

MR3003C

Description

Due to its design and reliability, the MR3003C is an efficient vibration solution for different temporary and fixed measurements in the civil engineering and strong-motion surveys.

Applications include:

- Civil Engineering and Human comfort: Industrial Vibrations – Construction Site Monitoring – Tunneling
– Truck and Rail Traffic – Blasting Monitoring – Model Verification
- Earthquake Engineering: Building Monitoring – Monitoring of Structures (Dams, Bridges..).
- Geology: Soil Characterization.
- Earth Science: Earthquake Monitoring (seismic Intensity). Continuous data stream in MiniSeed/SeedLink format.

Data Acquisition

ITEM	SPECIFICATION
Resolution	24 bits
Sampling-rate	250, 500, 1'000, 2'000, 4'000 sps
Number of channels	3
Channel to channel skew	None – simultaneous sampling on all channels
Dynamic range	Typ. 130dB@250 sps, 124dB@1000 sps
Data Filter	FIR & IIR digital filters
Trigger Filter	Digital IIR filter: 0.5 - 15 Hz band-pass (only for accelerometer)
Trigger and de-trigger principle	Level trigger or STA/LTA
Trigger voting logic	Predefined AND or OR combinations, individual channel votes
Level trigger	0.003 to 100% full scale
STA / LTA (for acceler.)	STA: 0,1 to 25s, LTA: 1 to 250s, Ratio: 0,1 to 25.
Smart Trigger / De-Trigger	Automatic adjustment of trigger level

Microprocessor

ITEM	SPECIFICATION
Recording principle	Event recording (time history), continuous-time recording, manually triggered or timed recording. Contains status information at time of trigger and event summary.

Pre-event recording	1-99 seconds (@250Hz), others depending on sampling rate.
Post-event recording	1-100 seconds
Data memory	Removable SD card (4Gb)
Alarm triggers principle	Two alarm levels independently settable as: threshold levels, curves defined by the main standards or user-defined curves
Alarm level range	0.1 % to 100% full scale
Alarm based on standards	Different built-in standards: DIN 4150-3 (Germany), SN 640312 (Switzerland), Circulaire du 23/07/1986 (France), Önorm S 9020 (Austria)
User-defined alarm	Thresholds and frequencies individually settable for each axis.
Notifications	Various notification options, individually settable for each axis
Precision timing System Clock	1 ppm, this clock is disciplined by GPS, NTP
Data/user interface Intelligent Alerting	System initiates communications or sends text message (SMS) or e-mail when an event is detected
Web Interface	Easy to use command & control through embedded web server
FTP	Built-in client protocol supporting FTP, SFTP, FTPS able to push to a server
Display 3 LED	Run, Recording, Warning/Error
LCD-Display	Status information, important settings, event-related information
Wireless Communication WIFI	IEEE 802.11 b/g/n compliant
Mobile Network (option)	Internal 4G modem, fallback 3G/2G

Power Supply

ITEM

Supply Voltage

Power Consumption

SPECIFICATION

9 - 14.5VDC or 48V PoE

From 1 W to 1.4 W depending on the configuration (velocitymeter) From 1.3 W to 1.7 W depending on the configuration (accelerometer)

I/O and Connectors

ITEM

Type

Power

GPS

SPECIFICATION

Metallic self-latching push-pull connectors with positioning key (LEMO)

Metallic connector with protective GND

Connector for external GPS

LAN / PoE

Communication with PC or network - Ethernet
100BaseT

Sensors (Internal)

Triaxial Velocitymeter

ITEM

Type

Principle

Measuring range full scale

Frequency range

Case-to-coil motion

Dynamic range

Linearity/Phase

Cross axis sensitivity

Orientation

Triaxial Accelerometer

ITEM

Principle

Hysteresis

Dynamic range (100 Hz BW)

Noise (10 to 1000 Hz)

Frequency response

Measuring range

Orientation

Self test

SPECIFICATION

Velocity sensor with linearized frequency response
A3HV 315/1 (triaxial) (according to DIN 45669)

Geophone

± 100 mm/s

1 - 350 Hz

4 mm p-p

> 130 dB

According to DIN 45669 (class 1)

According to DIN 45669 (<5%)

Horizontal (floor) mounting or vertical (wall
mounting)

SPECIFICATION

The MEMS accelerometer consists in a micro-machined capacitive sensing element (MEMS) and a custom low-power mixed-signal integrated circuit (ASIC) that includes an amplifier and differential output stage

None

typ. 100 dB ($\pm 4g$)

typ. 7 $\mu g_{rms}/\sqrt{Hz}$

0 - 600 Hz

± 4 g

Horizontal (floor) mounting or vertical (wall
mounting)

Test-pulse

Dimensions

ITEM

Housing

Weight

Protection degree

SPECIFICATION

Aluminum, 120 x 180 x 100 mm

1.5 kg

IP 65 (splash-proof)

Regulation

ITEM

Electrical Safety
EMI/RFI

Environmental

Conformity
Specifications

SPECIFICATION

In compliance with IEC 61010

In compliance with EN 61000

Shock: 30 g/11 ms half-sine Heat: -20°C up to
+70°C Humidity: up to 100% RH Vibration: up to 5
g (operating)

CE