



Monitoring & Services

Datasheet – technical specifications

ROBO®QUAKE earthquake monitoring

Data acquisition	
General principle:	Continuous real-time mode acquisition
ADC Resolution:	24 bits
Sampling rate:	0.1–250 Hz configurable
Max. possible sampling rate:	100 kSps
Number of channels:	4 digital input (acquisition), 1 digital outputs (control and alarms), 1 HDMI Output, 1 General purpose USB
Channel skew:	Simultaneous sampling on all input channels
Data filter:	Anti-aliasing filters
Trigger filter:	Digital IIR filter: 0.1–15 Hz band-pass (Strong Motion Applications)
Frequency range:	DC–300 Hz
Sampling range:	Selectable: $\pm 2g$ to $\pm 12g$
Triggering mechanism	
Level:	0.1 % to 100 % F.S.
Selection:	Independent trigger per channel
Post trigger:	10 sec pre-event & 10 sec post-event at max sampling rate
Post trigger automation:	Auto self-adjustment 20x to 1000x based on event magnitude
Trigger delay:	0.5 ms
Data logging and processing	
Principle:	Real-time processing (PGA, PGV and PGD)
Processor:	Dual core 1.4G
RAM:	8 GB DDR SDRAM
Timing:	Internet NTP
Raw data:	Binary; downloadable in CSV or mSeed via web app depending on subscription
Database:	mageba SQL Server with replication back-up
Max. recording time:	Unlimited
File format:	CSV with headers or mSeed depending on subscription
Storage	
Local storage:	128 GB to 1 TB
Cloud storage:	Unlimited
Removable storage:	N/A
Environmental	
Temperature:	–25°C to +80°C
Operatioal Humidity:	0-100 % RH (non-condensing)
Enclosure rating:	Accelerographs: IP67; Main unit: external IP67 enclosure required
User Interface	
Main interface:	Secure online dashboard access
Local interface:	ROBO®ONE Software
Visualization:	Real-time & historical records, ML-based trigger optimization
Alarms:	Synchronized with trigger and/or independently configurable
Alarm setting:	Factory default + configurable via web
Alarm methods:	Email, Messaging Apps, voice announcement (optional)
Alarm connectivity:	Optional external alarm system via output channel
Reporting:	Event and routine status reports depending on subscription
Report file format:	PDF

Connectivity	
NET (wired):	10-BaseT, TCP/IP, UDP/IP, FTP, RTP
NET (wireless):	802.11b/g/n Wi-Fi or 4G LTE (300 Mbps)
Sensors:	4 digital input ports (up to 16 optional)
Maximum sensor cable length:	1200 m direct connection (3000 m with additional hardware)
Control / output:	1 digital relay output (up to 5 optional)
Display:	HDMI
Printer:	Connection over USB
BMS system:	Connection over USB
Power supply	
Power:	12 V DC IN
Supply voltage:	100–240 V AC, 50–60 Hz, internal AC/DC
External battery:	Optional up to 120 Ah
Power cut-off mechanism:	System sleep at 10% battery; auto wake-up
Over voltage protection:	Reverse voltage, over/under voltage, resettable fuses
Battery backup:	External UPS: 6–24 hrs
Accelerograph	
Sensor model:	Sensor Model: RQ-MEMS Ultra Low Noise
Sensor dynamic range:	≥ 133 dB (calculated)
Type:	Triaxial high-accuracy digital accelerometer (X, Y, Z)
Output range:	$\pm 4 g$
DC ~ 460Hz:	DC ~ 460Hz
Noise level:	$< 2 \mu g$ RMS over 100 Hz
Noise density:	$1 \mu g/\sqrt{Hz}$
Sensitivity:	$0.06 \mu g/LSB$
Nonlinearity:	$\pm 0.03\%$ FS
Bias repeatability:	± 3 mg over one year
Bias temperature error:	± 2 mg
Initial error:	± 2 mG
Misalignment:	$\pm 0.1^\circ$
Resonance frequency:	850 Hz
Shock resistance:	1000 g
Orientation:	Horizontal or vertical mounting
Operating temperature:	–30 °C to +85 °C

Support

Our IoT specialists are always ready to advise you in selecting the optimal earthquake monitoring solution for your building. You can also find further information at mageba-group.com and in the relevant product brochure.


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