

WiSenMeshWAN: Omni Tilt & Distance Wireless Monitoring System



This internally powered sensor node allows measurement of tilt in any axis from a horizontal plane and a distance to any surface up to 100m away without a reflector. With a complete tilt range (360°), high accuracy ($\pm 0.002^\circ$) and resolution ($\pm 0.0001^\circ$) in addition to distance measurement (0.05m ~ 100m) with high accuracy ($\pm 1\text{mm}$) and resolution ($\pm 0.1\text{mm}$) this sensor is very versatile.

The node also includes an integrated temperature sensor and wireless mesh radio transmitter via the external antenna. The battery lifespan is up to 5 years at hourly readings.

WiSenMeshWAN nodes communicate via bespoke encrypted mesh radio technology can be up to 1.5km from each other or the SmartGateway. The sensors mesh together and automatically form a network relaying data off each other (up to 6 sub mesh levels of data hop) and back to a central data hub called a SmartGateway which contains the data logging functions, radio mesh control systems and external communication to the WiSen cloud based datacentre or local hosted system.

Features

- WiSenMeshWAN Node
- Omni axis tilt 360° range
- $\pm 0.0001^\circ$ resolution
- Intelligent node/repeater
- Distance measurement 0.05m ~ 100m
- Distance resolution $\pm 0.1\text{mm}$
- 1 second to 1 hour variable readings
- End user configurable
- IP66
- Battery life up to 5 years

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BASICS

Battery Power	1 x ER34615 Battery
Accuracy Stop Voltage	2.7VDC
Mesh Stop Voltage	2.1VDC
Battery Connection	Standard Aluminium Battery Holder
Working Current (DC)	Max. 500mA (Typ. 220mA)
Local Storage	Min. 450 Messages
L x W x H	100mm x 100mm x 60mm
Weight	0.65kg

PRIMARY SENSOR

Sensor Type	Optical distance sensor
Laser Class	Class 2
Range	0.05m-100m
Accuracy	±1mm
resolution	± 0.1mm
Laser Lens Durability	>= 500Hrs@3Hz@50°C or 2500Hrs@3Hz@25°C

SECONDARY SENSOR

Sensor Type	MEMS Triple-Axis Tilt Sensor
Range	± 90° per axis
Accuracy	0.0020° 7.20" 0.0349mm/m (or mrad)
Resolution	0.0001° 0.36" 0.0017mm/m (or mrad)

STANDARD SYSTEM PARAMETER

Temperature	Range: -40 to 85°C; Accuracy: ± 1°C; Precision: 0.1°C
Voltage	Accuracy: ± 0.1V

WIRELESS SENSOR NETWORK INTERFACE

Protocol	WiSenMeshWAN® proprietary radio encryption
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INDUSTRIAL STANDARD

Casing and Painting Materials	Aluminium-Alloy & Epoxy Polyester Powder Coating
IP Rating	IP66
Operating Temperature	-10 ~ 50°C
Certificates	CE, FCC, ACMA, RCM, ANATEL

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