

# GEAsystem

THE SOLUTION FOR VIBRATION MEASUREMENT  
AND MONITORING IN CIVIL ENGINEERING



 **SEQUOIA**  
[www.sequoia.it](http://www.sequoia.it)

LARGE STRUCTURAL  
HEALTH MONITORING  
SOLUTION

HERITAGE  
BUILDING  
PROTECTION

TRAFFIC  
INDUCED  
VIBRATIONS

TUNNEL  
CONSTRUCTION  
MONITORING

CONSTRUCTION  
SITE MONITORING

MINING  
EXPLOSION  
MONITORING

## GEAsystem

is an extremely flexible and complete system that can be used to cover a wide variety of vibration measurements and monitoring needs within the civil environment.



FLEXIBLE  
AND MODULAR  
SOLUTION

The concept of digital distributed sensor brings several advantages in terms of system scalability and technical features such as the possibility of using extremely long connection cables, and the noise free data transmission.

## A simple portable instrument

Just connect your GEA sensor to the pc to transform it into a powerful vibration analyzer suitable for building and ground vibration measurements.



GEAsystem

## A multi sensor system

Thanks to the SynkHub that grants synchronization among different sensors and power them up to 1 km length.



# GEAsensor I



## APPLICATION AREA

- Construction site monitoring
- Mining and explosive monitoring
- Tunnel construction monitoring
- Seismic applications with CLASS C requirements

## SENSOR

TYPE	MEMS
AXIS	3
FULL RANGE	10 g
NOISE DENSITY	10 $\mu\text{g}/\text{hz}^{-2}$
CROSS AXIS SENSITIVITY	< 5%
SHOCK	5000 g

## INTEGRATED DIGITIZER

TYPE	SIGMADELTA
N° OF BITS	16
DYNAMIC RANGE	100 dB
SAMPLING FREQUENCY	1024 hz

## CONSTRUCTION

DIMENSIONS	$\varnothing$ 110 X H 40 mm
CONSTRUCTION	ANODIZED AL
PROTECTION GRADE	IP68
OPERATING TEMPERATURE	-10 $\div$ 75 °C
WEIGHT	500 g

Automatic self-levelling function included.

# GEAsensor II



## APPLICATION AREA

- Construction site monitoring
- Human vibration exposure
- Modal testing and structural health monitoring
- Seismic applications with CLASS B requirements

## SENSOR

TYPE	HYBRID PIEZO-MEM
AXIS	3
FULL RANGE	8 g
NOISE DENSITY	1 $\mu\text{g}/\text{hz}^{-2}$ @ 1 hz
CROSS AXIS SENSITIVITY	< 5%
SHOCK	3000 g

## INTEGRATED DIGITIZER

TYPE	SIGMADELTA
N° OF BITS	24
DYNAMIC RANGE	120 dB
SAMPLING FREQUENCY	1024 hz

## CONSTRUCTION

DIMENSIONS	$\varnothing$ 110 X H 40 mm
CONSTRUCTION	ANODIZED AL
PROTECTION GRADE	IP68
OPERATING TEMPERATURE	-10 $\div$ 75 °C
WEIGHT	500 g

Automatic self-levelling function included.



STANDALONE



RACK MOUNTED

# SynkHub

## SPECIFICATIONS

POWER	MAIN / BATTERY (12 V)
DIMENSION:	110 X 170 X 30 mm
MAX SYNCH. ERROR	< 5 $\mu\text{s}$
CABLE LENGTH	UP TO 1 Km

The **SynkHub** is supplied with required accessories for powering and parallel connection with other modules.



## Monitoring box

For permanent and/or semi-permanent installations we can provide ready to use system including industrial pc with Linux operating system, all accessories for remote communication and site protection, pre-installed software. The system is extremely robust and easy to carry on.



MONITORING BOX INCLUDES SYNKHUB FOR 4 SENSORS, INDUSTRIAL PC WITH INSTALLED SOFTWARE.

UPGRADABLE TO A 16 SENSORS SYSTEM.





ALARM BEACON



GPRS 3G ROUTER/WIFI MODULE FOR REMOTE COMMUNICATION



RELAY MODULE FOR CONTROLLING EXTERNAL DEVICES



## Permanent monitoring solutions

The ideal cost-effective solution to deploy Dynamic Structural Health Systems on civil structures.

**GEA**system

## Single sensor

Licenses are written directly within the sensor firmware.



### FREE

- Raw data recording

### MEASUREMENT OPTION

- Structural damage

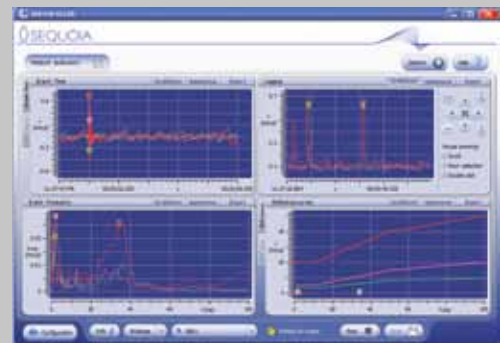
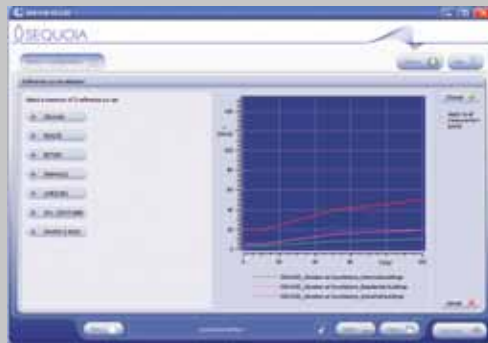
IN CONFORMITY WITH SEVERAL RELEVANT STANDARDS, STARTING FROM DIN 4150-3 FOR P.P.V AND P.C.P.V CALCULATIONS

- Human confort

IN CONFORMITY WITH DIN 4150-2, ISO 2631

### MONITORING OPTION

- Long term monitoring and scheduling
- E-mail notification system



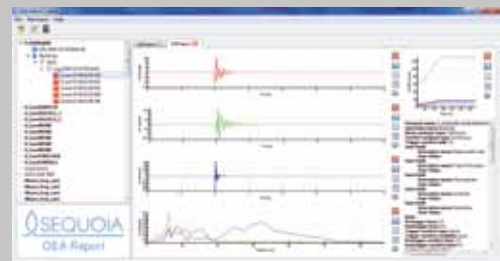
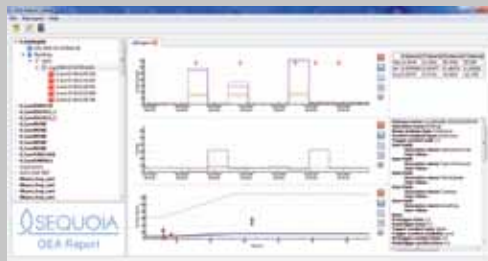
## Multiple sensors

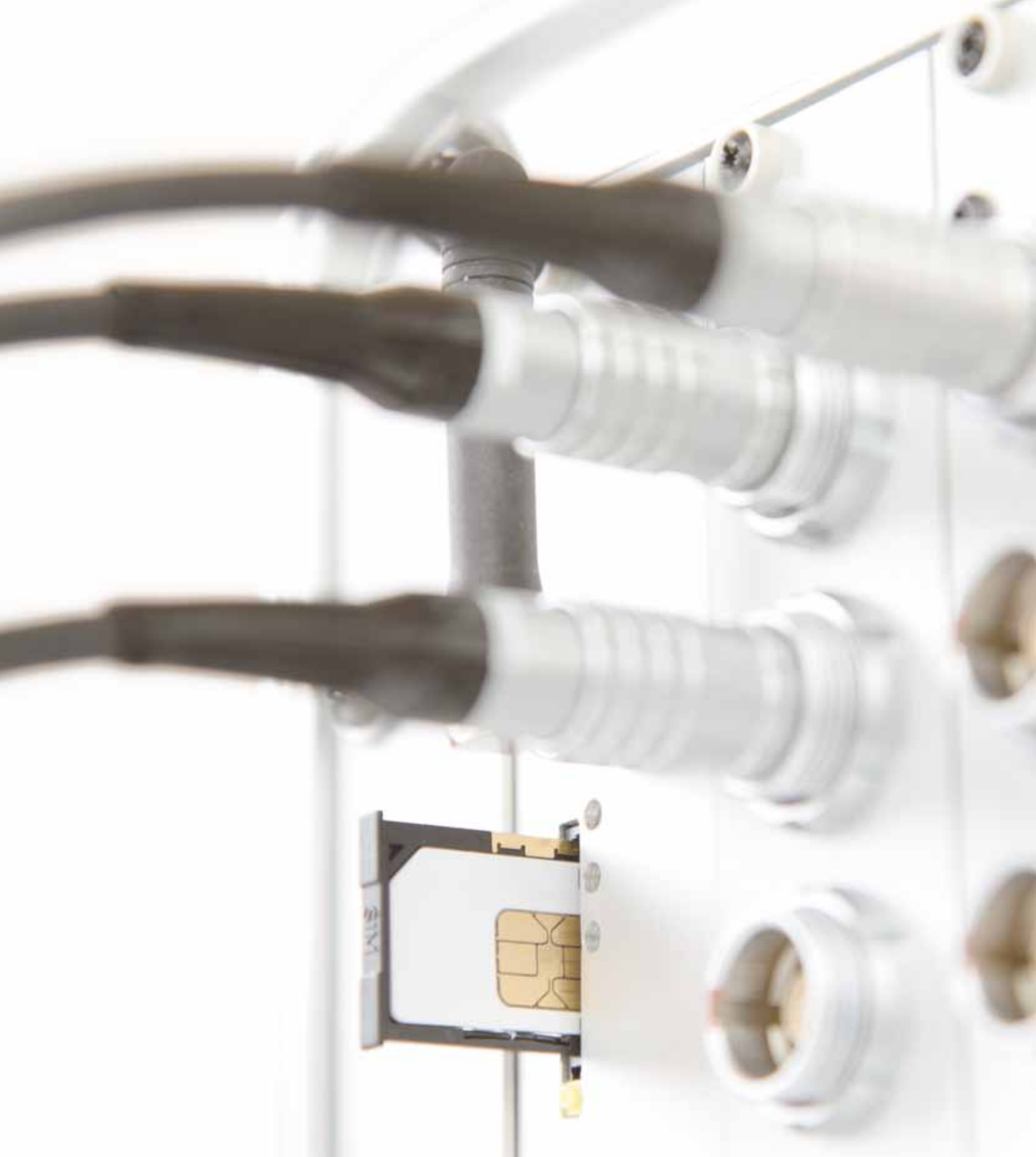
Once one of the above measurements or monitoring licenses are activated on one of the used sensors, NO EXTRA LICENSE is required but just an economical multi-sensors license for each sensor in your system.



## Reporting Software

For handling the acquired data, print simple reports, export data to .txt format, copy chart and other functionalities the GEA Report software is available for improving GEA System usability.





SMART SOLUTIONS FOR VIBRATION MONITORING

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