

## FTIR 7600S - Dry Shield Technology

World class 7600S Powered by Win Lambda at Its Core



Experience Precision Redefined

- *Easy to Operate*
- *Powerful Software*
- *Easy Sample Preparation*
- *Simple Maintenance*
- *USB Interfacing*
- *Cost Effective*

FTIR-7600S is a single-beam FT-IR spectrometer. This instrument is operated by a PC with user friendly software and a comprehensive manual. Fast scan speeds, high accuracy and ease with operation are standard features. It is an indispensable analysis tool for various application fields such as chemistry, biology, pharmaceutical, materials, mineral, food and beverage, wine industry and quality control.

### High stable optical system

- The design integrates main components to an optical bench machined from a cast aluminium. Highly stable and no need for adjustment, removing troubles of maintenance of optical path
- Precision machinery ensures high repeatability of every scanning. Advanced design concept is adopted in both optical path and every part
- The system's corner cube optics provides easy operation without requiring complicated electronics and additional moving parts. In addition, many components of the spectrometer are user replaceable which saves time over the lifetime of the instrument.
- Internal dynamic collimation system and movable mirror driving system keep the interferometer at optimum situation. Voice-coil driver and precision slide improves the ability of working in severe conditions.
- The interferometer is sealed with desiccant canister to protect the KBr beamsplitter and other optical components from moisture damage.
- High performance pyroelectric infrared detector together with its circuit board is sealed with a round desiccant canister to protect the coated KBr window of detector from moisture damage.



***A Complete Infrared Spectroscopy Solution for Routine Analytical Needs***  
***— Now Smarter, Faster & More Reliable***

**✓ Built for Routine Labs. Powered by Advanced Technology.**

The **Systronics 7600S** is your all-in-one FTIR spectroscopy platform for rapid, accurate and reproducible materials analysis. Combining robust Indian engineering with features inspired by global best-in-class systems, the 7600S is ideal for:

- Pharmaceuticals
- Chemicals
- Textiles
- Lubricants
- Polymers and Rubbers

- ***Smarter, Faster & More Reliable***
- ***Key Features & Capabilities***
- ***Automation & Productivity Tools***
- ***Software Intelligence***

**⚙ Key Features & Capabilities**

**🔬 Advanced Optical Performance**

- Sealed and desiccated optical bench ensures long-term stability
- Dynamic alignment and interferometer control for high precision
- Wide mid-IR spectral range suitable for most analytical applications
- High-resolution spectra with excellent signal-to-noise ratio
- Optional ATR accessories with Diamond, ZnSe, or Germanium crystals

**☑ Automation & Productivity Tools**

- Barcode-based sample identification (optional)
- Push-button operation — no typing, no SOP printing, no guesswork
- Auto method selection for error-free operation
- Smart sampling accessories with pressure control and auto-recognition
- Overnight **System Performance Verification (SPV)** and validation routines

**💡 Software Intelligence**

**Powered by the robust Milas software, featuring a comprehensive library with over 3000 spectrum for versatile and precise analytical performance**

- **Check™-like Pass/Fail tools** for instant material verification
- Integrated **quantitative analysis** with classic and chemometric methods
- **7600Specta™-like** spectral interpretation and multi-component ID
- Real-time data processing, audit trails, and digital signature-ready reports
- Sample status tracking: validation, method suitability, user authentication



- *Applications at a Glance*
- *Regulatory Compliance & Data Integrity*
- *Why Choose 7600S?*
- *Technical Highlights*
- *7600S — The Smart FTIR for Smart Labs*

## Applications at a Glance

- ✓ Identify raw materials, active ingredients, and finished products
- ✓ Detect contamination, degradation, or counterfeit materials
- ✓ Perform quantitative analysis of simple and complex mixtures
- ✓ Integrate with TGA for evolved gas analysis (optional)
- ✓ Couple with IR microscopy for failure or particulate analysis (optional)

## Regulatory Compliance & Data Integrity

- Supports **21 CFR Part 11** compliance (optional module)
- Digital signatures, role-based access, secure audit trails
- IQ/OQ/PQ validation packages available for regulated environments
- Compliant with **ASTM, EP, and JP** FTIR methods

## Why Choose 7600S?

-  **Low Maintenance:** Desiccant system, humidity indicator, long-life source
-  **Service Support:** Backed by nationwide Systronics service and training
-  **Affordable Excellence:** Industry-grade features without the premium cost
-  **Scalable Design:** Compatible with advanced accessories and automation upgrades

## Technical Highlights

### Specification Detail Spectral

Range 7800–375  $\text{cm}^{-1}$

Resolution  $\leq 0.5 \text{ cm}^{-1}$

Detector DLATGS

Interface USB, LAN

Software Systronics Spectrum Suite (with optional advanced modules)

Sampling Transmission, ATR, liquid cells, gas cells

Compliance ASTM E1421, 21 CFR Part 11 (optional), IQ/OQ/PQ

## 7600S — The Smart FTIR for Smart Labs

With its enhanced usability, intelligent automation, and robust performance, the **Systronics 7600S** empowers your lab to deliver fast, accurate answers with confidence — every time

Attenuated Total Reflectance (ATR) is a powerful sampling technique that virtually eliminates sample preparation. Systronics Smart iTX ATR sampling accessory for 7600S spectrometer offers outstanding performance and universal sampling.

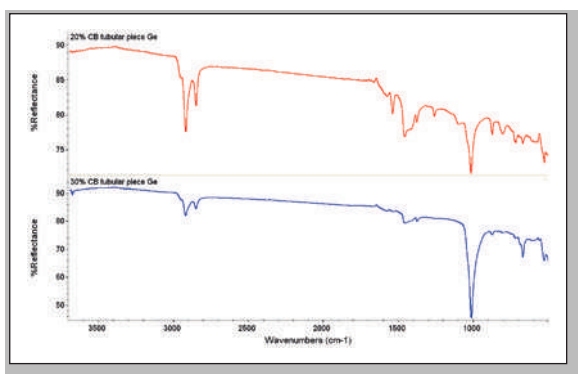
- Multiple crystal options make it possible to sample virtually any liquid or solid
- Automatic recognition, collection parameters, spectral quality check
- Factory-calibrated pressure tower ensures spectral uniformity
- Easy to clean and quickly load your next sample
- Maximum durability; withstand hard and harsh samples with diamond ATR
- OMNIC ATR correction allows spectral search without dedicated ATR libraries
- Qualification available for diamond crystals

Smart Universal ATR Sampling accessory reference chart

| MATERIAL TO BE              | CRYSTAL TYPE |        |           |
|-----------------------------|--------------|--------|-----------|
|                             | Diamond      | ZnSe   | Germanium |
| SAMPLED Soft solids,        | Best         | Best   | Good      |
| Rigid samples               | Best         | Weak   | Weak      |
| Harsh chemicals             | Best         | Weak   | Good      |
| Coatings on metal           | Good         | Weak   | Weak      |
| Liquid samples, gels        | Best         | Good   | Good      |
| Carbon black filled samples | Weak         | Medium | Best      |

More than 60% of FTIR users get their results by using a single reflection ATR. The popular Smart iTX sampling accessory delivers exceptional energy throughput, which allows you to acquire high-quality spectra in seconds. The interchangeable crystals meet your needs for flexibility, ease of cleaning and reproducibility of data.

Carbon black filled samples can be effectively characterized with the Smart iTX universal sampling module by using the germanium crystal.



## Specifications

|                    |                                                                                                     |
|--------------------|-----------------------------------------------------------------------------------------------------|
| Wavenumber Range   | 7800~350 cm <sup>-1</sup>                                                                           |
| Resolution         | 0.5 cm <sup>-1</sup>                                                                                |
| Signal Noise Ratio | 40000:1 (resolution@4cm <sup>-1</sup> , sample and background scan for 1 min@2100cm <sup>-1</sup> ) |
| Detector           | DLaTGS detector                                                                                     |
| Beamsplitter       | Coated KBr                                                                                          |
| Light Source       | Long life, steady state infrared emitter                                                            |
| Electronic System  | 24bit A/D converter at 500KHz, USB 2.0                                                              |
| Power              | 100-240VAC, 50/60Hz                                                                                 |
| Dimensions         | 430mm x 360mm x 200mm                                                                               |
| Weight             | 15kg                                                                                                |

## Optional Accessories

Standard sample compartment allows many types of accessories to extend the functions of the spectrometer.

- Sample cards
- Liquid cells
- Air cells
- ATR
- Cuvettes

## Parts Included

| Description                          | Qty |
|--------------------------------------|-----|
| Main Spectrometer                    | 1   |
| Software CD                          | 1   |
| User Manual                          | 1   |
| USB Cable                            | 1   |
| Polystyrene Film Reference           | 1   |
| Allen Wrench 3 mm                    | 1   |
| Allen Wrench 2 mm                    | 1   |
| Replacement Desiccant canister       | 1   |
| Replacement Round Desiccant Canister | 1   |
| Spanner for Round Desiccant Canister | 1   |
| Software Manual                      | 1   |
| Dust Cover                           | 1   |
| Power Supply                         | 1   |
| Power Cord                           | 1   |
| Tweezers                             | 1   |

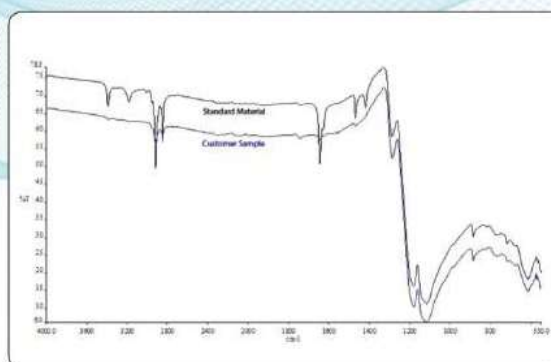
## Moisture-proof design

- Larger capacity desiccant cylinder structure design, which greatly reduces the frequency of desiccant replacement
- Excellent moisture-proof design of interferometer and detector, effectively protecting the optical system and detection system of the infrared spectrometer from the interference and corrosion of external moisture and harmful gases



## Advanced software

Our advanced software, the 'FTIR workstation', searches the library and compares the generated spectrum within a few seconds giving the result and quickly identifying the material.



## Instructions For First Time Install



### WARNING!

Please keep the spectrometer in the laboratory for over 24 hours before it is turned on to allow the temperature of the whole instrument is the same as the laboratory.

### 1. Removing the protective foam in the instrument

- Step 1** Take off the observation lid at the top right corner (Figure 1 and 2).
- Step 2** Remove the screws from the transparent cover by a 3 mm Allen key and take off the cover (Figure 3).
- Step 3** Remove the desiccant box under the transparent cover by a pair of tweezers (Figure 4).
- Step 4** Take the white foam out from the desiccant holder gently by the tweezers (Figure 5).
- Step 5** Restore the replacement desiccant into the holder, and the transparent cover as well as the observation lid onto the instrument.

### 2. Removing protection caps in the sample compartment

- Step 1** Open the lid of sample compartment and there are two protection caps (Figure 6 and 7).
- Step 2** Remove these two protection caps in the sample compartment (Figure 8).

### 3. Running the instrument for a 15-minutes warm up before the operation.

The preferred environment for the spectrometer is normal laboratory conditions. The area should have a stable temperature (16 °C -25 °C or 60°F-78°F) and humidity (20%-60%).



# DATR

Diamond ATR  
for Fast and Easy IR Sampling



- *Easy & fast sampling*
- *Solids*
- *Polymer and rubber*
- *Pastes and gels*
- *High pressure clamp*

DATR is a powerful ATR sampling accessory used by our Fourier Transform Infrared Spectrometer for analysing solids, polymer, rubber, powders, pastes and gels. It is designed to make IR sampling easy. Because of the extreme hardness of diamond, it is suitable to test various kinds of hard samples without concern of damage to the accessory. Mirrors are designed and made by using diamond turning technology to achieve optimal performance. It is ideal for sample identification and QA/QC applications.

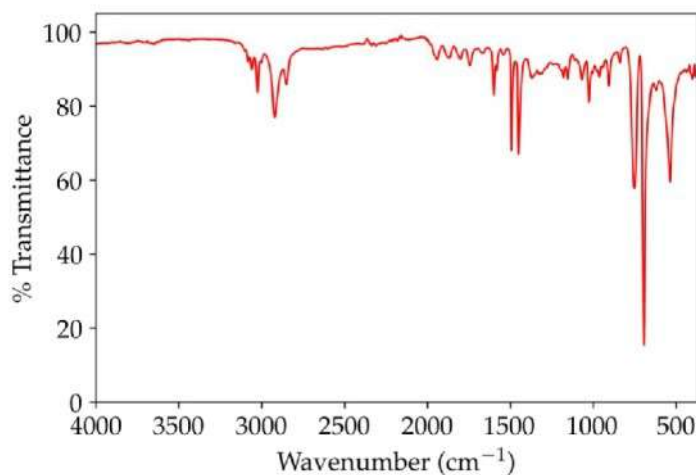
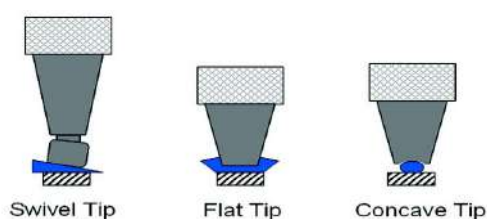
## Features

- Single reflection monolithic diamond crystal plate installed
- Sampling for solid, polymer, rubber, powder, paste and gel
- High pressure lamp with a maximum pressure of 18kg (40 lbs)
- Crystal diameter of 1.8mm with a pressure of 10,141PSI
- Swivel, flat and concave tips for various types of samples

## High pressure clamp

High pressure clamp consist of the base which attaches directly to the accessory's top plate. Pressure clamp is pinned in place and easily changeable within seconds. The clamp includes tips for hard, soft and pellet shaped samples. Ability to deliver high pressure is very important for achieving spectral quality. It utilizes a slip-clutch mechanism to prevent excessive pressure from being applied to the crystal.

- Maximum pressure of 18kg (40 lbs)
- Crystal diameter of 1.8mm with a pressure of 10,141PSI



Polystyrene spectrum collected using a diamond ATR

## Specifications

| ATR Crystal        | Spectral Range              | Crystal Plate Housing | Diamond Surface Diameter | Maximum Pressure  |
|--------------------|-----------------------------|-----------------------|--------------------------|-------------------|
| Monolithic Diamond | 4000 - 400 cm <sup>-1</sup> | Stainless Steel       | 1.8 mm                   | 18 kg / 10141 psi |

## Universal ATR

*Fast and Easy IR Sampling*



- *Easy & fast sampling*
- *High IR throughput*
- *Solids*
- *Liquids*
- *Polymer and rubber*
- *Pastes and gels*
- *High pressure clamp*

SYS-025-1100 series are universal ATR sampling accessories for analysing solids, polymer, rubber, powders, liquids, pastes and gels. With high IR throughput, they are ideal for sample identification and QA/QC applications.

### Features

- Single reflection ZnSe crystal plate installed
- High IR throughput
- Sampling for solid, polymer, rubber, powder, liquid, paste and gel
- Also configurable with Ge, Dimond and Si crystal plates
- High pressure lamp with a maximum pressure of 18kg (40 lbs)
- Crystal diameter of 1.8mm with a pressure of 10,141PSI
- Swivel, flat and concave tips for various types of samples
- Liquids sampling accessories



ZnSe single reflection crystal plate

## Crystal plate

| Crystal plate | Application     | Hardness (kg/mm <sup>2</sup> ) | Cutoff cm <sup>-1</sup><br>Spectral range | Refractive index<br>@1000cm <sup>-1</sup> | Depth of penetration<br>@45° (μm) | pH Range<br>of sample |
|---------------|-----------------|--------------------------------|-------------------------------------------|-------------------------------------------|-----------------------------------|-----------------------|
| ZnSe          | General purpose | 120                            | 520                                       | 2.4                                       | 2.00                              | 5 - 9                 |

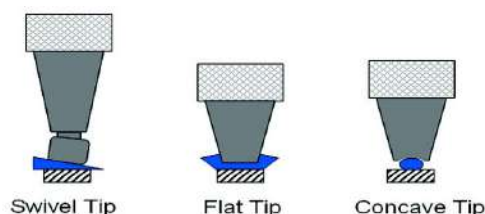
Optional crystal plates:

- Ge crystal plate
- Diamond crystal plate
- Si crystal plate

## High pressure clamp

High pressure clamp consist of the base which attaches directly to the accessory's top plate. Pressure clamp is pinned in place and easily changeable within seconds. The clamp includes tips for hard, soft and pellet shaped samples. Ability to deliver high pressure is very important for achieving spectral quality. It utilizes a slip-clutch mechanism to prevent excessive pressure from being applied to the crystal.

- Maximum pressure of 18kg (40 lbs)
- Crystal diameter of 1.8mm with a pressure of 10,141PSI

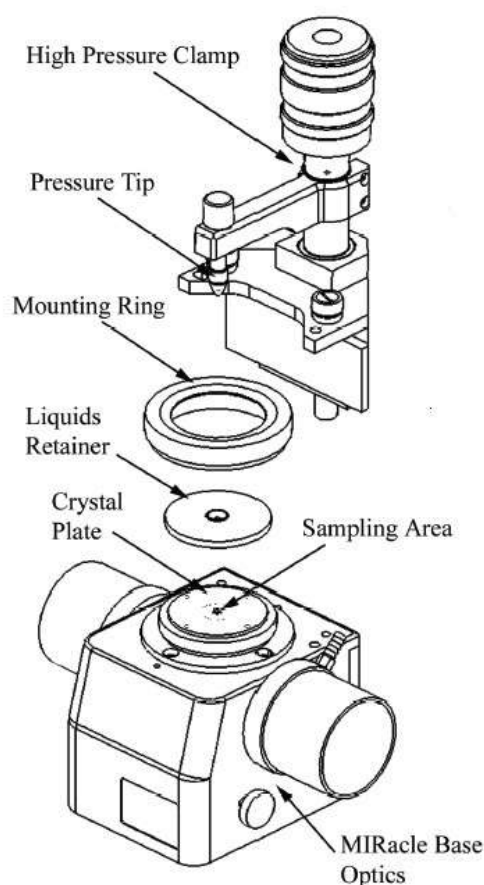
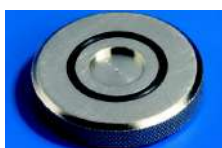


## Other accessories included

Liquids metal plate with insert



Volatile cover for liquid measurement



Exploded view of ATR with High Pressure Clamp



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- Any service related complaints  
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| • Mumbai : 022-28505089      | • Delhi : 011-25758808   |
| • Trivandrum : 0471-2724738  |                          |

Specifications & model number subject to change in keeping with the state of art.