

Description

The **BRIDGE.AI** is advanced technology sensor applied for measurement of the magnitude displacement, vibration and temperature of bridges and buildings. **BRIDGE.AI** sensor embedded with integrated advanced intelligent (AI) computational algorithm enables reliable capability of the measurements. The data transmitted from the sensor based on LoRaWAN Internet of things network. **BRIDGE.AI** is powered with D-cell batteries and able to operate up to 5 years depending on the configuration.



Applications

- Bridge monitoring
- Building monitoring
- Industrial asset monitoring
- Industrial facilities
- Any construction monitoring
- Any industrial construction monitoring

Product features

- LoRaWAN communication
- Computational AI algorithm
- Displacement sensor
- Accelerometer
- Temperature sensor
- Configuration over the air
- Robust enclosure (IP67)
- Auto self-calibration



Internal sensing characteristics	
Temperature measurement (internal)	Accuracy 0.5C
Accelerometer (3-axis)	+/- 2, 4, 8, 16G
Mechanical specification	
IP rating	IP67
Dimensions	157 x 93 x 38 mm
Enclosure	Plastic ASA
Storage Temperature	-30 to 70 °C
Sensor Power Supply	
Battery Type and voltage	2 x 3.6 V D-Cell Lithium Battery
Expected Battery Life	<5 years (Depending on configurations and environment)
Radio / Wireless specification	
Wireless Technology	LoRaWAN® 1.0.3
Wireless Security	End-to-End encryption (AES-CTR), Data Integrity Protection (AES-CMAC)
LoRaWAN Device Type	Class A End-device
Supported LoRaWAN® features	Default - OTAA , Optional - ABP, ADR, Adaptive Channel Setup
Supported LoRaWAN® regions	EU863 – 870 Optional: US902 – 928, EU863 – 870, AU915 – 928, EU433, RU864, IN865
TX Power	14dBm±1dBm (Region specific)



Rx Sensitivity	132 dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -118 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Link Budget	137 dB (SF7) to 151 dB (SF12)
Communication range	10 km (line-of-sight, actual transmission distance depends on the environment)
Sensor specification	
Supported displacement sensors	Elastic semiconductor type or classic Cylindrical type
Supported external sensors	Sensors with 4-20mA current output Sensors with 0-10V voltage output
Displacement accuracy	with elastic sensor: 0.5%
Displacement resolution	0.01%
Elastic displacement sensor options	5mm / 20mm / 50mm / 100mm / 250mm
Cylindrical displacement sensor options	10mm / 25mm / 50mm / 75mm / 100mm / 125mm / 150mm

Sensor dimensions:

