ROCK

Description

Galloping urbanization, new infrastructure projects in crowded locations, plethoric transportation modes, challenging construction works, tunneling and demolition sites, are now more and more instrumented in so called smart cities environments. This also brings unrivalled challenges to civil and structural engineering works and requires lots of sensor data for situation assessment in real time.

These multiple sources of vibrations, root causes to human disturbances or potential structural damages, are extensively monitored to ensure acceptable levels for people nuisances mitigation, risk management and assets sustainability.

Syscom recognizes these needs and address them with an innovative vibration compliance solution, redeemed possible with the latest available and proven technologies driven by IoT low power integrated components and new LTE communication networks. Envision this new generation of autonomous motion recorders providing affordable sensors, cable free installation, smart & sleek monitoring services for structural health monitoring and human comfort evaluation. Discover the Syscom vibration compliance solution.

Data Acquisition

ITEM	SPECIFICATION
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

ITEM	SPECIFICATION
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
Alarm 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
User-defined alarm	Amplitudes and frequencies individually settable for each axis
Notifications by SCS	Various notification options, individually settable for each axis
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

ITEM	SPECIFICATION
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

ITEM	SPECIFICATIONS
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, continous monitoring)
Solar Panel	Optional, 500mW solar panel for outdoor usage embedded on ROCK housing

I/O and Connectors

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

Sensors (Internal)

ITEM	SPECIFICATION
Triaxial Velocitymeter Type	Velocity sensor with linearized frequency response A3HV 315/1 (triaxial) (according to DIN 45669)
Triaxial Velocitymeter Principle	Geophone
Measuring range full scale	± 135 mm/s - ± 5.3 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

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

Regulation

ITEM	SPECIFICATION
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)
Specifications	