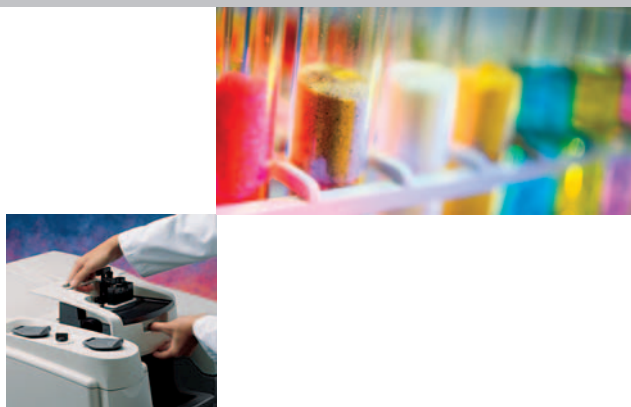


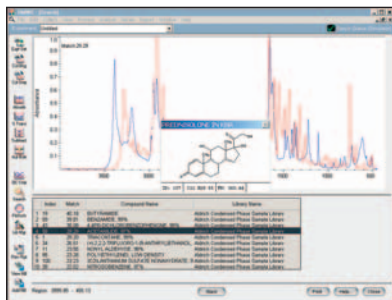
Nicolet™ FT-IR spectrometers are the highest performance FT-IR systems available. Every facet of a Thermo Scientific spectrometer has been engineered to facilitate sample handling, introduce options to scientists, and increase throughput in the laboratory. Because it is built on a common optical and electronics platform, it is easy to upgrade to the highest level of performance and application.

## Nicolet FT-IR Spectrometer

Combining superior FT-IR performance with exceptional versatility



OMNIC™ software is a full-featured package providing the tools necessary for FT-IR, Raman analyses and imaging



### The Nicolet FT-IR Spectrometer Family Includes:

- Superior optical throughput
- Superior signal-to-noise ratio
- High resolution
- Multiple spectral ranges: *mid-IR, near-IR, far-IR, and UV-Visible*
- Rapid scanning for fast kinetics
- Smart Accessories™
- Infrared (IR) microscopy
- FT-Raman
- Hyphenated techniques: *gas chromatography-IR (GC-IR), thermogravimetric analysis-IR (TGA-IR), and liquid chromatography-IR (LC-IR)*
- Smart Purge™ system
- Advanced data collection including:
  - *Linear-scan dual-channel (IRRAS, VCD, VLD)*
  - *Step-scan amplitude modulation (emission)*
  - *Step-scan phase modulation (photoacoustic depth profiling)*
  - *Step-scan sample modulation (polymer stretching)*
  - *Step-scan time-resolved spectroscopy*

### Nicolet FT-IR Smart System

Smart Systems automatically link the setup, testing, and operation of spectrometers, software, sampling accessories, and spectral information, leaving you free to focus on the experiment or analysis. Smart Systems recognize how you normally use the system and automatically set up the spectrometer for a particular experiment.

### Smart Accessories

Nicolet FT-IR is compatible with all commercial accessories that fit into a standard sample compartment. However, the full power of a Smart System can be realized with Smart Accessories, which provide:

- Quick and easy, snap-in installation
- Automatic recognition and optimization
- Permanent, pinned-in-place alignment
- High throughput
- High performance
- Exceptionally efficient purge

Our portfolio includes a multitude of Smart Accessories designed to fit your every sampling need. Smart Accessories offer the following sampling techniques:

- Transmission
- Diamond ATR
- Diffuse reflectance
- Single-bounce ATR
- Multiple-bounce ATR
- Mid-IR fiber optics
- Near-IR fiber optics
- Corrosion-resistant ATR
- Research-grade ATR
- Research-grade diffuse reflectance
- Near-IR diffuse reflectance
- Micro ATR
- Specular reflectance
- Grazing angle reflectance

### Advanced Experiment Modules

In addition to Smart Accessories, the Nicolet FT-IR spectrometer is complemented by a full range of advanced sampling modules and accessories including:

- Infrared microscopes and imaging systems: Nicolet Centaurus™, Nicolet Continuum™, and Nicolet Continuum XL
- FT-Raman modules
- Hyphenated techniques: GC-IR, TGA-IR, LC-IR
- Gas analysis experiment modules
- PEM modules: IRRAS, VLD, and VCD
- Polymer stretcher
- Photoacoustic accessory

### System Optics

The foundation of the Nicolet FT-IR spectrometer is its precision-cast baseplate. Its compact optical path minimizes beam pathlength and improves spectral performance by limiting the number of beam reflections. This opto-mechanical excellence means your results are extremely reproducible from scan to scan.

### Precision-Cast Optics

- Pinned-in-place
- Compact optical path
- Best reproducibility
- Monolithic diamond-turned mirrors
- Permanent alignment
- Highest throughput

### Five External Beam Options

- Emission port
- Right-side Passport™
- Left-side Passport
- Front-facing external port
- Front-facing external detector port

### Sources

The high-intensity, long-lasting ETC EverGlo\* mid-IR source is standard on the Nicolet FT-IR spectrometer. The source is even more efficient than water-cooled sources, and delivers a significantly higher energy output. The computerized, dual-source option provides the greatest flexibility for multiple spectral ranges, allowing coverage from the UV-Visible to the far-IR. The computer-controlled aperture for Nicolet FT-IR spectrometers automatically sets the correct aperture size depending upon the resolution and spectral range selected. The 'Rest' mode extends the life of the source and users have the option of a 'Turbo' mode for further enhancements in throughput. The computer-controlled screen wheel provides convenient beam attenuation for highly sensitive detectors.



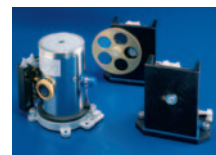
### Computer-Controlled Dual Sources

	HIGH (cm <sup>-1</sup> )	LOW (cm <sup>-1</sup> )
ETC EverGlo*	9600	20
Whitelight	27000	2000
External	Custom	Custom

\*Patent Pending

### Detectors

We offer the widest variety of detectors designed and optimized to cover any spectral range or experimental configuration with the highest possible performance.



### Features

- Pinned-in-place
- Easy interchange
- Automatic detector recognition

Smart Systems recognize which detectors have been installed and where they are located. No switches, adjustments, or changes are required to the hardware or software for the detector to be active. The Monoflect™ dual detector system allows you to quickly switch between internally mounted detectors. New thermo-electrical designs enable faster cooling of detectors using less power, resulting in higher stability and faster response.

Detector	High (cm <sup>-1</sup> )	Low (cm <sup>-1</sup> )
DLATGS (KBr)	12500	350
TE-cooled DLATGS	12500	350
MCT-High D*	11700	800
MCT-A	11700	600
MCT-B	11700	400
Time-resolved MCT	11700	650
Silicon	27000	8600
PbSe	13000	2000
InGaAs (1.9 μm)	12000	5300
InGaAs (2.6 μm)	12000	3800
InSb	11500	1850
DLATGS (CsI)	6400	200
DLATGS (Poly(ethylene))	700	50
Si bolometer	600	15
Photoacoustic	10000	400

### Beamsplitters

For mid-IR applications, we offer as standard configuration, either a mid-IR optimized Ge-on-KBr beamsplitter, or the proprietary XT-KBr™ beamsplitter, which can cover the region from 11000 cm<sup>-1</sup> to 375 cm<sup>-1</sup>.



### Features

- Automatic recognition
- Optimized spectral range
- Instant alignment

Extra beamsplitters can be stored easily inside the purged and thermally equilibrated environment of the optical bench. A latched access door and the quick-release Talon™

Nicolet FT-IR Spectrometer with Nicolet Continuum Imaging System



beamsplitter-locking mechanism allow easy access to the beamsplitter without breaking instrument purge and preventing beamsplitter fogging.

Beamsplitter	High (cm <sup>-1</sup> )	Low (cm <sup>-1</sup> )
Ge-on-KBr	7800	350
XT-KBr	11000	375
Quartz	27000	2800
Si-on-CaF <sub>2</sub>	14500	1200
ZnSe	6000	650
CsI	6400	200
Solid-Substrate™	700	15

### Smart Purge System

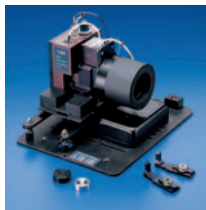
The unique Smart Purge system available for the Nicolet FT-IR automatically detects when you have opened the spectrometer door. Smart Purge then automatically increases the flow of purge gas in your spectrometer to blast the sample compartment area free from unpurged lab air. Smart Purge automatically turns itself down when the spectrometer is ready to collect data, and provides the fastest possible purge recovery time in between successive samples to ensure that you are collecting data as quickly and efficiently as possible.

### Vectra Interferometer

The Nicolet FT-IR spectrometer incorporates the highest performance interferometer available in the industry. The Vectra™ interferometer bearing rides on a cushion of air and has performance characteristics that are similar to a traditional air-bearing interferometer, with the added advantage of not requiring an external air supply. The standard resolution of the Nicolet 6700 and Nicolet 8700 spectrometers is 0.09 cm<sup>-1</sup>. In addition, the Vectra interferometer features dynamic alignment ensuring that it is constantly maintained at optimum performance. Dynamic alignment is the only mechanism that can actively compensate for all known modes of interferometer misalignment, including ambient temperature changes.

### Advanced Step-Scan Applications

For advanced step-scan applications the Nicolet 8700 spectrometer incorporates the enhanced Vectra-Piezo™ interferometer. The design of the Vectra-Piezo interferometer is optimized for both time-resolved and phase modulation step-scan experiments. During step scan, the Vectra-Piezo moving mirror comes to a complete rest and can be held to a position of better than ± 0.20 nm – the best in the industry. This positional accuracy is critical to time-resolved, amplitude modulation, and other step-scan experiments where precise positioning of the moving mirror ensures ultimate signal-to-noise ratio of the experiment. Unlike traditional air-bearing interferometers that are highly sensitive to external vibrations, the Vectra-Piezo is nearly immune to normal laboratory vibrations and acoustic noise. Thus, the Vectra-Piezo can be used for the most sensitive step-scan experiments without requiring an expensive and bulky optical table.



### Software

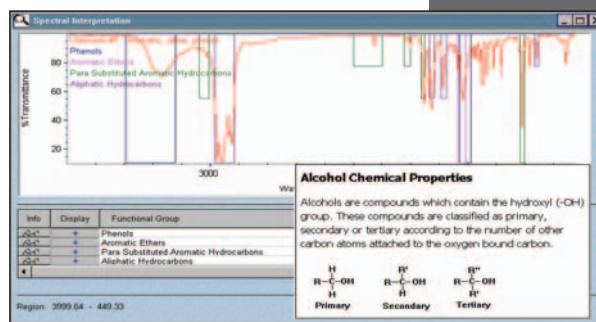
OMNIC software for Nicolet FT-IR spectrometers provides a powerful Windows® compatible interface for complete data collection and processing. Live data displays, active spectrometer diagnostics, and spectral quality checking assure the best possible data. Extensive data processing analysis and reporting tools allow you to make the most of your results. And it has the most extensive on-line help system currently available, which includes FT-IR theory and sample handling. OMNIC software is available in five languages (English, Spanish, French, German, and Japanese).

### OMNIC Includes:

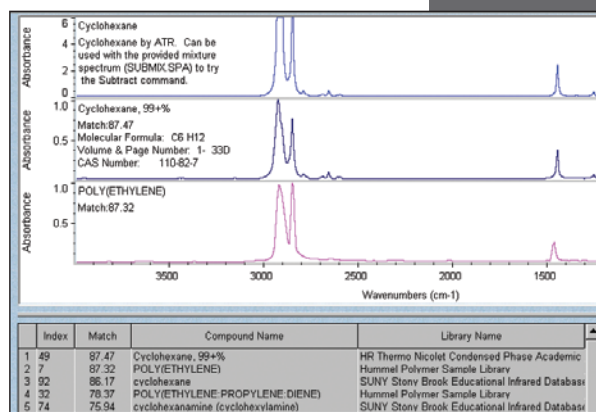
- Data collection, manipulation, and processing packages
- Preview data collection
- Search of commercial libraries and the creation and management of user-generated libraries with the Advanced Library Manager
- QC Compare for raw materials quality control
- Basic quantitative analysis tools
- GLP-ready electronic Report Notebook
- Spectral interpretation
- Automated atmospheric correction
- File conversion utilities, for older Thermo and other common file formats



### Easy Identification

- Standard software includes detailed spectral interpretation information on over 100 common functional groups
- HTML format interpretation information can be included in reports and presentations
- Excellent tool for training new users or reference for non-spectroscopists



- Unparalleled collection of FT-IR databases for identification of unknown compounds
- User library creation is a standard feature



	Nicolet 6700	Nicolet 8700
<b>Nicolet FT-IR Smart System</b>		
Smart Accessories	Standard	Standard
Smart Detectors	Standard	Standard
Smart Beamsplitter Exchange	Standard	Standard
Smart Purge	Option	Option
Smart Validation	Option	Option
<b>Optical Bench</b>		
Software-Controlled Iris Aperture	Option	Standard
Gold-Coated Optics	Option	Option
ETC EverGlo* Source	Standard	Standard
Turbo Source Mode	Standard	Standard
Rest Source Mode	Standard	Standard
Tungsten-Halogen Near-IR/Visible Source	Option	Standard
Software-Controlled, Dual-Source Mirror	Option	Standard
Software-Controlled, Dual-Detector Mirror	Option	Standard
<b>External Beam Capabilities</b>		
Software-Controlled, Dual-Side External Beams	Option	Option
Software-Controlled, Emission Port	Option	Option
Software-Controlled, Front External Beam	Option	Option
Software-Controlled, Front External Detector Port	Option	Option
<b>Performance Specifications</b>		
Spectral Range (Standard)	7800 – 350 cm <sup>-1</sup>	7800 – 350 cm <sup>-1</sup>
Spectral Range (Option, Csl Optics)	6400 – 200 cm <sup>-1</sup>	6400 – 200 cm <sup>-1</sup>
Spectral Range (Option, Extended-Range Optics)	11000 – 375 cm <sup>-1</sup>	11000 – 375 cm <sup>-1</sup>
Spectral Range (Option, Multi-Range Optics)	27000 – 15 cm <sup>-1</sup> (Standard)	27000 – 15 cm <sup>-1</sup> (Standard)
Optical Resolution	0.09 cm <sup>-1</sup>	0.09 cm <sup>-1</sup>
Peak-To-Peak Noise (1 minute scan)	< 8.68 x 10 <sup>-6</sup> AU** (50,000:1)	< 8.68 x 10 <sup>-6</sup> AU** (50,000:1)
RMS Noise (1 minute scan)	< 1.95 x 10 <sup>-6</sup> AU**	< 1.95 x 10 <sup>-6</sup> AU**
Ordinate Linearity	0.07 %T	0.07 %T
Wavenumber Precision	0.01 cm <sup>-1</sup>	0.01 cm <sup>-1</sup>
Slowest Linear Scan Velocity	0.158 cm/sec	0.0016 cm/sec
Fastest Linear Scan Velocity	6.33 cm/sec	8.86 cm/sec
Number of Scan Velocities	15	27
Rapid Scan (Spectra/second @ 16 cm <sup>-1</sup> , 32 cm <sup>-1</sup> )	65, 95	90, 130
Throughput Increase in Turbo Mode (@ 3000 cm <sup>-1</sup> )	25%	25%
Liquid Nitrogen-Cooled Detector Hold Time***	18 hours	18 hours
<b>Advanced Applications</b>		
FT-IR Microscope	Option	Option
FT-Raman Capability	Option	Option
Linear-Scan, Dual-Channel Data Collect	Option	Standard
Step-Scan Amplitude Modulation	Upgrade	Standard
Step-Scan Phase Modulation	Upgrade	Standard
Step-Scan Simultaneous Multiple Modulation	Upgrade	Standard
Step-Scan, Time-Resolved Spectroscopy	Upgrade	Standard
<b>Warranty</b>		
Source and Interferometer Warranty	5 Year	5 Year
Spectrometer Warranty	1 Year	1 Year
<b>Spectrometer</b>		
A/D Converter	24 bit	24 bit
Interface	USB 2.0	USB 2.0
Operating System	Win XP Pro, Win 2000	Win XP Pro, Win 2000
Spectrometer Dimensions	69.2 cm (w) x 65.5 cm (d) x 25.4 cm (h)	69.2 cm (w) x 65.5 cm (d) x 25.4 cm (h)
Spectrometer Weight	69 kg	71 kg
Sample Compartment Dimensions	21 cm (w) x 26 cm (d) x 20 cm (h)	21 cm (w) x 26 cm (d) x 20 cm (h)
<b>Other</b>		
Regulatory Approvals		
System Validation	Option	Option
21 CFR Part 11	Option	Option

\* Patent Pending; \*\* AU: Absorbance Units; \*\*\* USP # 4,740,702

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