

MOVE SOLUTIONS

DATASHEET OF LORAWAN GATEWAY



MOVE SOLUTIONS

STRUCTURAL HEALTH MONITORING

SYSTEM FOR MONITORING

Move Solutions for monitoring the stability of a structure recommends **DECK** sensors, devices capable of capturing the amplitude of dynamic oscillation. Thanks to the use of this sensor it is possible to continuously monitor the modal parameters of the structure and verify its stability over time. It is also possible to understand the amplitude of the dynamic deformation, or even any seismic vibrations and monitor the risk.

The Move monitoring system also includes **Accelerometers** for modal study, **Tiltmeters** for static monitoring and **Strain gauges** for monitoring cracks and openings. Using the **Communication Node** with multiple inputs (analog or digital) it is possible to monitor the water pressure and many other parameters of the surrounding areas.

All of our sensors use LoRaWAN: a long-range, low-power wireless communication technology used by IoT networks around the world.

FEATURES

- High precision
- Data analysis with advanced algorithms
- No wiring
- Long-range communication
- Modular system
- High autonomy
- Complete management and customization
- Minimum maintenance required
- Strong design

MEASUREMENTS

- Dynamic displacement amplitude monitoring
- Modal analysis of the structure
- Vibrational study of the structure
- Static monitoring of the inclination of the structure
- Analysis of the amplitude of the dynamic deformation
- Monitoring of cracks and openings
- Real-time water pressure monitoring
- Highlighting of seismic vibrations

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



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HOW IT WORKS

Move Solutions includes a complete package of wireless devices and a **Web Platform** for data visualization and sensor management.

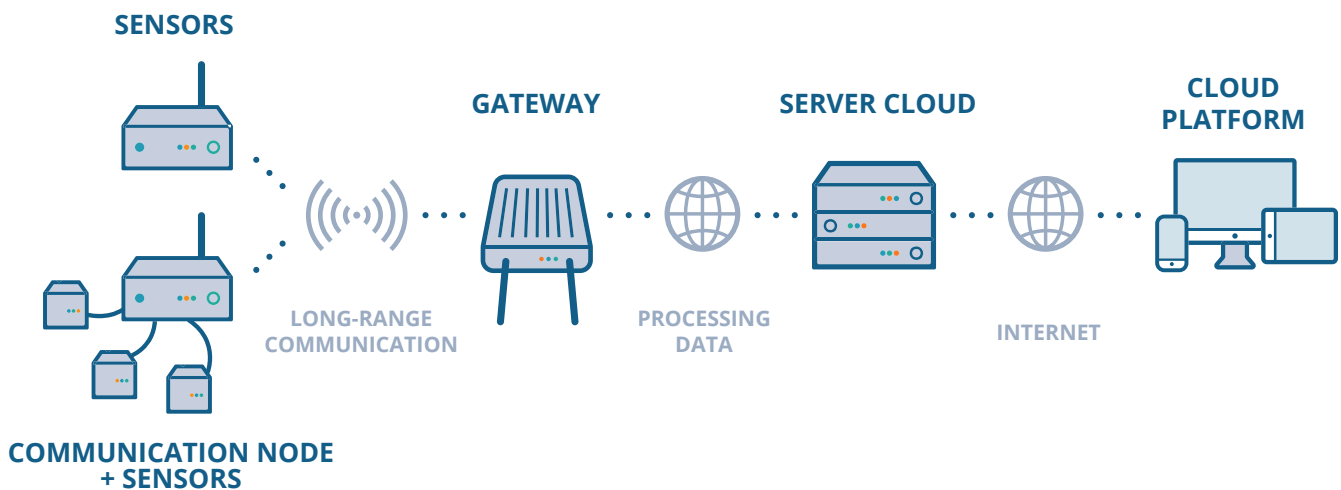
Once the sensors and system gateways are properly installed on site, they are ready to receive, store and send data.

You can view all this data in real time through a Web interface that allows users to remotely monitor the site or infrastructure. The user can set different parameters for each individual sensor, including sampling rates, resolution, alarm thresholds, activation and much more.

The Move Solutions monitoring system guarantees accuracy, safety and reliability and a significant reduction in overall monitoring costs.

LOGISTICAL - ECONOMIC ADVANTAGES

- Remote monitoring of difficult to access structures
- Ease of installation and use of the system
- Data processing to optimize operations
- Easy addition of sensors to extend the monitored area
- Cost reduction through easy maintenance
- No wiring, saving on installation materials
- Consequent labor savings
- Risk reduction and high reliability



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LoRaWAN GATEWAY

GATEWAY DEVICE

The Gateway device is a data reception and transmission unit with which, thanks to the LoRaWAN wide-range communication protocol, it is possible to manage and communicate with dozens of devices and sensors at the same time.

This device first of all receives the information transmitted by the multiple sensors installed, thanks to the LoRaWAN communication protocol, then, using Cellular connectivity, sends this data to the Move Solutions™ online servers. The device is Out-door IP67.

Depending on the type of structure monitored and on obstacles that may disturb the radio transmission in the monitoring area, it may be necessary to mount one Gateway for every 20 devices. Furthermore, if two Gateways are to be used, greater security and efficiency in receiving data will be guaranteed. By using two SIMs from different operators, a redundancy of resources will be more available in the event of a temporary lack of network by one of the two operators.



DOWNLOAD DOCUMENTATION

Visit the website at www.movesolutions.it to download further documentation relating to technical specifications and/or information on the Move Solutions™ structural monitoring system.

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QUICK GUIDE TO USE

Before being able to receive and transmit data, the Gateway device must first of all be configured, powered and installed correctly.

The steps to be taken for correct operation of the Gateway device are:

1. SIM CONFIGURATION:

- Purchase a Standard SIM Card with APN "Internet", and with a minimum of 5 Giga-bytes of monthly Internet browsing.
- Remove the unlock PIN code when accessing the SIM via the settings of any mobile device.
- Insert the SIM into the Gateway.

2. SCREWING THE ANTENNAS:

- Follow the layout of the labels placed on the device to screw the LTE and LoRa antennas correctly.

3. INSTALLATION ON THE STRUCTURE:

- Agree with the supplier company on the correct positioning of the Gateway device on the structure with respect to the monitoring area.
- The Gateway must be in line of sight with each specific sensor.
- Firmly install the Gateway on a wall or pole using the special plate, screws/wall plugs or metal clamps supplied.

4. SUPPLY:

- Connect the Gateway to the electricity supply only after all sensors have been installed.
- Connect the Gateway to the electricity by means of the supplied special converter - from 220V AC to 12/24V - or by means of a solar panel (available on request).

After having satisfied these configuration, installation and powering steps, the Gateway device will be able to receive and forward data continuously to the Move Solutions™ online servers.

Verify, through the Web Platform, the correct functioning of the monitoring system just installed. From the moment the Gateway is powered up, and therefore from the actual start-up and activation moment, a maximum waiting of about an hour is required before it is possible to correctly view all the sensors online.

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GATEWAY



The gateway is a wireless data receiving and sending control unit. First of all it receives the information transmitted by the multiple sensors installed via LoRaWAN communication, then thanks to Cellular connectivity it forwards this data to the online servers. Thanks to the wide-area communication protocol it is possible to manage hundreds of devices simultaneously. The device is Outdoor IP67.

TECHNICAL SPECIFICATIONS

OPERATION

Classic Operation

Reception via LoRaWAN protocol of data received and transmitted by sensors; sending data to online servers via a mobile cellular connection.

COMUNICATION

Connectivity

Cellular, LoRaWAN. Ethernet (on request) Other connectivity on request.

Cellular Channel

LTE, fallback 3G and 2G

Devices Protocol

LoRaWAN communication protocol

Lora Radio Channel frequency

ISM 868Mhz

Lora Link Coverage

1 km urban (line of sight with devices)*

SUPPLY

Power supply voltage

12 V - 24 V
220 V -> 24 V power supply included (PoE on request)
Powered by solar panel (on request)

Absorption

5 W

GENERAL DATA

Waterproof/Dustproof Class

IP67

Operating temperatures

-30°C/+70°C

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Dimensions	250 x 220 x 75 mm
Weight	2 Kg
Corrosion resistance	>1000 hours in salt spray
INSTALLATION	
Method	Assembly with screws or clamps through the plate
Site	Pole or wall fixing

* *Wireless coverage of the device may vary depending on the scenario*

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