Digital seismic logger “Ermak–5”. Five years of development

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Abstract The published data on several well-known seismic recorders used in modern seismological monitoring systems are considered, and their qualitative comparative analysis is carried out. Information about the presence of Russian devices of this class in the State Register of measuring instruments is given. The key technical characteristics of the “Ermak” recorder and confirming the results of laboratory and field experiments are given. At the same time, special attention is paid to the correspondence of the amplitude-frequency characteristics of the recorder to the reference analogs. A brief description of the flexible power management system for the recorder modules, which is designed to reduce power consumption, is given. The minimum value of the power consumption is about 300 mW when recording through six channels, which makes it possible to effectively use the device for long-term measurements using autonomous power supplies. The internal clock of the recorder is synchronized using GPS/GLONASS systems (hundreds of nanoseconds) and NTP-services (tens of microseconds). The efficiency of operation is ensured by the presence of a LCD-screen at the logger, on which, in addition to time and parametric information, waveforms are displayed in various display modes. There is also a list of facilities where “Ermak” was tested or is currently being operated.

Keywords seismic monitoring, seismic logger, data acquisition system, time synchronization, autonomous seismic station, broadband geophone, analog to digital converter, GPS receiver, power management.

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