

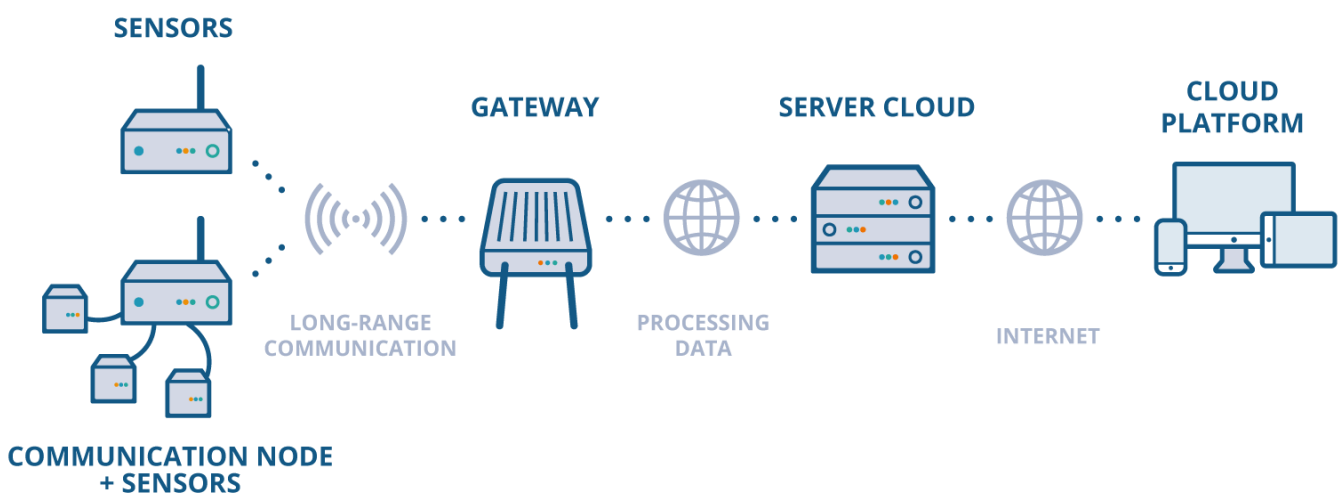
## ANALOG NODE DATASHEET

### THE SYSTEM: SMART SHM

Move Solutions is a trusted leader in **Smart Structural Health Monitoring (Smart SHM)**. Our wireless system offers a remote, continuous and comprehensive analysis of the health of the structures. By integrating cutting-edge **Internet of Things (IoT)** technology with Structural Health Monitoring practices we promote more sustainable and resilient infrastructure.

#### KEY PARAMETERS

- Easy installation on the structure
- Minimum maintenance required
- Long-range communication
- Fully remote management and customization
- Data analysis with advanced algorithms
- Modular system
- High precision
- Waterproof rating IP67
- Long-life battery
- Integrated temperature sensor



## HOW IT WORKS

Move Solutions offers a wireless monitoring system for *static, dynamic, geotechnical and environmental analysis* of all civil infrastructures: bridges, construction sites, rails, and more.

Small **battery-powered sensors** combined with an **IoT Platform** and highly **advanced algorithms** provide a comprehensive monitoring solution aimed at simplifying asset management. The data recorded by the sensors can be viewed on Move Solutions IoT Platform, which allows users to remotely monitor and manage structures in real time. They can set different operating parameters of each sensor, such as sampling rates, resolution and full scale, alarm and activation thresholds, and much more. That allows users to detect structural damage in time to implement preventive maintenance and reduce costs. Move Solutions system empowers infrastructure owners with insights to promote a proactive monitoring approach for safer, more sustainable, and resilient infrastructures.

## ADVANTAGES

- Reduction of manual and on-site measurements
- Reduced downtime and disruptions to regular operations
- Real-time, remote and continuous data visualization
- Short-term and long-term data analysis
- Easy addition of sensors to extend the monitored area
- Cost reduction thanks to easy installation and maintenance
- Risk reduction and high reliability
- Preventive maintenance

## THE DEVICE: ANALOG NODE



The Analog Node is designed to make geotechnical probes suited for LoRaWAN wireless communication, making it perfect for any geotechnical monitoring need. It is wireless, battery-powered, and plug-and-play.

### TECHNICAL SPECIFICATIONS

#### OPERATION

<b>N° of sensors supported</b>	4 channels
<b>Sample rate</b>	2 min - 10 min - 30 min - 1 hour (can be set remotely)
<b>Power supply for external instruments</b>	5VDC, 12VDC, 24VDC -upon request- (250mA max)

#### MEASUREMENT

<b>Readings supported</b>	<ul style="list-style-type: none"> <li>▪ Current Loop Reading (4-20mA) (2, 3, 4 wires -external power supply needed)</li> <li>▪ Full Bridge Reading (mV / V)</li> <li>▪ pt100 reading (3, 4 wires)</li> </ul>
<b>Supply</b>	2 Lithium battery 3.6V (19Ah)
<b>Voltage reading accuracy</b>	±0.05% FS (±10Vdc)
<b>Current loop reading accuracy</b>	±0.05% FS
<b>Reading accuracy mV/V</b>	±0.1% FS
<b>PT-100 reading accuracy</b>	±0.2°C

#### RADIO

<b>Wireless communication system</b>	LoRaWAN communication protocol
<b>Wireless coverage</b>	15 km (line of sight), 1 km (urban environment)

GENERAL DATA	
<b>Ingress protection</b>	IP67
<b>Processor</b>	ARM Cortex M4
<b>Clock</b>	RTC On-Board (Real Time Clock) and high precision
<b>Absolute synchronization</b>	±1 sec
<b>ADC</b>	24bit Delta-Sigma with self-calibration
<b>Case size</b>	180x119x61 mm
<b>Material</b>	Polycarbonate
<b>Operating temperature</b>	-40°C / +85°C
<b>Weight</b>	0.75 Kg
INSTALLATION	
<b>Input cable section</b>	24 - 20 AWG (Ø 0,5mm - Ø 0,8mm)
<b>Method</b>	Pole or wall mounting using special plates and screws
<b>Configuration</b>	<ul style="list-style-type: none"> <li>▪ Pole fixing</li> <li>▪ Mesh fixing</li> <li>▪ Wall fixing</li> <li>▪ Ceiling fixing</li> <li>▪ Floor fixing</li> </ul>

## REVISION HISTORY

Version v2.

Version	Changelog
v1	First revision
V2	Document template update

Note: Specifications are subject to review and change without notice.