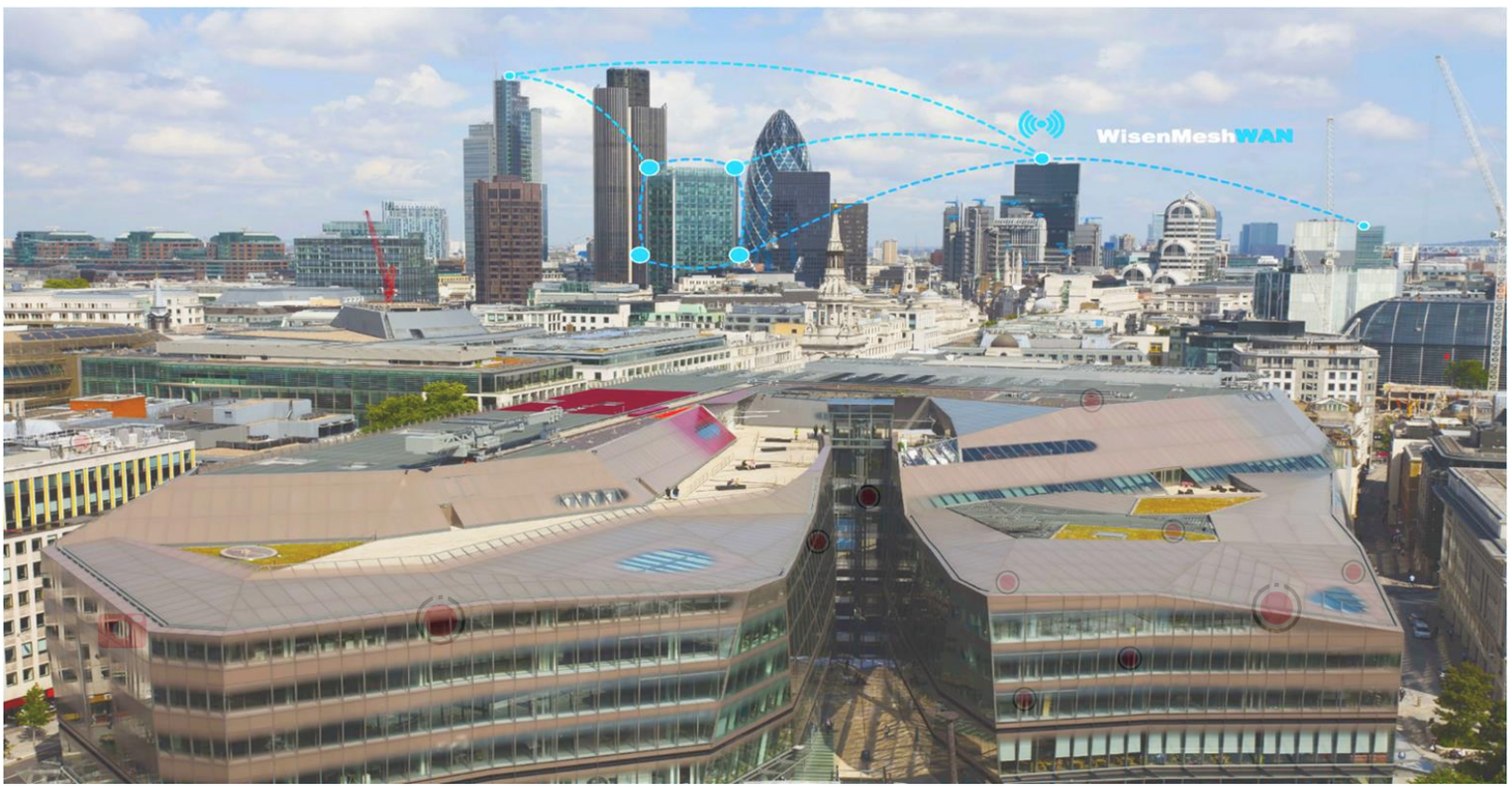
WiSenMeshWAN: Vibrating Wire Interface Node
Wireless Monitoring System



This internally powered sensor node allows integration with upto eight vibrating wire sensors. With wide frequency range (400~6000Hz) and very high accuracy (±0.015%) and precision (±0.002Hz@400Hz or 0.05Hz @6000Hz).

The nodes automatically excite the vibrating wire in the connected devices at required intervals and collate data for the frequency (Hz) and resistance (KΩ).

The node can have multiple channels for sensor input, an integrated temperature sensor and wireless mesh radio transmitter via the external antenna.

The battery lifespan is up to 13 years for 1 Channel and 15 years for 4/8 Channel versions 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
- Vibrating Wire Interface
- 1/4/8 Channel Versions
- Intelligent node/repeater
- Battery life up to 15 years
- 1 second to 1 hour variable readings
- End user configurable
- Rugged Housing
- IP66
- Auto Sweep Range Band Detection to eliminate attenuation noise

WiSenMeshWAN: Vibrating Wire Interface Node

	1 CH VIBRATING WIRE INTERFACE NODE	4 CH / 8CH VIBRATING WIRE INTERFACE NODE
PHYSICAL PROPERTIES		
Dimensions (L x W x H)	100mm x 100mm x 60mm (excluding antenna)	180mm x 140mm x 60mm (excluding antenna)
Weight	~0.60kg (excluding antenna)	~1.20kg (excluding antennas)
Casing and Painting Materials	Aluminium Alloy & Epoxy Polyester Powder Coating	Aluminium Alloy & Epoxy Polyester Powder Coating
International Protection Mark Rating	≥IP66	≥IP66
Operating Temperature	-40 to +85°C	-40 to +85°C
Cable Gland	**1CH** 1 x EMC-CMA12 for external VW sensor connection	**4CH** 4 x EMC-CMA12 for external VW sensor connection **8CH** 8 x EMC-CMA12 for external VW sensor connection
Wire Connection	Spring type wiring terminal	Spring type wiring terminal
LOCAL STORAGE		
Local Flash Memory Storage	Min. 450 Data Packets	Min. 450 Data Packets
POWER		
Primary DC Power	1 xER34615 Lithium D Cell Battery	2 x ER34615 Lithium D Cell Batteries
Battery Connection	Standard Aluminium Battery Holder	Standard Aluminium Battery Holder
Working Current (DC)	Max. 60mA (Typically 48mA)	Max. 60mA (Typically 48mA)

Battery Life Expectancy [1]

Sampling Interval - T	**1 CH** (6A07)			**4 CH** (6A08)			**4 CH** (6A09)		
	Duration (Days)	Duration (Months)	Duration (Years)	Duration (Days)	Duration (Months)	Duration (Years)	Duration (Days)	Duration (Months)	Duration (Years)
1 Min [1]	73	2.4	0.2	88	2.9	0.2	46	1.5	0.1
5 Mins [1]	417	13.7	1.1	407	13.4	1.1	213	7.0	0.6
15 Mins [1]	806	26.5	2.2	1165	38.3	3.2	608	20.0	1.6
30 Mins [1]	1080	35.5	2.9	2129	70.0	5.8	1183	38.9	3.2
1 Hour [1]	1855	61.0	5.0	3881	127.6	10.6	2266	74.5	6.2

(1) Quoted battery life are best case scenarios with minimal hops (mesh radio use), excellent signal quality and minimum transmission power hops. For example, a node taking 6 hops could lead to a reduction of 30% of quoted values. Please contact WiSen for further advice.

Accuracy Stop Voltage	2.1VDC	2.1VDC
Mesh Stop Voltage	2.1VDC	2.1VDC
EXTERNALLY CONNECTED VIBRATING WIRE SENSORS		
Sensor Type	Vibrating Wire Interface for 3rd Party Device. Maximum cable length 1km	Vibrating Wire Interface for 3rd Party Device. Maximum cable length 1km
Sensor Inputs	Hz, Ohms	Hz, Ohms
No. of Input Channels	1	4 / 8
Sensor Connection	VW Type of 5 wires: VW+, VW-, T+, T-, GND.	VW Type of 5 wires: VW+, VW-, T+, T-, GND.
Resonant Measurement Frequency (Hz) Sweep Range	400 to 6000Hz	400 to 6000Hz
Excitation Wave	± 5V	± 5V
Accuracy	± 0.015% any reading	± 0.015% any reading
Resolution	0.002Hz@400Hz or 0.05Hz@6000Hz	0.002Hz@400Hz or 0.05Hz@6000Hz
EXTERNAL NTC THERMISTOR SENSOR (OPTIONAL)		
Sensor Type	NTC Thermistor	NTC Thermistor
Model Variants	3kΩ | 10kΩ | 20kΩ	3kΩ | 10kΩ | 20kΩ
Measuring Range (kΩ)	0.052 kΩ to 113.096 kΩ	0.052 kΩ to 113.096 kΩ
Measuring Range (Temperature)	-40 to +85°C (3kΩ) -20 to +85°C (10kΩ) -6 to +85°C (20kΩ)	-40 to +85°C (3kΩ) -20 to +85°C (10kΩ) -6 to +85°C (20kΩ)

Accuracy

NTC Thermistor / Temperature Range	3kΩ	10kΩ	20kΩ
Min Measurable Temperature(i.e.100kΩ)	-40℃	-20℃	-6℃
Accuracy@ Min Measurable to 40℃	<0.9℃	<0.5℃	<0.2℃
Accuracy@40℃	~0.9℃	~0.5℃	~0.2℃
Accuracy@50℃	~1.5℃	~0.7℃	~0.4℃

	Accuracy@60℃	~2.9℃	~1.1℃	~0.6℃
Resolution	0.1°C		0.1°C	
RADIO SPECIFICATIONS				
Protocol	WiSenMeshWAN® proprietary radio encryption		WiSenMeshWAN® proprietary radio encryption	
Radio Frequency	868MHz System		868MHz System	
SERVICE INSPECTON				
	Every 3 Years by Manufacture (or inspected by arranged methods)		Every 3 Years by Manufacture (or inspected by arranged methods)	
CERTIFICATION				
Regional Conformity	UKCA		UKCA	
Network Rail	PADS Number: -		PADS Number: -	
London Underground	Reg Number: -		Reg Number: -	

ACCESSORIES

Radio Antennas	
WA029-00040	WiSenMeshWAN Whip Mesh Antenna (+5dBi/195mm)
WA029-00046	WiSenMeshWAN High Gain Mesh Antenna with 0.3m Extension Lead (+8dBi/400mm)
WA029-00047	WiSenMeshWAN High Gain Mesh Antenna with 5.0m Extension Lead (+8dBi-400mm)
WM028-00192	WiSen Fixing Bracket for High-Gain or 50m GSM Antenna

Power Supply	
WB016-00016	3.6V ER34615 19AHr D Cell Lithium Battery

WiSen Compatible Sensors	
WS032-00021	External NTC Temperature Sensor with Probe Tip
WS032-00037	VW Sensor External NTC Temperature Sensor with Magnetic Clamp

Mounting	
1CH Interface Nodes	
WM028-00154	WiSen Standoff Mounting for 1CH Interface Nodes*
WM028-00187	WiSen Flat Mounting Plates with U Clamps for Sensor Nodes*
2/4/8CH Interface Nodes	
WM028-00153	WiSen Standoff Mounting for Enclosures*
WM028-00186	WiSen Flat Mounting Plates with U Clamps for Enclosures*
WM028-00148	WiSen 0.4m Tower Bracket for Enclosures
WM028-00150	WiSen 1.0m Tower Bracket for Enclosures
WM028-00230	WiSen L-Shaped Bracket with U Clamp for Tower Bracket
*Compatible with magnet fixings for non-intrusive installations	