

SHM-SENSORS

WIRELESS SHM INSTRUMENTATION



Wireless Strain Gauge Transmitter. SHM-STRN:

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

The SH-STRN is a 12 input-channel metering device for static measurements using strain gauges or rtd's.

Each channel input is a 2 wire 4ma to 10ma current loop connected in star topology that needs a current converter interface in order to change resistance (350 ohm nominal) to current (4-10ma).

The 2-wire twisted pairs are immune to magnetic coupling interference and allow placing strain gauges at larger distances, limited only by the wire resistance.

The battery operated device wakes up periodically, scans the 12 channels within milliseconds, sends acquired mqtt data to any cloud of your preference where you can recover historical information (e.g Thingsboard). Then returns to the sleep mode.

The acquired ohms values for each channel are sent "raw" and converted to displacement remotely.

By setting large wake-up periods (several hours) battery life is expected to be in the order of years.

Communications options NBIOT, LTE-M, LTE-4G are used when there is a cellular network coverage and LORA when there is not.

Also available as a 24vdc powered unit for industrial processes that provide RS485 output 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.

Also some parameters such as the sample period can be set remotely by mqtt commands.

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

Technical Specifications.

Sensor	Channels	12 maximum
	ADC converter resolution	24bit with programmable sample time window.
	Input types	120 , 350, 100 and 1000 ohms.
	Resolution	0.01 ohms.
	Accuracy	+/- 0.3 ohm in the -25C... 60C range, maximum.
	Offset drift	0.01 ohm/C maximum.
	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 aprox. 24 messages/day. (NBiot)
	Current drain (sleep state):	10uA maximum.
	DC Option :	10... 50 Vdc,
Construction	Material	Aluminum
	Total Dimensions:	140 x 140 x 90 mm. Without antenna
	Weight	1200 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

PART CODES:

Model:

SHM-STRN

Options:

-LORA

Lora communications.

-NB-IOT

Nbiot or LTE-M.

-4G

LTE-4G

-BAT

Battery operated.

-DC

20.. 60 Vdc power supply.

FOR MORE INFORMATION:

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