

ABSTRACT

The master's thesis contains the following components: a list of notations and abbreviations, an introduction, five main chapters, general conclusions and a list of references to the literature used. Contains 83 pages, 18 figures, 28 tables, 19 references.

The aim and task of the dissertation. Conducting a study of a two-channel capacitive MEMS sensitive element based on an automated stabilization system.

Dissertation tasks include:

1. introduction to the concept of stabilization, description of use and areas of application;
2. determination of the functional components of the stabilization system and the importance of sensitive elements in their structure;
3. review of stabilization methods and means;
4. consideration of the features of the capacitive converter. Introduction of the concept of ensuring optimal accuracy and the principle of two-channel;
5. consideration of a typical design of a capacitive MEMS converter;
6. mathematical justification of the capacitive sensitive element measurement method;
7. description of the mathematical model of the capacitive type accelerometer;
8. description of structural types of capacitive converter;
9. determination of output signal power and capacitance converter sensitivity;
10. providing data on experimental research and means of conducting it;
11. development of a startup project based on the considered automated stabilization system.

Object of study. The object of the research is the process of ensuring stabilization by using a two-channel capacitive MEMS sensitive element.

Subject of study. The subject of the study is a two-channel capacitive MEMS sensitive element.

Practical significance of the results:

1. the peculiarities of the ECHE MEMS, its characteristics, use and practicality of application are considered;

2. the basic designs of ECHE and features of the output signal are considered;
3. the principle of using dual-channel to ensure high accuracy is considered.

Publications. One thesis of the conference has been published

Keywords: capacitive sensitive element, MEMS, stabilization system, two-channel CE, automation