Seismic vibration sensor consists of a housing in which an inertial mass is mounted on a spring and connected to a flexible element on which strain gauges are mounted and connected to a measurement circuit. Additionally, a light source is mounted on the inertial mass and positioned above the input end of the central optical fiber, relative to which the input ends of the input optical fibers are symmetrically arranged, whose output ends are optically coupled to a fiber-optic transducer to obtain information in binary code, which, via a digital-to-analog converter, is connected to a comparator, the second input of which is connected to the measurement circuit. The output end of the central optical fiber is optically coupled to a photodetector.