Bentley®
Advancing Infrastructure

PRODUCT DATA SHEET

sensemetrics® Strand VW4

Narrowband IIoT Sensor Connectivity

Strand VW4 enables you to effortlessly automate vibrating-wire sensors with secure and simple-to-use wireless connectivity devices.

SIMPLE, NO CONFIGURATION INSTALL

You can automatically detect Thread devices as wireless gateways for secure cloud uplinks.

ADAPTIVE AND RESILIENT WIRELESS NETWORKING

Strand's self-forming radio mesh network supports multiple hops and object avoidance. Modifications to network configuration or topology won't require device-level configuration updates. Intelligent wireless traffic routing optimizes wireless connections as networks expand and contract, or as site conditions change.

NEVER LOSE DATA

Strand's reliable on-device memory will store sensor data in the event wireless uplink is unavailable. With automatic retry logic, you can sync stored data to the cloud, eliminating the need to visit sites and manually retrieve data as most ultra low-power connectivity devices require today.

STREAMLINED CONVENIENCE

By using firmware over-the-air (FOTA) updates, you can drastically reduce lifetime system management costs.

CONNECT VIBRATING-WIRE SENSORS FROM ANY MANUFACTURER

Automation of new or legacy vibrating-wire sensors has never been more painless. With Strand, you can dramatically reduce labor and travel time collecting measurement data with proven and reliable wireless sensor networks.

Since there are no programming or configuration requirements, devices and systems are easy to deploy and maintain. Raw sensor measurements are stored in the cloud, providing an auditable system-of-record meeting strict agency requirements for traceability and integrity. You can securely connect and transfer sensor data to your cloud account for eternal data storage, processing, alerting, and connection to third-party applications using sensemetrics' industry-leading programming interface.

CLOUD PLATFORM

Ethernet

or Cellular

THREAD WIRELESS NETWORK

High-speed Wireless Mesh

Load Cells

Pressure Cells

Piezometers

STRAND WIRELESS NETWORK

Low-power Wireless Mesh

Strain Gauges

Settlement Sensors

Extensometers

Crackmeters

Strandmeters

Tiltmeters

Thoughtfully designed to provide reliabile operations in harsh operating environments, sensemetrics' Strand is a fully autonomous sensor connectivity device offering low-power, long-range wireless mesh networking in a weather-resistant enclosure. Our wireless devices are ideally suited for the connectivity of distributed, low-cost sensors in proximity with more complex and active sensors, which unifies the technical design of your automation project into a single adaptive and secure network with centralized cloud management. You will experience a seamless integration of hardware and software, providing a complete real-time sensor data management and field-to-office solution for distributed sensor networks.

STRAND SPECIFICATIONS

MECHANICAL	
Dimensions:	Height: 8.58 in [218 mm] Width: 9.09 in [231 mm] Depth: 2.44 in [62 mm]
Weight:	2.2lbs [1000 grams]
Material:	Body: ASA with enhanced UV properties Backplate: Aluminum with powder-coating finish
IP Rating:	66
Humidity:	5 to 95% non-condensing
Operating Temperature:	-40°F to 158°F (-40°C to 70°C)
Wireless Connector:	SMA
Cable Glands:	PG9 x 4 Supporting cable diameters ranging from 0.16 in - 0.31 in [4mm - 8mm]

GENERAL	
Memory:	40,000 sensor measurements
Power Supply:	3.6 volt D cell battery (x2)
Quiescent Current:	3 µA

MESH WIRELESS NETWORKING			
Mesh Type:	870 MHz	900 MHz LP	900 MHz HP
Mesh Wireless Range:	0.5 miles	3.5 miles	7.5 miles
Output Power:	25mW	250mW	1000mW
RF Data Rate (max):	80 kbps	250 kbps	250 kbps

BATTERY LIFE ESTIMATES*			
Mesh Type:	870 MHz	900 MHz LP	900 MHz HP
Measurements per day			
1	240 months	240 months	202 months
24	40 months	40 months	35 months
96	11 months	11 months	9 months

*Based on the installation of two Saft LS33600 Batteries.

Additional assumptions include four active VW sensor channels, no RF hops, and operation in non-freezing conditions.

THERMISTOR INTERFACE	
Accuracy:	0.2°C

INTERNAL SENSORS	
System Temperature:	-40°F to 158°F (-40°C to 70°C), precision +/- 0.5°F

WIRED INTERFACES		
	Vibrating Wire	Thermistor
Sensor I/O:	4	4

VIBRATING WIRE		
Excitation Frequency (Hz)	Accuracy (Error %)	Resolution (Hz)
400	0.003	0.02
500	0.020	0.02
1000	0.009	0.02
2000	0.007	0.02
3000	0.009	0.02
4000	0.006	0.02
5000	0.007	0.02
6000	0.007	0.02

SYSTEM COMPONENTS

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