



ela GMS series **Accelerograph**



Overview

A state-of-the-art accelerograph, **ela** is designed for large scale deployment for indoor and outdoor installations. It is a pedigree of GeoSIG's flagship GMS series of recorders with more than 10 years of proven field test for reliability and high performance.

Its compact and robust purpose-built design allows **ela** to be used as part of a large deployment for EEW. It can stream real-time data and record with multiple filtering options and embedded adjustable triggering algorithms, making it an asset in damage estimation and disaster management.

GeoSIG's **ela** is a cost-effective solution, yet still effective for many sensitive applications where flexibility in data manipulation is a serious demand.

State-of-health data can be transmitted at user configurable intervals to a data centre for management and maintenance purposes. Its many customisable features and its attractive price point – without sacrificing reliability or quality – make **ela** ideal for large scale deployment. This accelerograph is fully compatible with existing GeoSIG sensors and can co-exist and co-perform in the same network as the GMS series recorders.

Key Features

- ▶ Based on GMS flagship technology
- ▶ Fast and easy setup and deployment
- ▶ Floor, wall, or ceiling mounting
- ▶ Power over Ethernet (PoE)
- ▶ Alarm relays* for auto-shutdown
- ▶ Wi-Fi* connectivity
- ▶ Time synchronisation via NTP or GNSS* (GPS, BeiDou and GLONASS)
- ▶ Internal memory for up to 100 days of continuous recording
- ▶ Record and stream simultaneously in real time with multiple filtering options
- ▶ Support for Earthquake Intensity Meter Protocol (China)
- ▶ Ideal for Earthquake Early Warning (EEW) and Structural Health Monitoring (SHM)

* : optional

[Click here for the ela - GMS series response files in the IRIS NRL library](#)

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Specifications

General Characteristics

GeoSIG's *ela* monitors ground motion in three orthogonal axes. It is a compact and robust instrument, designed for large-scale deployment for indoor and outdoor installations.

Accelerometer

Type:	Triaxial MEMS
Full scale:	± 4 g (others available*)
Bandwidth:	DC to 500 Hz, or 1000* Hz
Dynamic range:	> 80 dB over 0-40 Hz bandwidth
Linearity:	< 0.5 % typical
Cross-axis:	< 2 % typical
Measurement error:	< 1 % typical

Recording

Features:	Low noise 24 bit $\Sigma\Delta$, 32 bit output word length
Sampling Rate:	up to 2000 SPS
Anti-aliasing filter:	Attenuation > 100 dB Pass band ripple < 0.5 dB
Memory:	Internal flash memory with up to 100 days recording capacity in miniSEED files, where a quota can be flexibly configured.
Method:	Continuous data recording into ring buffer files, or event recording in event files. Event and ring buffer files can be uploaded automatically to data server.

Triggering

Multiple trigger sets can be defined in the instrument. Each set can be flexibly configured regarding the source of trigger, main and advanced trigger parameters, trigger processing and selected channels for storage. A voting logic based on the monitored channels can be defined.

Trigger Filter

Fully independent high-, low-, or bandpass trigger filters can be configured with the flexible configuration of multiple triggers

STA/LTA Triggering

User adjustable STA/LTA trigger and de-trigger ratio

Event Summary and Parameters

PGA, PGV, PGD as well as intensity estimation according to GB/T17742 China Intensity Scale

Data Stream

Real-time waveform data streaming via seedlink, others* available

Time Base

Internal:	NTP, RTC, GNSS* (GPS, BeiDou, GLONASS) receiver
External:	Antenna for satellite signal
Clock accuracy:	60 ns with GNSS

Self-Test

- ▶ Permanent self-monitoring of hardware and software components without affecting their normal operation.
- ▶ User-configurable periodical state of health (SOH) report based on comprehensive test of instrument, which can be requested at any time.
- ▶ User-configurable periodical sensor test.

Connectivity

Configuration:	Ethernet TCP/IP with remote configuration SFTP remote access to the files
Supports:	Earthquake Intensity Meter protocol (China)

Console Connector

Accesses serial console for configuration and settings parameters at a Baud rate 115'200 bps

Alarm / Relay Output Connector*

Two solid state relay contacts, which can be activated upon triggered event or error with a maximum contact rating 60 V / 100 mA, and one input acknowledge input galvanically isolated

Environment / Reliability

Operational temp:	-20 to +70 °C
Storage temp:	-40 to +85 °C
Humidity:	0 to 100% RH (non-condensing)
Index of Protection:	IP65
MTBF:	> 500'000 hours

Indicators

5 indicator LEDs on the front panel

Power Supply

Input voltage:	9 to 48 VDC
PoE:	48 VDC
Power consumption:	< 2 W

Mounting

The instrument can be mounted on the floor, wall, or ceiling by defining the appropriate orientation through the software.

Housing

Type:	Aluminium housing
Size:	185 x 145 x 35 mm (W x D x H)
Weight:	2.4 kg

* : optional