Mehrgan Parto Shar

Portable FTIR-FTNIR Specrometer Interspect 300-X

INTERSPECTRUM®
FTIR Spectroscopy instruments & accessories

Portable FTIR/FTNIR spectrometer Interspec 300-X

General

The Interspec 300-X series of FTIR portable spectrometers represent a low cost Fourier transform infrared and near infrared portable spectrometers and employ a number of unique features that ensure high performance from a compact instrument.

The Interspec 300-X measures just 49 X 39 X 20 cm and is regarded as one of compact and versatile infrared FTIR spectrophotometers. The design of the 300-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 300-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 12000:1. Resolution in the infrared is available 2 cm-1 and programmable up to 32 cm-1 (option 0.5 and 1 cm-1). The overall wavelength range is 7000 to 400cm-1 (IR) or 15000 to 3850 cm-1 (NIR).

The Sample Compartment

There is no sample compartment in classical sense.

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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 300-X to be used at any wavelength from 15000 to 400 cm^{-1}.

Beam Splitters	Range subject to coatings
KBr	7,000 to 400 cm^{-1}
ZnSe	5,000 to 500 cm^{-1}
CaF2	10,000 to 1,000 cm^{-1}
Quartz	15,000 to 3,000 cm^{-1}

Detector Options

The standard IR detector is a selected high sensitivity DLATGS pyroelectric design providing the highest possible signal to noise for all but the most demanding applications. In case of NIR spectral region two types of photodiodes are available: Si and InGaAs.

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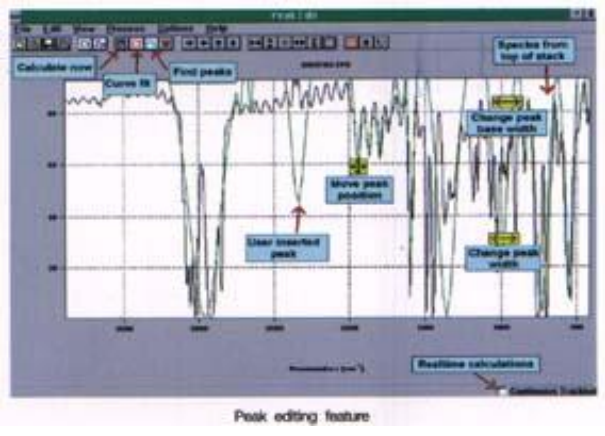
Software

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.

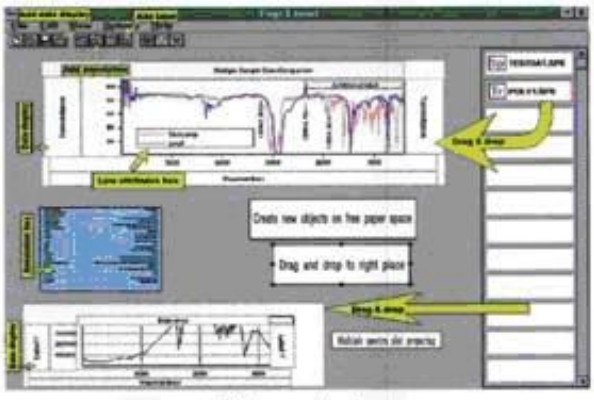
Also included are several facilities for analytical modelling of interferogrammes or spectra, with smoothing, and baseline correction, interactive editing and data manipulation.

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 including Thermo/Galactic GRAMS for features such as Library Search.

The Interspec for Windows programme is written in 32 bit protected mode. 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.



Peak editing feature



Window page layout

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Computer systems

There are no special computer requirements for the Series 300-X. Computer options and performance change rapidly for both bench and lap top configurations. Computers have to meet at least the following minimum specifications:

Processor	Pentium 500 MHz
Memory	32 Mbytes RAM
Hard Disc	6.4 Gbytes
CD ROM	Yes

However other specifications are also possible subject to user requirements. The standard operating system is a Windows 98/XP platform. The computer can be ordered as a separate component with the instrument or the instrument can be interfaced to an existing computer providing it meets the specifications as defined.

Sample Handling Accessories

Interspec 300-X series instruments may have three types of integrated accessories: 1) horizontal one bounce ATR (standard – ZnSe), 2) reflection and 3) transmission cell with path lenght from 0.1 to 1.0 mm (standard – CaF2 windows). 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 color temperature of the source is about 12000C. In the NIR region a quartz-halogen lamp is used.

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Desiccated and Sealed Interferometer

The Interspec 300-X series of instruments employ a sealed and desiccated interferometer and detector, ensuring high spectral integrity with low levels of water vapour within the interferometer. We also offer a version (300-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. Near infrared version (300-XN) employs a fused silica optics and is insensitive to any influence of water vapour.

Models

Interspec 300-X – Standard FTIR Portable Instrument with KBr optics.
Interspec 300-XZ – Non Water Sensitive FTIR Portable Instruments for High Humidity with ZnSe optics
Interspec 300-XN – Near Infra Red Portable Instrument with fused silica optics.

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Specifications

Specifications	
Wavelength range, IR	7000 to 400 cm^{-1} (without ATR accessory)
Resolution, standard	1 cm^{-1}
Resolution, option	0.5 cm^{-1}
Interferometer	Pendulum roof mirror type
Beam diameter	30 mm
Aperture ratio	f 3.2
Beamsplitter, standard IR	Multicoated KBr
Beamsplitter, option	ZnSe
Frequency reference	VCSEL /HeNe laser
Accessories	Integrated accessories for ATR, reflection and transmission measurement
Beam at sample	5 mm dia.
IR source	High intensity air cooled ceramic
Detector	low noise DLATGS
Data acquisition system	18 bit, high speed
Dessiccant possibility	Yes
Operating system	Windows based
Interface	USB 2.0
Power	12 VDC, 30 W
Dimensions	W49xD39xH20 cm
Weight	18 kg
Temp. environment	15 – 28 ^0C
Humidity environment	Best below 65%

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