

MTSS-1033A-ND

Digital seismic accelerometer

MTSS-1033A-ND is a 3-component digital accelerometer made by R-sensors.

The MTSS-1033A-ND accelerometer is designed to measure strong motions, to monitor and analyze industrial vibrations both as a digitizer of seismic system networks and a standalone instrument.

Three identical compact sensitive elements with an electrodynamic force-balance feedback allow for a wide bandwidth, accuracy and high stability. This model is designed for an input signals of up to $\pm 3g$ and has a self-noise level of $130 \text{ ng}/\sqrt{\text{Hz}}$ at 10 Hz.

The model extends R-sensors' digital product line.



Sensor Specifications

| | |
|------------------------|-----------------------------------------------|
| Sensor type | molecular-electronic |
| Axes | 3 |
| Sensitivity | $0.48 \frac{\text{V}}{\text{m}/\text{sec}^2}$ |
| Clip level | 3 g |
| Frequency range | 0.1 – 120 Hz |
| Dynamic range | 126 dB |
| Cross-axis sensitivity | -60 dB |
| Nonlinearity at 1 Hz | 0.2% |
| Temperature range | -40°C...+55°C |
| Installation tilt | any |
| Leveling, mass locking | not required |
| Self-noise | 130 ng/ $\sqrt{\text{Hz}}$ at 10 Hz |

Digitizer Specifications

| | |
|-------------------------------------------------|----------------------------------------------------------------------------------|
| ADC type | Sigma-delta |
| Number of channels | 3 |
| ADC sampling rate | 1, 10, 50, 100, 250, 500, 1000 Hz |
| ADC resolution | 24 bit |
| ADC noise performance | 22 bits noise-free resolution at 100 sps |
| GNSS receiver | GPS / GLONASS |
| GNSS timing accuracy | < 1 μs |
| Data recording mode | continuous, schedule |
| Data recording format | Internal binary, miniSeed, SEG converters provided |
| Data storage | 32 Gb (flash) |
| Data transfer | Full-speed USB 1.1 (configuring) High-speed USB 2.0 Wi-Fi IEEE 802.11b/g/n |
| Temperature range | -40 ... +85°C |
| Inbuilt sensors for device health monitoring | temperature, main supply voltage |

Electrical Specifications

| | |
|------------------------------------------------|----------------------------------|
| Main supply voltage | 12 V DC (5 V – 36 V permissible) |
| Power consumption during stand-alone recording | 1 W average; 2,5 W peak |

Mechanical Specifications

| | |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connectors | 10-pin PC-10TB multifunctional connector SMA-M connector for GPS antenna SMA-M connector for Wi-Fi antenna standard USB-B connector for data reading |
| Delivery set | 1.5 meter 10-pin connector power cable with pig tails 1.5 meter 10-pin/USB-A connectors digital cable Standard digital USB A/B cable Wi-Fi SMA-M antenna for installation on the case 5-meter cable length GPS antenna |
| Case dimensions – length / width / height | 150 mm / 150 mm / 110 mm |
| Weight | 3 kg |