



Product Data Sheet

GeoWAN Triaxial Tilt Node

The GeoWAN Triaxial Tilt Sensor Node is an extremely high precision and exceptionally stable three axis tilt sensor which reports its measurements using Senceive’s GeoWAN wireless communications network to a GeoWAN Gateway.

Successfully applied in many applications, including those measuring:

- Tunnel distortion
- Tunnel heave/settlement
- Embankment slippage
- Structural movement
- Rail track heave/settlement
- Rail trackbed cant and twist

Key features

- Integrated triaxial tilt sensor
- Extremely low noise performance
- Resolution of 0.0001° (0.0018 mm/m) and repeatability of ±0.0005° (±0.009 mm/m)
- Integrated long life battery
- Up to 12 year battery life
- Integrated temperature sensor
- Versatile mounting options
- Waterproof to IP66 / IP67 / IP68

GeoWAN Triaxial Tilt Node



Physical Specifications

Parameter	Value
Dimensions (excluding antenna and vent)	90 x 90 x 60 mm
Dimensions (excluding antenna)	90 x 96 x 60 mm
Total Mass	0.6 kg (approx.)
Housing Material	Die cast aluminium body
Internal Protection Marking	IP66 / IP67 IP68 (1 m for 24 hours)
Mounting Options	1/4" UNF holes in bottom, M4 blind holes in side Plates and brackets available for magnetic fixing, trackbed, stake and pole mounting, and many other applications
Operating Temperature Range	-40°C to +85°C

Internal Battery

Parameter	Value
Battery Type	Lithium Thionyl Chloride, non-rechargeable
Nominal Voltage	3.6 V
Nominal Capacity	19000 mAh
Typical Battery Life	12 years at 30 minute reporting intervals Consult with Senceive for your application



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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
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 Antenna Gain	1.8 dBi
Range	Up to 15 km depending on the environment and fitted antenna Consult with Senceive for your application

Tilt Sensor Specification

Parameter	Value
Resolution	0.0001° (0.00175 mm/m)
Repeatability (-IX variant)	±0.0005° (±0.0087 mm/m)
Repeatability (-IXH variant)	±0.0025° (±0.0436 mm/m)
Range	±90°

Sampling and Reporting

Parameter	Value
Maximum Reporting Frequency	30 seconds
Sample Storage	Stores the last 29 days of samples at a reporting interval of 30 minutes when using radio preset 1

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Certifications

- 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
LR3N-IX(868)	GeoWAN Triaxial Inclinator Europe
LR3N-IXH(868)	GeoWAN Triaxial Inclinator (High-g) Europe
LR3N-IX(902)	GeoWAN Triaxial Inclinator North America, South America
LR3N-IXH(902)	GeoWAN Triaxial Inclinator (High-g) North America, South America
LR3N-IX(915)	GeoWAN Triaxial Inclinator Australia, New Zealand, Chile, Brazil
LR3N-IXH(915)	GeoWAN Triaxial Inclinator (High-g) Australia, New Zealand, Chile, Brazil
FF-MP-S360	Swivel mounting kit with 360-degree adjustment range Screw directly to vertical walls
FF-MP-V	Vertical mounting plate Use U-bolts to fix to poles or stakes Use glue to fix to walls where drilling is not permitted (Order with FF-MP-S360)
FF-MP-RA	Right angle mounting bracket Screw to concrete tunnel linings and inclined walls (Order with FF-MP-S360)
FF-MP-T2	Trackbed mounting plate kit
FF-BK-xxxx FF-BE	Tilt beam kit See separate datasheet for more information
FA-LR-WPS	Waterproof straight antenna Overall node height 168 mm (approx) when antenna fitted Maximum gain +1.8 dBi

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