WiSenMeshNET:

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 15 years for 1 Channel and 17 years for 4/8 Channel versions at hourly readings.

WiSenMeshNET nodes communicate via bespoke encrypted mesh radio technology can be up to 400m from each other or the SmartGateway. The sensors mesh together and automatically form a network relaying data off each other (up to 10 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

- WiSenMeshNET Node
- Vibrating Wire Interface
- 1/4/8 Channel Versions
- Intelligent node/repeater
- Battery life up to 17 years
- 1 second to 1 hour variable readings
- End user configurable
- Rugged Housing
- IP66
- Auto Sweep Range Band Detection to eliminate attenuation noise

WiSenMeshNET: SmartGateway & Mini

	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. 100mA (Typically 98mA)	Max. 100mA (Typically 98mA)

Battery Life Expectancy [1]

Sampling Interval - T	Duration (Days)	Duration (Months)	Duration (Years)
1 Min [1,]	225	7.4	0.6
5 Mins [1]	689	22.6	1.9
15 Mins [1]	2178	71.6	6.0
30 Mins [1]	3643	119.8	10.0
1 Hour [1]	5552	182.5	15.2

Sampling Interval - T	Duration (Days)	Duration (Months)	Duration (Years)
1 Min [1]	161	5.2	0.4
5 Mins [1]	669	22.0	1.8
15 Mins [1]	1878	61.7	5.1
30 Mins [1]	3527	115.9	9.7
1 Hour [1]	6239	205.1	17.1

1 Quoted battery life are best case scenarios with minimal hops. For example, a node taking 9-10 hops could lead to a reduction of 40%. Please contact WiSen for further advice

Accuracy Stop Voltage	2.1VDC	2.1VDC
Mesh Stop Voltage	2.1VDC	2.1VDC
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 THERMISTOR SENSOR		
Parameter	Thermistor Resistor of 3kΩ@25°C	Thermistor Resistor of 3kΩ@25°C
Measurement Range	0.052kΩ to 113.096 kΩ	0.052kΩ to 113.096 kΩ
Accuracy (20.0°C)	± 0.05°C	± 0.05°C
Resolution	0.1°C	0.1°C
RADIO SPECIFICATIONS		
Protocol	WiSenMeshNET® proprietary radio encryption	WiSenMeshNET® proprietary radio encryption
Radio Frequency	2.4GHz System	2.4GHz 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: 3224 | Reg Number: 3224

ACCESSORIES

Radio Antennas	
WA029-00002	WiSenMeshNET Whip Mesh Antenna (+5dBi/195mm)
WA029-00039	WiSenMeshNET Whip Mesh Antenna (+10dBi/395mm)

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

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	