

Scientific- Grade Benchtop FT-IR Spectrometer

ATP8900PRO

Features:

- **Michelson interferometer** with wear free and reliability of 10 year guaranty, with cube-corner mirror resist mechanical and temperature vibration
- Higher stability of optical system is designed with **gold mirror** improve reflectivity by > 5 % than traditional aluminum mirror.
- Super sensitivity and reliable temperature controlled **DTGS detectors**
- Reliable performance of **solid laser** life up to 10 years
- Vacuum cooling ceramic **IR light source** with high performance
- **Powerful software functions** for include batch operation and analysis, integrated automatic acquisition function, online in-field monitor.

Description:

ATP8900PRO is self-designed scientific-grade benchtop FT-IR spectrometer with upgraded resolution up to 0.25cm^{-1} to fit to wide scientific research applications. Moreover, the range extendable to $12800\text{-}350\text{cm}^{-1}$ and optional light source and auto switch detectors, meanwhile it's compatible with many built-in attachments or external type, say the sample compartment can compatible with IR transmission module, Attenuated Total Reflectance, diffuse reflectance up or front, and specular reflectance, gas cell, TGA module etc.

ATP8900pro is widely used for solid, liquid and gas transmission characteristics, direct measure with solid or liquid ATR diamond, ZnSe, Ge crystal no necessary press, and direct connect to gas cell fit to both high and low concentration gases, customize measure is available for one stop solution provider.

It is widely applied to Pharma and life science, microorganism identification, polymerand chemical products, surface analysis, material science, semi-conductor silicon industry, and soil analysis.

Model	Description
ATP8900-S	Resolution $<0.4\text{cm}^{-1}$
ATP8900-H	Resolution $<0.25\text{cm}^{-1}$



1. Performance

Items	Standard Specification	Extendable specification
Spectral Resolution	$\leq 0.4 \text{ cm}^{-1}$	Upgrade to $< 0.25 \text{ cm}^{-1}$
Spectral Range	$8000\text{-}3500 \text{ cm}^{-1}$	$12800\text{-}4000 \text{ cm}^{-1}$
IR source	Vacuum-cooling ceramic light source	Tungsten lamp
Laser	Solid laser	-
Beamsplitters	KBr	Quartz, CaF ₂ , ZnSe, Ge
Detectors	Temperature controlled DTGS detector	Optional: LN cooled MCT detector, Semi-conductor cooled MCT detector, LN cooled InSb detector, LN cooled Ge detector and semi-conductor InGaAs detector
Sample Compartment	Transmission sample compartment	Optional: IR Emission interface, External sample compartment, External sealed UHV compartment
Interferometer	Cube-corner mirror Michelson interferometer, wear free fit to many field measure can resist to mechanical and temperature vibration	
Wavenumber Accuracy	Better than 0.01 cm^{-1}	
Wavenumber Precision	Better than 0.01 cm^{-1}	
Transmission Precision	Better than 0.1%T	
SNR	$\geq 40,000:1$ 1 min sample measurement, 4 cm^{-1} , peak-to-peak	
Dimension	685×415×223mm	

2. Main Features

- **ATP8900PRO upgrade resolution up to 0.4cm⁻¹ to fit to wide scientific research applications.**
- **Wide extendable spectral range function**
ATP8900PRO scientific-grade benchtop FTIR spectrometer auto switch optical components combination can extend the spectral range from 8000-350cm⁻¹ to 12800-4000cm⁻¹, This extendable NIR range can operate in the same benchtop instrument for FT-NIR spectroscopy analysis. This functionality has exclusive advantage of direct measure through glass bottle without diluting sample preparation because the glass is transparent state in the NIR spectral range.
- **Easy-to-operate software functions**
ATP8900PRO Scientific grade FT-IR benchtop spectrometer software functions include batch operation and analysis, integrated automatic acquisition function, online in-field monitor function, applicable to Chemical synthesis pharmaceutical drugs, catalytic reaction, electrochemical reaction, and other intermediate reaction process, in order to research dynamic mechanism.

3. Built-in Modules & Attachments

FT-IR spectrometer is widely applied to IR measure modules of solid transmission, ATR reflectance, and diffuse transmission etc.

- **Solid Transmission**
 - 1 . Many solid powder press
 - 2 . Thin film Quantitative analysis
 - 3 . Heating press module quantitative analysis
 - 4 . Transparent IR materials of various glasses, Jades, crystal materials, and material properties change
- **Solid / Liquid Attenuated Total Reflectance (ATR)**
 - 1 . Many powder sample without press for direct measure
 - 2 . Irregular shape sample of non-destructive measure without press
 - 3 . Many polymer, fiber, thin film, and high polymer sample
 - 4 . Many O ring, rubber sample
 - 5 . Many others difficult to measure by transmission
- **Liquid Transmission**
 - 1 . Seal liquid cell qualitative analysis organic solution, VOCs
 - 2 . Disassemble liquid cell available in change optical length for quantitative analysis
 - 3 . Many lubricant oil quantitative analysis
 - 4 . IR window film forming liquid film for qualitative analysis

- **Gas Cell**

1. Glass or Stainless steel gas cell can inlet directly with select temperature control and optical length of 1.5cm, 3cm, 5cm, 7cm etc fit to high concentration gas
2. Multireflectance gas cell of stainless steel, temperature control and optical length of 50cm, 100cm, 5m fit to low concentration gas
3. Corrosion resistant gas cell can customize anti-corrosion materials gas cell eg HF gas measure

4. External attachment and sample compartment for optional selection

- TGA-IR coupling Module
- GC-IR coupling Module
- External sample compartment is available in vacuum or nitrogen purging type
- External seal sample chamber of UHV couplers
- Gas cell of different specification of 2cm to 20cm
- Integrating sphere Accessory
- In-situ Transmission module accessory
- In-situ Diffuse Reflection module accessory
- ATR attachment and specular reflection accessory

5. Application

- **Pharm & Life Science**

Protein conformation and quantification

Quantification for Active Pharmaceutical Ingredients and excipient in water solution

- **Microorganism Identification**

Characterization for the volatility and stability of medicine combined with TGA module

- **Polymer and Chemical Products**

Detection and Characterization for the volatility and decomposition combined with TGA module

Monitoring reaction process in lab combined with MIR fiber probe module

- **Surface analysis**

Detection and Characterization for the Ultra-Thin film and mono-layer film

Characterization for the erosion process

- **Material Science**

Detection of Emissivity of building materials

Evaluation for Optical material such as Infrared windows and mirrors

- **Semi-conductor Silicon Industry**

Different non-metal film measure

Quality control medium carbon / oxygen impurity identification

- **Soil Analysis**

Soil fertility and organic evaluation

Soil properties research