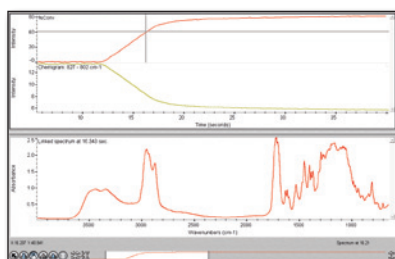


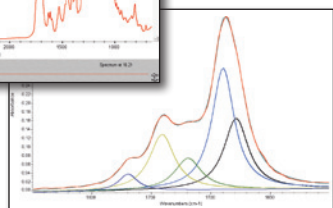
Thermo Scientific Nicolet iS50R FT-IR Spectrometer

Our tools, your science.

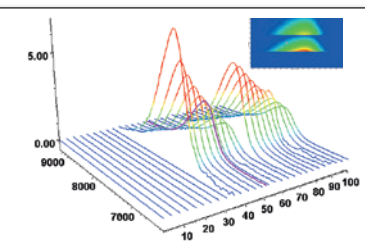
Clear the path to discovery with the Thermo Scientific Nicolet iS50R spectrometer and research tools.



Monitor time dependent data and extract kinetic information.



Find underlying structure in complex, overlapped spectral features.



Step-scan time-resolve spectroscopy of reversible processes to nanosecond timescales.



The Thermo Scientific Nicolet iS50R spectrometer carries forward all the flexibility and performance of the Nicolet™ iS™50 spectrometer system, with the added capabilities for the research spectroscopist. The Nicolet iS50R includes dual sources and triple detector optics, multiple on-board digitizers and easy access to spectrometer data and control signals.

An expanded Thermo Scientific Omnic software suite bundles several advanced tools including Peak Resolve™, OMNIC™ Series, and SpectraCorr™.

A key upgrade found in the Nicolet iS50R is the Vectra-Plus™ Step-scan interferometer with associated SST control software. Step-scan data collection lets you take on experiments with complex time dependent signals that make standard scanning methods impractical.

Examples include emission signal from pulsed sources, experiments using choppers, microsecond and nanosecond time-resolved absorbance, photoacoustic and photocurrent responses.

For research FT-IR, think Thermo Scientific.



Thermo
SCIENTIFIC

Thermo Scientific Nicolet iS50R FT-IR Spectrometer

Our tools, your science.

Filter Wheel and Source Aperture

Control spectral bandwidth, spectral resolution and source energy with automated filters and aperture.

iS50 ABX Automated Beamsplitter Exchanger

Get full spectral range while maintaining continuous purge using automated beamsplitter exchange.

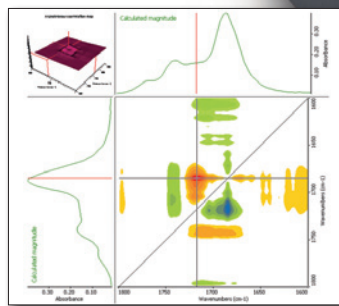
Multiple Beam Ports

Interface to external sources and experiment modules with multiple input and output ports.



Triple Detector Compartment

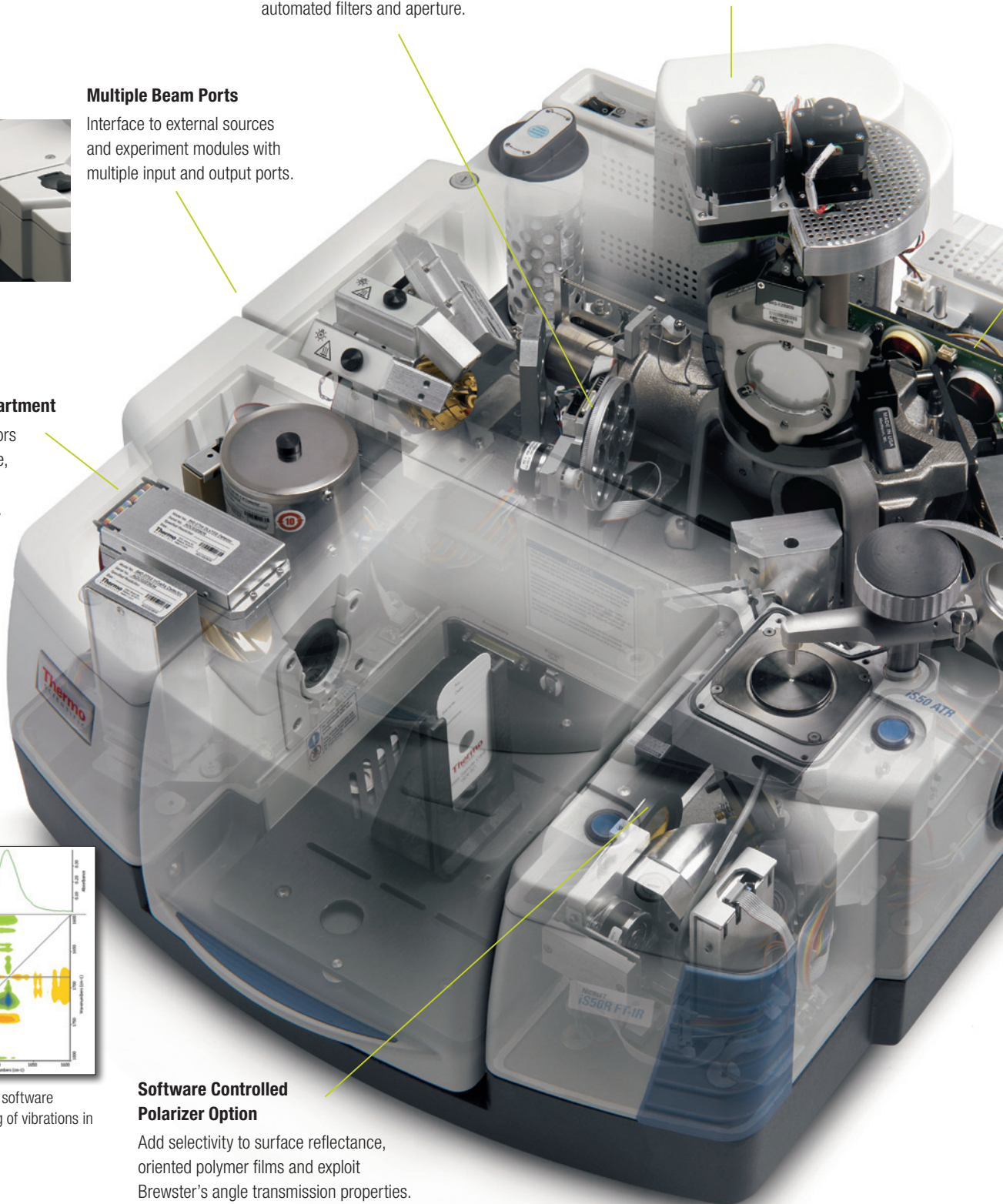
User-replaceable detectors match the spectral range, frequency response and sensitivity to your needs.



SpectraCorr 2D correlation software identifies chemical coupling of vibrations in dynamic experiments.

Software Controlled Polarizer Option

Add selectivity to surface reflectance, oriented polymer films and exploit Brewster's angle transmission properties.



Advanced Applications



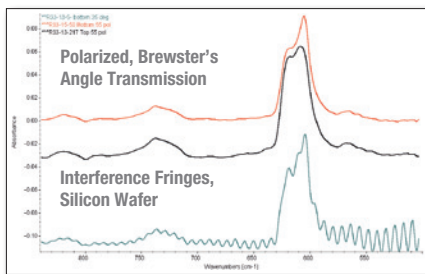
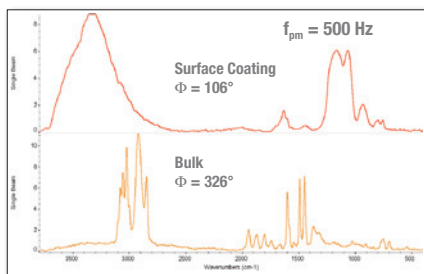
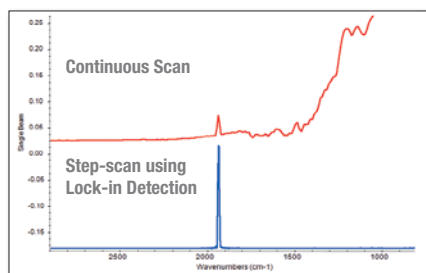
Vectra-Plus Interferometer

Expanded linear scan speeds and multiple step-scan modes under continuous, smart, dynamic alignment.

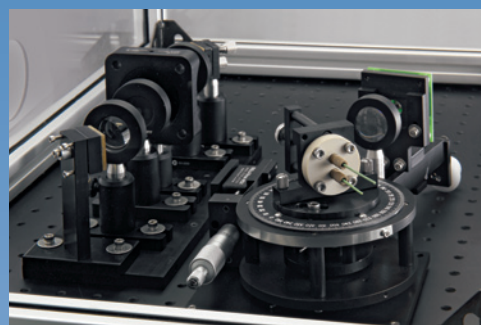
The iS50R Hub gives you access to detector and control signals for convenient interface to external signal processing tools, such as lock-in amplifiers, filters or external digitizers.



Detect weak periodic signals and eliminate background using step-scan data collection and lock-in detection.



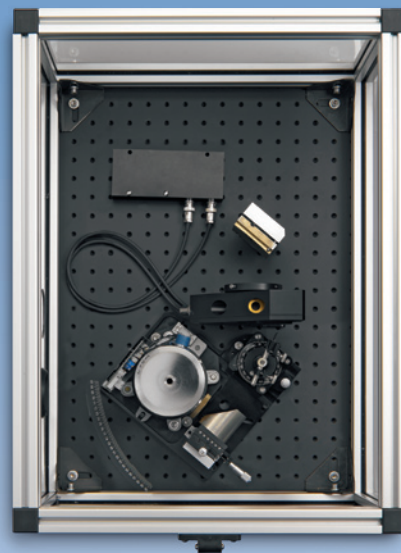
Improve sensitivity and surfaces and suppress interference with polarized measurements.



iS50 Research Module

Set up large or complex experiments in the optional iS50 Research Module.

Pre-configured optics kits provide rapid set-up of popular experiments like PM-IRRAS.



External Detector Port

Extend performance with specialty detectors like a silicon bolometer for far-IR spectroscopy. Add purge shutters and the ABX option to complete a research far-IR package.

Microspectroscopy

Isolate and identify chemically distinct domains like contamination particles on products or specific layers in complex polymer films.



Improve your understanding of structures and phase relationships in all sampling modes, including ATR imaging. Combined with the Nicolet iS50R spectrometer, the Thermo Scientific Nicolet Continuum microscope has wide spectral range.

Nicolet iS50R Specifications

Spectrometer

Polaris High Stability, Long Lifetime Mid-IR Source	Standard
Tungsten-Halogen Near-IR/Visible Source	Standard
Four Position Source Mirror	Standard
Continuously Variable Iris Aperture	Standard
Gold Optical Coatings	Standard
Aluminum Optical Coatings	Option
DLaTGS Detector	Standard
Three Position Detector Mirror	Standard
Attenuation Wheel	Standard
Validation Wheel	Standard
Automated Polarizer	Option
Automated Filter Wheel	Option
Automated Beamsplitter Exchanger	Option
Automated Sample Compartment Purge Shuttters	Option
A/D Converter	24 bit
Interface	USB 2.0
iS50 Hub – External Signal Access	Standard
Dual Channel Digitizers	Standard
Extended Undersampling	Standard
Mirror Position Accuracy	±0.2 nm
Amplitude Modulation (AM) Mode	Standard
Time-Resolved Spectroscopy	
On-board Digitizers	1 MHz (1 μ s), 18 bit
External Digitizer Option	200 MHz (5 ns), 14 bit
Reference Monitor Channel	Included
Phase Modulation Option	
Modulation Frequency	5–1000 Hz
Modulation Amplitude	0.5–4.5 λ_{633}
Multiple Modulation Option	
Dual Channel Inputs	Included
Reference Modulation Output	Up to 70 Hz

Software

Operating System	Windows® 7
OMNIC Software	Standard
Time-series, Kinetics, Curvefitting and 2D Correlation Software	Included
ValPro System Validation Software	Option
21 CFR Part 11 Compliance Tools	Option

External Beam Capabilities

Dual Side External Beams	Option
Collimated Emission Port	Option
Focused Emission Port	Option
Side External Detector Port	Option

Performance Specifications

Spectral Range, Standard System	7800–350 cm^{-1}
Spectral Range, Multi-Range Optics	27,000–20 cm^{-1}
Optical Resolution, Mid-IR, Linear Scan	Less than 0.09 cm^{-1}
Signal-to-Noise, 1 minute scan, Peak-to-Peak, 4 cm^{-1}	55,000:1
Signal-to-Noise, 5 second scan, Peak-to-Peak, 4 cm^{-1}	13,000:1
Ordinate Linearity	0.07%T
Wavenumber Precision	Better than 0.01 cm^{-1}
Scan Velocity (24 values)	0.0063–8.86 cm/sec
Rapid Scan, Spectra Per Second	90 (at 16 cm^{-1}), 130 (at 32 cm^{-1})
MCT Dewar LN ₂ Hold Time	18 Hours

Physical Characteristics

Spectrometer Weight	60 kg (132 lbs)
Spectrometer Dimensions (W × D × H)	62.6 × 69.8 × 27.6 cm 25 × 27 × 11 in
Sample Compartment Dimensions (W × D × H)	21 × 26 × 15 cm 8.3 × 10.2 × 5.9 in

Other

Mid-infrared Source and Interferometer Warranty	5 Years
Spectrometer Warranty	1 Year
Regulatory Approvals	 

Advanced Applications

The Nicolet iS50R is compatible with both standard and Smart Accessories. In addition, we offer a full line of optional sampling modules and accessories including:

- PEM-Based Polarization Modulation, PM-IRRAS, VCD, VLD
- iS50 Research Module – Optics Breadboard
- iS50 ATR built-in module
- iS50 Raman sample compartment module
- iS50 NIR module
- iS50 GC-IR module
- Infrared microscopes
- TGA-IR sampling accessory

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