"An Inexpensive Commercially Available Analog-to-Digital Converter." Breton, G. W. *Journal of Chemical Education* 2000, 77, 262.

Excerpt…

We recently acquired three Gow-Mac gas chromatographs to be used in our laboratory courses. We desired to interface these GCs with computers to aid in data collection and processing. However, we found that the cost of most commercial analog-to-digital converter systems were prohibitively high for use in a teaching laboratory situation, especially when three separate systems were required. A solution to our problems came in the form of an inexpensive data acquisition kit supplied by Dataq Instruments (DI-190 Starter Kit, $99).[1] The kit includes a two-channel, ±5 V, 12 bit, A/D converter with a 240-Hz data conversion rate, serial communications cable, Windaq recording software (with versions available for Windows 3.1 and Windows 95) for data acquisition, and Windaq Waveform Browser software for data analysis and printing. Setup simply required loading the software, connecting the instrument's analog output to the converter, and plugging the converter's serial cable into the appropriate PC communications port. We successfully ran the system on surplus 286 and 386 PCs operating under windows 3.1. The output voltage from the GCs (approximate signal output of 10-30 mV for a 5-μL sample) afforded resolution adequate for the production of reasonable quality chromatograms (see Fig. 1). While the resulting chromatograms were quite suitable for our purposes in a teaching lab environment, this particular combination of GC and A/D converter is probably not suitable for quantitative applications where more accurate data would be required. A superimposed grid may be printed on the chromatogram (not shown in the figure), allowing for the calculation of retention times. Collected data may also be imported into standard spreadsheet programs for easier data analysis and creation of more attractive chromatograms.

Figure 1: (not shown) Chromatogram of a 1:1:1:1 mixture by volume of pentane, hexane, heptane, and octane.