

ABSTRACT

for the diploma work by the student

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The work is devoted to the development of an optical device for controlling the humidity of fabrics in the textile industry. At the current stage of technical development, the automation of technological process management and quality control is of great importance, particularly in the textile industry, where it has a significant economic effect. An optical device for monitoring the humidity of fabrics is necessary in the textile industry.

In the course of the research, the spectral characteristics of wet materials were studied. We were able to see the principle of operation of optoelectronic moisture meters. Also, the principles of construction of well-known IR hygrometers were highlighted. Structural, optical, functional and electrical schematics of the device were developed. The reliability indicators of the device were also calculated and an error analysis was carried out.

The result of the thesis is a developed optical device for monitoring the moisture content of fabrics, which could be widely used in the textile industry. The work meets the modern requirements of technical development and requirements of measuring systems.