

# Interspec - 200 X

FTIR Spectrometers



## Introduction

The Interspec 200-X series of FTIR spectrometers represent a cost-effective Fourier transform infrared spectrometers and employs a number of unique features that ensure high performance from a compact instrument.

The Interspec 200-X measures just 59 X 39 X 19 cm and is regarded as one of compact and versatile infrared FTIR spectrophotometers. The design of the 200-X is unique both in terms of optical design and the software and firmware designed specifically to significantly reduce overall analytical times.

The interferometer geometry is employing a new compact Michelson self-compensating optical system that eliminates many of the optical alignment problems found in conventional type optical interferometers.

The Interspec 200-X design avoids the use of conventional corner cube optics and dynamic alignment. In practice this means that the instrument can be used in the research laboratory, in any university or college environment and if required, can also be used outside laboratory or in remote locations.

## Interferometer Performance

All Interspec FTIR instruments offer high S:N ratios and can provide SNR up to 15000:1. Resolution in the infrared is available 1 cm<sup>-1</sup> and programmable up to 32 cm<sup>-1</sup> (option 0.5 cm<sup>-1</sup>). The overall wavelength range is 7000 to 400cm<sup>-1</sup> (IR) or 14000 to 3000 cm<sup>-1</sup> (NIR)

## The Sample Compartment



As you will see the sample compartment is large indeed and can accommodate all of the normal sample handling requirements relating to FTIR spectroscopy. This unique compartment will also accommodate the wide range of accessories supplied by specialist accessory manufacturers.

Overall dimensions are W20 X D26 X H16 cm. The optical axis is 74.5 mm above the base of the sample compartment and there is free space of 90 mm above the optical axis to the underside of the lid.

## Extending Wavelength Ranges

In order to facilitate the use of more than one beam splitter or detector, provision has been made to interchange the beam splitter and detector assemblies allowing the Interspec 200-X to be used at any wavelength from 14000 to 400 cm<sup>-1</sup>.

Beam Splitters	Range Subject to Coatings
KBr	7000 to 400 cm <sup>-1</sup>
ZnSe	5000 to 600 cm <sup>-1</sup>
Fused Silica	14000 to 3000 cm <sup>-1</sup>

## Detector Options

The standard detector is a selected high sensitivity DLATGS pyroelectric design providing the highest possible signal to noise for all but the most demanding applications.

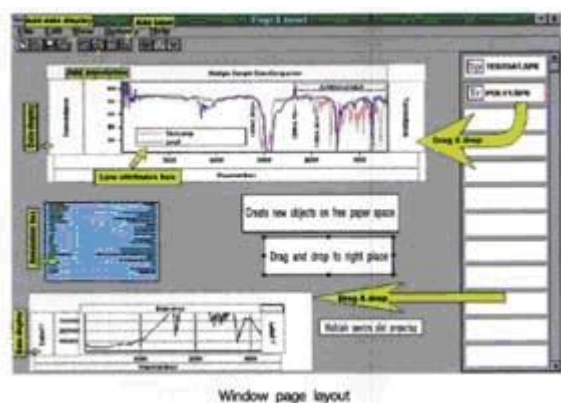
However there are many applications in infrared spectroscopy where high resolution analysis is required for materials with high absorption characteristics and for these applications cryogenically cooled MCT detector options are available each with a specific wavelength range.

In case of NIR spectral region two types of photodiodes are available: Si and InGaAs.

## Software

Interspec for Windows software is supplied on CD and provided with each system shipped.

The software includes features for all standard analytical requirements including manipulation of spectral data, instrument control, plot with preview on the screen plus many others.



Also included are several facilities for analytical modelling of interferogrammes or spectra, with smoothing, and baseline correction, interactive editing and data manipulation.

Also spectral subtraction, mixture subtraction, smoothing derivatives, plot with preview etc. Data input and output is possible in ASCII or JCAMP. Other commercial programmes can be used like Essential FTIR or Panorama for features such as Library Search.

Our unique software has been designed specifically for multi-function applications, it is easy to use and it is provided free of charge.

The utility of the Interspec for Windows programme can be extended by adding other commercial programmes such as search, component identification, Kramers Kronig Transform, Chemometrics, etc. to suit individual requirements.

## Air Cooled Infrared Source

Our Infrared source is a long lifetime and trouble free operation device. The reason is simple in that our design achieves excellent wavelength emission characteristics and very high stability. The colour temperature of the source is about 11500C. In the NIR region a quartz-halogen lamp is used.

## Desiccated and Sealed Interferometer

The Interspec 200-X series of instruments employ a sealed and desiccated interferometer and detector compartment, ensuring high spectral integrity with low levels of water vapour within the interferometer.

We also offer a version (200-XZ) that employs a ZnSe moisture insensitive optics to be impervious to water vapour and can be used to advantage in serious tropical environment's. Provision is made for purging should this be of interest to the user.

Near infrared version (200-XN) employs a fused silica optics and is insensitive to any influence of water vapour.

### Sample Handling Accessories

The applications for FTIR are extensive and more use is being made of these techniques now than at any other time.

Many of these new applications can be attributed to the development of a very large and comprehensive range of sample handling accessories made available from many accessory companies. All such accessories can be used in the Interspec 200-X series of instruments.

So no matter what your sample is, we are able to offer just the right

sample mount including accessories for ATR accessories, specular reflection, diffuse reflectance, DRIFT, photo acoustic, liquid sampling, gas cells, gas purge systems, hydraulic or hand help sample presses, film making kits, sample grinders, micro sampling, disposable cells, polishing kits, polarisers, plus a lot more.

### Models

**Interspec 200-X** – Standard FTIR Instrument with KBr optics.

**Interspec 200-XZ** – Non Water Sensitive FTIR Instruments for High Humidity with ZnSe optics.

**Interspec 200-XN** – Near Infra Red Instrument with fused silica optics.

## Specifications

Wavelength range, IR	7000 to 400 cm <sup>-1</sup>
Wavelength range, NIR	14000 – 5800 or to 9000 – 3850 cm <sup>-1</sup>
Resolution, standard	1 cm <sup>-1</sup>
Resolution, option	0.5 cm <sup>-1</sup>
Interferometer	Pendulum roof mirror type
Beam diameter	30 mm.
Aperture ratio	f 3.2
Beamsplitter, standard IR	Multicoated KBr
Beamsplitter, option	Multicoated ZnSe
Beamsplitter, standard NIR	Fused Silica
Frequency reference	VCSEL laser
Emission port	Option
Sample compartment	W20xD26xH16 cm
Beam at sample	10 mm dia.
Accessories	Ordinary FTIR accessories
IR source	High intensity air cooled ceramic
NIR source	Quartz-halogen lamp
Detector, IR Standard	Low noise DLATGS
Detector, IR Option	MCT
Detector, NIR	Si, InGaAs photodiode
Data acquisition system	24 bit, high speed
Purge possibility	Yes
Operating system	Windows based
Interface	USB 2.0
Power	12VDC, 30 W
Dimensions	W59xD39xH19 cm
Weight	24 kg
Temp. environment	15 – 28 C
Humidity environment	Best below 65%



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Interspectrum OU (IS) has been designing and manufacturing optical and FTIR spectroscopy instruments since 1991. Interspectrum's instruments have been used in many applications and fields including analytical chemistry, material research, medical research, food science, applied physics, environmental and academic research. Interspectrum has been coordinator/partner of FP5 project POSA DWDM in the field of optical telecommunication and partner of FP7 project ADWISE in the field of on-line monitoring and control of operation of biogas plants.