

# SHM-SENSORS

WIRELESS SHM INSTRUMENTATION



## Wireless Accelerometer. SHM-ACEL:

- **Wireless 4G, Nbiot, LTE-M or LORA communications options.**
- **3 years typical battery life.**
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### *Description*

The SHM-ACEL is a stand alone 3 axis accelerometer suitable for structural health monitoring. It is powered by a single battery that keeps it sending tilt information periodically for several years.

Compact small unit that reports mqtt data and ftp files periodically to any cloud of your preference where you can recover historical information.

Provides raw data or FFT, it will wake up and take samples when a threshold acceleration level is sensed or periodically when no events are detected.

Several parameters can be configured remotely by mqtt in order to fine tune the device operation.

Communications options NBIOT, LTE-M, LTE-4G are used when there is a cellular network coverage and LORA when there is not.  
Ftp file transfer will be available only for the LTE-4G option.

Also available as a 24vdc powered unit for industrial processes that provide RS485 ,4-20ma outputs as well the radio options of the battery powered device.

### *Configuration*

The device is configured by a programming interface and software running on a windows personal computer. Parameters such as sampling time, noise

filtering, communication data are downloaded to the device and stored on the computer for backup.

The programming interface is also used for set up, debug and verifying operation by direct data logging to the computer.

## Technical Specifications.

<b>Sensor</b>	Main sensor	Temperature compensated MEMS accelerometer.
	Number of axis	3
	Sampling rate	4Hz to 4KHz
	Maximum 3 axis samples	4096 in 19bit resolution
	Acceleration ranges	+/- 2g, +/-4g, +/-8g
	Resolution	0.001 m/sec <sup>2</sup> , 1E-4g
	Output data	FFT or raw data files in text or binary format Files are send by ftp protocol.
	Long term offset drift	20ppm/year maximum.

### **Additional sensors**

Voltage	Battery voltage monitoring
Temperature	Internal device temperature

### **Power Supply**

Battery type:	D size, 3.6V, 13AH, Lithium-thionyl Chloride
Battery life:	3 years, sending 24 messages by day. (NBiot)
Current drain (sleep state):	10uA maximum.
DC Option :	10... 50 Vdc,

### **Construction**

Material	Aluminum
Total Dimensions:	91 x 116 x 50 mm. Without antenna
Weight	800 grams.
Operation temperature:	-25... 60 °C.
Protection	IP67

### **Regulations**

Complies	LTE 3GPP specification
Certified to FCC rules.	47 CFR Part 22, 24, 27, 90, 2.1091
Certified to ISED rules.	RSS-132 Issue 4 RSS-130 Issue 2 RSS-139 Issue 4 RSS-133 Issue 6
Canadian ICES-003	Class B digital

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## PART CODES:

Model:

SHM-ACEL

Options:

-LORA

Lora communications.

-NB-IOT

Nbiot or LTE-M.

-4G

LTE-4G

-BAT

Battery operated.

-DC

20.. 60 Vdc power supply.

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## FOR MORE INFORMATION:

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