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The low-power, user-configurable, digital broadband seismometer, analogue iteration: Güralp Certis

Sally Mohr, Will Reis, Rui Barbara, Marcella Cilia, **Neil Watkiss**, and Phil Hill

Güralp Systems Ltd, Sales, United Kingdom of Great Britain – England, Scotland, Wales (smohr@guralp.com)

Seismic monitoring systems are continuously reducing in size and power consumption to facilitate larger scale and more remote experiments.

Güralp have been leading the way to develop a portable, user-friendly broadband seismometer that is robust, omnidirectional in its operation and maintains excellent low-noise performance. The Certimus, released in 2020, incorporates this omnidirectional sensor technology with the Minimus digitizer to provide a proven broadband station. Now, the analogue sensor component has been packaged into a robust and compact stainless-steel housing that is suitable for post-hole and surface deployments, known as the Certis.

Certis enables users to deploy in dynamic environments, without the need for cement bases or precise levelling, as the sensor will automatically adjust to tilt up to +/- 90 degrees. Due to its small size, low weight and low power consumption, Certis significantly reduces the logistical requirements for broadband posthole deployments. In addition, the lack of levelling required allows for Certis to be easily deployed down hole without the need to manually adjust the sensor's orientation.

Certis has a wide frequency range of 120s to 100Hz with a remote, user-selectable long period corner. The Certis design is compatible with any commercially available broadband digitizer, however increased functionality is available with the Minimus digitizer, including access to advanced state-of-health parameters.

Güralp has developed a range of accompanying accessories that expand on the functionality of Certis and Certimus. The Portable Power Module offers a compact power solution that can power offline stations for up to 6 weeks. Due to portability of both Certis and Certimus, custom-designed backpacks and smart cases allow for users to easily transport multiple systems into the field. After installation of a buried Certimus, users can easily access data from the microSD card without disturbing the sensor using a Surface Storage Module in line with the GNSS receiver.