

Datasheet

# Nubo Sphere sensor node & wind meter

Sensor node (LTE IR laser spectroscopy)

Version 1.0 from November 3, 2023



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# 1 Technical specifications

## 1.1 System specifications

Feature	Specification
Expected System Lifetime	Typically >6 years, depending on environmental operating conditions
Maintenance	Replacement of the sensing cartridge every 5 years is recommended
Standards	USA: Compliant with FCC according to 47 CFR, Part 15 Subpart B EU: CE declaration of conformity

## 1.2 Physical specifications

Feature	Specification
Total system weight	6.5 kg
Nubo Monitor dimensions	264 x 161 x 81 mm <sup>3</sup> (H x W x T) excluding solar panel and mounting
Solar panel dimensions	440 x 345 x 18 mm <sup>3</sup> (W x H x T) excluding mounting
Wind meter dimensions	142 mm x 163 mm (D x H)
Water ingress protection	IP65
Pole diameter	50–300 mm

## 1.3 Electrical specifications

Feature	Specification
Power Operation	Fully solar operated, optionally 9–24 V grid power, nominal 12 V
Recommended geographical region	49°S to 49°N <sup>1</sup>
Battery Life	>6 days in complete darkness / without solar power under standard conditions
Operating ambient temperature	–20 to 50°C

## 1.4 Communication specification

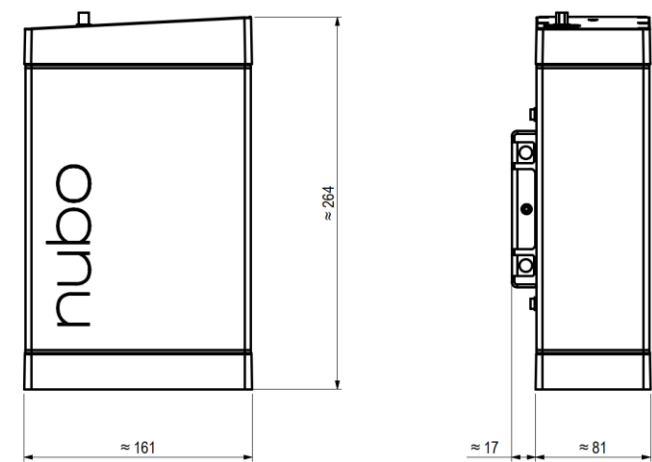
Feature	Specification
Communication	Cellular network, LTE 4G Cat. M1 and 2G (SIM included and factory configured)
Satellite positioning	GNSS included
Data transmission frequency	15 min <sup>2</sup>
Data buffer	15 h
Encryption	TLS 1.2 encrypted communication

<sup>1</sup> Based on typical system uptime >99.5% for historical weather conditions

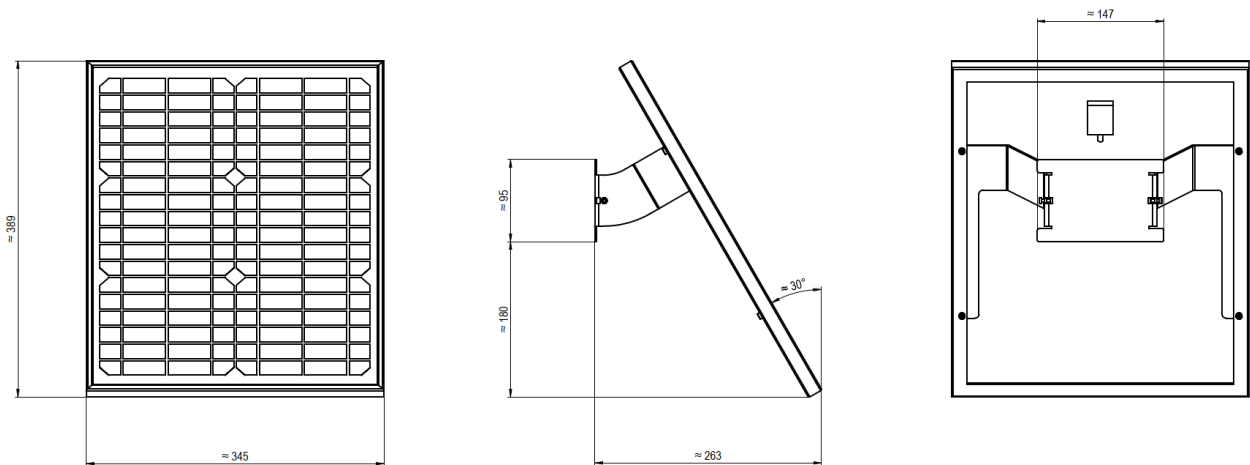
<sup>2</sup> Internal sensor sampling time: 5 seconds

2 Technical drawings

Nubo Sphere sensor node (dimensions in millimeters)



Nubo Sphere solar panel (dimensions in millimeters)



### 3 Conformity information

#### 3.1 European conformity information



Hereby, Sensirion Connected Solutions AG declares that this radio equipment is compliant with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at <https://cloud.nubo-sphere.com/docs/eu-doc>.

#### 3.2 FCC notice



##### Warning

Do not open the device. Do not modify the device in any way. Including, but not limited to, exchanging the included antenna, replacing the included modem, making changes to the power supply or circuit board.



Contains FCC IDs: XMR201707BG96

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, can cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to attempt to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna;
- Increase the separation between the equipment and receiver;
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
- Consult the dealer or an experienced radio/TV technician for assistance.

### 3.3 Frequency band(s) and maximum radio-frequency power transmitted

This product includes the following features and characteristics:

- BDS
  - Operating frequency range: 1559-1610 MHz
- GLONASS receiver
  - Operating frequency range: 1559-1610 MHz
- GPS receiver
  - Operating frequency range: 1559-1610 MHz
- GSM 900
  - Operating frequency range: 880-915, 925-960 MHz
  - Maximum output power: 33 dBm rated
- GSM 1800
  - Operating frequency range: 1710-1785, 1805-1880 MHz
  - Maximum output power: 30 dBm rated
- LTE FDD Band 1
  - Operating frequency range: 1920-1980, 2110-2170 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 3
  - Operating frequency range: 1710-1785, 1805-1880 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 8
  - Operating frequency range: 880-915, 925-960 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 20
  - Operating frequency range: 832-862, 791-821 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 28
  - Operating frequency range: 758-803, 703-748 MHz
  - Maximum output power: 23 dBm rated

## 4 Important legal notices

Warning, Personal Injury

**Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury. Do not use this product for applications other than its intended and authorized use. Before installing, handling, using or servicing this product, please consult the manual and data sheet. Failure to comply with these instructions could result in death or serious injury. Please also consult local laws and regulations, in particular with regard to the radio frequencies used by this product.**

If the Buyer purchases or uses SENSIRION CONNECTED SOLUTIONS (SCS) products for any unintended or unauthorized application, the Buyer shall defend, indemnify and hold harmless SCS and its officers, employees, subsidiaries, affiliates and distributors against all claims, costs, damages, expenses and reasonable attorney fees arising from, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if SCS is allegedly negligent with respect to the design or the manufacture of the product.

### **Ancillary services required**

This product is part of the SCS continuous methane emission monitoring solution 'Nubo Sphere' and requires the 'Environmental Monitoring as a Service' (EMaaS) subscription available from SCS for proper functioning. SCS reserves the right, without further notice, (i) to change the product specifications and/or the information in this document, (ii) to improve the reliability, functions and design of this product and (iii) to modify the cloud service and data analytics algorithms.

## 5 Revision history

Date	Revision	Page(s)	Changes
03.11.2023	0.1	All	Initial release

## 6 Contact

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