

# Abstract

The topic of this thesis is the realization of the automatic test system for a DSP-based measurement tool. At devices which manufactured in series is inevitable to may be down faulty products from production line, but they are eliminated with a well-constructed test method. The design process of a comprehensive test procedure put serious tasks in front of the engineers. I present in my thesis the design process of the hardware and software components of automatic test system of a gauge for rail systems.

Before planning need to be explored to which parts of the tested tools can be fail during production and what is the most surest and most quickest way to find them. At devices which manufactured in series is essential to be carried out the testing as quickly as possible and with minimal human intervention. The fully automated tests will help increase of the number of products per unit of time.

I had to be used many different programs and programming system during the solution of my task, so begin my thesis is an overview of these. First of all I present the LabVIEW and TestStand development environment because the test sequence what run on the PC is made in TestStand and the sequence used LabVIEW and C# modules as well. After the description of the programs and technologies I will be presented the test meter and the connected inductive sensor. This followed by the specification of the test system. After the specification I detailed the decisions what brought when designed the individual components of the hardware. Description of the hardware components is followed by to give information for the additional modules in the TestStand. At the end of my thesis I presented the TestStand sequences.

The test system what designed and made during the solution of my task operates in accordance with specification.