



### SPECTRO-300X, Portable FTIR Spectrometer

Model	SPECTRO-300X
Wavelength range	7000 to 400 $\text{cm}^{-1}$ (without ATR accessory) 6000 to 600 $\text{cm}^{-1}$ (with ZnSe ATR accessory)
Resolution, standard	1 $\text{cm}^{-1}$
Resolution, option	0.5 $\text{cm}^{-1}$
Sample compartment	Integrated
Accessories	ATR, reflection, transmission
Operating system	Windows based
Power	90-230 VAC, 12 VDC, 40 W
Dimensions (cm)	W49xD39xH20
Weight	18kg
Temp. environment	15 – 28°C
Humidity environment	Best below 65%

#### General:

The Interspec SPECTRO-300X 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 SPECTRO-300X measures just 49 X 39 X 20 cm and is regarded as one of compact and versatile infrared FTIR spectrophotometers.

The design of the SPECTRO-300X 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 SPECTRO-300X 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  $\text{cm}^{-1}$  and programmable up to 32  $\text{cm}^{-1}$  (option 0.5 and 1  $\text{cm}^{-1}$ ). The overall wavelength range is 7000 to 400  $\text{cm}^{-1}$  (IR) or 15000 to 3850  $\text{cm}^{-1}$  (NIR).

#### The Sample Compartment:

There is no sample compartment in classical sense.

#### 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 SPECTRO-300X to be used at any wavelength from 15000 to 400  $\text{cm}^{-1}$ .

Beam Splitters	Range subject to coatings
KBr	7,000 to 400 $\text{cm}^{-1}$
ZnSe	5,000 to 500 $\text{cm}^{-1}$
CaF <sub>2</sub>	10,000 to 1,000 $\text{cm}^{-1}$
Quartz	15,000 to 3,000 $\text{cm}^{-1}$

#### 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.

#### 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 interferograms 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.

