PEM — Personal Environmental Monitor

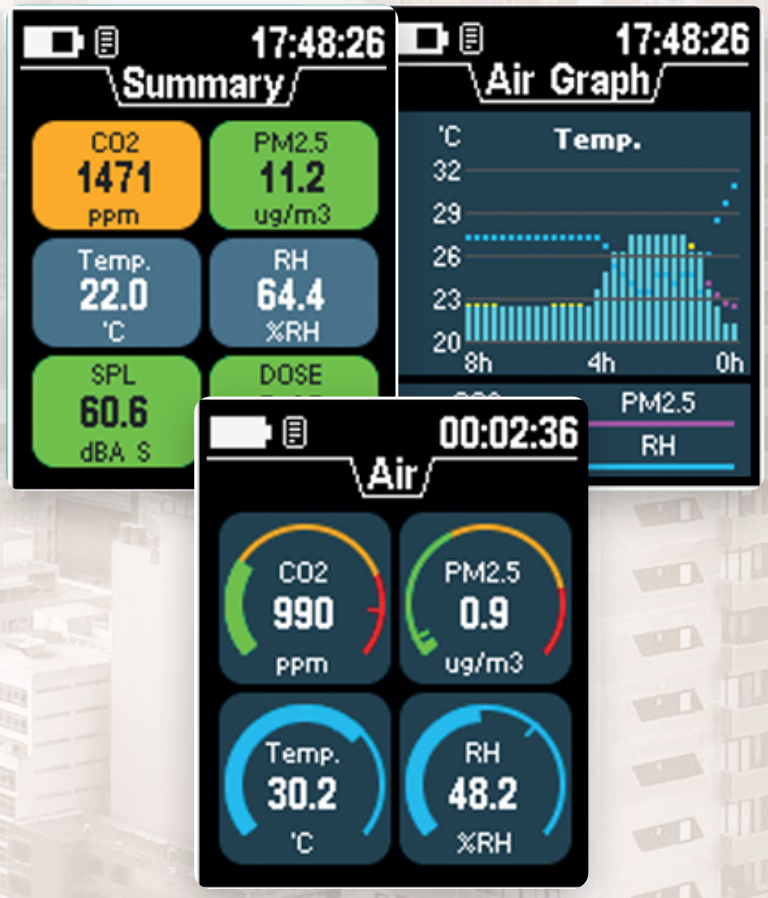
Wearable or stationary, multi-parameter monitoring for noise, particulates & gases

Noise · Temperature · Humidity · Pressure · Motion · Particulates · Gases

Key Features

- ✓ **Temperature, Humidity, Air Pressure, Movement sensor** as standard!
- ✓ Up to **4 gas sensors**, or **1 gas** + **particulate** sensor
- ✓ Simultaneous **PM1.0, PM2.5, PM4.0, PM10**
- ✓ **Noise Level/Dose/LEQ** with A/C/Z
- ✓ **Small** and **light** for easy monitoring.
- ✓ **Visual / Audible** warning of hazards
- ✓ **Cloud data analytics** option
- ✓ **Bluetooth™** download
- ✓ **Battery** up to **160 hours**; **USB-C**
- ✓ **Weather kit for outdoor** option
- ✓ **Solar power** option

Summary Results



SpotNoise — Noise & Environmental Monitoring
Trzaska cesta 315, 1000 Ljubljana, Slovenia (EU)
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www.nestsystems.si

Technical Highlights

Display	1.8” colour LCD (always-on)
Size	125 x 80 x 65 mm
Logging	1s to 15min intervals; TXT/CSV
Compliance	MCERTS, IEC 61672 (Class 2), IEC 61252

Battery & Environmental

Battery life	30–160 h (feature-dependent)
Charge time	< 5 h (USB-C / Qi dock)
Operating conditions	0–50 °C 0–95 %RH (non-cond.)

Supported Sensors (optional)

PMx · CO_2 · VOC · CO · HCHO · NO_2 · O_3 · O_2 · H_2S · AsH_3 · CH_4S · Cl_2 · ClO_2 · EtO · H_2 · NH_3 · PH_3 · SiH_4 · SO_2 · HCN

Built for Industrial Safety

Exposure profiling · Noise & dust alerts · Compliance reporting · Cloud dashboards

Use Cases - typical configuration:

- ✓ **Office:** PEM/PMx/CO2-5000
  Collect data during 8-hour day to establish a baseline air quality report.
- ✓ **Factory:** PEM/PM/CO2-5000
  Collect data during 8-hour day to monitor and maintain a safe environment. A risk of particles in the air & noise that would be dangerous to employees.
- ✓ **Construction/Demolition:** PEM/PM/CO-1000 **or** PEM/BK/CO/ClO2/H2S/VOC
  To detect and monitor a risk of dust in the air from construction or demolition, noise from machinery and gasses from land-fill sites.
- ✓ **Marine:** PME/H2S-100
  Immediate protection for inspection personnel against dangerous gasses that build up in hold.
- ✓ **Food & Beverage:** PEM/CO2-5000/NH3-200/SO2-5 **or** PEM/NH3-200
  For the prevention of hazards and reduction of down-time, gas monitoring can be provided. Typically CO2 in brewing, Ammonia in food processing and SO2 in wine-making.
- ✓ **Industrial:** PEM/CO-1000/VOC-200/CO2-5000/H2S-100
  PEM can be configured to monitor the range of toxic gasses needed in many industrial applications and provide an early warning with audiable & LED alarm.

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Technical Data

Sound Level measurement	
L_A	40 dB – 120 dB
L_{CPeak}	123 dB
Overload Detector	120.1 dBA
Resolution	0.1 dB
Frequency Weighting	A, C, Z
Time Weighting	F, S

Sound Exposure measurement	
Readings	SPL, L_{EQ}, $L_{EX,8h}$, L_{AVG}, TWA, L_{MIN}, L_{MAX}, Dose (%, 8h)
Criterion Level (100% Dose)	75–90 dBA (5 dB steps)
Threshold	None, 80 dB, 90 dB
Ear Defender SNR Range	5 dB – 45 dB

Particulate Matter measurement PM_X	
Mass concentration range	0 to 1000µg/m3
Mass concentration precision	0 to 100µg/m3 ±10 µg/m3 (±25 µg/m3)
PM1, PM2.5	100 to 1000µg/m3 ±10% m.v.
PM4, PM10	100 to 1000µg/m3 ±25% m.v.
Sensor self-clean interval	8h, 96h

Gas Sensors (Other sensors and spans available)	Measurement range	Resolution
All Gas measurement - VOC	0-200 ppm	0.1 ppm
Carbon Dioxide - CO2	0 to 5000 ppm	10 ppm
Carbon Monoxide - CO	0-1000ppm	0.1 ppm
Formaldehyde - CH_2O	0-5ppm	0.01 ppm
Nitrogen Dioxide - NO_2	0-100ppm	0.1 ppm
Ozone - 0_3	0-5ppm	0.01 ppm
Hydrogen Sulphide - H_2S	0-100ppm	0.1 ppm
Arsine - ASH_3	0-1ppm	<0.02 ppm
Methyl Mercaptan - CH_4S	0-10ppm	0.01 ppm
Chlorine - CL_2	0-5ppm	<0.01 ppm
Chlorine Dioxide - $CL0_2$	0-1ppm	0.01 ppm
Ethylene Oxide - ETO	0-10ppm	0.01 ppm
Hydrogen - H_2	0-1000ppm	0.1 ppm
Ammonia - NH_3	0-100ppm	0.1 ppm
Phosphine - PH_3	0-20ppm	<0.01 ppm
Sulphur Dioxide - SO_2	0-5ppm	<0.01 ppm
Methanethiol - CH_4S	0-10ppm	0.01 ppm

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