Data driven structural safety

SYSCOM Instruments

ROCK Acceleration
Dynamic Structural Health Monitoring (SHM)

Product Line Brochure

SMARTER AND SAFER STRUCTURES BOOSTED BY THE ROCK ACCELERATION

The Structural Health Monitoring (SHM) solution conceptualized and offered by Syscom Instruments leverage state of the art instruments paired with best-in-class cloud monitoring software (SCS) to efficiently process and deliver reliable, actionable data to various stakeholders.

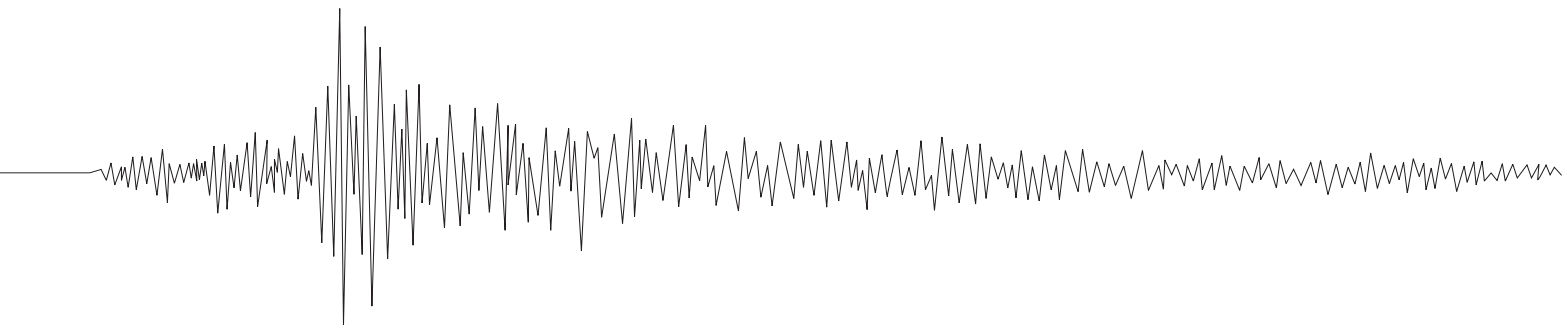
As global infrastructures continue to age, the Syscom SHM solution emerges as a paramount solution, providing autonomous vibration dynamic monitoring and delivering crucial insights (raw data with modal parameters, damping ratio, etc...) into the structural state in near real-time, directly made available to engineers.

With the increasing number of structural assets at risk of failure, there is a growing demand for trustworthy, scalable solutions to guide resources toward appropriate maintenance and safety measures. Syscom addresses this need with its ROCK Acceleration device, offering two primary applications:

- ROCK Acceleration for permanent installation, featuring an affordable sensor with autonomous cable-free operation, for ease of installation and without the requirements of any gateways.
- ROCK Acceleration for periodic specific evaluation for Operational Modal Analysis (OMA), equipped with a best-in-class, ultra-low noise acceleration sensor.

Both models come in the same housing, with a rechargeable battery providing months-long power supply under operations. They also incorporate the latest mobile 4G communication technologies and microseconds GNSS time synchronization for reliable, synchronized evaluation of structural dynamic modes.

Syscom takes pride in introducing this tailored SHM solution to the market, contributing to the creation of safer structures. Discover the Syscom SHM dynamic vibration solution in this brochure and find out why it is essential now!



SYSCOM

DATA DRIVEN STRUCTURAL SAFETY

The new Syscom data driven structural safety solution articulates two indissociable items:

- Hardware: **ROCK Acceleration**, an autonomous vibration monitoring device tailored for structural monitoring, with triaxial acceleration sensor, self-levelling, with months-long autonomy on internal battery.
- Software: Syscom Cloud Software (**SCS**), a leading solution for dynamic measurements monitoring, reliable data processing, remote device parametrization, swift alarming & reporting with automated notifications.

This new and fully integrated solution for structural monitoring enhance the user experience and structural safety as following:

- Install the ROCK Acceleration in no time with its auto orienting and levelling feature
- For permanent installation, connect the devices to a small solar panel. Not required for short to mid-duration monitoring.
- Turn-on the ROCK Acceleration devices and they will automatically connect through the best 4G Cat-M mobile network available to the Syscom Cloud Software. The time synchronization is automatically performed by GNSS, providing unmatched time accuracy for absolute time stamped data samples. Just configure the measuring mode required into the SCS and start the surveillance in no time, typically with:

Timed recording, for example 10 minutes files at 1000 Hz once a week at a predefined hour, for long term modal parameters evaluations with high frequency accuracy. All the ROCK devices installed on the same structure will record simultaneously with the same timing for proper post-processing.

Common timed recording initiates multiple ROCK Acceleration perfectly synchronized measurements for operational modal analysis. This process is performed easily and quickly, without the need for any field cables.

Trigger recording, for example when an earthquake or shock is detected by the devices. This will generate dynamic recorded events with a pre and post event time, useful to detect the structural response and compare it with a reference spectrum.

Background recording, for example 1 peak amplitude every 60 seconds per X, Y and Z axis, continuously recorded. This will give relevant information for the long term evaluation of vibration incidence.

This solution is providing best-in-class devices with painless installation and ease-of-use. Feel free to get back to Syscom for a free demo !

MAIN FEATURES SYSCOM ROCK ACCELERATION & SCS

Hardware main features:

Triaxial acceleration sensor MS2010+ or MS2012+

Compact and robust aluminum base with polymer cover, IP67 protected

Reed switch to turn On/Off the device with a magnet

8-24 V DC power connector

Internal Li-Ion batteriy for a typical autonomy of months in timed recording mode, unlimited with small solar panel

Embedded SIM card and 4G LTE Cat-M communication

LEDs: Status, Record, 4G

Integrated GNSS for micro-seconds time sync

2 fastening holes diam 5 mm

Auto orienting and self-levelling

Software features:

SCS https://scs.syscom-instruments.com

- Easily operated with quick learning curve
- Multi-platform cloud based access
- Smart notifications and alarming (SMS & Emails)
- Automated reporting
- Management by projects
- Remote parametrization and data access
- SCS_{API} and SCS_{AI} innovative features
- Open data export and FTP push features

Remote permanent structural monitoring in near real time, automatically paired with the SCS, here is how:

PLACE & PLAY SWIFT INSTALLATION

No recurrent site visits with remote parametrization capability and MEMS sensors stability, ensuring no recalibration over time. System state of health (with test-pulse) continuously monitored providing lowest cost of ownership. Auto orienting and leveling for on-site custom installation.

CABLE FREE

No site cable laying, nor additional battery due to ROCK Acceleration extended autonomy. For permanent installation during several years, small solar panel (< 20 W) will provide enough power for several devices.

EASY PROCESSING

Like an app, web application on the Syscom cloud, easy to use, multi platform. SIM card already embedded in the ROCK Acceleration for plug & play data processing and no time consuming configuration.

ABSOLUTE ACCURATE TIMING

Integrated GNSS provides very accurate time synchronization between ROCK Acceleration devices, enabling best operational modal analysis with common recording feature.

EMBEDDED COMMUNICATION, NO GATEWAY

Integrated 4G LTE-M modem in each ROCK Acceleration provides best comms reliability without the need of any gateways, for quick data transfers to the platform.

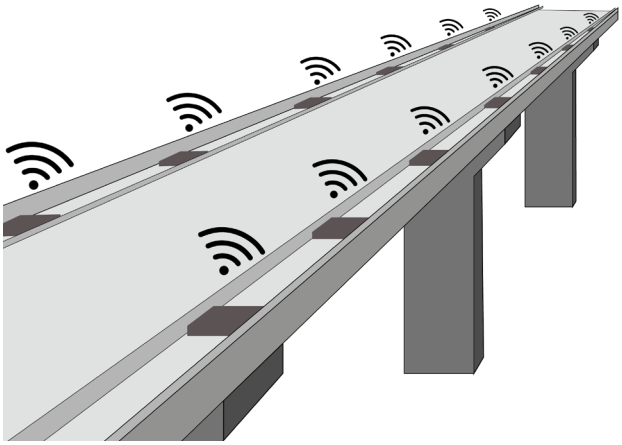
EDGE COMPUTING

Shock or trigger events detection, periodic background continuous acquisition and timed recording acquisition are the 3 available measuring modes, leveraging embedded computing power for data processing optimization.

OPEN DATA

Syscom Cloud Software platform can automatically forward acquired data to any FTP / SFTP server, by converting the dataset into easily readable ASCII files. Advanced SHM / OMA can then be performed by 3rd party platforms.

APPLICATIONS TYPICAL SETUP



MAIN FEATURES

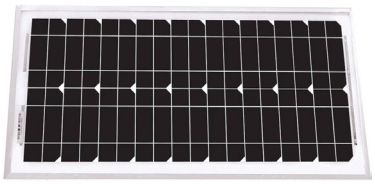
- Time-saving installation, no field cables
- Best time synchronization (<10µs) with embedded GNSS, to perform modal analysis with many ROCK Acceleration units
- Smart data processing with open data
- Very compact all-in-one unit, auto-orienting
- Easy configuration with embedded SIM with LTE-M communication and no gateways
- Typical autonomy of months in timed recording mode, unlimited with small solar panel

The following accessories can be ordered together with the ROCK Acceleration. Please contact your local Syscom representative for specialized recommendations.

Accessories

DC Cable- 72520048

Solar panel kit- 13100023



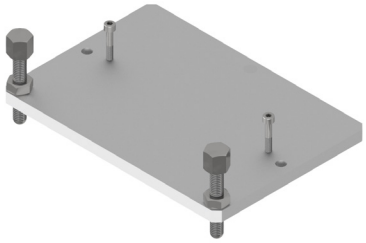
Carrying case- 74710148

Magnet- 54700000

Pointed screws- 13100000

AC/DC Adapter- 87000332

Mounting plate- 13100022



Contact us for a demo:
info@syscom-instruments.com

SYSCOM Instruments

SYSCOM Instruments SA

Syscom Instruments SA is a subsidiary of Orica Digital Solutions group, a multinational manufacturer of geotechnical equipment and softwares. Syscom Instruments SA is a leading provider of vibration and seismic monitoring equipment for civil and structural engineering, strong-motion monitoring and safety related markets, especially for NPP and LNG plants. Syscom Instruments SA reputation rests on the reliability of its products, coming from a meticulous control of every design and production aspects. Syscom Swiss facility, fully ISO 9001 certified, utilizes modern, automated production and test equipment to assure cost-competitiveness and trustable high quality products.

www.syscom-instruments.com

SALES NETWORK

Syscom relies on a very well trained and specialized distribution network worldwide. Please contact our partners directly to get the best advice about ROCK Acceleration and SCS product lines with premium local support.

Refer to Syscom Instruments website for the complete list of representatives.

www.syscom-instruments.com/representatives

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