



Agilent Molecular Spectroscopy Portable FTIR Solutions

Datasheet



5500 Series FTIR Spectrometer

Robust Performance in a Compact Design

The Agilent 5500 Series FTIR Spectrometers are designed for one purpose – to provide you with great results rapidly and reliably – day after day. The combination of great performing optics, innovative sampling interfaces and intuitive software provides information on liquid and solid samples faster and easier than ever before.



4500 Series Portable FTIR Spectrometer

Easy to Use and Rugged

The Agilent 4500 Series Portable FTIR Spectrometers are portable analyzers that support efforts associated with at site analysis of incoming materials and outgoing finished products in the chemical, food and polymer industries. They are also ideal for proactive maintenance programs of high value equipment and machinery in construction and power production industries. Exceedingly compact, easy to use and rugged, it is a perfect match for applications that require high quality answers quickly. The combination of optics designed for reliability in non-lab environments, innovative sampling interfaces and fit-for-purpose software provides answers for liquid and solid samples at the sample site.

Features and Benefits



- 5500 Dialpath: Provides the longer pathlength capabilities of transmission spectroscopy in a format that is as easy to use as ATR.



- 5500t: Ease of use: quickly analyze a sample by placing a single drop of the liquid on the surface of the 5500t analyzer, and then rotate a second window into position to sandwich the sample.



- 5500a: One, three or five reflection diamond ATRs are available, depending on the application. Single reflection diamond ATR available for solids and liquids identification. Multi-reflection ZnSe ATR available for liquid analysis.

Features and Benefits



- 4500 Dialpath: Provides the longer pathlength capabilities of transmission spectroscopy in a format that is as easy to use as ATR.



- 4500t: Quick clean up by simply wiping the two windows to prepare the device for the next sample.



- 4500a: One, three or five reflection diamond ATRs are available, depending on the application.

- Portable & rugged

- Reliable high quality answers in non-lab environments





4100 ExoScan Series FTIR

Interchangeable Sampling Interfaces

The 4100 ExoScan is a one module, 6.5 lb. system that is equally at home in the lab or at site. The system is as versatile as it is rugged and features a choice of interchangeable sampling interfaces that make the ExoScan a highly useful hand-held mid-IR spectrometer. You can choose diffuse, grazing angle, specular reflection or spherical ATR sampling interfaces, all of which can be changed in seconds with no realignment necessary. Thus, ExoScan can handle a wide range of sample types including infrared absorbing and scattering surfaces, reflective metal surfaces with coatings and films as well as analysis of bulk materials including powders and granules.



ExoScan Docking Station

The ExoScan Docking Station provides a solid bench-top support for the 4100 Series ExoScan. It provides an easy means to measure samples in a fixed location. Originally designed as a way to measure calibration samples, the Docking Station allows the handheld 4100 analyzer to function as a fixed, bench-top spectrometer which can be quickly converted to a handheld instrument for field use.



4200 FlexScan Series FTIR

Designed for Dedicated Field Applications

The 4200 FlexScan Series FTIR (handheld) is a dual module system – the optical module weighs 3 lbs and it is attached to the 4 lb electronics module by a power cable. The electronics module can be worn on a belt or in a shoulder pack. The 4200 analyzer uses the same interferometer and optics as the 4100 ExoScan and thus has identical performance. The 4200 FlexScan is for dedicated field applications and has a fixed sampling interface that is specified when the system is ordered. The light weight of the hand-held optics and sampling module make it well suited to repetitive infrared analyses over a large area, or numerous measurements over a large object.

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Sample Interfaces for the 4100 and 4200 Series Handheld FTIR

Note: Sample interfaces are interchangeable on the ExoScan. Sample interfaces are dedicated on the FlexScan.



● Spherical Diamond ATR

The ATR interface is ideal for the analysis of solids, liquids, pastes and gels. The interface is comprised of a diamond window, which makes it impervious to corrosion and scratching. The sample is brought into contact with the diamond window. ATR is a surface technique and only the top 2-3 microns are analyzed.



● Diffuse Reflectance

The diffuse reflectance sampling capability allows the 4100 ExoScan to tackle an increased number of important applications. Testing has determined good results on a wide variety of samples including artwork, soils, rocks and minerals, composites, rough plastics, fabrics and corrosion on metal surfaces. In general, if the sample reflects little light, the diffuse reflectance interface will be the sampling method of choice. In many cases, the diffuse reflectance provides the easiest to use sample interface for the handheld FTIR.



● Grazing Angle Reflectance

The grazing angle specular reflectance interface is similar in concept to the specular reflectance interface. It differs in the angle of incidence. The grazing angle interface has an angle of incidence of 82 degrees making it ideal for the analysis of very thin (sub-micron) films. The increased angle of incidence causes more interaction of the infrared energy within the thin sample and has the secondary benefit of increasing the pathlength of the sample. It is ideal for looking at trace contamination on reflective metal surfaces such as cleaning validation studies.



● Narrow External Reflectance

The specular reflectance interface allows the analysis of films and coatings on reflective metal surfaces such as aluminum or steel. The angle of incidence is 45 degrees. The infrared energy passes through the film, reflects off the steel, passes back through the film and is collected by the specular reflectance interface. In addition, it can be used for the analysis of smooth, opaque samples where infrared light reflects off the surface.



● Germanium ATR

The ATR interface is ideal for the analysis of highly absorbing solids and liquids. The interface is comprised of a germanium crystal. The surface of the sample is analyzed by bringing it into contact with the germanium crystal. Only the top 0.5 to 2 micrometers is measured, making this technique ideal for strongly absorbing samples such as carbon filled elastomers and rubbers.

