



ROCK

Autonomous vibration monitoring device



The SYSCOM ROCK is one of the most advanced vibration recorders integrating highly innovative and proven technologies such as ultra low power integrated components, state of the art LTE connectivity and embedded SIM card. Thanks to the ROCK extra large autonomy, it is also fully operable in a cable-free manner.

The all-in-one solution provided together with Syscom Cloud Software (SCS) brings unrivalled ease of use and quickest return on investment, especially for vibration monitoring compliance based on widely spread standards worldwide.

Applications

■ Civil Engineering

Industrial Vibrations - Construction Site Monitoring - Truck & Rail
Traffic - Piling - Blasting Monitoring - Model Verification

■ **Vibration compliance to widely spread standards** (refer to page 2)

ROCK Autonomous vibration monitoring

The SYSCOM ROCK is tailored to mostly used standards all around the world. Syscom expertise in vibration with latest electronic capabilities driven by the Internet of things market make such device best in class for autonomy, connectivity, ease of use and information processing. Empowered by the SCS (scs.syscom-instruments.com), the ROCK brings a disruptive solution for vibration compliance to standards.

Major features

- Compact unit containing triaxial sensor, digital recorder, communication and battery
- Embedded memory for data safety
- Wide dynamic range
- Embedded SIM card
- Extra large autonomy (typ. 6 months)
- Managed by Syscom Cloud Software
- Standard compliance (non exhaustive):
 - Germany, DIN4150-3
 - Switzerland, SN640312a
 - France, IN1226, Circulaire de 1986, Arrêté de 1994
 - USA, RI8057, OSMRE
 - Portugal, NP2074
 - Spain, UNE22-381
 - Australia, AS2187-2
 - Austria, ÖNORM S 9020
 - Italy, UNI 9916
 - UK, BS5228, BS7385-2
 - Netherlands, SBR A, B
 - User defined standard
 - and others...



ROCK autonomous motion recorder

Data acquisition

Resolution	24 bits
Sampling-rate	500, 1000, 2000, 4000 samples per seconds
Number of channels	3 (X,Y, Z orthogonal axis)
Channel to channel skew	None – simultaneous sampling on all channels
Dynamic range	Typ. 110dB@1000sps
Data Filter	IIR digital filters: k - 80 Hz, k - 250 Hz, k - 315 Hz; k=1 Hz, k=4.5 Hz
Trigger	
Principle	Level trigger
Level trigger	0.1% to 100% full scale

Data processing

Recording principle	Event recording (time history), Background recording (continuous)
Header	Contains status information at time of trigger and event summary
Event recording	Max 60 seconds per event file, unlimited continuous event files
Pre-event recording	1 - 8 seconds (1s @ 4kHz - 8s @ 500Hz)
Post-event recording	1 - 30 seconds
Data memory	Embedded memory chip, 2 GB. Data buffer automatically uploaded to SCS
Alarm triggers by SCS	Smart alarming managed by Syscom Cloud Software
Principle	Two alarm levels independently settable as: threshold levels, curves defined by the main regulations or user-defined curves
Alarm level range	0.1% to 100% full scale
Alarm based on standards	Different standards: DIN 4150-3 (Germany), SN 640312 (Switzerland), Circulaire du 23/07/1986 (France) among others. Refer to SCS Amplitudes and frequencies individually settable for each axis
User-defined alarm	Various notification options, individually settable for each axis
Notifications by SCS	
Time synchronization	Network Time Protocol (NTP)
Data/user interface	User interface managed by Syscom Cloud Software
FTP	FTP client in SCS to push data to any FTP server, ASCII data format available

Wireless Communication

Mobile Network	Multi-Band LTE Cat M1 and LTE NB-IoT, fallback 2G. Frequency band width suitable for basement monitoring
SIM card	Embedded SIM provided by Syscom

Other features

ROCK keyboard	
LED	3 multicolors LEDs: Status, Record, 4G (Communication)
1 push-button	On / Off button
Levelling	Embedded Spirit level
Fixtures	2 holes, diameter 10.3 mm, 3 contact points according to DIN45669

Power Supply

Supply Voltage	5V DC through microUSB connector
Battery	Compact high density Lithium battery, UN38.3 & IEC62133 certified
Autonomy	Typ. 6 months on internal battery (based on 10 events per day, 1000sps, continuous monitoring)
Solar Panel	Optional, 500mW solar panel for outdoor usage embedded on ROCK housing

I/O and Connectors

Type	microUSB IP67 AB connector with protective cap
Power	5V DC
Power bank	Optional, must provide 5V DC with microUSB type B connector

Sensor (Internal)

Triaxial Velocitymeter

Type	Velocity sensor with linearized frequency response A3HV 315/1 (triaxial) (according to DIN 45669)
Principle	Geophone
Measuring range full scale	$\pm 135 \text{ mm/s} - \pm 5.3 \text{ in/s}$
Frequency range	1 - 350 Hz
Case-to-coil motion	4 mm p-p
Dynamic range	> 130 dB
Linearity/Phase	According to DIN 45669 (class 1)
Cross axis sensitivity	According to DIN 45669 (<5%)
Orientation	Horizontal (floor) mounting or vertical (wall mounting)
Self test	Periodic Test-pulse, user selectable 1 - 30 days

Dimensions

Housing	Aluminum, (L x W x H) 173 x 135 x 83 mm
Weight	2.3 kg
Protection degree	IP65

Regulation

Electrical Safety	In compliance with IEC 61010
EMI/RFI	In compliance with EN 61000
Environmental	Shock: 30 g/11 ms half-sine Heat: -20°C up to +50°C Humidity: up to 100% RH Vibration: up to 5 g (operating)

Conformity

CE

Ordering Information (please refer to last page)

Measurement System	ROCK with internal Velocitymeter
Power supply	External AC/DC charger External power bank (not supplied by Syscom)
Mounting Platform	Mounting platform for ROCK with leveling screws



ROCK with mounting plate



ROCK with solar panel

Syscom Cloud Software (SCS)

The SYSCOM ROCKs have to be connected to the Syscom Cloud Software (SCS) in order to simply process all the device setup and data management.

The main features of the SCS include:

- ROCK easy parametrization
- different access levels (administrator, read/write, view only)
- FTP forward to any FTP server
- visualization of events/background monitoring
- comparison with reference standards
- automatic reporting
- smart notification, alarming and state of health, user settable with Emails and/or SMS
- data conversion into ASCII files, 1-click export

Please visit scs.syscom-instruments.com for more information.

SCS

scs.syscom-instruments.com

SYSCOM Instruments SA

Rue de l'Industrie 21
1450 Sainte-Croix
SWITZERLAND

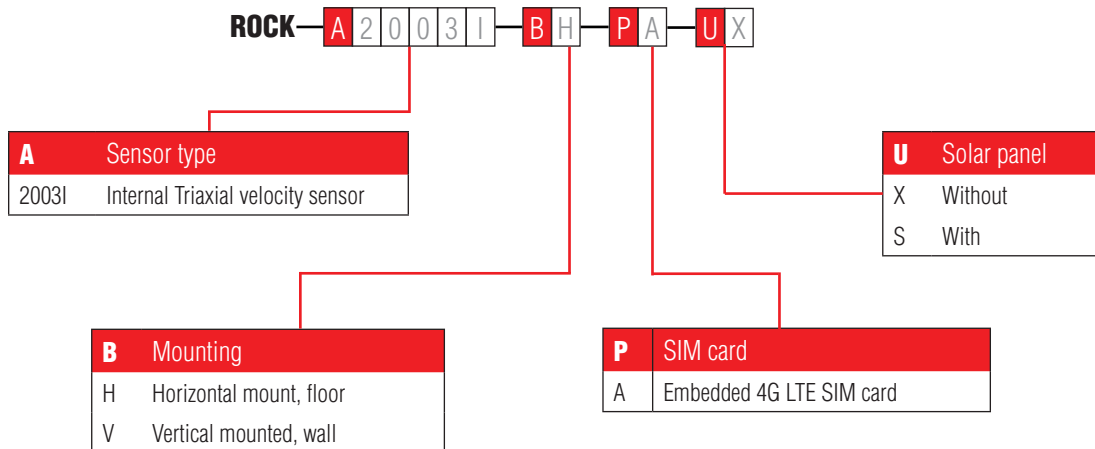
T. +41 (0) 24 455 44 11

www.syscom.ch
info@syscom-instruments.com
SCS scs.syscom-instruments.com

Ordering information

Every ROCK contains: 2GB Memory - 3 channels XYZ geophones - 4G LTE connectivity with eSIM - microUSB - internal battery - SCS compatibility

Example: **ROCK-2003I-H-A-X**



Ordering information - Accessories

Description	Part Number
ROCK USB charger	87000317 (EU) / 87000318 (US)
Carrying case for up to three ROCK (Internal shape with & without mounting plate)	74710134
microUSB 1.8 meters power cable	81000631
ROCK mounting plate	13100020
ROCK wall mounting plate, 1 fixation point	13100021
Three pointed screws set for 13100020	13100001
Remote LTE - Cat M1 antenna with 2 m cable	87000321

