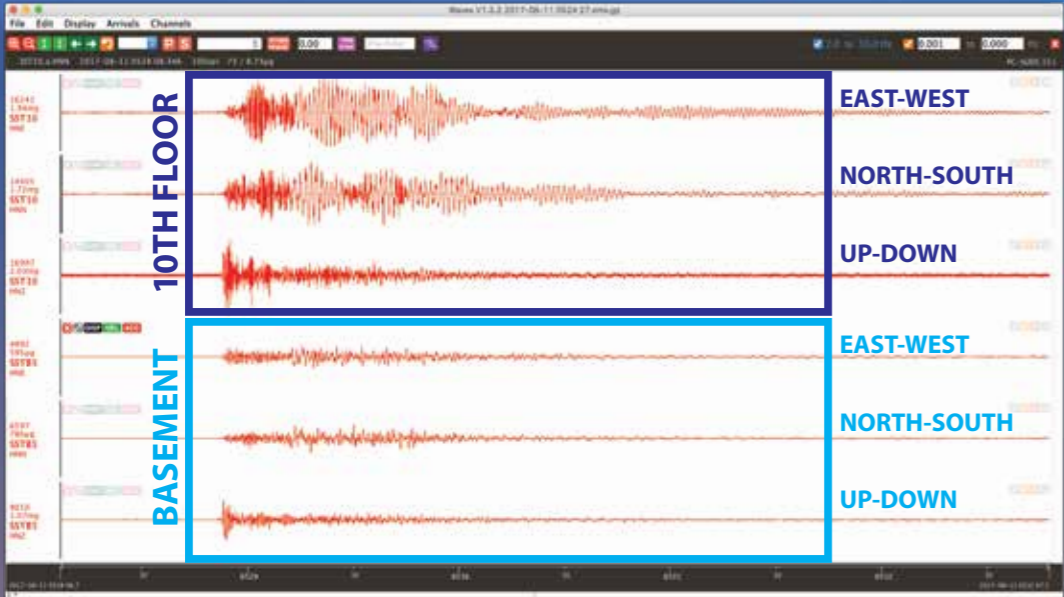


designed and manufactured by:
SEISMOLOGY RESEARCH CENTRE
a division of ESS Earth Sciences
141 Palmer St, Richmond VIC
AUSTRALIA 3121
essearth.com



The image (left) shows an actual recording of the magnitude 6.3 Luzon earthquake of 11 August 2017, recorded in the basement and on the 10th floor of a building located about 75km from the earthquake epicentre. Recordings show that the **peak horizontal acceleration** on the **10th floor** was **almost 4x higher** than the input ground motion recorded in the **basement**.

Download "Waves" viewer software (shown above) for free at src.com.au

EARTHQUAKE RECORDING INSTRUMENTATION FOR BUILDINGS

GECKO SMA-HR HIGH RESOLUTION STRONG MOTION ACCELEROGRAPH



Gecko SMA-HR Bundle Components

- Gecko SMA-HR with internal battery
- Wall-mount accessory box, includes:
 - Gecko internal battery charger
 - Alarm relay switch outputs
 - Ethernet adaptor
- 40m GPS cable
- AC plug pack



Gecko SMA-HR Technical Specifications

Accelerometer

- Triaxial Force Feedback type
- $\pm 2g$ full scale range
- DC to 100Hz bandwidth
- Self noise $< 1\mu g$ over full bandwidth

Recorder

- 3-channel with simultaneous sampling
- 32-bit ADC per channel
- Dynamic range of 137dB @100sps, 130dB @500sps
- Gain options of x1, x2, x4, x8, x16, x32, x64, x128, x256, x512
- User-selectable sample rates of 40, 100, 200, 250, 400, 500, 800, 1000, 1600, 2000 and 4000 samples per second
- 32GB SD card included
- Internal GPS receiver for 100 micro-second timing accuracy

Inputs

- LCD and 4-button keypad user interface - no laptop required
- Coaxial GPS aerial connection
- 2-pin power socket (for battery charger)
- 6-pin alarm/communication socket (for alarm output and Ethernet)

Outputs

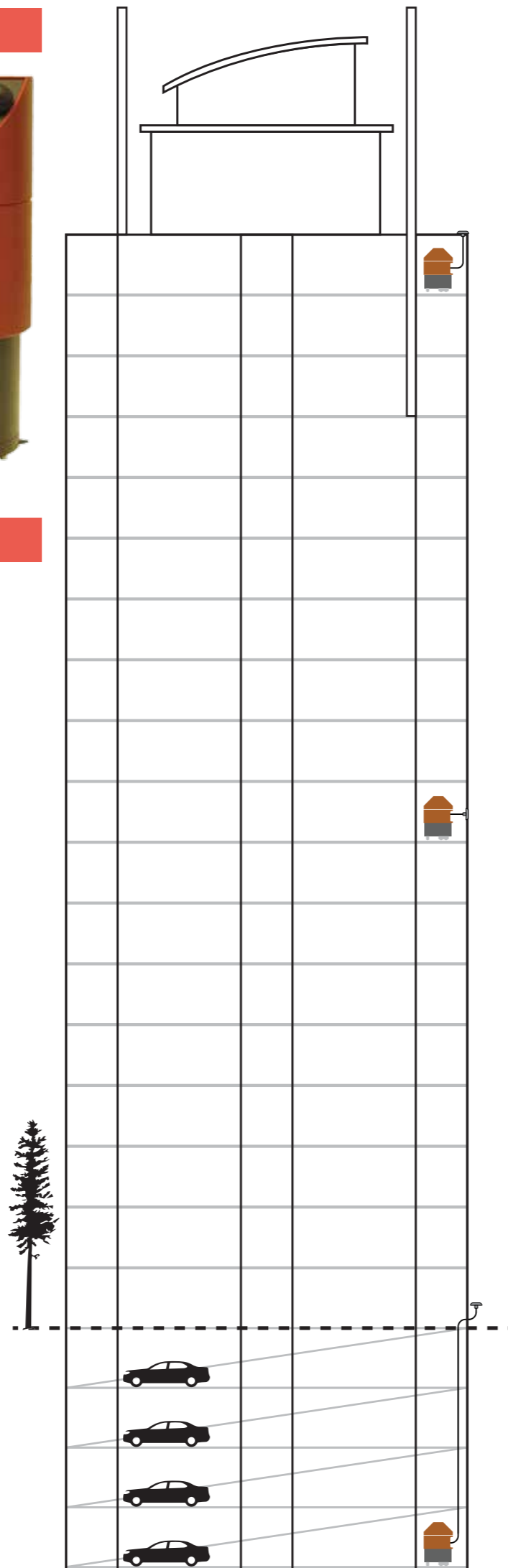
- Continuous MiniSEED format data to SD card
- Seismic trigger alert (alerts from STA/LTA or Level triggering routines)
- Instrument alert (alerts on power, temperature, and memory)
- Data streaming over Ethernet to Live Stream software

Physical (SMA-HR only)

- Diameter: 125mm
- Height: 210mm (including legs and levelling bubble)
- Weight: 3.1kg (including internal battery)
- Protection: IP67 (dustproof, waterproof)
- Power: $< 2W$ typical

Accessories (included in structural monitoring bundle)

- Ethernet adaptor and alarm relay switchbox
- 100-240V 50/60Hz AC power supply with and 12V DC output
- 12V input NiMH battery charge regulator
- M8 DynaSet drop-in anchor
- 10mm masonry bit with milled anchor punch
- 210mm long M8 threaded rod with M8 lock nut



GECKO SMA-HR

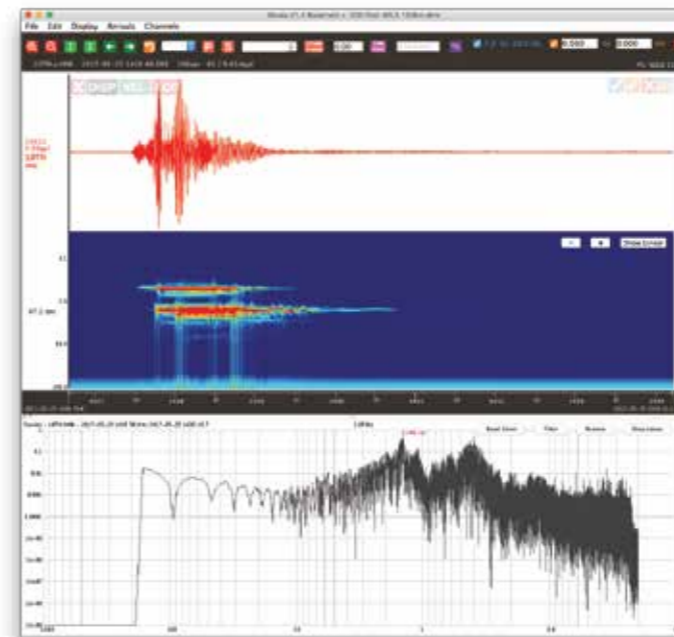
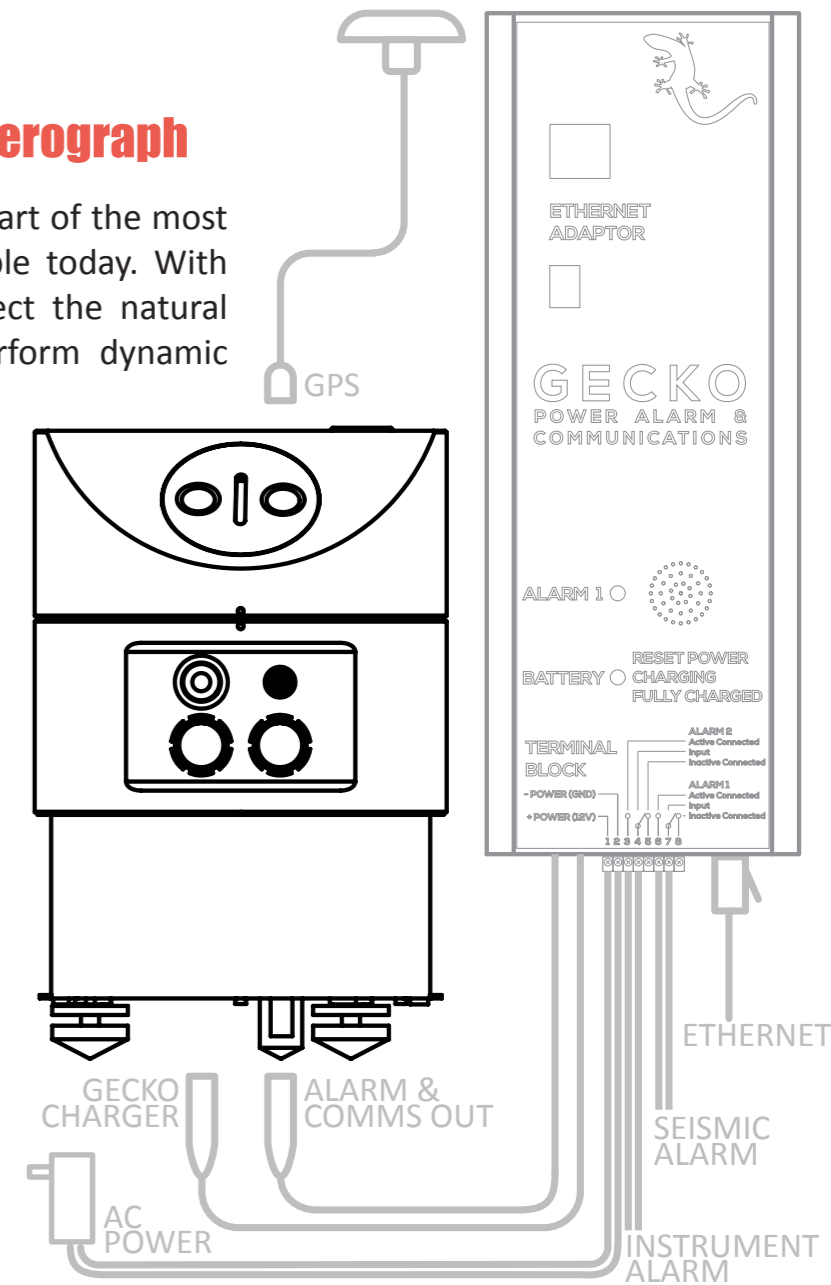
The affordable professional accelerograph

The Gecko SMA-HR accelerograph is at the heart of the most modern structural monitoring system available today. With this professional grade sensor, you can detect the natural frequency of your structure, as well as perform dynamic response analysis after an earthquake.

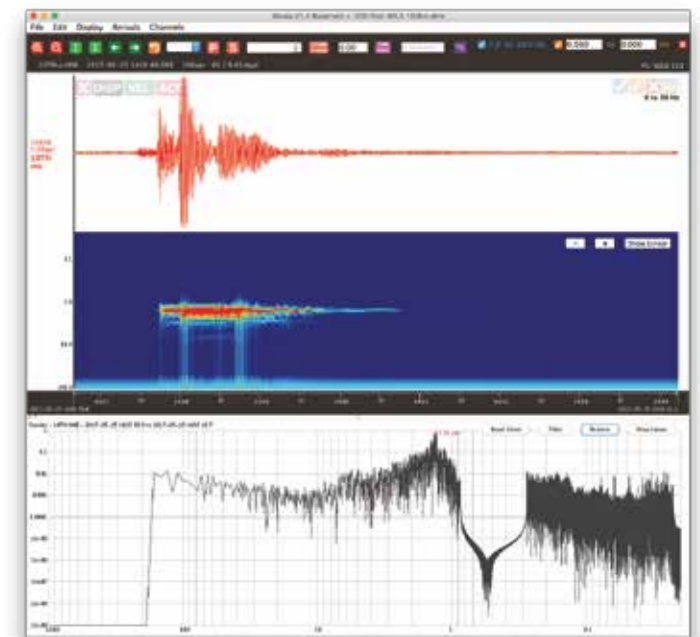
The Gecko SMA-HR will store over a year of continuous time series data on its memory card, can generate alarm signals when a major seismic event is detected, and can operate for hours without mains power should an earthquake interrupt the mains AC supply.

Data from any number of Gecko seismographs can stream to our free Live Stream software, displaying data on screen, storing data to an archive, allowing remote configuration of the Gecko units, and even sending out email notifications if peak acceleration, velocity or displacement values (PGA, PGV, PGD) exceed user-defined thresholds and frequency levels. Live Stream is available for Windows or Linux.

The Ethernet adaptor can be replaced with a 3G modem for telemetry to a remote server.



Our **Waves** software now features advanced filters. Above is a magnitude 5.3 earthquake recorded by a Gecko SMA-HR at 150km range. Full Spectrogram and FFT traces shown.



The 1-5Hz section of the FFT trace was easily removed, with smart filtering minimising artefacts. **Waves** automatically filters the time series trace and updates the spectrogram.