

Multi-Gas Module: Criteria pollutant and traffic emissions monitoring made simple

The Clarity Multi-Gas Module expands the capabilities of the Node-S, enabling real-time measurement of CO, O₃, NO₂, NO, and NO_x — five key pollutants that impact air quality and public health. Whether monitoring urban pollution, industrial emissions, or transportation corridors, this compact, all-in-one sensor provides high-quality data without the complexity of multiple instruments.

Designed for effortless deployment, the Multi-Gas Module features a weatherproof, UV-resistant enclosure and modular mounting for quick installation on both vertical and horizontal poles. With Clarity's plug-and-play Add-On Module design, the Multi-Gas Module leverages the solar-powered operation and built-in cellular connectivity of the Node-S — even when paired with the Wind Module as pictured here.



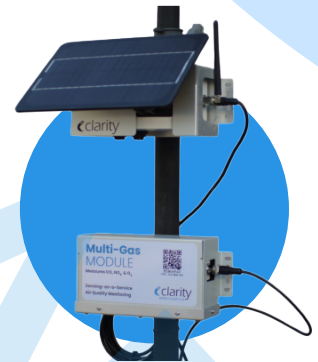
Measure more criteria pollutants

The Multi-Gas Module streamlines data collection and expands your monitoring capabilities with Carbon Monoxide (CO), Ozone (O₃), Nitrogen Dioxide (NO₂), Nitric Oxide (NO), and Nitrogen Oxide (NO_x) measurements all in one device — all measurements can be retrieved via Clarity Dashboard and API.



Identify wildfire, traffic, and smog trends

Designed for diverse applications, the Multi-Gas Module enhances monitoring of wildfire smoke, traffic emissions, and smog formation. Distinguish wildfire smoke from urban pollution using the CO-to-PM_{2.5} ratio, identify traffic pollution hotspots through NO and NO₂ levels, and track O₃ non-attainment and smog formation with joint NO₂ and O₃ measurements.



Solar-powered and always connected

The Multi-Gas Module runs directly off the Node-S power system, meaning it can leverage the native solar power and cellular connectivity of the Node-S. Measurements are automatically transmitted to the Clarity Cloud, eliminating the need for complex infrastructure or manual data retrieval.

Multi-Gas Module | Technical Specifications

Air Quality Measurements

PARAMETER	TECHNOLOGY	RANGE	RESOLUTION	ACCURACY*
CO	Electrochemical cell sensor	0 - 5 ppm	0.01 ppm	R ² > 0.8 RMSE < 0.1 ppm
O ₃	Electrochemical cell sensor	0 - 3000 ppb	1 ppb	R ² > 0.5 RMSE < 8 ppb
NO ₂	Electrochemical cell sensor	0 - 3000 ppb	1 ppb	R ² > 0.5 RMSE < 8 ppb
NO	Electrochemical cell sensor	0 - 3000 ppb	1 ppb	R ² > 0.6 RMSE < 7 ppb
NO _x	Electrochemical cell sensor	0 - 3000 ppb	1 ppb	R ² > 0.6 RMSE < 8 ppb

*Listed accuracy specifications valid only after collocation-based calibration, which is required for the Multi-Gas Module.

Data Flow

Measurement Frequency (Adjustable)	Default: Once every 15 minutes (adjustable)
Data Retrieval from Cloud	<ul style="list-style-type: none">Clarity Dashboard (Web App)RESTful APIs (Programmatic Access)
Communication Protocol	RS-485, Clarity Add-On Module protocol
Device to Cloud Communication	Global cellular 2G/ 3G/ 4G SIM card and service included via companion Node-S

Power

Power Consumption	20 mWh energy consumption at default measurement frequency 50 mW maximum power dissipation
Power Source	Powered by Add-On Module port of companion Clarity Node-S <ul style="list-style-type: none">40 minutes of sunlight per day is required for continuous operation.Can operate for 14 days without sun when the battery is fully charged

Operating Conditions

Operating Temperature	-10°C to 40°C
Operating Humidity	15% to 85%
UV Exposure	UV-resistant, weatherproof housing with aluminum solar radiation shield

Dimensions

Dimensions	232 mm (W) x 114 mm (H) x 68 mm (D)
Weight	0.138 kg