5th Generation Vibration (5GV) Series

Data you want, when you want it…

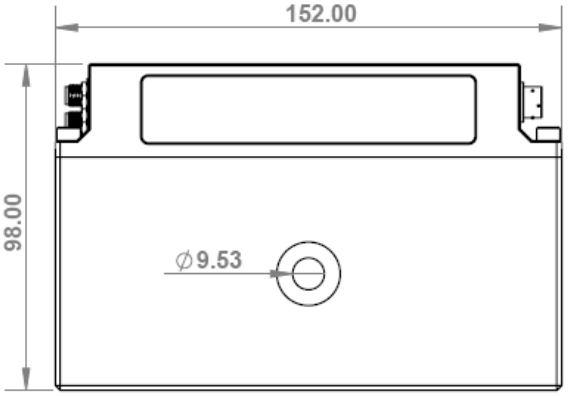
A high precision MEMS Vibration and Tilt sensor with real-time readings and alerts. Features Vibration Capture with Sound or High-precision Tilt readings. User configured Alert thresholds to meet your monitoring needs. The gateway supports multiple export formats, file naming conventions and transfer protocols.

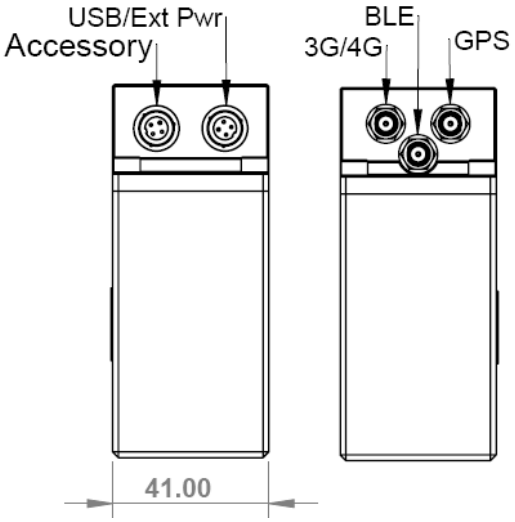
- Continuous Vibration Monitoring
- Sound Monitoring
- Blast Monitoring
- Biaxial Tilt Monitoring (licenced separately)

Features

- Standalone Sensor with Internal Storage
- No Cables - Complete Wireless Solution
- Easy to Install – No Technician Needed
- Indicator LEDs – Visually Confirm Operation
- Totally Sealed Case with Magnet On/Off
- Remotely Managed and Configured via SMS and GSS Cloud.
- Locally managed via Bluetooth Mobile Application or USB attached PC Application
- Real-time Data via MQTT
- Real-time SMS or MQTT Alerts
- FTP, Secure FTP and HTTP(S) Uploads
- Modular Communications (3G/4G, WiFi)
- 4 x Internal D Cell Lithium Batteries
- Low Power Battery Operation - Up to 1 Year
- Can Operate on External Power – No Batteries installed
- CSV/JSON/BIN Data Output – Easy GIS Integration
- Built-in Temperature Compensation
- Microphone Connector – Sound (option)

Dimensions





Applications

- Structural Health Monitoring – Buildings, Tunnels, Bridges
- Construction Sites
- Blast Monitoring
- Foundation Monitoring
- Large and Remote Area Monitoring

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General Specifications			
Part Number	5GV-E01 (EG25 Modem, Bluetooth) 5GV-W01 (WiFi, Bluetooth) 5GV-B01 (Bluetooth) – Standalone Operation		
Management Access Port	USB serial interface, Bluetooth (BLE)		
Storage	Industrial MicroSD Card - 512MB standard or 2GB (optional upgrade)		
Time Keeping	Real Time Clock (retains time for up to 3 months), Synched to NTP / Cell Tower		
Firmware Updates	Over-the-air programming (OTAP) via FTP		
Application	5GV Management Console (Windows 7,8,10 and 11)		
Vibration Specifications			
Vibration Limit (X, Y, Z)	±41G		
Conformance	DIN45669-1		
Maximum Response	1Hz to 1KHz		
Accuracy	±2%		
Sample Rate (Hz)	1000, 2000, 4000 samples/second		
Peak Particle Velocity (by design)	0.003 mm/sec to 620 mm/sec		
Peak Particle Velocity (validated)	Up to 620 mm/sec		
Peak Ground Acceleration (by design)	0.003 g		
Heartbeat Interval	30 sec to 12 hours		
Time Stamping	Down to 1 millisecond		
Buffer Size	8MB		
Alert Thresholds	1 to 150 mm/sec (@ 2G Range)		
Alert SMS Numbers	Can notify up to 5 mobile phones		
Data Outputs	Zero Crossing. Peak amplitude/frequency values (1Hz to 1KHz), Peak Particle Velocity (mm/s), Peak Vector Sum (mm/s), RMS, Threshold alerts, Historical trend readings.		
Filtering Standards / Frequency Range			
ISEE_SEISMOGRAPH	2 – 250 Hz	NS_8176_COMFORT	1 – 80 Hz
DIN_4150_3	1 – 315 Hz	NS_8141_CONSTRUCTION	5 – 300 Hz
DIN_4150_2_KB	1 – 80 Hz	NS_8141_1	3 – 400 Hz
BS_7385	1 – 300 Hz	SS_4604866_BLAST	5 – 300 Hz
AS_2187_2_2006	2 – 250 Hz	SS_025211_SHAFT	2 – 150 Hz
ONORM_S_9012	1 – 80 Hz	SS_4604861_COMFORT	1 – 80 Hz
ISO_8569_ACC	5 – 300 Hz	GEOPHONE	5 – 500 Hz
IN1226	1 – 150 Hz	ICPE_CIRCULAR_86	1 – 150 Hz
1/3 Octave	Up to 500 Hz		
Tilt Specifications			
Tilt Readings	Pitch ±90°, Roll ±90°		
Resolution	0.0035°		
Accuracy	±0.005°		
Alert Thresholds	0.05° to 70.0°		
Temperature Stability	+/- 0.005° (-45° to 85°C)		
Stabilisation Time	10 secs		
Reading Interval	10 sec to 12 hours		

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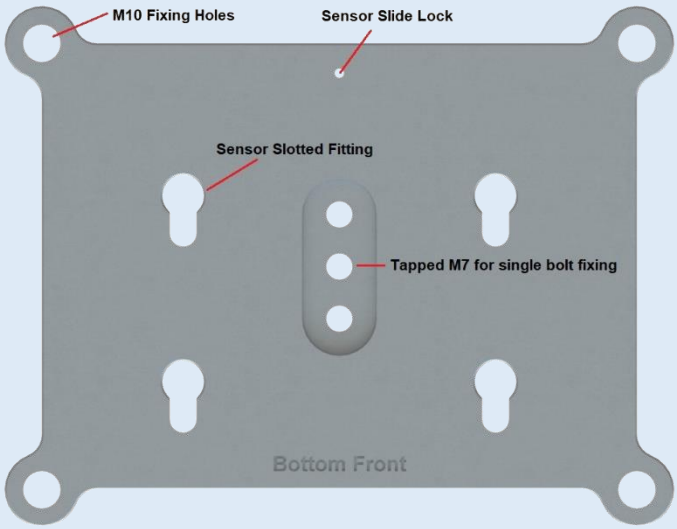
Communication Specifications			
GSM Communication Module			
GSM Modems	EG25 (3G/4G/LTE) Global bands (uses nanoSIM) BG96 (3G/4G) Global bands (uses microSIM)		
Certificates	Anatel, CE, DOC, FCC, GCF, ICASA, IFETEL, PTRCB, RCM		
Antennas	GSM, Bluetooth, GPS (optional)		
WiFi Communication Module			
Frequency	2,402 to 2,480 MHz		
Modulation	802.11b/g		
Transmission Rate	1 – 11 Mbps for 802.11b; 6-54 Mbps for 802.11g		
Operating Specifications			
Power			
Monitoring (3G Idle)	8ma (monitoring) and between 100ma and 700ma when transmitting (FTP/HTTP/SMS)		
Battery	4 x D-Cell Li-SoCl2 Batteries e.g. ER34615M (14Ah); SAFT LSH20 (13Ah)		
Battery Life	1 Year based on recommended configuration		
External Power	Optional Power Cables 1) USB power (2A adapter) 5V to 5.5V 2) Solar / External power 6V to 18V (recommend 9V to 12V). Solar needs to be able to handle surge current required by the device with 3G/4G/LTE modem		
Environmental			
Operating Temperature	-40 °C TO +85 °C		
Mechanical Shock Limit	500 G (Calibration Unaffected)	1000 G (Bias Affected)	5000 G (Survivability)
MTBF (Million Hours)	1.1 (Telcordia Method I, GF/30C)	0.4 (Telcordia Method I, GM/35C)	
Dimensions	W 152 x L 98 x D 41 mm		
Weight	1.15Kg (with battery base)		
Connectors			
USB/External Power	6-pin LEMO keyed connector with metal cap (IP68) and chain		
Microphone	4-pin LEMO keyed connector with metal cap (IP68) and chain		
Mounting Choices			
Directly bolt to structure	Directly bolt to structure		
Mounting Bracket (Optional)	• Plate with 4 x M10 mounting points • Plate has slotted entry points for easy sensor attachment/removal • Tapped M7 holes for one-bolt sensor fixing • Slide Lock fixture to mitigate movement/theft • Grooves on the back to support epoxy mounting 		

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Sound (Optional)	
Microphone	Sound (refer to separate technical specification)
Accessories	
USB to PC Cable	1-meter cable with 6-pin LEMO connector to USB connector
Microphone Cable	1-meter cable with 4-pin LEMO connector to 4-pin LEMO connector

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