

Product Data Sheet
GeoWAN PT100 RTD Sensor Node

The GeoWAN PT100 RTD Sensor Node allows precision temperature sensing in many different situations. It uses the integrated long range radio transceiver to report its measurements through Senceive's GeoWAN wireless communications network to a GeoWAN Gateway.

Successfully used in these temperature monitoring applications:

- Steel structures
- Rail, for critical rail temperature alerting
- Concrete structures, including during curing
- Heating, Ventilation and Air Conditioning (HVAC) systems
- Ambient/environment

Key features

- Waterproof, robust connectors for simple installation
- Accuracy of ±0.1 °C
- Can have an integrated triaxial tilt sensor for combined tilt and temperature sensing in one unit
- Integrated long life battery
- Up to 12 year battery life
- Versatile mounting options
- Waterproof to IP66 / IP67 / IP68

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GeoWAN PT100 RTD Sensor 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	0.57 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 when using radio preset 1 Consult with Senceive for your application

Channel Combinations

Model	Ports	Typical Applications
LR3N-RTD	1 PT100 RTD Channel	Single point temperature monitoring
LR3N-IX-RTD LR3N-IXH-RTD	1 PT100 RTD Channel 1 Integrated high precision triaxial tilt sensor	Structural monitoring with precision temperature compensation Railway deformation and critical rail temperature monitoring

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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 49 days of samples at a reporting interval of 30 minutes (18 days including tilt)

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RTD Interface

Parameter	Value
Connector	M12 Female 5-pole A-coded Screw-in Type
Accuracy	±0.1°C
Resolution	0.01°C
Stimulus Type	Constant Current

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)

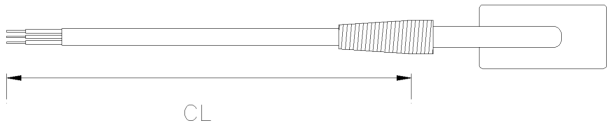
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RTD Sensor

Parameter	Value
Sensor type	PT100 class A (EN IEC 60751)
Accuracy @0°C	±0.15°C
Accuracy (EN IEC 60751 compliant)	(0.15 + 0.002|t|)°C
Operating Temperature Range	-70 to +230°C
Wire configuration	3 wires
Cable outer material	PFA
Probe dimensions: **PT100R** **PT100S** **PT100M**	 Length 40mm, Diameter 6mm Length 40mm, Diameter 6mm, Leaf 25x15mm Magnet with M5-eye
Connector	M12 male plug, straight, A-coded, 5-pin/position

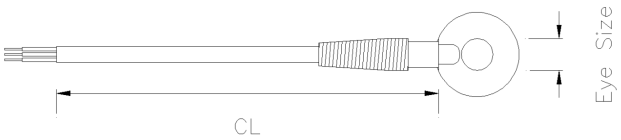
PT100S



PT100R



PT100M



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GeoWAN PT100 RTD Sensor Node

Ordering Information and Accessories

Model	Description
LR3N-RTD(868)	**GeoWAN PT100 RTD Sensor Node** Europe
LR3N-IX-RTD(868)	**GeoWAN Triaxial Tilt and PT100 RTD Sensor Node** Europe
LR3N-IXH-RTD(868)	**GeoWAN Triaxial High-g Tilt and PT100 RTD Sensor Node** Europe
LR3N-RTD(902)	**GeoWAN PT100 RTD Sensor Node** North America, South America
LR3N-IX-RTD(902)	**GeoWAN Triaxial Tilt and PT100 RTD Sensor Node** North America, South America
LR3N-IXH-RTD(902)	**GeoWAN Triaxial High-g Tilt and PT100 RTD Sensor Node** North America, South America
LR3N-RTD(915)	**GeoWAN PT100 RTD Sensor Node** Australia, New Zealand, Chile, Brazil
LR3N-IX-RTD(915)	**GeoWAN Triaxial Tilt and PT100 RTD Sensor Node** Australia, New Zealand, Chile, Brazil
LR3N-IXH-RTD(915)	**GeoWAN Triaxial High-g Tilt and PT100 RTD Sensor Node** Australia, New Zealand, Chile, Brazil
FS-PT100R-xxxxx	**Round Bead Temperature Sensor** For fluid temperature (and air temperature) sensing or for drilled holes xxxxx is the cable length in millimetres
FS-PT100S-xxxxx	**Surface Mount Temperature Sensor** Metal leaf can be glued or spot welded to a surface xxxxx is the cable length in millimetres
FS-PT100M-xxxxx	**Magnetic Temperature Sensor** Surface temperature of metal structures xxxxx is the cable length in millimetres
FF-MP-S360	**Swivel mounting kit with 360-degree adjustment range** Screw directly to vertical walls
FF-MP-V (Order with FF-MP-S360)	**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-H	**Horizontal mounting plate**
FF-MP-HM	**Horizontal magnetic mounting plate**
FF-MP-T2	**Trackbed mounting plate kit**
FF-MP-M2	**Magnetic mounting kit** High degree of adjustability, perfect for cast iron lined tunnels
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
FS-PT100CON11	**Screw terminals - Connector for PT100 sensor (1-wire, 1 temp)**

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