STALWART

FT-IR Spectrometer
SFTIR-530

Introduction

Stalwart has launched a new type FTIR Spectrometer _____ with fully independent intellectual property rights. adhering to consistent excellent quality and superior performance, the new model obtains the best balance between intelligence and convenient operation, advance performance and low operation and maintenance cost. It is a good choice for basic science research analysis, production quality control, testing and detection in various fields.

Features

High Sensitivity Optical System

Cube-corner Michelson interferometer combined with patented fixing mirror alignment technology (Utility model ZL 2013 20099730.2: fixing mirror alignment assembly) , to ensure long term stability, without the need of dynamic alignment which needs extra complicated electronic circuits. Reflecting mirrors are coated with gold to provide the maximum light throughput and ensure the detection sensitivity.

High stability modular partition design

Compact structure modular design with layout on cast aluminum base and overall balance of mechanical robustness and partition heat dissipation, offering higher ability of deformation resistance and less sensitive to vibrations and thermal variations, greatly improves the mechanical stability and long-term working stability of the instrument.

Intelligent multi-sealed moisture-proof design

Multiple sealed interferometers, large-capacity desiccant cartridge with visible window and easy replacement structure, real-time monitoring of temperature and humidity inside the interferometer, getting rid of influences of high temperature, high humidity, and chemical corrosion to the optical system in many ways.

Innovated integration electronic system

High sensitivity pyroelectric detector pre-amplifier technology, dynamic gain amplification technology, high precision 24-bit A/D conversion technology, real-time control and data processing technology, digital filter, and network communication technology, ensuring high quality real-time data collection and high-speed transmission.

Good anti-electromagnetic interference capability

The electronic system is designed to meet CE certification and electromagnetic compatibility requirements, minimizing electromagnetic radiation in design and technology, in line with green instrument designing concept.

High intensity IR source assembly

High intensity, long lifetime IR source module, with the highest energy distributed in fingerprint region, adopts a reflex sphere design to obtain even and stable IR radiation. External isolated IR source module and large space heat dissipation chamber design provide higher thermal stability and stable optical interference.

Innovation

Real-time diagnosis of instrument status

real-time monitoring of instrument working status, performance, and communication status.

Multiples detector options

Besides conventional normal temperature pyroelectric detectors, temperature-stabilized pyroelectric detectors and semiconductor refrigeration MCT detectors can also be selected to meet the needs of different customers.

“Wire + Wireless” multi-communication mode

Adopting Ethernet and WIFI dual-mode communication to adapt the development trend of "Internet + testing" instruments. Building a basic platform for users to conduct interconnection testing, remote operation and maintenance, data cloud computing, etc.

Large sample room

With the large sample chamber design, besides the conventional liquid pool, ATR and other commercially available conventional accessories, it can also be equipped with special accessories such as thermal red combination, microscope, etc. At the same time, it also reserves space for users to choose new accessories.

Main FTOS Suite

All versions Windows OS compatible, including

Windows XP, Windows 7, Windows 8, Windows 8.1 and Windows 10 (32 bits and 64 bits)

Modular platform design

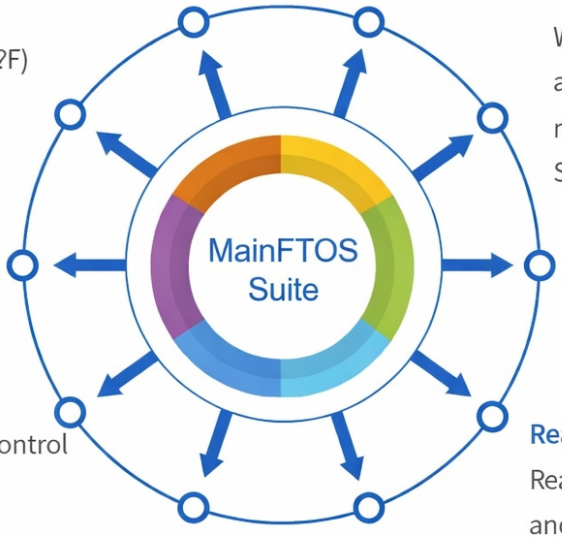
With data collection, processing and analysis, report print out functions，and different special software functional module options

Standard data format

IEEE Floating Point Standard (*.A?F)
IUJPAC JCAMTP-DX (*.dx)
Thermo Scientific OMNIC (*.spa)

FDA 21 CFR Part11

With functions as access control, authority assignment, audit trial, digital signature etc. meet GLP/GMP and CFDA <The Computerized System> requirements



Language switch over

between Chinese and English

Autmatic software updating

Getting the latest software version from the updating center

Touch control operation

Satisfying Windows 10's touch control function

Real-time instrument status diagesis

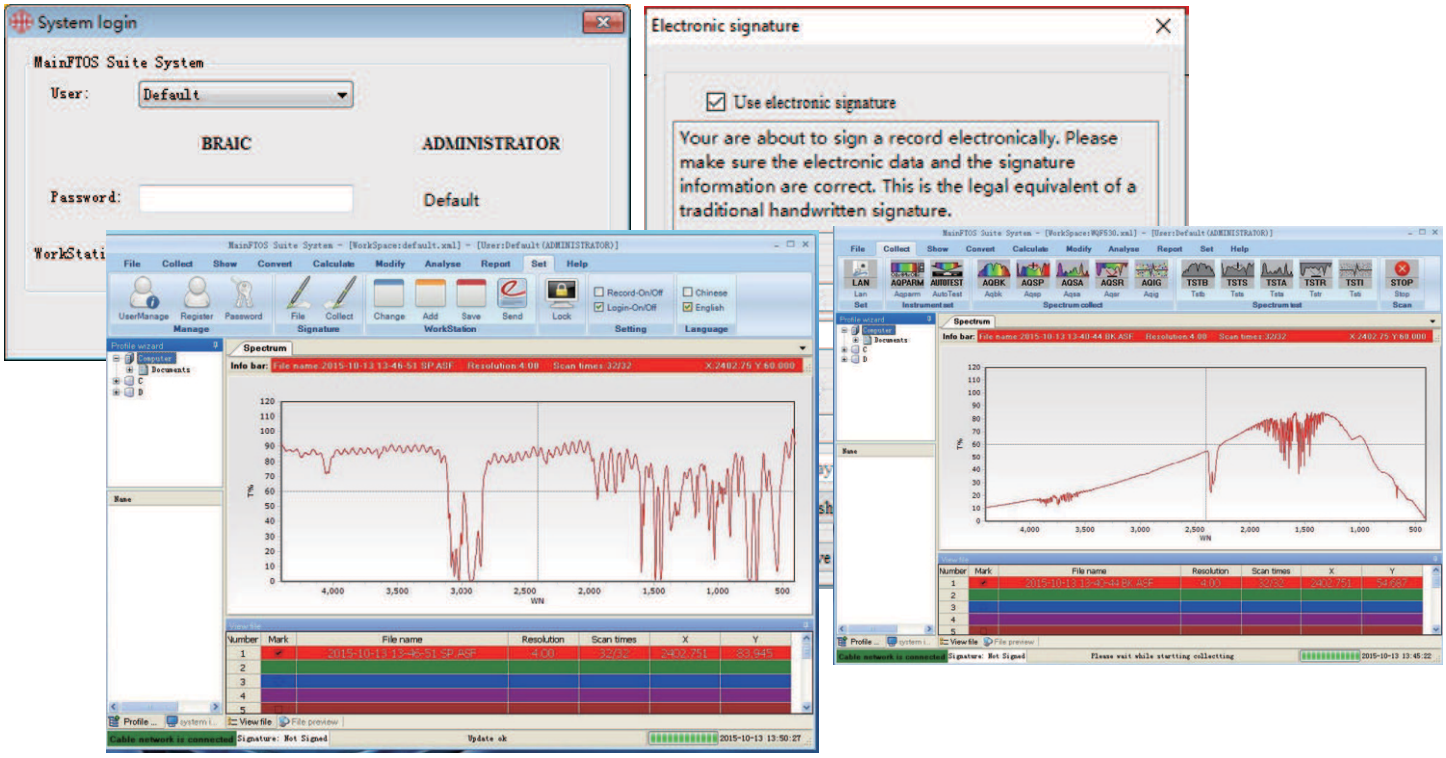
Real-time monitor of working status, specifications and communication status

Specialized IR libraries

Providing various specialized IR libraries.

Secondary development library

Providing C++ and C# development sample code for different application development



Specification

Model	SFTIR-530	SFTIR-530Pro
Interferometer	Cube-corner Michelson interferometer	
Beam splitter	Multilayer Ge coated KBr	
Detector	High sensitivity pyroelectric module (standard)	MCT detector (optional)
IR Source	High intensity, long lifetime, air-cooled IR source	
Wavenumber Range	7800cm^{-1}~350cm^{-1}	
Resolution	0.85 cm^{-1}	
Signal to noise ratio	ST-FTIR Better than 20,000:1 (RMS value, at 2100cm^{-1} ~ 2200cm^{-1}, resolution: 4cm^{-1}, 1 minute data collection)	ST-FTIR Pro: Better than 40,000:1 (RMS value, at 2100cm^{-1} ~ 2200cm^{-1}, resolution: 4cm^{-1}, 1 minute data collection)
Wavenumber Accuracy	±0.01 cm^{-1}	
Scanning Speed	Microprocessor control, different scanning speed selectable.	
Software	MainFTOS Suite software workstation, compatible to all version Windows OS	FDA 21 CFR Part 11 compliance software (optional)
Interface	Ethernet & WIFI wireless	
Data Output	Standard data format, report generation and output	
Status Diagnosis	Power on self-check, real-time temperature and humidity monitoring and reminders	
Certification	CE	IQ/OQ/PQ（optional）
Environment Conditions	Temperature: 10℃～30℃, humidity: less than 60%	
Power Supply	AC220V±22V, 50Hz±1Hz/ AC110V（optional）	
Dimensions & Weight	490×420×240 mm, 23.2kg	
Accessories	Transmission sample holder (Standard)	Optional accessories such as gas cell, liquid cell, Defused/Specular Reflection, single/multiple reflection ATR, IR Microscope etc.

Accessories

Single Reflection ATR

Single reflection ATR can be used to measure various forms samples (liquid, viscous material, soft and ductile film and solid), and it has good results when testing substances with relatively strong absorption.

Single reflection ATR (Stalwart)
Crystal materials: ZnSe

Single reflection ATR (Specac)
Crystal materials: Diamond, ZnSe and Ge

Horizontal ATR

A multi-reflection horizontal ATR can be used for the infrared analysis of solids, liquids, pastes and gels.
6-reflection and interchangeable sampling top plates(Specac)
12-reflection and integrated groove shape plate(Stalwart)
Crystal materials: ZnSe

Horizontal ATR (Specac)

Horizontal ATR (Stalwart)

Diffuse/Specular Reflectance Accessory

Diffuse/Specular reflectance accessory is a versatile diffuse reflectance and specular reflectance accessory. Diffuse reflection mode is used for transparent and powder sample analysis. Specular reflection mode is for measuring smooth reflective surface and coating surface.

- High light throughput
- Easy operation, no internal adjustment needed
- Optical aberration compensation
- Small light spot, able to measure micro samples
- Variable angle of incidence
- Fast change of powder cup

Specular Reflection Accessory

Specular reflection accessory is fixed 10-degree angle of incidence. At a near-normal angle, the polarization effects on reflectivity are minimized. Specular reflection accessory is recommended to measure the reflectivity of glass. However, it may also be used to measure near-normal reflectivity of a wide variety of surfaces including military devices, reflecting optics, anti-reflective (AR) coated surfaces, and other reflecting and non-reflecting materials.

- Fixed 10-degree angle of incidence

Transmission Sample Clamp

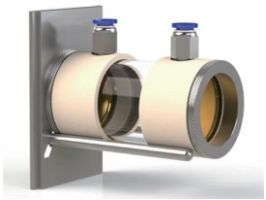
Transmission sample clamp can be used to keep in place films, salt plates, KBr pellets and other materials.

- Clear aperture of the holder: 13 mm

Gas Cell

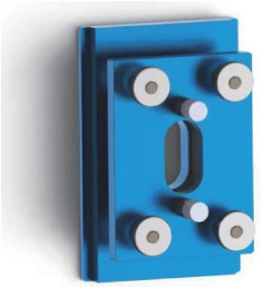
Gas cell is suitable for the detection of gas samples.

- Optional window plate: ZnSe and KBr
- Optional pathlength: 50 mm and 100 mm



Accessories

Sealed Liquid Cell



Sealed liquid cell is usually used for qualitative or quantitative analysis of volatile liquids.

- Size of window：41x23x4 mm
- Optional window plates：KBr, CaF2 and ZnSe
- Optional pathlength: 0.05 mm, 0.1 mm, 0.2 mm, 0.5 mm and 1 mm.
- The standard pathlength is 0.5 mm

Demountable Liquid Cell

Demountable liquid cell is usually used for qualitative or quantitative analysis of non-volatile liquid sample.

- Size of window：25x4 mm
- Optional window plates：KBr, CaF2 and ZnSe
- Standard spacers include 0.05, 0.1, 0.2, 0.3, 0.5 and 1mm

Hydraulic Press 15T

The hydraulic press is for making high-quality KBr pellets for transmission FTIR analysis. The pellet preparation involves loading of the powdered KBr and sample matrix into the die chamber and placing the assembled die onto the platform of the hydraulic press.

- Clamp force, max 15 tons
- Diameter of die set: 13 mm

The TGA/FTIR Accessory

The TGA/FTIR accessory is designed to be an interface for evolved gas analysis from a thermogravimetric analyzer (TGA) to the FTIR spectrometer. Qualitative measurements is doable from sample masses, typically in the low milligram range.

- Gas cell pathlength: 100mm
- Gas cell volume: 38.5mL
- Temperature range of gas Cell: Room temp.~300˚C
- Temperature range of transfer line: Room temp.~220˚C
- Accuracy of temperature control: ±1˚C

IR Microscope

IR microscope can be used in combination with FTIR spectrometer for high sensitivity detection of trace materials, infrared trace analysis and microanalysis, and apply to foreign bodies in drug component identification, drug analysis, drug packaging material of each component and the analysis of the foreign body.

Accessories

Intelligent Electronic Moisture-proof Box

The intelligent electronic moisture-proof box adopts high-performance electronic dehumidification core and microcomputer humidity control, which has the characteristics of energy saving, no noise, and intuitive display of humidity. The service life of the core components of the Fourier transform infrared spectrometer is longer.

- Humidity setting and control
- Temperature display
- Humidity over limit alarm

IR Oven

The IR oven as FTIR spectrophotometer accessory, mainly used for drying potassium bromide powder or window, silica gel and other easy delixidation materials, which can effectively improve the surface quality of the sample.