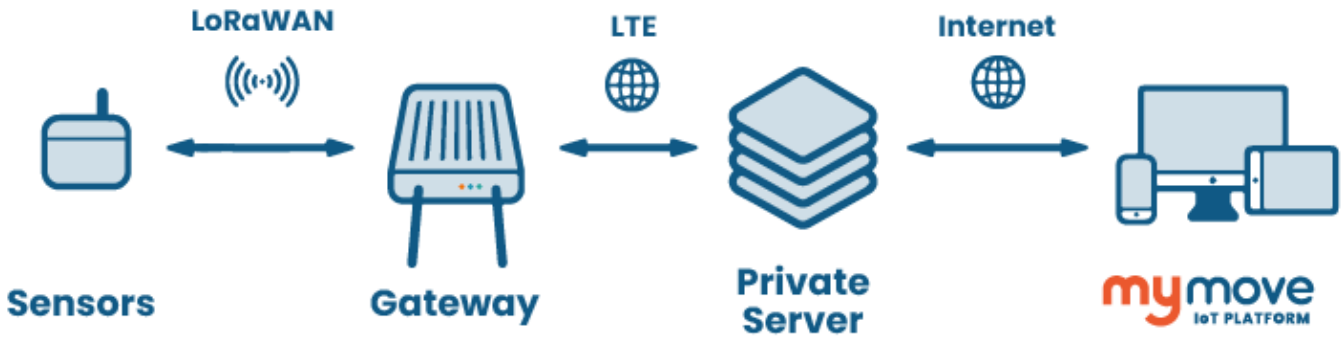
SINGLE CHANNEL NODE DATASHEET

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



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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 **MyMove 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 MyMove 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

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THE DEVICE: SINGLE CHANNEL NODE

The Single Channel Node makes geotechnical probes for LoRaWAN wireless communication, and it sends an alarm when a certain activation threshold is exceeded. It is wireless, battery-powered, and plug-and-play.

TECHNICAL SPECIFICATIONS	
OPERATION	
Modes of acquisition	Scheduled, Scheduled + Accelerometer Trigger
Cadence for scheduled acquisition	2 min, 10 min, 20 min, 30 min, 1 hour, 6 hours, 12 hours
Supply	2 Lithium batteries 3.6V (Suggested: EVE ER34615EHR2)
Absolute synchronization	± 1 sec
Integrated accelerometer	± 2 g, 1 mg resolution, 0.7 - 25 Hz bandwidth
RADIO	
Radio protocol	LoRaWAN
Supported LoRaWAN bands	EU868, US915, AU915
Link coverage*[1]	1 km (line of sight with gateway)
GENERAL DATA	
Ingress protection*[2]	IP67
Size	130x171.2x62 mm
Material	Polycarbonate
Operating temperature	-40°C / +85°C
Weight	500 g

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INSTALLATION	
Input cable section	30 - 14 AWG terminal block, Ø 3 mm - Ø 8 mm PG9 cable gland
Method	Pole or wall mounting using special plates and screws
Configuration	▪ Wall fixing ▪ Celling fixing ▪ Floor fining
DECKSCN-MA0	
Interface	4 - 20 mA (2 or 3 wires)
Sensor supply	12.3 VDC
Minimum accuracy	± 0.1% of reading
Measuring span	0 - 24 mA
Auxiliary NTC channel	Yes
DECKSCN-MVV	
Interface	mV/V
Sensor supply	5 VDC
Minimum accuracy	± 0.2% of reading or ± 0.002 mV/V
Measuring span	± 8 mV/V
Auxiliary NTC channel	Yes
DECKSCN-V05	
Interface	Voltage Output
Sensor Supply	5 VDC
Minimum Accuracy	± 0.2% of reading
Measuring Span	0 - 5 V
Auxiliary NTC channel	Yes
DECKSCN-V12	
Interface	Voltage Output
Sensor Supply	12.3 VDC

Minimum Accuracy	± 0.2% of reading
Measuring Span	0 - 12 V
Auxiliary NTC channel	Yes
DECKSCN-POT	
Interface	Potentiometer
Sensor Supply	2.7 VDC
Minimum Accuracy	± 0.02% of reading
Measuring Span	0 - 100 %
Auxiliary NTC channel	Yes
DECKSCN-PT1	
Interface	Pt100 - Pt1000 (4 wires)
Minimum Accuracy	± 0.03% of reading
Measuring Span	1500 Ω max
Auxiliary NTC channel	No
DECKSCN-NTC	
Interface	NTC
Minimum Accuracy	± 0.1% of reading
Measuring Span	1 MΩ max
Auxiliary NTC channel	No
DECKSCN-VBW	
Interface	Vibrating Wire
Measuring Span	400 - 10000 Hz
Auxiliary NTC channel	Yes

BATTERY LIFE ESTIMATION (without accelerometer)*3				
Interface	**Conditions**	**Read duration**	**Read cadence**	**Estimated battery life**
4-20 mA, 2 wires	The probe is reading half of its full scale (12 mA).	5 seconds	10 minutes	3.2 years
4-20 mA, 3 wires	Probe supply current of 50 mA.	8 seconds	30 minutes	2.3 years
mV/V	Probe load resistance = 350 Ω.	5 seconds	10 minutes	3.4 years
Voltage (5 V)	Probe supply current of 50 mA.	8 seconds	20 minutes	2.5 years
Voltage (12 V)	Probe supply current of 50 mA.	8 seconds	30 minutes	2.1 years
Vibrating Wire	—	2 seconds	10 minutes	4.1 years
Pt100-Pt1000	—	5 seconds	10 minutes	5.2 years
NTC	—	5 seconds	10 minutes	5.2 years
Potentiometer	Resistance of potentiometer = 1kΩ	5 seconds	10 minutes	5.2 years

BATTERY LIFE ESTIMATION (with accelerometer)*3				
Interface	**Conditions**	**Read duration**	**Daily events**	**Estimated battery life**
4-20 mA, 2 wires	The probe is reading half of its full scale (12 mA).	5 seconds	20 events/day	2.0 years
4-20 mA, 3 wires	Probe supply current of 50 mA.	8 seconds	20 events/day	2.5 years
mV/V	Probe load resistance = 350 Ω.	5 seconds	100 events/day	2.1 years
Voltage (5 V)	Probe supply current of 50 mA.	8 seconds	20 events/day	2.3 years
Voltage (12 V)	Probe supply current of 50 mA.	8 seconds	20 events/day	2.0 years
Vibrating Wire	—	2 seconds	100 events/day	2.2 years
Pt100-Pt1000	—	5 seconds	100 events/day	2.5 years
NTC	—	5 seconds	100 events/day	2.5 years
Potentiometer	Resistance of potentiometer = 1kΩ	5 seconds	100 events/day	2.5 years

Summary of Product Codes	
Interface	**Product code**
4-20 mA	DECKSCN-MA0
mV/V	DECKSCN-MVV
Voltage (5 V)	DECKSCN-V05
Voltage (12 V)	DECKSCN-V12
Vibrating Wire	DECKSCN-VBW
Pt100-Pt1000	DECKSCN-PT1
NTC	DECKSCN-NTC
Potentiometer	DECKSCN-POT

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

***2** *Guaranteed only with the dust cap or smart cable correctly screwed.*

***3** *Battery life may vary considerably depending on the probe. Battery life may shorten when operating in extreme temperatures.*

REVISION HISTORY

Version v3.

Version	Changelog
v1	First revision
v2	Document template update
v3	MyMove update (June 24)

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