

PLUG-IN MODULAR PORTABLE DATA ACQUISITION AND LOGGING SYSTEM

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Physiological measurements are mostly performed in laboratory. The devices are often big and heavy. It is difficult to use them in field conditions. Transducers and electrodes are connected to the subjects with cables, which limit motility. Measurements in field conditions demand battery operated portable instruments, which do not disturb the test subjects. To achieve these requirements we have developed system which allows a variable measurement set-up.

This pocket size system contains a microprocessor card with 16-channel multiplexer, sample and hold circuit and analog-to-digital converter as well as RAM memory. It also contains 16 plug-in 4 lead connectors for amplifier modules.

A transducer and amplifier module (connected to each other with cable) can be plugged to any of the channels. Each amplifier gives a linear output voltage between 0 - 5 V. Connector of each plug-in module has four contacts: single 5 V supply, accurate reference voltage, output voltage and ground. These modules are developed for our portable data acquisition system, but they can as well be used with any system having a single 5 volt supply and which can measure voltage.

System needs an IBM PC compatible computer. After every measurement the data are transferred to computer. Computer then performs analyses needed and prints results in numerical and graphical forms.

The system is designed for clothing physiological measurements, but it can be used for any kind measurements. Also other measurement devices can be connected to system using an adapter module.

Because each measuring module has the same size and same connector, they can be changed with each other. Therefore one can select the number of channels used for each parameter (temperature, humidity etc.). Changes of measured signals can be done just changing modules, which takes only few minutes. Also broken module can be changed as well.