



The Minimus Digitizer Platform: a User-Friendly Ecosystem for Efficient Network Management and Seismic Station Configuration.

Ella Price, Neil Watkiss, and **Federica Restelli**

Guralp Systems Limited, Sales, READING, United Kingdom of Great Britain – England, Scotland, Wales (eprice@guralp.com)

The Guralp Minimus broadband digitiser introduced innovative features to the market including easy network configuration; compact form-factor; extensive State of Health (SOH) monitoring; and low latency digitisation. Since it was launched in 2016, technological advances in semiconductors have significantly decreased their power requirements. The latest iteration of Minimus, Minimus₂, utilises modern microprocessors to reduce power consumption by over 50% whilst maintaining high levels of functionality. The resulting reduction in power consumption facilitates simplified field deployments for offline deployments.

The Minimus platform also provides a high level of functionality for online stations, including the industry unique option of sending State of Health (SOH) data via the SEEDlink protocol. As well as simplifying SOH monitoring for larger networks, this facility also allows for time-series analysis of SOH data. This means that operators have the data they need to proactively manage their station network and diagnose issues before they result in data loss. The Minimus platform interfaces with Discovery software which seamlessly integrates new stations into existing networks. The management of large numbers of real-time seismic stations is further enhanced with Guralp Data Centre ("GDC") a cloud-based software package that is an optional add-on of the Discovery tool set.

The Minimus platform was built from the ground up to provide one of the lowest latency digitizers available with digitization latencies down to 40ms, making it well suited to Earthquake Early Warning applications. This is achieved with the use of causal decimation filters, high sample rates and Guralp's proprietary GDI protocol. The Minimus platform is built as a modular digitizer platform that is available within a number of different packages to suit a range of applications, including as a stand-alone digitiser or built within broadband seismic instruments and force balance accelerometer systems.