



## 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.

The sensor technology has been used in many applications, including those measuring:

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



### Key Features

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

#### CONTACT US

For information on our award-winning wireless asset condition monitoring solutions, call **+44 (0) 207 731 8269**, email **info@senceive.com**, visit **www.senceive.com**

## Specifications

### Physical Specifications

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

### Internal Battery

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

### GeoWAN Radio Specifications

<b>Communication Type</b>	Star Topology
<b>Frequency Band (868 variant)</b>	863MHz - 870MHz ISM Band
<b>Frequency Band (902 variant)</b>	902MHz - 928MHz ISM Band
<b>Frequency Band (915 variant)</b>	915MHz - 928MHz ISM Band
<b>Maximum Transmit Power (868 variant)</b>	14dBm conducted
<b>Maximum Transmit Power (902 variant)</b>	18dBm conducted
<b>Maximum Transmit Power (915 variant)</b>	18dBm conducted
<b>Maximum Antenna Gain</b>	1.8dBi
<b>Range</b>	Up to 15km depending on the environment and fitted antenna Consult with Senceive for your application

### Tilt Sensor Specification

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

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## Sampling and Reporting

<b>Maximum Reporting Frequency</b>	30 seconds
<b>Sample Storage</b>	Stores the last 36 days of samples at a reporting interval of 30 minutes when using radio preset 1

## 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: FCC ID 2AMFBLR3N
- ACB ISED Canada Certificate: 24373-LR3N
- RCM (Australia and New Zealand)
- Tested to conformity with IEC61010-1:2010/AMD1:2016 for CB Test Certificate GB EMT 1479

## Ordering Information and Accessories

<b>LR3N-IX(868)</b>	<b>GeoWAN Triaxial Inclinometer</b> Europe
<b>LR3N-IXH(868)</b>	<b>GeoWAN Triaxial Inclinometer (High-g)</b> Europe
<b>LR3N-IX(902)</b>	<b>GeoWAN Triaxial Inclinometer</b> North America, South America
<b>LR3N-IXH(902)</b>	<b>GeoWAN Triaxial Inclinometer (High-g)</b> North America, South America
<b>LR3N-IX(915)</b>	<b>GeoWAN Triaxial Inclinometer</b> Australia, New Zealand, Chile, Brazil
<b>LR3N-IXH(915)</b>	<b>GeoWAN Triaxial Inclinometer (High-g)</b> Australia, New Zealand, Chile, Brazil
<b>FF-MP-S360</b>	<b>Swivel mounting kit with 360-degree adjustment range</b> Screw directly to vertical walls
<b>FF-MP-V</b>	<b>Vertical mounting plate</b> 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)
<b>FF-MP-RA</b>	<b>Right angle mounting bracket</b> Screw to concrete tunnel linings and inclined walls (Order with FF-MP-S360)
<b>FF-MP-T2</b>	<b>Track bed mounting plate kit</b>
<b>FF-BK-xxxx</b>	<b>Tilt beam kit</b>
<b>FF-BE</b>	See separate datasheet for more information
<b>FA-LR-WPS</b>	<b>Waterproof straight antenna</b> Overall node height 168mm (approx) when antenna fitted Maximum gain +1.8dBi

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