

## FT-IR Spectrometer

## ATP8900plus-Laptop

### 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

### Description:

ATP8900plus-laptop is winner-award handheld FT-IR spectrometer with a resolution of  $1\text{cm}^{-1}$ , compact design fit to field application

It's widely applied to online in real time monitor industrial gases, identify unknown narcotics, drugs and explosives by force enforcement, identify oil product quality, manufacturer, and gemstones classification, and gemstones classification, relics and museum antiques.

ATP8900plus-Laptop has strictly satisfied standards of Design Qualification, Installation qualification, Operation Qualification and Performance Qualification verification.



| Parameters               |                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spectral Range           | 7800~350 cm-1 or 5000-500cm-1                                                                                                                                                                                                                                                                                                                                                                 |
| Resolution               | < 1 cm-1                                                                                                                                                                                                                                                                                                                                                                                      |
| SNR                      | 30,000 : 1 (1 min sample measurement, 4 cm-1, peak-to-peak.<br>Transmission modular SNR is 140000 : 1 ( RMS )                                                                                                                                                                                                                                                                                 |
| Wavenumber Accuracy      | < 0.01 cm-1                                                                                                                                                                                                                                                                                                                                                                                   |
| Wavenumber Precision     | <0.1 cm-1                                                                                                                                                                                                                                                                                                                                                                                     |
| Detector                 | High sensitivity DLaTGS, inner ADC                                                                                                                                                                                                                                                                                                                                                            |
| Built-in Li-battery life | >5hrs                                                                                                                                                                                                                                                                                                                                                                                         |
| Power                    | AC220V / 50Hz                                                                                                                                                                                                                                                                                                                                                                                 |
| Modules                  | plug-and-play                                                                                                                                                                                                                                                                                                                                                                                 |
| Analysis time            | About 5 seconds                                                                                                                                                                                                                                                                                                                                                                               |
| System                   | Windows 10                                                                                                                                                                                                                                                                                                                                                                                    |
| Software                 | * Infrared control,spectrum processing,<br>* Quantitative analysis of multi-component samples,<br>* Auto inspect software,<br>* Advanced macro programming software<br>* Online continuous monitor of optical components say laser light source, sensor , beam splitter so as to ensure best working status. Auto remove air water and CO2.<br>* Battery power level can be viewed by laptop. |
| Operation condition      | Designed for field use.IP67 rating for dust.                                                                                                                                                                                                                                                                                                                                                  |

## 1. 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

## Advantages To Monitor Gas

- No necessary to adjust cell in front of sample, Nitrogen calibration improves efficiency
- Permanent vertical interferometer module provides excellent shock and temperature resistant ensure reliability
- ZnSe-made beam splitter and mirror seal dehumidifying designed to operate in the field and at site
- Gas cell optical path allow customize by user own base on their specific concentration.
- Built-in temperature control system to keep the constant performance under different conditions
- Optional quality & flow controller for high concentration inlet sample and linearity calibration
- Built-in GTG sensor ( optional MCT ) stand severe environment

## Application:

- **Environmental industry:**

FTIR has been widely applied to environmental monitor, environmental chemistry, and environmental pollution. FTIR can online monitor gas pollution of H<sub>2</sub>O , NO<sub>x</sub>(NO<sub>2</sub> , NO , N<sub>2</sub>O) , HF, SO<sub>2</sub>, CO, HCl ,NH<sub>3</sub> , CO<sub>2</sub> etc. Particles in air pollution and their types and concentration. It also can monitor environmental equipment, say vacuum cleaner, desulfurization and depickle equipment.

- **Criminal investigation:**

Fast detect explosives export field evidence in dangerous site, black powder, nitrolite, TNT, hexogen ,

PETN...

Drugs enforcement: drugs screen morphine, heroin, Cocaine, Ice (crystal methamphetamine) , Ketamin ,  
new psychoactive substances (nps)

- **True/Fake**, quality qualified/disqualified, manufacturer's lubricating oil identification
- **Classification and identification** of gemstones and jade
- **QC check** materials compliant with standards or not.
- **Identify unknown materials**, if the pollution to the material detected can be auto match in the library and know the pollution material name.