GeoWAN™

Product Data Sheet
GeoWAN 2.0 Vibrating Wire Sensor Node (1 x 1 wire port)

The GeoWAN 2.0 Vibrating Wire Sensor Node brings a wide variety of vibrating wire sensors into the GeoWAN system. This highly integrated product is capable of exciting and sampling vibrating wire sensors and reporting using Senceive's GeoWAN wireless communications network to a GeoWAN Gateway.

Examples of sensors supported:

- Piezometers
- Strain Gauges
- Crack Meters
- Load Cells
- Pressure Cells
- Extensometers
- In-Place Inclinometers

Integrated software:

- WebMonitor (Data visualisation)
- Senceive.io (Data management)
- NFC (In-field hardware management tool)

Key features

- High performance, easy to install connectors
- Waterproof, robust connectors for simple installation
- Resolution of 0.001 Hz and repeatability of ±0.02 Hz
- Changeable batteries
- 10-12 year battery life
- Integrated temperature sensor
- Versatile mounting options
- Waterproof to IP66 / IP68

GeoWAN 2.0 Vibrating Wire Sensor Node

Physical Specifications

Parameter	Value
Dimensions (L x W x H)	118 x 105 x 64 mm
Total Mass	439 g (approx.) including D-size battery
Housing Material	PC plastic body and lid cover with die cast aluminium base
Mounting Options (size and number of holes for mounting plate connection)	M4 holes in bottom, Plates and brackets available for magnetic fixing, trackbed, stake and pole mounting, and many other applications
Internal Protection Marking	IP66 IP68 (1m for 24 hours)
Operating Temperature Range	-40°C to +80°C

Internal Battery

Parameter	Value
Battery Type	Lithium Thionyl Chloride, non-rechargeable, D-cell
Nominal Voltage	3.6 V
Nominal Capacity	19000 mAh
Typical Battery Life	12 years at 30 minute reporting intervals when using radio preset 1 *Consult with Senceive for your application*
Recommended options*	Senceive: SP-C03282-1 Saft: LS33600

*Batteries from other suppliers may work but we provide no guarantee on performance

Sampling and Reporting

Parameter	Value
Port for single sensor	1 VW and 1 Thermistor Channel M12 Female
Maximum Reporting Frequency	30 seconds
Sample Storage*	Stores up to 75,000 sampling cycles in a circular buffer

*Retrieval is only available locally via NFC. The unit is not intended to operate as an offline data logger and requires a network connection to maintain an accurate clock

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GeoWAN Radio Specifications

Parameter	Value
Communication Type	Star Topology
Frequency Band (868 variant)	863 MHz - 870 MHz ISM Band
Frequency Band (902 variant)	902 MHz - 928 MHz ISM Band
Frequency Band (915 variant)	915 MHz - 928 MHz ISM Band
Frequency Band (923A variant)	922.0 MHz - 923.4 MHz ISM Band
Frequency Band (923B variant)	923.2 MHz - 924.6 MHz ISM Band
Maximum Transmit Power (868 variant)	14 dBm conducted
Maximum Transmit Power (902 variant)	18 dBm conducted
Maximum Transmit Power (915 variant)	18 dBm conducted
Maximum Transmit Power (923A variant)	14 dBm conducted
Maximum Transmit Power (923B variant)	14 dBm conducted
Internal Antenna Maximum Gain	+0.17 dBi (internal)
Range (with internal antenna)	Up to 12 km depending on the environment Trackbed: 1 km Tunnel: 2 km Urban: 2.3 km Line of Sight: 12 km *Consult with Senceive for your application and/or external antenna options*

Vibrating Wire Specifications

Parameter	Value
Frequency Resolution	0.001 Hz
Frequency Repeatability	±0.02 Hz
Frequency Range	200-6000 Hz
Stimulus Type	Swept Sine Wave, 6 V peak to peak
Thermistor Type	3kΩ NTC
Temperature Resolution	0.05°C
Temperature Accuracy	±0.1°C
Temperature Range	-40°C to +85°C

GeoWAN 2.0 Vibrating Wire Sensor Node

Certifications - to be obtained

- Tested to conformity with all the essential requirements of the Radio Equipment Directive 2014/53/EU and RoHS Directive 2011/65/EU
- FCC Grant of Equipment Authorization
- ACB ISED Canada Certificate: 24373-LR3N
- RCM (Australia and New Zealand)

Ordering Information and Accessories

Model	Description
L3N1-VW11(868)	**GeoWAN 2.0 Vibrating Wire Sensor Node (1 x 1-wire port)** Europe
L3N1-VW11(902)	**GeoWAN 2.0 Vibrating Wire Sensor Node (1 x 1-wire port)** North America
L3N1-VW11(915)	**GeoWAN 2.0 Vibrating Wire Sensor Node (1 x 1-wire port)** Australia, New Zealand
L3N1-VW11(923A)	**GeoWAN 2.0 Vibrating Wire Sensor Node (1 x 1-wire port)** Asia 923A Region
L3N1-VW11(923B)	**GeoWAN 2.0 Vibrating Wire Sensor Node (1 x 1-wire port)** Asia 923B Region

Accessories	Description
FS-VWCON11	**Sensor Connector for 1-wire sensor** Screw terminals for easy installation Sensor cable outside diameter 5.0-8.0 mm Suits LR3N-VW11, LR3N-VW41, FM3N-VW11 or FM3N-VW41
FT-VW-TH11	**Test Harness for 1-wire sensors** Mates to FS-VWCON11 for easy connection to hand-held vibrating wire readout device (not supplied)
FF-MP-S360N	**Swivel mounting kit with 360-degree adjustment range** Screw directly to vertical walls
FF-MP-V (Order with FF-MP-S360N)	**Vertical mounting plate** Use U-bolts to fix to poles or stakes Use glue to fix to walls where drilling is not permitted
FF-MP-RSN	**G2.0 Right angle swivel mount** Screw to concrete tunnel linings and inclined walls
FF-MP-M2N	**G2.0 Two-part magnetic mounting kit** High degree of adjustability, perfect for cast iron lined tunnels
FF-MK-N	**G2.0 Magnetic mounting kit** Perfect for steel or cast iron structures
SP-C03282-1	**G2.0 ER34615 3.6V 19Ah Battery** Senceive provided, suitable for GeoWAN 2.0 nodes
FA-G2-SMA	**Replacement G2.0 Lid for External Antenna (SMA)**