

A simple and flexible device for LabView applications

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LabView is the state of the art programming tool for measurement and control applications and the market offers a wide range of sophisticated data acquisition tools (DAQ). However, for radionuclide separation purposes a high sample rate and a high accuracy is often not necessary. Therefore, we were looking for a low-cost DAQ with a USB interface for maximum flexibility and sufficient I/O lines. Finally, we decided to use the USB-6008 by National Instruments. This small size, low-cost DAQ has 8 analog inputs, 2 analog outputs and 12 digital I/O lines. Mounted on a print together with a transistor for each digital line (Fig. 1) this DAQ is the base of our device.

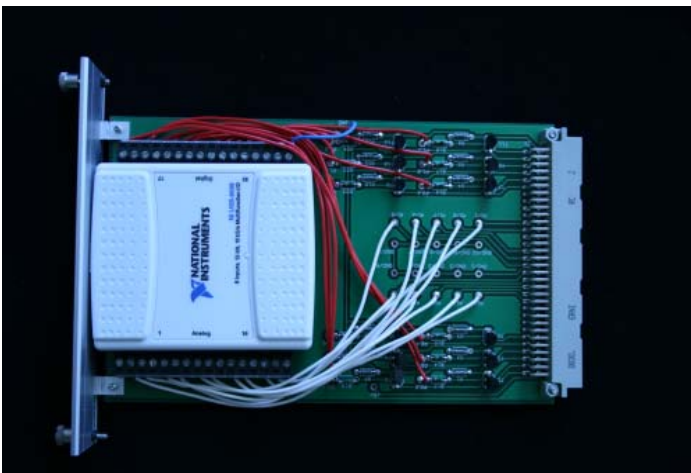


Fig. 1 USB DAQ mounted on a print

For the portable version of our device (Fig.2) the USB DAQ module is mounted in a desktop rack together with a power supply module (24 V, 120 W) and a relay module containing 12 relays. Additional slots are available for other modules. Each single module can be replaced easily in case of a failure. If more slots are needed all modules can be mounted as well in a 19" rack



Fig. 2 Portable device for LabView applications with a mounted PC

Several additional modules like a temperature module and a pulse-width-modulator (PWM) are available. An amplifier for pH measurements and for activity measurements with photodiode radiation detectors (Fig.3) was developed. This amplifier with a variable gain is a modified version of the amplifier described by Zeisler et al. Another module is a mini PC including a hard drive. In combination with a touch screen the device can be used without an external PC or notebook.



Fig. 3 Amplifier with photodiode radiation detector

The described devices are used in our group for the routine production of radionuclides (^{89}Zr and ^{64}Cu) for several years without any problems.

Literature:

Zeisler, S. K., Ruth, T. J., Rektor, M. P. (1994). "A Photodiode Radiation Detektor for PET Chemistry Modules." Appl. Radiat. and Isotopes **45**(3): 377-378.