

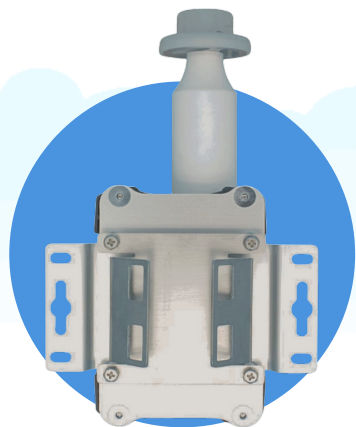


Reliable near-reference ambient PM₁₀ measurement, at a fraction of the cost

The Dust Module brings new precision to indicative PM₁₀ measurement, solving a fundamental limitation of low-cost air quality sensors¹, which are unable to detect particles larger than 1 μm and thus aren't suited for coarse dust monitoring applications.

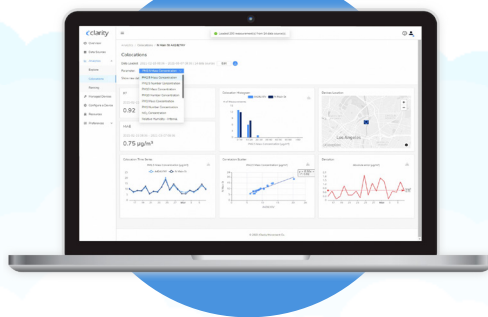
With enhanced optical detection and a heated inlet, it measures dust and other coarse particulates accurately at a fraction of the cost of reference equipment, making it ideal for sites where heavy equipment and industrial operations, construction, wildfire ash, resuspended dust, or natural dust sources dominate air quality concerns.

Seamlessly integrated with the Clarity Node-S for cellular connectivity and optionally solar-powered, the Dust Module delivers reliable performance even in remote, infrastructure-limited areas.



DEPLOY ANYWHERE

Solar-powered & cellular-connected, the Dust Module operates reliably even in remote or infrastructure-limited locations.



NEAR-REFERENCE ACCURACY

Advanced optical sensors and a heated inlet enable accurate PM₁₀ data that closely match regulatory-grade monitors.



WARRANTIED, ROBUST & WEATHERPROOF

Built for harsh environments, the Dust Module is fully ruggedized and backed by a comprehensive warranty.

1. Molina Rueda, E. et al. (2023) 'Size-resolved field performance of low-cost sensors for Particulate Matter Air Pollution', Environmental Science & Technology Letters, 10(3), pp. 247–253. <https://doi.org/10.1021/acs.estlett.3c00030>.



Dust Module

Technical Specifications

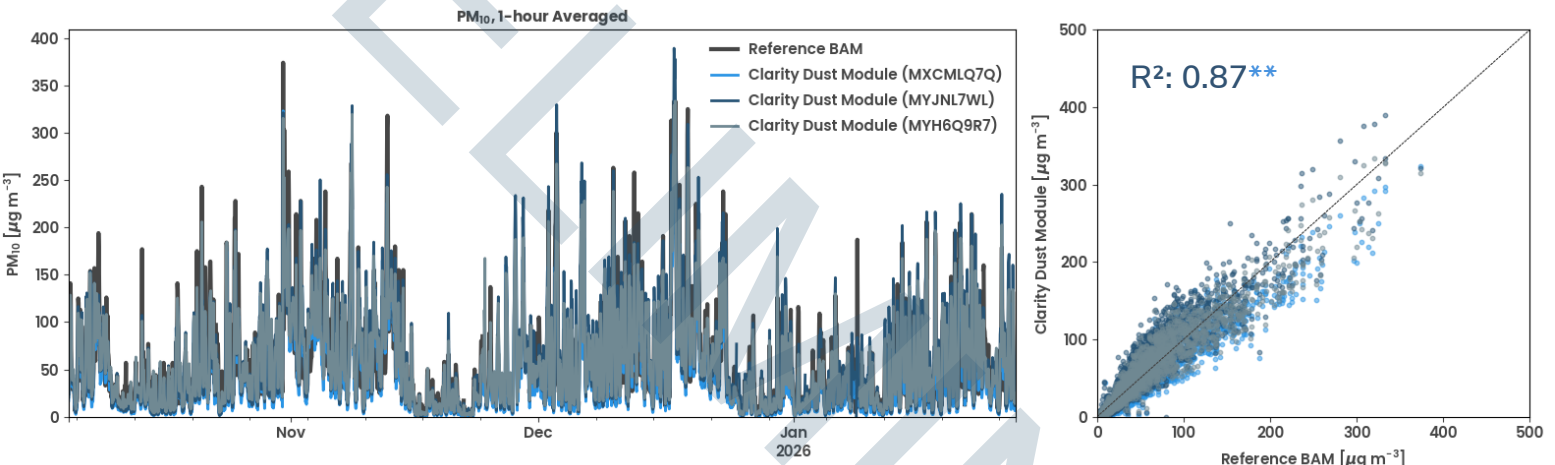


AIR QUALITY MEASUREMENTS

PARAMETER	TECHNOLOGY	RANGE	PERFORMANCE
Particulate Matter PM ₁₀ [$\mu\text{g}/\text{m}^3$]	Optical sensing with size distribution change detection plus heated inlet	<ul style="list-style-type: none"> 0-10,000 $\mu\text{g}/\text{m}^3$ 1 $\mu\text{g}/\text{m}^3$ resolution 	R ² : TBD* RMSE: TBD*

* Performance specifications pending more collocation testing with reference instruments.

PRELIMINARY PERFORMANCE TESTING RESULTS



** Preliminary performance testing results based on one location (Calexico, CA) and may not be representative of accuracy in other environments.

DATA FLOW

Measurement Frequency (Adjustable)	Follows companion Node-S Default: Once every 15 minutes Maximum: Once every 1 minute
Data Retrieval from Cloud	Clarity Dashboard (Web App) RESTful APIs (Programmatic Access) OpenMap (Public Data Sharing)
Device to Cloud Communication	Provided by companion Node-S² Global cellular 2G/ 3G/ 4G SIM card and service included

POWER

Solar-Powered	25W or 50W Clarity solar power system required depending on climate
Current Consumption	Max: 540 mA Typical: 125 mA
Input Voltage	12V

OPERATING CONDITIONS

Weatherproof Rating	IPX3
Operating Temperature	-10° to 55° C
Absolute Temperature Rating	-40° to 70° C
Operating Humidity	10% to 98% RH
UV Exposure	UV-resistant

DIMENSIONS

Dust Module	86 mm (W) x 98 mm (H) x 64 mm (D)
Weight	Total assembled: 2.09 lb / .95 kg