PRELIMINARY SPECIFICATIONS

E-roundme Pro X Outdoor

E-roundme Srl

Dispositivi tecnologici e sostenibili al servizio della comunità scientifica

Eroundme Pro X Outdoor- Preliminary Specifications
General Description

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Eroundme Pro Outdoor is a new type of integrated and advanced MultiGas and PM analyser based on MultiSense Technology specially designed to monitor hazardous pollutants and environmental parameters with high precision and reliability. It is mainly used to measure the concentration with high resolution and accuracy of Ammonia (NH3), as well as VOC, H2S, SO2, NO2, O3, CO, CO2 and it can detect the presence of three different particulate matter PM1, PM 2.5 and PM 10. The device adopts two cartridges, that can be replaced separately, for gas and particulate detection with software-controlled air flow for optimal and stable performance and reduced maintenance.

Application

- Livestock breeding (pig house, chicken house, cattle farm environment, etc.)

Device General Technical Information

Power supply	12 to 24 VDC or VAC
Power consumption	1- 3W depending on module configuration
Physical dimensions	210 x 260 x 90mm
IP rating	IP 54 or higher (depends on OEM integration)
Operating temperature	-10 to 50 °C
Operating RH	15 to 95 %RH
Gas sensing	NH3, VOCs, H2S, SO, CO, NO2, O3 CH4 in alternative to CO2, other gases upon request
Particle sensing	PM1, PM2.5, PM10
Ambient sensing	Temperature, Humidity, Atmospheric pressure, Environmental noise. Dew point
Communications	WiFi to Cloud, RS485 with Modbus protocol
Baudrate Modbus	9600 to 115200 bps
Temporal resolution	· Real time: standard 1 second, selectable 500ms to 60s; · Data history: 5 minutes with minimum, maximum and average values;
Remote diagnostics device status	· Device power supply monitoring · MultiSense and PM cartridges usage and status · Time remaining for cartridges replacement · Cartridges fan speed supervision · Sensitive elements failure · Bus error diagnostics · Electronic circuit failure

Gas sensing specifications (chemical)

Sensor ID	Description	Resolution	Limit of detection	Range
NH3_HR	Multisense Technology for Ammonia Gas (NH3, high resolution)	0.1 ppb	20 ppb	0-5000 ppb
H2S_HR	Multisense Technology for Hydrogen Sulfide Sensing (H2S, high resolution)	0.1 ppb	5 ppb	0-1000 ppb
VOC_HR	Multisense Technology for Volatile Organic Compounds Sensing (Total VOC, high resolution)	0.1 ppb	50 ppb	0-5000 ppb
CO_HR	Multisense Technology for Carbon Monoxide Sensing (CO, high resolution)	0.1 ppb	20 ppb	0-5000 ppb
O3_HR	Multisense Technology for Ozone Sensing (O3, high resolution)	0.1 ppb	5 ppb	0-1000 ppb
NO2_HR	Multisense Technology for Nitrogen Dioxide Sensing (NO2, high resolution)	0.1 ppb	10 ppb	0-1000 ppb
SO2_HR	Multisense Technology for Sulfur Dioxide Sensing (SO2, high resolution)	0.1 ppb	10 ppb	0-1000 ppb

Optical gas sensing specifications

Sensor ID	Description	Resolution	Limit of detection	Range
CO2	Multisense Technology for Carbon Dioxide Sensing (CO2, high resolution)	1 ppm	20 ppm	0-3000 ppm
CH4	Multisense Technology for Methane Sensing (CH4, high resolution)	1 ppm	35 ppm	0-5000 ppm

Particle sensing specifications

Sensor ID	Description	Resolution	Limit of detection	Range
PM1.0_HR	Particulate Matter PM 1.0	0.1 µg/m3	1 µg/m3	0-5000 µg/m3
PM2.5_HR	Particulate Matter PM 2.5	0.1 µg/m3	1 µg/m3	0-5000 µg/m3
PM10_HR	Particulate Matter PM 10	0.1 µg/m3	2 µg/m3	0-1000 µg/m3
PCOUNT0P3	Particle Count <0.3µm	1 unit	5 units	0-65000 units
PCOUNT0P5	Particle Count <0.5µm	1 unit	5 units	0-65000 units
PCOUNT10P0	Particle Count <10µm	1 unit	5 units	0-65000 units
PCOUNT1P0	Particle Count <1µm	1 unit	5 units	0-65000 units
PCOUNT2P5	Particle Count <2.5µm	1 unit	5 units	0-65000 units
PCOUNT5P0	Particle Count <5µm	1 unit	5 units	0-65000 units

Ambient sensing specifications

Sensor ID	Description	Resolution	Limit of detection	Range
TEMP_ABS	MultiSense cartridge absolute temperature	0.1 °C	0.05 °C	-10 to 50°C
HUMI_ABS	MultiSense cartridge absolute humidity	0.1 g/m3	0.1 g/m3	0-25 g/m3
DEWPOINT	MultiSense cartridge dew point	0.1 °C	0.1 °C	0-40 °C
PRESS_ATM	Ambient atmospheric pressure	0.18 Pa	0.2 Pa	300-1100 hPa
NOISE_AMB	Ambient environmental noise	0.1 dB	1 dB	20-110 dB

Maintenance and Life Expectancy

Eroundme Pro Outdoor is designed for a life expectancy of 10/15 years thanks to replaceable sensor cartridges (one cartridge for 6+1 high resolution gas sensing, one cartridge for PM sensing). Life of the cartridges is estimated to be in range of 1 year up to 3 years, depending on the type of environment and calibration method.

Basic module maintenance that includes filter change and dust removal is suggested every 6-12 months for optimal performances, but not mandatory, as it can follow cartridge replacement plans on standard guest equipment maintenance scheduling. Embedded auto diagnostic system can generate an alert in case of maintenance is strictly required (e.g. excess of dust accumulation, fan blocked or not functional, etc..).

Device Sensor Calibration

The product can be calibrated by choosing one of the three different methods available:

- **Native calibration** in standard ambient conditions (10-40°C, 25-85 %RH, 1atm), permanent/static, based on LAB calibration (certificate available on request). Expected life of the cartridges: 1 – 2 years
- **Remote calibration** with data provided by the user. Baseline and drift can be compensated with manual input or processed within 24/48 hours with a software assisted baseline alignment procedure. Expected life of the cartridges: 1 - 2 year
- **Dynamic recalibration** and data alignment with clean air. Data is fully compensated automatically. Baseline and drift are corrected using AI algorithms. Expected life of the cartridges: 2 - 3 years.

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