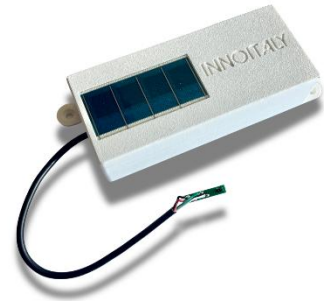


# Sensing.art

wireless sensor for the precise monitoring of artworks conservation parameters during transport and exhibition.



## Introduction

INNOITALY's energy-autonomous sensor represents an innovative and reliable solution for monitoring the environmental and physical conditions of artworks and other valuable assets. Thanks to its energy independence, advanced connectivity, and integrated sensors, it ensures maximum protection and security for artistic masterpieces. Sensing.art becomes a valuable tool for planning inspections of artworks' preservation status and restoration needs, optimizing logistics and enabling targeted interventions on those pieces that show out-of-range conservation parameters.

By monitoring artworks in real time, seamlessly transitioning between transport and exhibition, it is possible to prevent damages and intervene in advance, performing less invasive and costly preventive maintenance.

## Key Features

The wireless sensor offers a range of advanced features that make it ideal for monitoring artworks:

- **INTEGRATED SENSORS:** Includes temperature, humidity, acceleration, and pressure sensors, providing comprehensive data on environmental and physical conditions. Luxmeters and spectrometers can also be integrated.
- **ENERGY-INDEPENDENCY:** The sensor operates without batteries thanks to energy harvesting technology, ensuring continuous and maintenance-free operation during the exhibition inside a museum. It is powered by an integrated solar panel optimized for low-light conditions (from 60 to 150 lux, depending on the model). Available also in battery-operated version.
- **HIGH DATA COLLECTION CAPACITY DURING TRANSPORT:** Thanks to the integrated USB-C port, an external power bank can be connected during transport, allowing the sensor to continue recording and storing monitoring data in its internal flash memory for several days (depending on the power bank's capacity).
- **LoRa CONNECTIVITY:** reliable, long-range wireless communication during the exhibition of the artwork. During transport, the sensor automatically switches to flight mode when the power bank is connected. A version with Sigfox communication protocol is also available upon request.
- **CLOUD PLATFORM FOR REMOTE MONITORING:** INNOITALY provides a proprietary cloud platform for the remote management of multiple sensors, which can be grouped by exhibition area to facilitate museum logistics. The software allows setting alert thresholds for different measured parameters. The platform is integrated with blockchain technology to certify data. If the client already has their own cloud platform, data flow can be integrated via API.

## TECHNICAL SPECIFICATIONS

<b>Operating frequency</b>	868 MHz (Europe) 915 MHz (US)
<b>Modulation</b>	LoRa or Sigfox (on request)
<b>Communication protocol</b>	LoRaWAN and Sigfox (on request)
<b>Transmission power</b>	Up to 14 dBm
<b>Sensitivity</b>	-137 dB,m
<b>Power supply</b>	Energy harvesting + Powerbank
<b>Operative temperature</b>	-20°C to +40°C
<b>Dimensions</b>	48 x 48 x 20 mm energy-independent version 110 x 48 x 28 mm battery-operated version
<b>Weight</b>	95 gr versione 110 x 48 x28 mm
<b>Certifications</b>	CE, FCC, RoHS, RED

### Temperature and humidity sensor

<b>Operative temperature</b>	-40°C to +85°C
<b>Temperature accuracy</b>	±0.1°C
<b>Humidity range</b>	0% to 100% RH
<b>Humidity accuracy</b>	±1.8% RH

#### Accelerometer

<b>Range</b>	$\pm 2g / \pm 4g / \pm 8g / \pm 16g$ ( $\pm 16g$ by default)
<b>Output data rate</b>	1.6 Hz to 1600 Hz (1600 Hz by default)
<b>Low noise</b>	down to 181 $\mu g/\sqrt{Hz}$
<b>ODR</b>	1.6 Hz to 800 Hz

#### Pressure sensor

<b>Range</b>	260 hPa to 1260 hPa
<b>Pressure accuracy</b>	$\pm 0.2$ hPa
<b>Low pressure sensor noise</b>	0.34 hPa
<b>High-performance TCO</b>	0.45 Pa/ $^{\circ}C$
<b>Temperature compensation</b>	Embedded
<b>Pressure data output</b>	24-bit
<b>ODR</b>	1 Hz to 200 Hz