

Nubo Sphere Datasheet

Preliminary datasheet for

Nubo Sphere

Sensor Node (LTE MOx) & Wind Meter

*Continuous Methane Leakage Monitoring
System*

Version 1.0 from August 16, 2022

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Preliminary

1 Technical Specifications

1.1 System Specifications

Feature	Specification
Typical installation setup	>4 Nubo Sphere sensor nodes, 1+ wind meter per site
Expected System Lifetime	Typically >6 years, depending on operating conditions
Typical installation time	<10 min per node ¹
Maintenance	Replacement of the sensing cartridge every 2 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 ³ (H x W x T) excluding solar panel and mounting
Solar panel dimensions	440 x 345 x 18 mm ³ (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
Rec. geographical region	49°S to 49°N ²
Battery Life	>6 days in complete darkness / without solar power under standard conditions
Operating ambient temperature	–20 to 50°C

1.4 Communication Specification

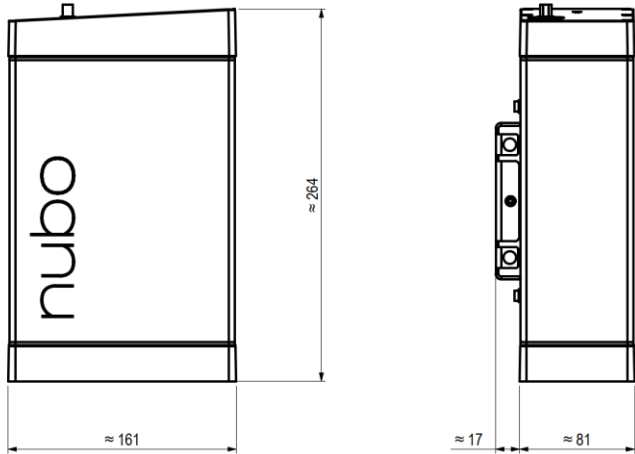
Feature	Specification
Communication	Cellular network, LTE 4G Cat. M1 and 2G (SIM included and factory configured)
Satellite positioning	GNSS included
Sampling time	1 min
Data transmission frequency	15 min
Data buffer	>15 h
Encryption	TLS 1.2 encrypted communication
Sensor Interface	Proprietary Nubo cartridge interface, 2 slots

¹ Including wind meter installation, assuming existing pole/tripod for installation

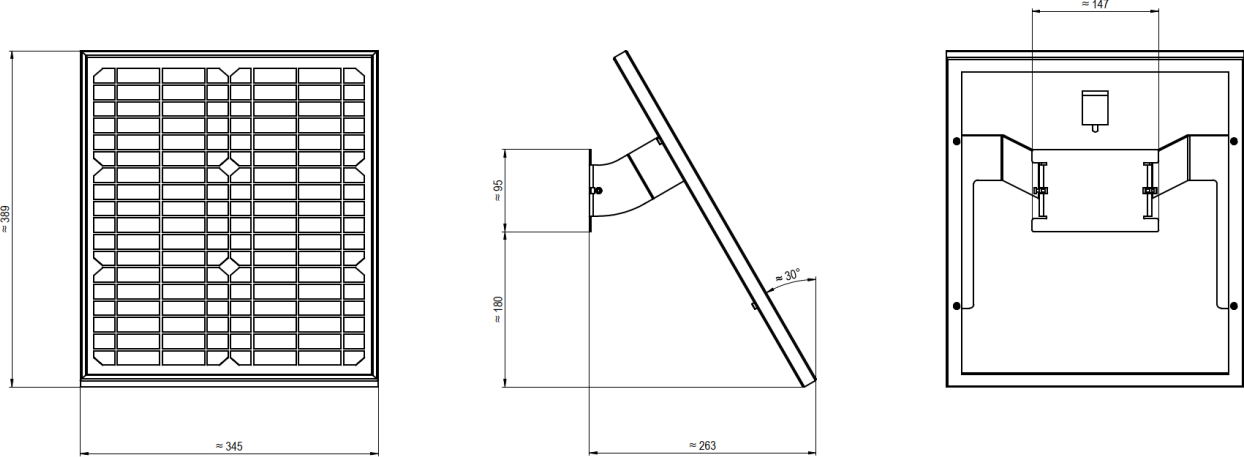
² Based on typical system uptime >97% for historical weather conditions

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.

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 SENSIRION 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.

Warranty

SENSIRION warrants solely to the original Buyer of this product for a period of 12 months (one year) from the date of delivery that this product shall be of the quality, material and workmanship defined in SCS' published specifications of the product. Within such period, if proven to be defective, SCS shall repair and/or replace this product, at SENSIRION's discretion, free of charge to the Buyer, provided that

- notice in writing describing the defects is given to SCS within fourteen (14) days after their appearance;
- such defects are found, to SCS' reasonable satisfaction, to have arisen from SCS' faulty design, material or workmanship;
- the defective product is returned to SCS' factory at the Buyer's expense; and
- the warranty period for any repaired or replaced product is limited to the unexpired portion of the original period.

This warranty does not apply to any equipment that has not been installed and used within the specifications recommended by SCS for the intended and proper use of the equipment. SCS' warranty does not cover defects caused by faulty maintenance, incorrect installation or faulty repair by the Buyer or by alterations carried out without SCS' consent in writing. SCS' warranty does not cover normal wear and tear or deterioration. EXCEPT FOR THE WARRANTIES EXPRESSLY SET FORTH HEREIN, SCS MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT. ANY AND ALL WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, PERMANENT AVAILABILITY OF THE CLOUD SERVICE, OR COMPLETE AND ACCURATE DATA TRACKING, ARE EXPRESSLY EXCLUDED AND DECLINED.

SENSIRION is only liable for defects of this product arising under the conditions of operation provided for in the data sheet and of proper use of the goods. SENSIRION explicitly disclaims all warranties, express or implied, for any period during which the goods are operated or stored not in accordance with the technical specifications.

SENSIRION does not assume any liability arising out of any application or use of any product and specifically disclaims any and all liability, including, without limitation, consequential or incidental damages.

SENSIRION 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.

5 Revision History

Date	Revision	Page(s)	Changes
TBD	1.0	All	Initial release

6 Contact

Headquarters and Subsidiaries

Sensirion Connected Solutions

Sensirion Connected Solutions AG

Laubisrütistr. 50

CH-8712 Stäfa ZH

Switzerland

phone: +41 44 306 40 00

fax: +41 44 306 40 30

info@sensirion.comsensirion-connected.com**Sensirion Connected Solutions Inc., USA**

Sensirion Connected Solutions Inc.

11 East Adams Suite 220

Chicago, IL 60603

phone: +1 312 690 5858

info@sensirion.comsensirion-connected.com**AiSight GmbH**

Gertraudenstrasse 10-12

10178 Berlin

Germany

phone: +49 30 403 633 99

info@aisight.deaisight.de