Korea

Electric current measurement performance

Range	0–30 mA
Resolution	0.01 mA
Accuracy	0.5 %

Probe cable specifications

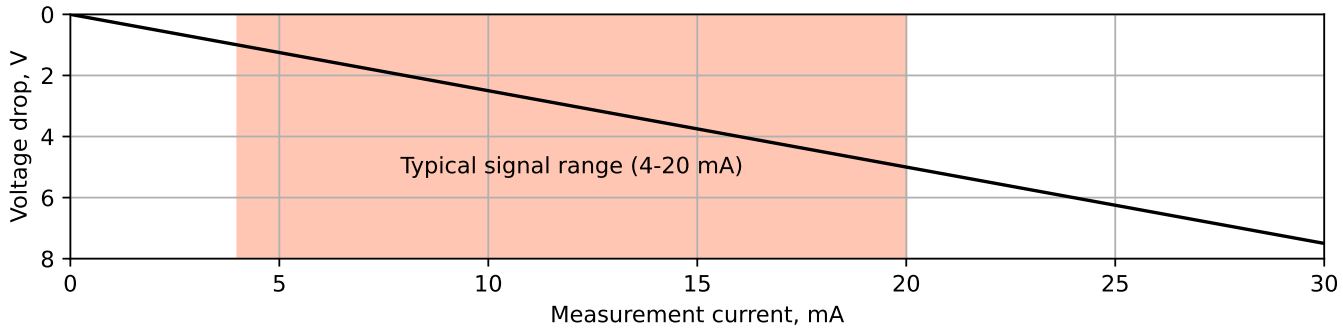
Length	1 m	3.3 ft
Cable material	Polyvinyl chloride (PVC)	
Operating temperature (flexing)	-5–70 °C	23–158 °F
Operating temperature (fixed)	-40–80 °C	-40–176 °F

Cable color coding

- The transmitter connection to a 4-20 mA source is unipolar. This means that either of the transmitter wires (brown and white) can be connected to the source ground (GND) or signal (+V) to achieve a positive signal measurement.

Effects of internal resistance

Aranet has implemented 4–20 mA signal measurement using a 250 Ω resistor in the device circuitry. Consequently, the 4–20 mA signal source will experience the associated voltage drop across the Aranet device. The plot below illustrates the resulting voltage drop that occurs within the operational range of current signal measurement. For example, with a 20 mA signal, the voltage drop across the Aranet device will be 5 V and, with a 24 V power supply, the supply voltage for the 4–20 mA source device will be 24-5=19 V. If a 12 V power supply is used, the available voltage will be 12-5=7 V.



Please consult the documentation of the external 4–20 mA signal source to verify that a load of 250 Ω and the associated voltage drop are applicable to the particular device. Failure to observe these constraints might result in unstable operation or damage to the 4–20 mA signal source device.

General specifications

Ingress protection rating	IP68	
Maximum operating temperature	-40–60 °C	-40–140 °F
Dimensions	⌀35×120 mm	⌀1.4×4.7 in
Weight (incl. battery)	100 g	3.5 oz
Enclosure material	ASA plastic	
Power supply	1 pc AA battery	
Packaging includes	1 pc AA alkaline battery, polyester string for hanging the device	

Battery lifetime

Measurement interval	Alkaline battery lifetime	Lithium battery lifetime
1 min	1.6 years	2.1 years
2 min	3.0 years	4.0 years
5 min	6.0 years	8.6 years
10 min	9.6 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 Premium LR6G07* (alkaline) and *Energizer Ultimate Lithium L91* (lithium) AA 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 -40–60 °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	

Aranet radio bands and channels

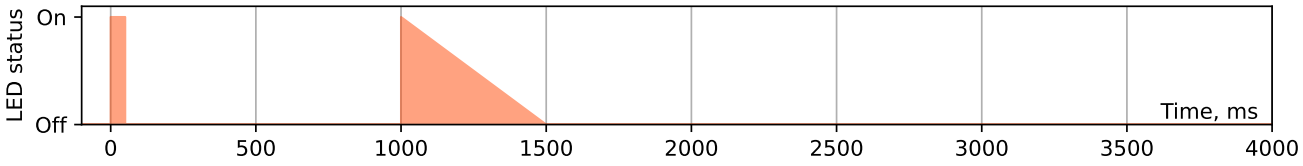
Radio band	Channel 1	Channel 2	Channel 3	Channel 4
EU868	868.1 MHz	868.3 MHz	868.5 MHz	—
US920	917.3 and 922.9 MHz	917.5 and 923.1 MHz	917.7 and 923.3 MHz	917.9 and 923.5 MHz
AS923	923.1 MHz	923.3 MHz	—	—
JP923	923.0 MHz	923.4 MHz	—	—
KR923	923.1 MHz	923.3 MHz	—	—

- 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 at the beginning of this document.

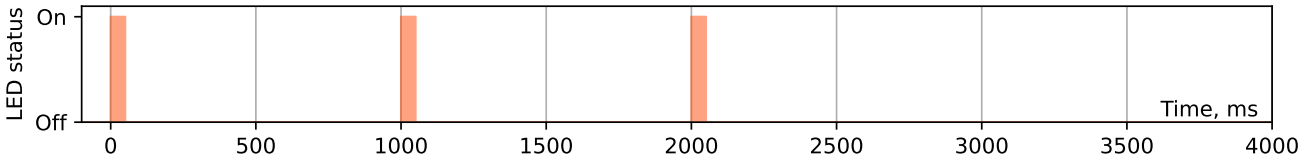
Pairing process description

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.

Compliance information

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

Korea certification mark label

R-R-A4A-TDSPCLU2

Company name	SAF Tehnika JSC
Equipment name	4-20 mA Transmitter
Model name	TDSPCLU2.010
Manufacturer / Country	SAF Tehnika JSC, Latvia