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Pegasus, New Very Low Power 4 Channel Broadband Quality Digitizer for Dense Autonomous Research Arrays

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Researchers needing high resolution broadband waveforms have lacked station density because of system availability, the logistical and capital costs, time to deploy stations and the complexity of systems. New posthole type broadband sensors and direct burial techniques have lowered the deployment time of denser broadband arrays while delivering observatory grade data in most environments. The newest geophone based seismic recording systems require much less logistics and are inexpensive but lack response below 1Hz and are generally not deployed for the length of time a broadband station is or can support a broadband sensor.

We present a new very low powered and economical digitizer available from Nanometrics, Pegasus. The power required is less than 200mW for recording three channels using a duty cycled GNSS timing system. It is very small (<.001m^3), lightweight (<.5kg) and IP68 rated for immersion with a robust enclosure for autonomous operations in all terrestrial environments. Installation and servicing is simplified by applications and features that makes reaping the data fast, verified and reliable while field station operational review is completed quickly and with certainty. Coupled with a Nanometrics directly buriable broadband sensor the total station power for a state of the art Trillium Compact broadband station is less than .4W. A fourth high resolution channel can be used for a complimentary geophysical sensor such as infrasound, tilt meter or absolute pressure sensor. All metadata is automatically created on the digitizer for complete station xml metadata compliant to FDSN standards.