Varian FT-IR spectrometers

The history of Varian FT-IR spectrometers

Dr Jeffrey J. Comerford and Dr Andrew R. Hind
Varian, Inc.

Advantage statement: In September, 2004, Varian, Inc. acquired the FT-IR and Raman product lines from Digilab LLC, a company based in Massachusetts, USA.

Digilab has a highly reputable history in infrared spectroscopy, and was, in fact, the company responsible for the development of the first commercial FT-IR spectrometer in 1969. Today, this world class series of high-performance FT-IR and Raman spectrometers continue to deliver high quality infrared solutions to scientists in a wide variety of disciplines. Backed by the best-in-class applications and technical support for which Varian is renown, Varian FT-IR is the alternative you have been looking for.

The Past...

Digilab, Inc. has been the leader in FT-IR spectroscopy for over 35 years. Beginning as Block Engineering in the 1960's (and later, in 1969, as an incorporated, wholly owned subsidiary of Block Engineering), Digilab pioneered the design of spectrometers for missile and rocket plume radiation measurements. In doing so, Digilab developed a key new technology for NASA and other government agencies. This new, unique technology, known as a "rapid-scanning interferometer", was to form the basis for a new breed of analytical instrumentation and resulted in the first commercially available FT-IR spectrometer, the Digilab FTS-14.

The FTS-14 represented the first commercially available FT-IR system with a fast scanning interferometer, online computing, and plotting facilities. It also incorporated new ideas such as:

- a frictionless air bearing for the moving mirror,
- a laser reference system for wavelength calibration, and
- interchangeable beamsplitters, sources and detectors for expanding or tailoring wavelength range.

These 'features' were in turn adopted by other manufacturers, and are now the accepted industry standard upon which all commercially available FT-IR spectrometers are based today.

In 1978, Digilab was acquired by Bio-Rad Laboratories, providing a global sales and service distribution network upon which to grow the FT-IR spectrometer business. Large investments were made in these FT-IR instruments, and over the next 20 years, a new generation of FT-IR spectrometers evolved.

In 2001, Digilab, LLC was spun off from Bio-Rad Laboratories as a private company. While Digilab faced challenges in reestablishing a worldwide sales, service and distribution network, the performance of the Digilab products was still considered "best-in-class" by all who used them, and Digilab FT-IR remained synonymous with high light throughput, high sensitivity and sampling flexibility. With a Digilab FT-IR, it was possible to obtain a spectrum of almost anything in the infrared.

The Present...

In September 2004, Varian, Inc. purchased the FT-IR and Raman product lines from Digilab, LLC. And, while focused on maintaining Digilab's reputation for producing the highest light throughput spectrometers in the marketplace, Varian also began implementing processes aimed at improvement in the following key areas:

- customer support (application and technical),
- investment in R&D, and
- quality of manufacture

Further information about Varian, Inc. can be found at www.varianinc.com

VARIAN

The history of Varian FT-IR spectrometers

The Future...

Varian is committed to continued investment in it's infrared and Raman product lines. As such, the following areas (identified as being of greatest benefit to our customers) are being actively targeted:

- improved performance (even greater light throughput and sensitivity),
- increased ease-of-use (both hardware and software), and
- further advancement in the field of Focal Plane Array (FPA) spectrochemical imaging (a traditional area of strength).

Backed by global Sales, Applications and Service support that are second-to-none, investment in a Varian FT-IR is more than just purchasing a spectrometer. It is investment in a relationship. One that will stand the test of time AND be mutually beneficial to both parties.

The Track Record...

Over a period of more than 35 years, Digilab has been the leader in innovation when it comes to infrared spectroscopy. This fact is best illustrated by the list of Digilab 'firsts' (right).

1969 - First rapid-scanning fourier transform infrared spectrometer (FTS-14)
1971 - First use of an MCT detector in an FT-IR
1976 - First on-the-fly GC/FT-IR
1981 - First capillary-column GC/FT-IR (US 4420690)
1982 - First FT-IR microscope (UMA 100)
1986 - First TGA/FT-IR accessory
1987 - First fiber optics accessory for in-situ analysis
1991 - First infinity corrected infrared microscope
1991 – First infrared microscope incorporating a view through sample mask (US 5295017)
1992 - First dynamically-aligned step-scan interferometer (FTS-60A/896)
1993 - First multichannel step-scan applications (US 5835213)
1995 - FTS-6000 step-scan interferometer, the first FT-IR using Windows NT® based software (US 5579462 & US 5760785)
1996 – First combined FT-IR and Raman microscope (US 5841139)
1996 - First Near-IR array detector system for spectroscopic imaging (Stingray I)
1997 - First Mid-IR array detector system for spectroscopic imaging
1997 - Digital Signal Processing (DSP1™) software for photoacoustic spectroscopy (US 5612784)
1998 - DSP2™ software for polymer stretching experiments (US 6020962)
1998 - Digilab Stingray LS for large samples
1999 - First 256 x 256 MCT focal plane array for analytical spectroscopy
2000 - DSP3™ software for polarization modulation (US 6025913)
2000 - ATR Imaging Spectrometer Patented (US 6141100)
2001 - 128 x 128 MCT fast digital read-out technology
2002 - 2D rapid scan kinetic imaging
2003 - Large sample mosaic imaging

Committed to investment in research and development, this list of FT-IR firsts will continue to grow under Varian's tutelage.

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613.9560.7133
Latin America Brazil: 11.3845.0444
Other sales offices and dealers throughout the world

VARIAN

SI-0260 01/06