

Nanoenvi EQ Datasheet

1.5.1

Envira Sostenible S.A.

Nanoenvi

ENVIRA 

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Chapter 1. Revision control

| Revision | Changes |
|----------|---|
| V1.0.0 | First version |
| V1.5.0 | New sensors and communications added |
| V1.5.1 | Added new variants and content reorganization |
| V1.5.2 | Modified acquisition period from 1 minute to 30 seconds |

Chapter 2. Product description

2.1. Description



Nanoenvi EQ™ represents a new step in the monitoring of air pollutants. Modular design, allows monitoring multiple pollutants (NO₂, NO, NO_x, O₃, SO₂, H₂S, CO, CO₂) in a single equipment of compact size and completely autonomous. In addition, Nanoenvi EQ™ offers the possibility to measure suspended particles (PM₁, PM_{2.5}, PM₁₀), VOCs, noise and ambient parameters.

Nanoenvi EQ™ allows you to create wireless air quality measurement networks. Its sensors collect data in places where there are no fixed air quality stations, or in a complementary way, allows to expand the field of action of these. Thanks to Nanoenvi EQ™'s wireless connections, the user receives air pollution data in real time from their computer, mobile or tablet, which allows rapid decision-making in unfavorable situations.

Nanoenvi EQ™ uses the MQTT protocol for data sending and remote configuration. In this way the user can integrate Nanoenvi EQ™ with their own systems and explore the unlimited options offered by having real-time air quality data.

Additionally, Nanoenvi EQ™ can be integrated with the viewing platform offered by Envira IoT, which has the ability to query history, detect trends and anomalies and even set up alerts based on the data collected.

2.2. Product reference

| Brand | Product | Communications | Power supply | Sensors | Description |
|-------|---------|----------------|--------------|---------|--|
| NE | | | | | All variants include ambient temperature, relative humidity and atmospheric pressure |
| | EQ | | | | |
| | | 3G | | | 3G mobile communications |
| | | 4G | | | 4G mobile communications |
| | | WiFi | | | WiFi wireless communications |
| | | ETH | | | Ethernet wired communications |
| | | | PGC | | Single-phase power grid 100-240 VAC continuously |
| | | | PGD | | Single-phase power grid 100-240 VAC discontinuously + battery |
| | | | SP | | Solar panel + battery |
| | | | PoE | | Ethernet power supply |
| | | | | AQ | Electrochemical sensors NOx, NO, NO2, O3, SO2, CO, H2S |
| | | | | PM | PM1, PM2,5, PM10 |
| | | | | VOC | Volatile organic compounds |
| | | | | NOISE | Sound meter (class 2, A filter) |
| | | | | METEO | Solar radiation, rain, wind speed and wind direction |
| | | | | CO2 | Carbon dioxide, NDIR |

Example: NE_EQ_ETH_PGD AQ_NO2/NO/CO/O3_PM_VOC



The user must select a communications variant and a power supply variant. The sensor variants can be combined as desired.



Up to 4 gases can be selected for sensor type AQ.



The pollutants O3 and SO2 require, in addition, NO2. For NOx, both NO and NO2 are required.

Chapter 3. Technical specifications

3.1. General specifications

| | |
|------------------------------|---|
| Power supply | 100-240VAC @ 50-60Hz (PGD / PGC) PoE ++ (IEEE 802.3bt) Solar panel (included) |
| Maximum consumption power | 30W (PGC / SP) 60W (PGD) 55W (PoE) |
| Average consumption power | 2W |
| Battery | 96Wh LiFePO4 (PGD / SP) |
| Autonomy | 24x7 |
| Operating conditions ambient | - 20 ~ 55°C / 0 ~ 99%RH (non-condensing) |
| Enclosure materials | ABS, polyurethane, aluminum and stainless steel |
| IP rating | IP65 |
| Maximum weight | 2Kg (PGC / PoE) 3,5Kg (PGD / SP) |
| Solar panel + support weight | 3,2Kg (SP) |
| Dimensions | 500x260x200 mm |
| Solar panel dimensions | 560x350x25 mm |
| Communications | 2G/3G 3G/4G/LTE Ethernet WiFi |
| Pollutants | NO, NO ₂ , O ₃ , SO ₂ , H ₂ S, CO, CO ₂ and COVs |
| Particulate matter | PM ₁ , PM _{2,5} PM ₁₀ |
| Other parameters | Temperature, relative humidity, atmospheric pressure, noise, rain, solar radiation, wind speed and wind direction |
| Acquisition period | 30 seconds |
| Sending period | From 1 minute to 10 minutes |

3.2. Sensors

3.2.1. Pollutants

| | NO | NO ₂ | O ₃ | SO ₂ | H ₂ S | CO | CO ₂ | COVs |
|------|-----------------|-----------------|----------------|-----------------|------------------|----|-----------------|------|
| Type | Electrochemical | | | | | | NDIR | MEMS |

| | NO | NO₂ | O₃ | SO₂ | H₂S | CO | CO₂ | COVs |
|------------------------------|-------------|-----------------------|----------------------|-----------------------|-----------------------|-------------|-----------------------|-------------|
| Units | ppb | ppb | ppb | ppb | ppb | ppm | ppm | ppm |
| Range | 0 ~ 20 ppm | 0 ~ 20 ppm | 0 ~ 20 ppm | 0 ~ 20 ppm | 0 ~ 20 ppm | 0 ~ 500 ppm | 0 ~ 40000 ppm | 0 ~ 10 ppm |
| Resolution | 1 ppb | 1 ppb | 1 ppb | 1 ppb | 1 ppb | 1 ppb | 1 ppm | 1 ppb |
| Operating ambient conditions | -30 ~ 40 °C | -30 ~ 40 °C | -30 ~ 40 °C | -30 ~ 40 °C | -30 ~ 50 °C | -30 ~ 50 °C | 0 ~ 50 °C | -20 ~ 50 °C |
| | 15 ~ 85 %RH | 15 ~ 85 %RH | 15 ~ 85 %RH | 15 ~ 90 %RH | 15 ~ 90 %RH | 15 ~ 90 %RH | 0 ~ 95 %RH | 15 ~ 85 %RH |
| Operating life | 24 months | | | | | | >10 years | >10 years |
| Accuracy | ±20 ppb | ±20 ppb | ±20 ppb | ±20 ppb | ±20 ppb | ±100 ppb | ±30 ppm | ±100 ppb |

3.2.2. Particulate matter

| | PM₁ | PM_{2,5} | PM₁₀ |
|------------------------------|--------------------------------|----------------------------|-----------------------------|
| Type | Optical particle counter (OPC) | | |
| Units | µg/m ³ | | |
| Range | 0 ~ 1000 µg/m ³ | 0 ~ 2000 µg/m ³ | 0 ~ 10000 µg/m ³ |
| Resolution | 0,1 µg/m ³ | | |
| Operating ambient conditions | -10 ~ 50 °C | | |
| | 0 ~ 95 %RH | | |
| Operating life | >10 years | | |
| Accuracy | ±2 µg/m ³ | ±3 µg/m ³ | ±4 µg/m ³ |

3.2.3. Other

| | Temperature | Relative humidity | Atmospheric pressure | Solar radiation | Rain | Wind speed | Wind direction | Noise |
|-------|--------------------|--------------------------|-----------------------------|---------------------------|--------------|-------------------|-----------------------|--------------------------|
| Type | MEMS | MEMS | MEMS | Photodiode | Radar | Ultrasound | Ultrasound | Class 2 |
| Units | °C | %RH | hPa | W/m ² | mm/h | ° | m/s | dB _A |
| Range | -40 ~ 60 °C | 0 ~ 100 %RH | 100 ~ 1100 hPa | 0 ~ 2000 W/m ² | 0 ~ 200 mm/h | 0 ~ 359 ° | 0 ~ 70 m/s | 30 ~ 130 dB _A |

| | Temperature | Relative humidity | Atmospheric pressure | Solar radiation | Rain | Wind speed | Wind direction | Noise |
|------------------------------|-------------|-------------------|----------------------|----------------------|----------|------------|----------------|--------------------|
| Resolution | 0,1 °C | 0,5 %RH | 0,1 hPa | 0,1 W/m ² | 0,1 mm/h | 1 ° | 0,1 m/s | 1 dB _A |
| Operating ambient conditions | -40 ~ 80 °C | | | -20 ~ 50 °C | | | -10 ~ 50 °C | |
| | 0 ~ 100 %RH | | | 0 ~ 100 %RH | | | 5 ~ 80 %RH | |
| Operating life | >10 years | | | | | | | |
| Accuracy | ±0.5 °C | ±3 %RH | ±1 hPa | ±5 % | ±5 % | ±3 ° | ±3 % | ±3 dB _A |

3.3. Communications

| 3G | 4G | WiFi | Ethernet |
|--|--|-------------------|---------------|
| UMTS 800 / 850 / 900 / 1900 / 2100 MHz | LTE 800 / 850 / 900 / 1800 / 2100 / 2600 MHz | IEEE 802.11 b/g/n | 10 / 100 Mbps |
| | UMTS 2100 / 2600 MHz | 2,4 GHz | |

Chapter 4. Contact

4.1. Contact details

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