

Accurate PM and NO₂ measurements, anywhere you need them

Clarity's flagship particulate matter (PM) and nitrogen dioxide (NO₂) sensor is self-powered, FCC/CE-certified, MCERTS-certified, UV-resistant, and weatherproof.

A self-sufficient IoT air quality monitoring device with solar harvesting, an internal battery, and global cellular connectivity, the Clarity Node-S requires minimal maintenance and operates seamlessly even in remote locations. We're so confident in the Node-S's ability to amaze, our solution comes with free hardware replacements.



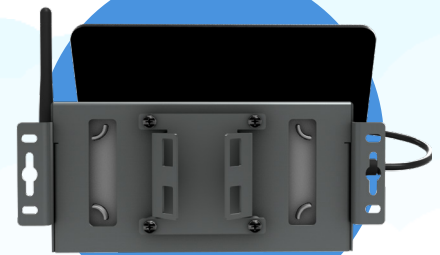
SOLAR-POWERED & CELLULAR-CONNECTED

Pre-configured with integrated solar power harvesting, batteries, and global cellular connectivity to get up and running quickly without external infrastructure.



MCERTS-CERTIFIED FOR ACCURACY

Complies with MCERTS Performance Standards for Indicative Ambient Particulate Monitors (CSA MC230425/00) for both PM_{2.5} and PM₁₀.

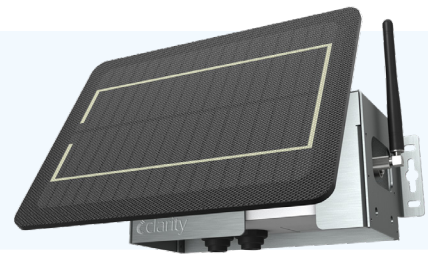


WARRANTIED, ROBUST & WEATHERPROOF

Rugged, weatherproof devices for seamless operation and minimal maintenance even in remote locations, with free servicing and replacement of equipment under warranty.



Node-S Technical Specifications



AIR QUALITY MEASUREMENTS

PARAMETER	TECHNOLOGY	RANGE
Particulate Matter PM _{2.5} [µg/m ³] MCERTS-Certified CSA MC230425/00	Laser Light Scattering with Remote Calibration	<ul style="list-style-type: none"> 0-1000 µg/m³ 1 µg/m³ resolution
Nitrogen Dioxide NO ₂ [ppb]	Electrochemical Cell with Remote Calibration	<ul style="list-style-type: none"> 0-3000 ppb 1 ppb resolution

PERFORMANCE BY CALIBRATION TYPE*

	PRE-CALIBRATED ¹	CUSTOM COLLOCATION
R²	Optimal Conditions: 0.97 Typical Conditions: > 0.7	R² { Optimal Conditions: 0.94 Typical Conditions: > 0.7
RMSE	Optimal Conditions: 1.4 Typical Conditions: < 4	RMSE { Optimal Conditions: 1.3 Typical Conditions: < 3
R²	Optimal Conditions: 0.83 Typical Conditions: > 0.5	R² { Optimal Conditions: 0.86 Typical Conditions: > 0.6
RMSE	Optimal Conditions: 3.8 Typical Conditions: < 8	RMSE { Optimal Conditions: 2.4 Typical Conditions: < 6

* **About Performance Specifications:** Calculated from Clarity's dataset of > 6,000,000 measurements. **Optimal** refers to the 95th percentile of performance Clarity has observed under ideal or favorable conditions. **Typical** refers to common performance under various conditions. For more information on Clarity Node performance and why we don't cherry-pick performance results, [see our calibration explainer here](#).

Additional Node-S Parameters: PM_{2.5} Number Concentration [# /cm³] | PM₁ Mass Concentration [µg/m³] | PM₁ Number Concentration [# /cm³] | PM₁₀ Mass Concentration [µg/m³] | PM₁₀ Number Concentration [# /cm³] | Internal Temperature [°C] | Internal Relative Humidity [%]

Additional Parameters with Add-On Modules: Wind Speed | Wind Direction | Ambient Temperature | Ambient Relative Humidity | Atmospheric Pressure | FEM-Grade Ozone Concentration | Black Carbon Concentration

DATA FLOW

Measurement Frequency (Adjustable)	Default: Once every 15 minutes Minimum: Once every 3 minutes
Data Retrieval from Cloud	Clarity Dashboard (Web App) RESTful APIs (Programmatic Access) OpenMap (Public Data Sharing)
Device to Cloud Communication	Global cellular 2G/3G/4G SIM card and service included

OPERATING CONDITIONS

Weatherproof Rating	IPX3
Operating temperature⁴	-10° to 55° C
Absolute temperature rating	-40° to 70° C
Operating humidity	10% to 98% RH
UV Exposure	UV-resistant

POWER²

Current Consumption	28 mA (sensing) 30 mA (transmission) <300 uA (sleeping)
Input Voltage	15 V
Battery Capacity	6400 mAh capacity 5-hour charge time 10.8 V nominal voltage
Solar Panel	6 W (max power) 21.6 V (open circuit voltage) 350 mA (short circuit current)
Battery Life³	30 days (without solar power harvesting) >5 years (with solar power harvesting) ³

DIMENSIONS

Node (no antenna, shield or solar panel)	188 mm (W) x 98 mm (H) x 128 mm (D) Weight: 2.00 lb / 0.91 kg
Solar Panel	233 mm (W) x 176 mm (H) x 4 mm (D) Weight: 1.03 lb / 0.47 kg
Solar Shield⁵ (not including solar panel)	232 mm (W) x 100 mm (H) x 162 mm (D) Weight: 0.60 lb / 0.27 kg
Weight	Total assembled: 3.64 lb / 1.65 kg

¹ Please note that our Global pre-calibration for NO2 can only be applied when temperatures are between 0 - 40° C.

² The Node-S can be used as a solar-powered or externally-powered device. External power required for operation below 0° C.

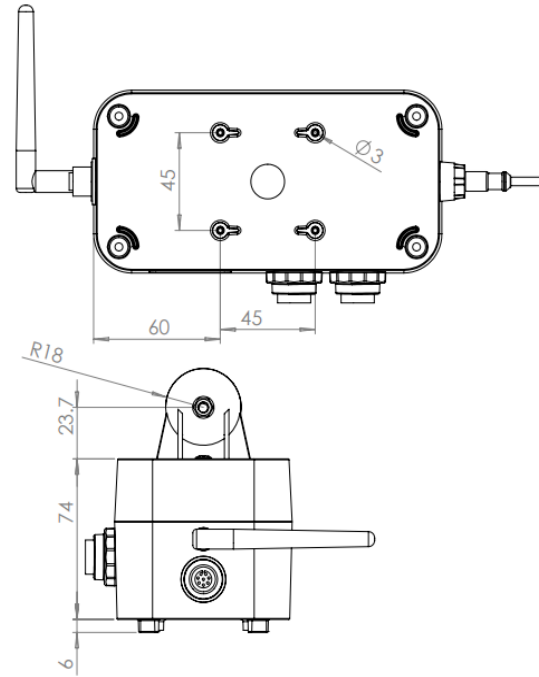
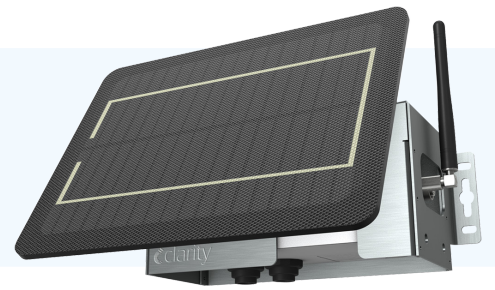
³ Varies by deployment site location, solar panel orientation, and sampling frequency.

⁴ Assuming default measurement frequency and exposure to an average of one hour of full sunlight per day over a 15-day rolling window.

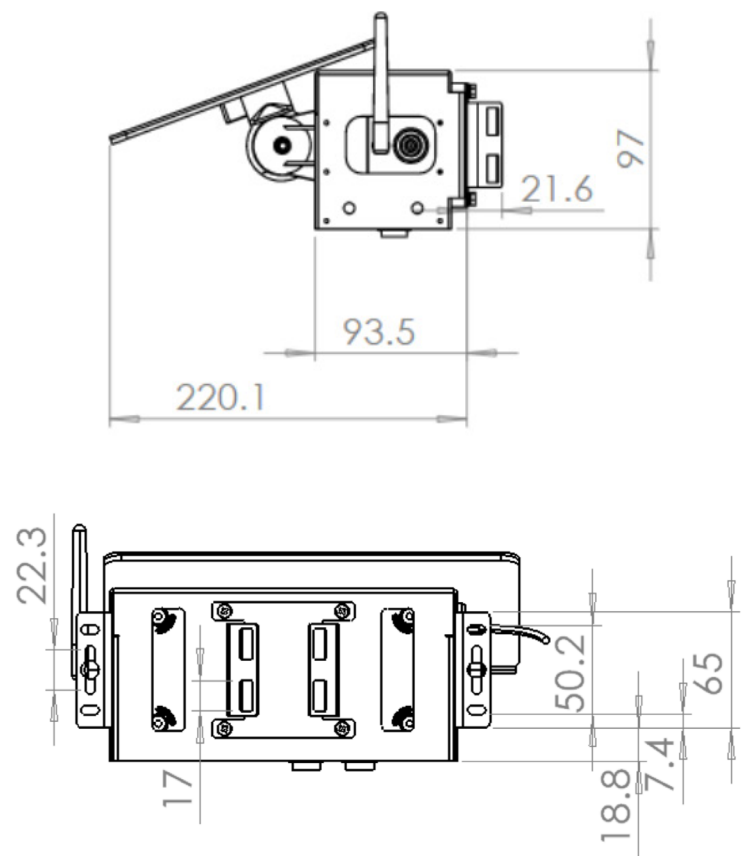
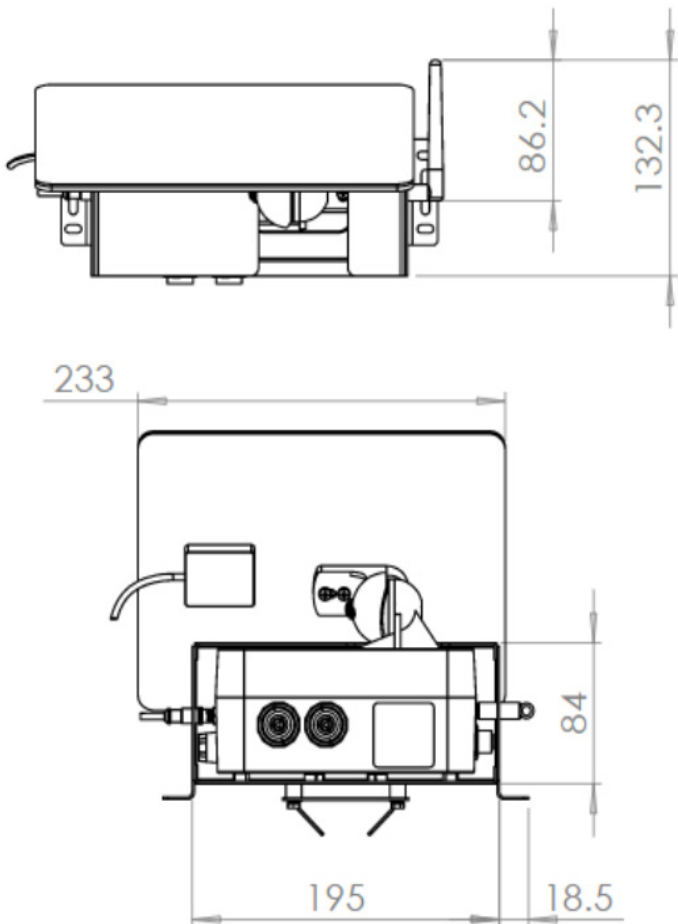
⁵ Solar shield provides protection against direct heat radiation.

Node-S Technical Drawings¹

NODE-S DEVICE BODY



NODE-S DEVICE WITH SHIELD + SOLAR PANEL



¹ All indicated dimensions are in millimeters (mm)