



FlatMesh Single-Sensor VW Node

FlatMesh Vibrating Wire Nodes

The FlatMesh data acquisition network consists of a number of wireless nodes and an internet gateway. The Nodes transmit measurements to the gateway and the gateway forwards them to the internet.

GeoCloud Services on the internet process the readings sent from the gateway, check for alarms, and update GeoCloud project websites to show current status, graphs, and reports

VW Sensor Applications

FlatMesh VW nodes are compatible with most vibration wire sensors. Vibrating wire sensors are widely used in geotechnical monitoring, especially for applications where sensors are installed in the ground or embedded in concrete.

Sensor Interface

Sensor Type: Vibrating wire with temperature sensor

VW Compatibility: Frequency ranges between 200 to 6500 Hz.

VW Excitation: Swept sine wave, typically 6V peak to peak.

VW Resolution: 0.001 Hz.

VW Repeatability: ± 0.02 Hz.

Temperature sensor: 3k Ω thermistor, -40 to +85°C range, 0.05°C resolution, $\pm 0.1^\circ\text{C}$ accuracy

Communications

Protocol: Proprietary, IEEE802.15.4 compliant.

Frequency: 2400-2485 MHz ISM Band.

Max Transmit power: 6.5 dBm.

Max Antenna Gain: 2.2 dBi.

Range: 980 feet (300m) point to point.

Gateway to Internet: Cellular.



FlatMesh 4-Sensor VW Node

FlatMesh Single-Sensor VW Node

Capacity: 1 VW sensor with thermistor.

Required Connector: M12 female screw-in connector on sensor cable.

Battery Life: 19000 mAh battery provides 12-15 years with 20 to 30 minute reporting intervals, including when acting as a repeater.

Operation Temperature: -40°C to +85°C.

Weatherproofing: IP68 at 1m for 24 hours.

Housing: Die cast Aluminum.

Weight: 1.25 lb. (0.57 kg).

Dimensions: 3.5 x 3.8 x 2.4 inches (90 x 96 x 60 mm).

FlatMesh 4-Sensor VW Node

Capacity: 4 VW sensors with thermistors.

Required Connector: M12 female screw-in connector on sensor cables.

Battery Life: 34400 mAh battery provides 2-15 years with 20 to 30 minute reporting intervals, including when acting as a repeater.

Operation Temperature: -40 to +185°F (-40 to +85°C).

Weatherproofing: IP68 at 1m for 24 hours.

Housing: Die cast Aluminum.

Weight: 1.65 lb (0.75 kg).

Dimensions: 3.5 x 5.4 x 2 inches (90 x 136 x 50 mm).

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