

TESTING OF ELECTRIC MACHINES IN INDUSTRIAL ENVIRONMENT USING A DATA ACQUISITION AND PROCESSING SYSTEM

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Abstract. *The paper presents some significant aspects concerning testing electrical machines, including high power ones, using a Data Acquisition and Processing System (DAPS), based on a PC compatible microsystem. There are described the main measurement tasks of DAPS in electrical machines testing, in various functional conditions: constant frequency steady state (used in classical standard tests), variable frequency conditions (used in asynchronous motors testing by mixed frequency method) and finally, transient conditions. Some experimental results, obtained by the authors in the framework of scientific research and consultancy activities, in industrial environment for high power machines, are finally shown as examples. These electrical machines, as single units or small series, have been designed and built by “Electrical Machines Building - Reșița”, the only Romanian producer of high power electrical machines used in power systems).*

Keywords: Testing, large electrical machines, dedicated data acquisition and processing system

1. Introduction

In the purpose to estimate performances, respectively modeling of electrical machines in certain conditions is necessary an accurate knowledge of the real parameters and characteristics. Also, the users require some characteristics, sometime difficult to obtain directly in experimental way, especially in the case of high power electrical machines.

For these purposes is necessary to use a dedicated DAPS-with software packages orientated on main typical tests of electrical machines.

Such dedicated Data Acquisition and Processing System (DAPS), designed and built by the authors at “Politehnica” University of Timișoara, as dedicated device for the testing of electrical machines.

The paper is oriented on type tests of synchronous and induction high and medium power machines in electrical engineering. These electrical machines are

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