E-roundme Srl

Dispositivi tecnologici e sostenibili al servizio della comunità scientifica

E-roundme Pro Indoor

DATASHEET

OVERVIEW

Eurondme Pro Indoor is an innovative solution aimed at monitoring and improving indoor air quality. The capability to simultaneously detect and identify multiple harmful air contaminants combined with extremely short response times, make Eroundme a key element for improving air quality in closed environments as well as lowering health risks deriving from harmful air contaminants and other potentially hazardous volatile compounds.

MICRO-CLIMATE ANALYSIS IN CONFINED. ENVIRONMENTS

The Eroundme Pro Indoor is specifically designed to comply with the most recent REHVA (Federation of European Heating Ventilation and Air Conditioning Associations) and NIH (National Institute of Environmental Health Sciences) directives, regarding the 2015 European future Building regulation for safe and healthy indoor air, as well as new studies indicating that people living in environments classified as "Green/Green+", benefit from significant overall improvement of cognitive functions.

The sensor is suited for indoor environments such as houses, office spaces, schools and hospitals, as well as outdoor environments with low air exchange, eg: parking garages and tunnels. Further incentive to monitoring and improving indoor air quality is given by present-day medical literature, which shows clear evidence of how continuous exposure to pollutants, for example naturally released volatile compounds by wall paints, furniture, synthetic fabrics, solvents, and cleaners is directly associated with both minor health issues and acute or chronic diseases.

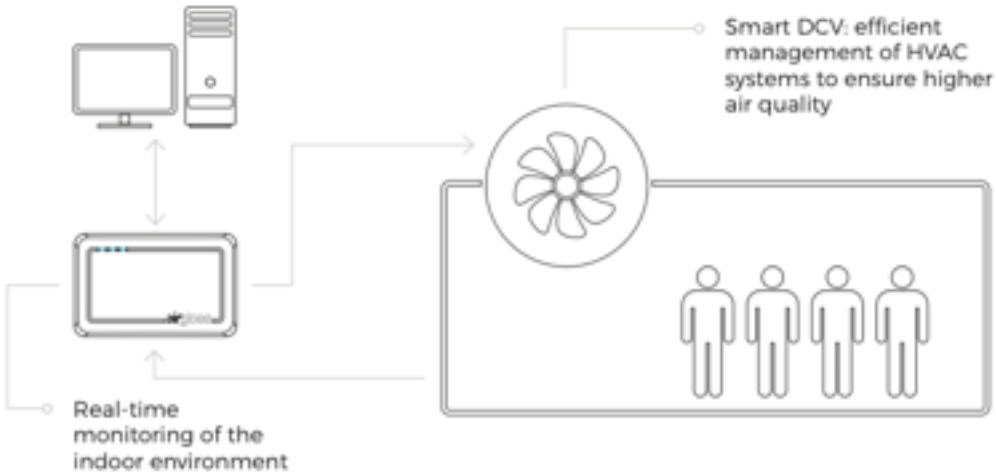
Eurondme Pro Indoor can continuously monitor the indoor environments in real-time, safeguarding the occupants' health and ensuring highest air quality levels in public spaces (schools, hospitals) through Demand Controlled Ventilation (DCV) by efficiently managing HVAC systems, and other purpose built actuators, as well as contributing to consistent energy saving.
When extended to low air exchange environments, the use of Eroundme Pro Indoor plays a crucial role, as it enables to identify high concentrations of potentially lethal contaminants (eg: CO) in real-time.

A.I. BASED. ALGORITHMS

Unlike other products, commonly used for the same purpose, Eroundme Pro Indoor is not based on single compound-specific sensors. It relies instead on a patented aerospace-grade technology, for the saftey of astronauts on board of the ISS (International Space Station) and successfully tested by NASA.

This innovative sensor technology is made up of a sensor-array, able to identify and distinguish compounds through sophisticated artificial intelligence algorithms running on embedded DSP (Digital Signal Processor). Featuring a high grade of sensibility alongside advanced selective properties, it allows one device to recognize and differentiate multiple compounds, while still managing to reduce cross-sensitivity effects to a minimum. Put into practice, these abilities ensure highly accurate individual recognition of target-gases, even when confronted with a multitude of apparently similar compounds.

SMART DEMAND CONTROLLED VENTILATION



DETECTED COMPOUNDS

Total Volatile Organic Compounds (VOC), including Formaldehyde, Benzene, Toluene, Xylene, Perchloroethylene etc.
Carbon Dioxide (CO_2)
Nitrogen Dioxide (NO_2)
Carbon Monoxide (CO)
Methane (CH_4)

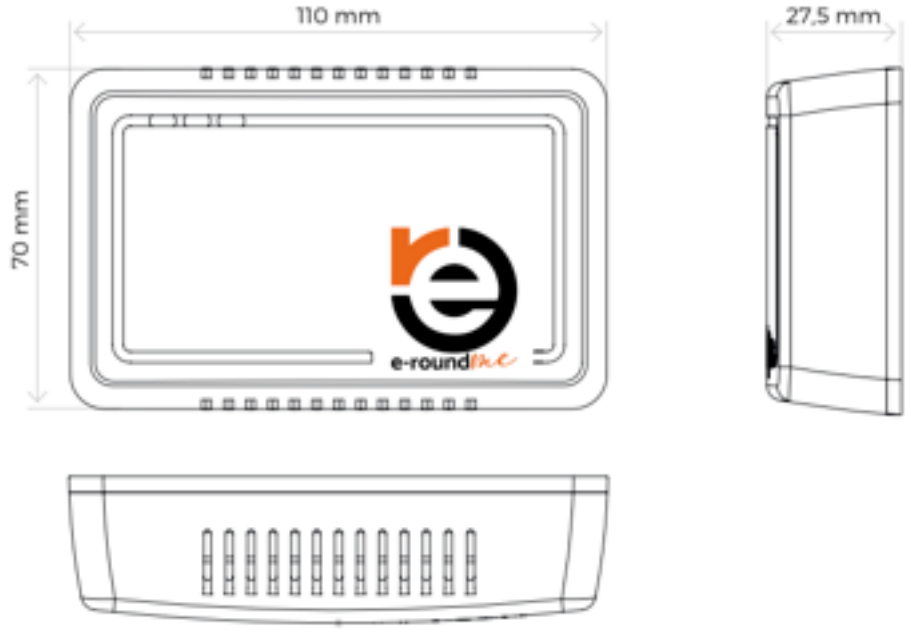
ENVIRONMENTAL SENSORS

Temperature
Relative Humidity
Background Noise
Ambient Pressure (Optional)

STABILITY AND INTERCONNECTION

The sensor allows real-time and continuous digital data acquisition, providing a constant monitoring action. Precise analysis of this data is achieved by the sensor's high stability and the use of artificial intelligence algorithms, which automatically correct and compensate drifting.

ENCLOSURE DIMENSIONS



SENSOR SPECIFICATIONS

Accuracy	TBD
Repeatability	TBD
Annual Zero Drift	TBD
Response Time	TBD
Startup time	5 min
Sensor Coverage Area	max 200 sqm*
Life Expectancy**	2-3 yrs (5 yrs in clean environment)

** Depending on sensor installation*
*** Sensing replacement cartridges for CO_2 and Multiscan MEMS-Sensor are available for maintenance service*

SENSING TECHNOLOGY

CO_2	Optical, nondispersive infrared (NDIR)
VOC, NO_2, CO, CH_4, CO_2	Patent pending MEMS + A.I. based realtime multiscan

GAS MEASUREMENT RANGES

Total VOCs (Volatile Organic Compounds)	25-20000 ppb 450-5000 ppm (CO2 equivalent units)
Nitrogen Dioxide (NO_2)	0-6 ppm
Carbon Monoxide (CO)	0-150 ppm
Methane (CH_4)	2-25 LEL
Carbon Dioxide (CO_2)	450-2000 ppm

ENVIRONMENTAL SENSOR DETAILS

Temperature Accuracy	+/- 0.3°C
Temperature Resolution	0.01°C
Humidity Accuracy	+/- 0.2% RH
Humidity Resolution	0.05% RH

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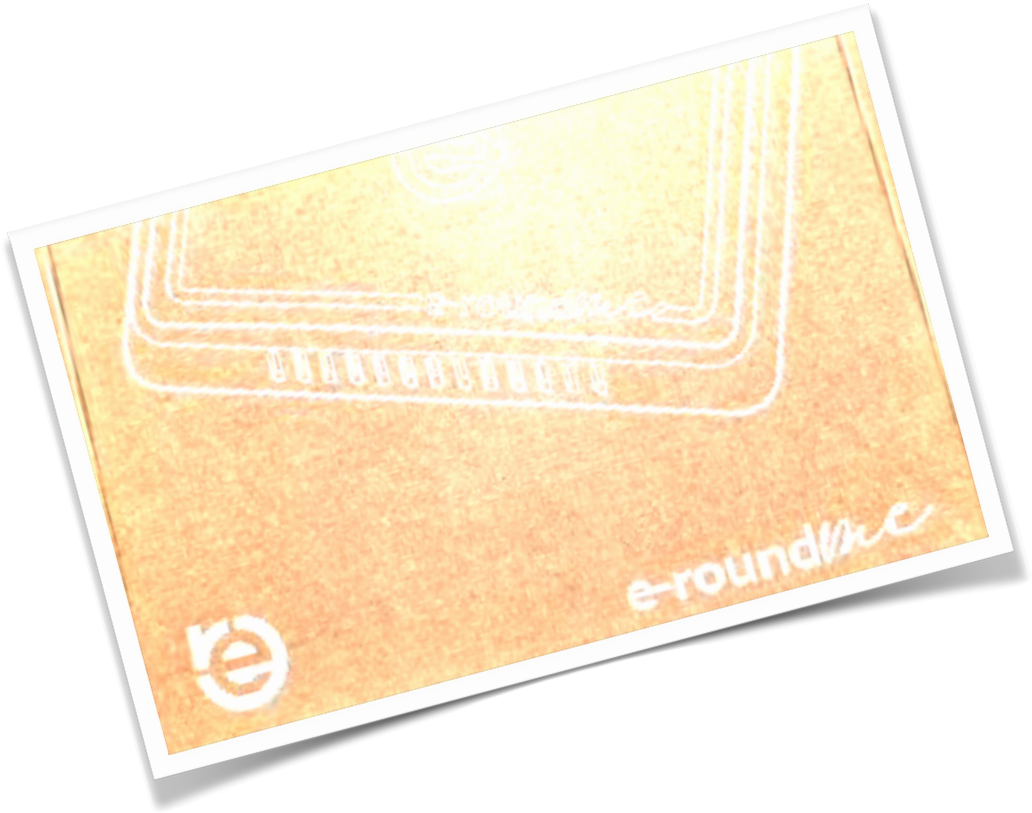
Indoor Temperature

Relative Humidity

Total VOCs

CO

Carbon Monoxide



CO_2

Carbon Dioxide

CH_4

Methane Gas

NO_2

Nitrogen Dioxide

Background Noise

Ambient Pressure

ELECTRICAL SPECIFICATIONS

Supply Voltage DC	24 VDC nominal (18 to 30 VDC)
Supply Voltage AC	24 VAC nominal (15 to 28 VAC)
Power Consumption	0.5 A total max.

COMMUNICATION INTERFACE

Digital RS485
Modbus
BACnet
Wi-Fi 802.11 b/g/n
Bluetooth 4.2 (optional)

OPERATING RANGES

Temperature Range	-10 -50°C
Humidity Range	5% - 95% (non-condensing)

MECHANICAL SPECIFICATIONS

Enclosure Rating	IP 55, NEMA 3
Outer Dimensions	110x70x27.5 mm
Weight (complete device)	156 g

SENSOR PLACEMENT

Installation type	Direct Wall Mount
Placement	Breathing Level (1.5 to 1.8 mt from ground)

Note: Do not place sensor near entrances or fresh air vents

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EROUNDME S.R.L.
Via Tiburtina 1166
00156 ROMA
Codice fiscale: 17032031001
Partita IVA: 17032031001
COD. DEST. QULXG4S