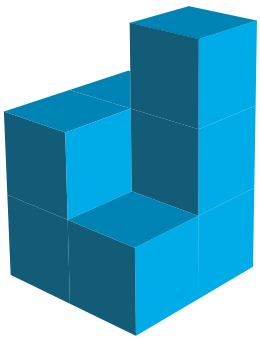
move
SOLUTIONS



deck
dynamic · electronic · control · kernel

STRUCTURE DYNAMIC MONITORING SENSOR

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DELIVERY

Deck is an electronic device designed for dynamic monitoring of structures.
Each sensor measures the **dynamic displacement** with great precision, allowing the analysis of the **dynamic behavior of the structure** to be done precisely and objectively.
Deck is designed to be completely **wireless**, with a quick and easy installation even on the most complex sites.



APPLICATIONS

1. Dynamic monitoring of structures:

- Bridges
- Dams
- Metal structures
- Vertical structures
- Historical buildings
- Construction sites
- Any structure subject to stress or consumption by time

2. Buildings safety

3. Safety of bridges and overpasses

4.Sensing of displacement and temperature



Esempio di Fissaggio a Muro con Piastra in acciaio (spessore 10 mm)

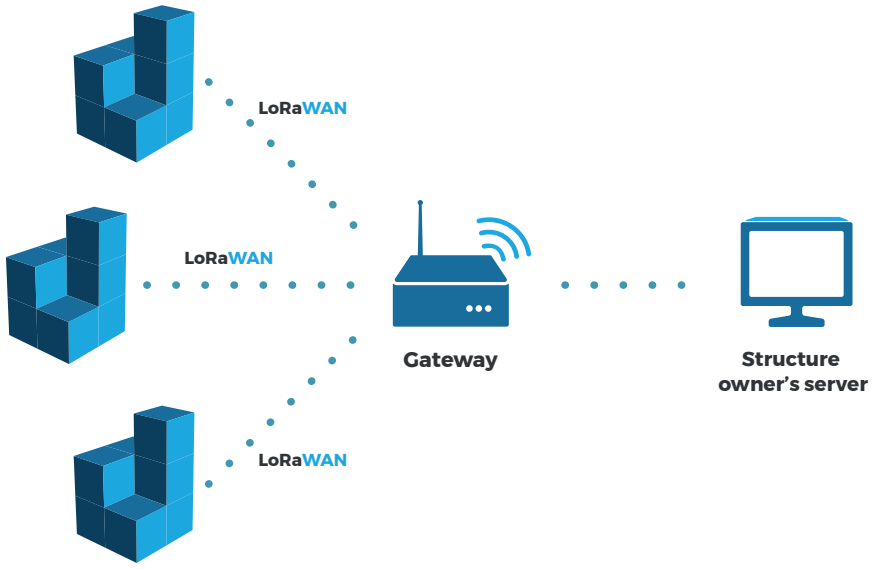
SPECIFICHE TECNICHE

Acquisition of	- Displacement - Temperature
Displacement resolution	0,01 mm
Shift accuracy	±0,01 mm
Measurement of axis	of the Parallel axis to the gravity axis (Z) or perpendicular (X or Y)
Temperature resolution	0,5°C
Sampling frequency	100 Hz
Displacement Bandwidth (-3dB)	0.70 - 20 Hz
Central Processing Unit	ARM Cortex M0 32 Bit
Classic Operation	Threshold Mode: -Setting of an upper and lower attention span (displacement) threshold. -Recording of an event any time the oscillation (displacement) exceeds the set threshold. -40 seconds of acquisition by displacement (20 seconds prior to exceeding the threshold and 20 seconds thereafter). -Acquisition of the temperature at the exceeding of the threshold.
Waterproof Rating	IP67
Custom Operation Software	It is possible to request custom functionalities that the customer requires as necessary for his own activity (example: timed sampling etc.) Move SRL will evaluate the feasibility of each request.

Reliability	Internal Watchdog (Inside the Microcontroller) External Watchdog (External to the Microcontroller)
Technology Radio Channel	**LoRa**® Technology (Class A, Class C): -Adaptive Data Rates (ADR) -Spreading Factors -Channel diversity Compatibility with LoRaWAN Gateway Bluetooth Low Energy
Radio Channel Frequency	868 MHz *(EU)* - 125 KHz BW (LoRaWAN) 2.4 Ghz (BLE)
Transmission Power	14 dBm[1] (LoRaWAN) 3 dBm (BLE)
Batteries	Four Thionyl Chloride Lithium Batteries (19Ah)
Autonomy	1 year and a half to 2 years[2]
Operating Temperature	From -40 ° C to + 85 ° C
Dimensions	140 x 170 x 65 mm (200x200x80 mm with plate)
Fixing Installation	With plate - Ø 10mm plugs -Wall mounting -Ceiling mounting -Ground fixing

NETWORK SYSTEM

The information transmitted by the **multiple deck sensors** is collected first by a **Gateway** through the **LoRaWAN protocol** and subsequently sent to **a server and database system**.
Each structure is equipped with at least one gateway. The Gateway has an internet connection (LTE, 3G or GSM) with which it transmits the data to a set of servers that manage the LoRaWAN protocol and the data received from the sensors. Data is entered into a DB system to allow storage. The data can be analyzed through a Cloud platform provided by Move. If the customer uses a private platform for data analysis, the servers can be queried and extrapolated through a REST API service.





The Cloud platform allows to view data anywhere and on any device, to constantly monitor the status of the structure.

Through various graphs, it is possible to view the oscillation trends and put them mathematically in relation to each other. Furthermore, the software verifies every change of the structure over time, monitoring its degra-dation in months and years.