



3580 Haven Avenue, Redwood City, California 94063 * (650) 365-6567
Fax: (650) 365-5845 * (800) 822-3940
E-mail: spectrex@spectrex.com
Web Site: www.spectrex.com

Introducing Digitrex The computerized Vreeland Model 7

Ever since the personal computer came into being there have been constant requests from our Vreeland spectroscopy users to bring the spectral lines from the Vreeland into their computers for more deliberate and thoughtful analysis. In essence they wanted their spectroscopy to become a broadband spectrograph able to input images and data into their personal computers.

So Spectrex is delighted to announce that we have now found a way to satisfy that need by use of a high quality digital camera and a special edition of Photoshop 5; while retaining all the advantages of the original machine. The digital camera we have selected, the Canon G1 with 3.34 million pixels, has a threaded body that allows precise, solid positioning so that the background spectral lines created by a sample arc can easily be compared to a background image in Photoshop. A custom machine fitting is supplied with this upgrade to connect the Canon G1 to the Vreeland eyepiece.

The spectral lines created by the grating are accurate to about 1 Angstrom and in the Vreeland Model 7 can be ready by eye to about 5 Angstroms. In normal operation, the sample is lifted into the arc and goes through a rather rapid distillation so spectral lines due to the sample are of short duration time wise. While this is satisfactory for the identification of an individual element, it is difficult to search the entire visible spectrum and get consistent readings for the five frames that are visible at any one time. Accordingly, provision has been made in this computerized upgrade of the Vreeland Model 7 to achieve a much longer sample burn thus making sample spectral lines visible for minutes rather than seconds. This is realized by inserting the sample in the outboard carbon, which has been drilled with a custom jig. Of course the elevator and porcelain boat remains available should that method of burning a sample be desired.

Once the spectrum lines are imported into Photoshop 5 LE they can be studied at leisure and read down to one pixel or 1/3 Angstrom under ideal conditions. This level of accuracy requires the use of a special Angstrom scale, which is supplied as a part of the upgrade, and the zoom capability of Photoshop. The net effect is that this upgrade allows careful study of sample spectral lines with a potential increase in accuracy of over 10 times. In terms of eliminating background lines this is a great improvement.



To achieve the level of accuracy noted above very large image files are created and the user's computer must have sufficient memory in either the hard drive or, preferably, a read-write CD for the storage of retained images. For example to store the entire visible spectrum in maximum detail requires approximately 10 megabytes.

Other System requirements are:

1. Windows 95, 98, NT4.0 (Service Pack 3 or later required)
2. Pentium 133 Mhz or better
3. Ram 64 MB or better
4. USB (Limited to preinstalled Windows 98 or Windows 2000)
5. RS-232C serial or com port (If USB connection is not available)
6. Free hard disk space-375 mb plus whatever image storage is desired
7. Recommended display – 1078x600 pixels, high color 16 bit or better
8. Read-Write CD is not a requirement but very helpful