

Seismometer for Seismomonitoring Networks

The seismometer is intended for the modernization of existing teleseismic networks for mass observations. The sensors are designed as observatory instruments. A feature of the device offered is the use of a pendulum with a period regulated up to 58 seconds. The vertical pendulum of the seismometer is configured using the Lacoste design. The spring is manufactured from highly stable alloys with unique Russian manufacturing techniques of a twisted cylindrical spring with zero initial length. The astatic mechanical elements used in the device has allowed the development of a compact superbroadband pendulum with inertial weight only 2 kg. The feedback circuit is of the force-balance type that is now standard in electronic seismometers. As the converter of fluctuations of the pendulum to an electric signal the differential capacitor converter is used with a resolution better $10E-10$ m. The sensor electronic self-noise is below the NLNM from 300 sec to 5Hz. As a result the seismometer represents a force-balance velocimeter with a response as flat as possible in a range of frequencies 0.0015 – 15 Hz. Devices of this type do not exist in the world now.

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