FTIR 7800
Spectrophotometer

The FTIR 7800 spectrophotometer simultaneously collects high resolution optical data with a wide spectral range of 7800cm⁻¹ - 350cm⁻¹

The spectrophotometer has a small footprint with intelegent multi-sealed moisture and dust proof Cube Corner Michelson interferometer optical system. Multiple comunication with the FTIR 7800 is available including Ethernet and WIFI.

A powerful CFR 21 part 11 software workstation offers a modular platform design with multiple specialised Libraries and real time instrument status

pg instruments | **analytical instruments for science**

FTIR 7800
Spectrophotometer

PG Instruments – a leader in the development of first class scientific instruments – is pleased to introduce its FTIR 7800.
The FTIR 7800 spectrophotometer offers a wide spectral range and fast collection of quantitative and qualitative data.

Main Industries

The inovative design and modular construction of the FTIR 7800 allows the instrument to used in a large variety of industries.
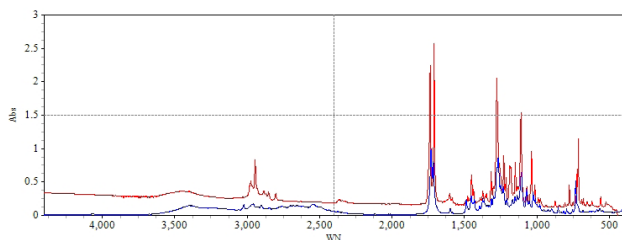
- Pharmacuetical
- Plastics
- Polymer
- Rubber
- Food
- Oil and Greese
- Petroleum
- Forensic
- Research
- Chemical
- Gas
- Agricultural
- Environmental
- Eduacation
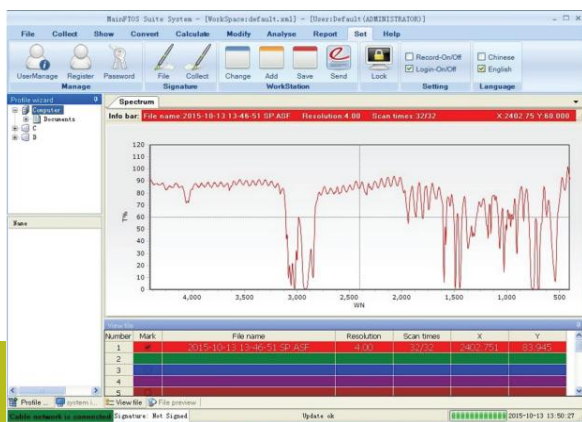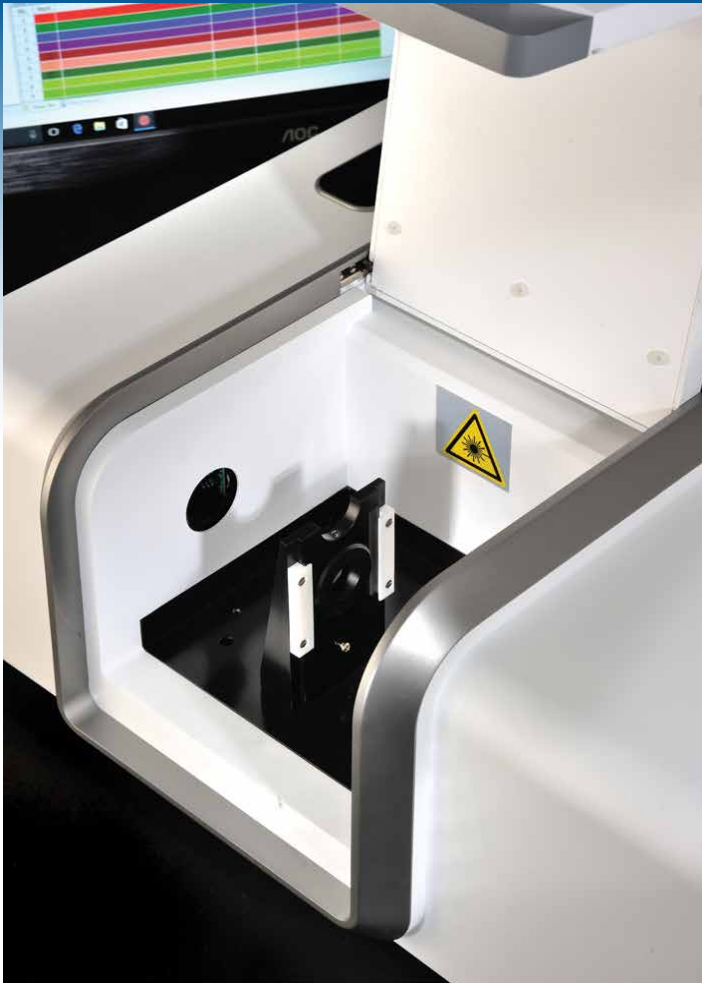

Pharmacuetical

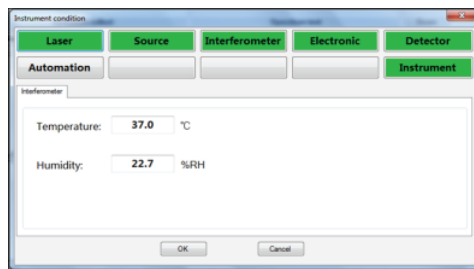*Oil and gas*

Comparison Scan

Variation of Analysis

- *Development of new products*
- *Product manufacture and trouble shooting*
- *Contamination and impurity investigation*
- *Quality control and Quality assurance of raw materials*
- *Identify multiple compounds in a product*
- *Packing and package analysis*
- *IR analysis of synhesized materials*
- *Analysis of semiconductors*
- *Iso-Metric material analysis*

Transmittance Scan

Sample Compartment

Instrument Status

ATR Accessory Fitted

Main Features

◗ **HIgh Sensitivity Optical System**
Cube -Corner Michelson Interferometer combined with patented mirror fixing alignment ensures long term stability. Reflecting mirrors are gold coated to provide maximum light throughput and optimum detection sensitivity

◗ **Intelligent Multi-Sealed optical design**
Multiple sealed Interferometer with high capacity, easy replacable, desiccant cartridge complete with visible window. Real time monitoring of temperature and humidity reduces the influences from chemical corrosion in the Interferometer.

◗ **High intensity IR scource**
High intensity long life IR source module which adopts a Reflex Sphere design to obtain even and stable IR radiation. The isolated IR source module has a large heat disipation chamber to provide better thermal stability and stable optical interference

◗ **Integrated Detector**
The high sensitivity integrated DLATGS detector module ensures high quality real-time data collection and high speed transmission

◗ **Precision Electronic system**
The new stable electronic system is designed to meet the CE certification and electromagnetic compatability as required in todays design and developments. With its dynamic gain amplification, digital filtration and high precision 24 bit A/D data conversion, the instrument excels in producing precision, stable and high speed analytical data

◗ **Multiple communication Options**
The instrument has an Ethernet interface connection as standard for high speed data transfer but can be upgraded to WIFI wireless communicationas an option. This adapts to internet + detection for setting up interconnection tests, remote operation, maintenance and data cloud computing

◗ **Real-Time Instrument Status**
When connected with the software, the instrument offers real-time diagnosis of its working status, performance and communication. The diagnosis includes:

◗ *Laser*   ◗ *Source*   ◗ *Interferometer*   ◗ *Electronic*   ◗ *Detector*

◗ **Universal Sample Compartment**
The universal sample compartment base plate includes mounting holes for a wide variety of PGI and OEM accessories which include Difused/Specular Reflection, ATR, Liquid Cell, Gas Cell and IR Microscope

The modular FT-Win software is supplied with the FTIR7800 instrument as standard. The versatile software can be used with all versions of Window OS and has multiple communication options which include WIFI and Ethernet. With specialised built in IR libraries and user input options, analysis of most samples can be analysed with ease and confidence.

FT-Win Software Features

▶ *Communication Options*

Multiple communication option are available including Ethernet interface and WIFI which can offer remote operation, maintenance and date cloud storage.

▶ *Compatability*

The FTIR Win software is compatable with all versions of Windows opoerating systems including Windows XP, Windows 7, Windows 8, and Windows 10 (32bit and 64bit)

▶ *Modular Platform*

The software has a number of modular platforms including data collection, signal processing and report print out function.

▶ *Language Options*

Different languages are available within the software which can be easily switched over during installation.

▶ *Touch Control*

Touch control is available when using Windows 10 operating system. This allows the software to be installed onto portableTablet computer for space saving.

▶ *CFR 21 Part 11*

The CFR21 Part 11 software has full FDA compliance which includes Access control functions, authority assignment, audit trail and digital signatures. It also meets the requirements of GLP/GMP and CFDA.
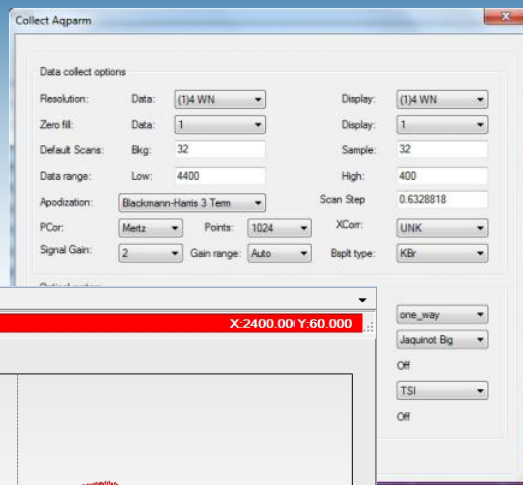
▶ *Software Updates*

Automatic software updates are available on line for keeping the software version up to date
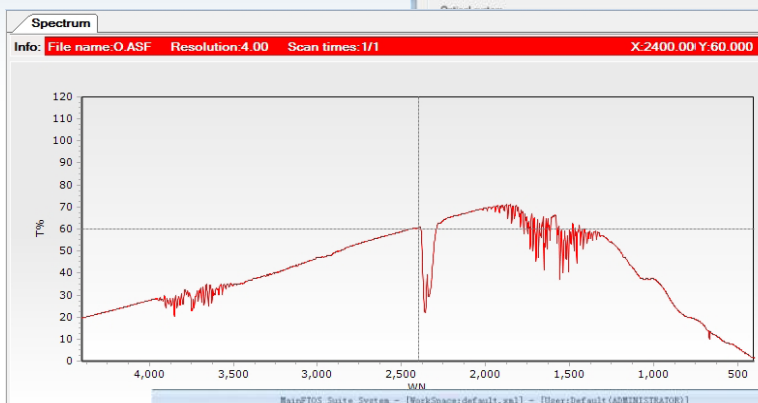
▶ *Instrument Status*

Real-time diagnostics of instrument status are a standard feature of the FT-Win software. The diagnostics offer instrument working status, performance and communication.
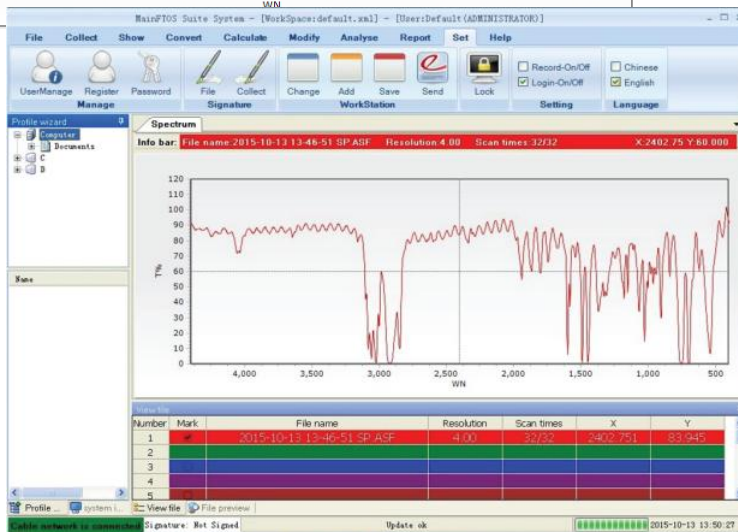
▶ *Library*

The comprehensive library is built in to the FT-Win software and consists of different standard headings. Each library consists of a number of specific items. New libraries can be added to customise the software to the requirements of the user.

Collect Parameters

Spectrum Scan

Transmittance Scan

▶ *IQ/OQ/PQ*

QK-FTIR kit is available as an optional extra. It includes standards, full instructions and reporting hardware which complies with GLP/GMP.

Spectrum Scan

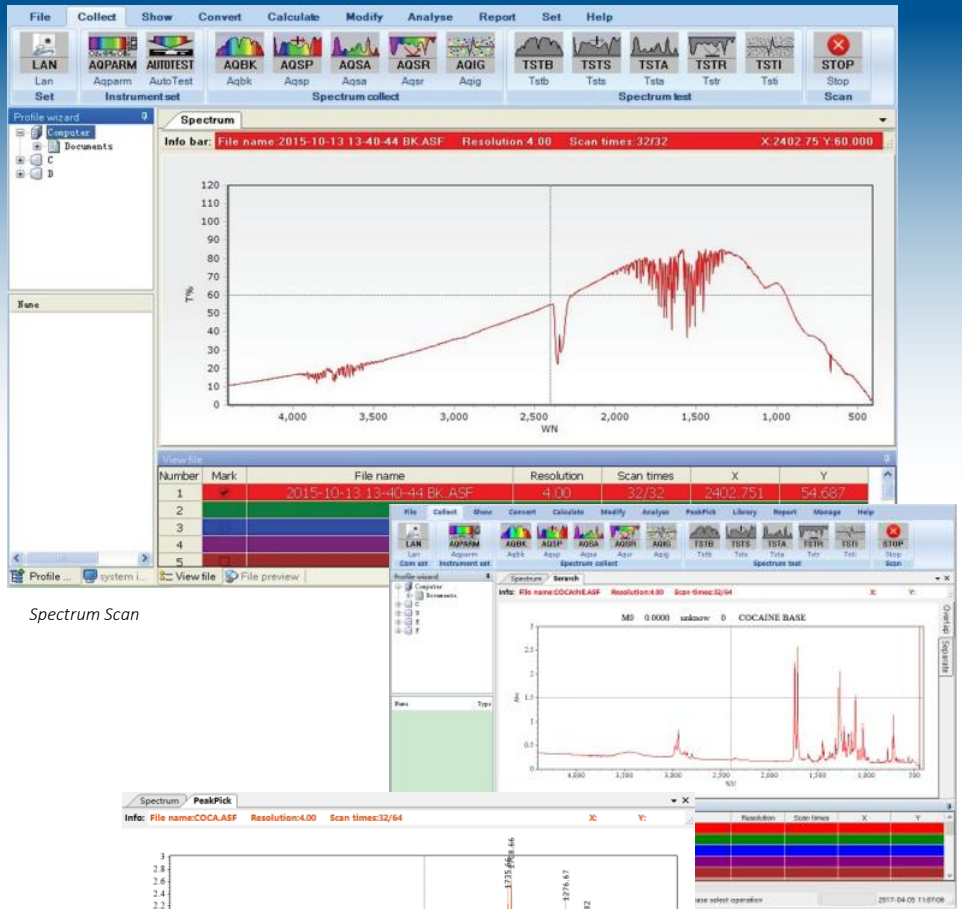## Spectrum and Peak picking

▶ **Collect Spectrum**

The Spectrum can be collected in a number of different ways including background spectrum, transmittance spectrum, absorbance spectrum, reflectance spectrum and interferogram spectrum

▶ **Convert Spectrum**

All spectrum can be converted within the versatile software to another format if required. this includes spectrum to absorbance or transmittance, Kubelka Munk, wavenumbers to microns, interferogram to spectrum, ASF to SC and JCAMP to DX format

▶ **Peak Pick**

Peak picking can be used to identify the peaks within the spectrum. Manual and auto peak picking as well as a comprehensive peak list are available.
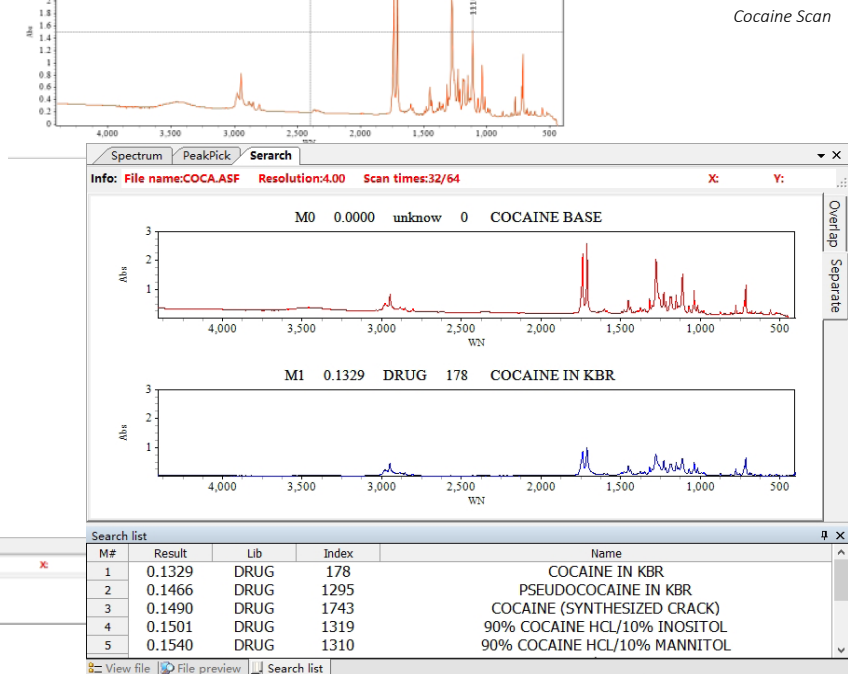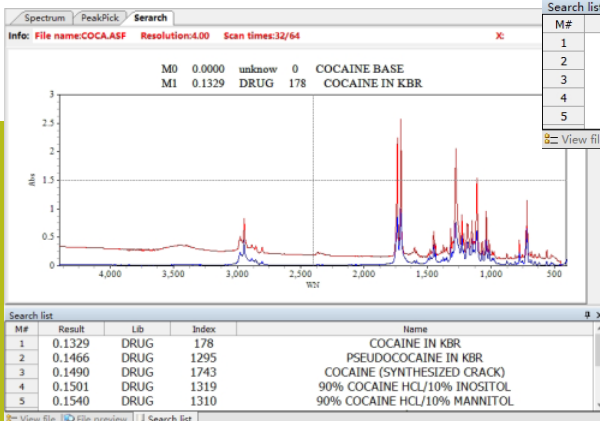

Cocaine Scan

Spectrum Library

The comprehensive spectrum library consists of 19 seperate libraries that have a number of standard spectra available to overlay against sample spectrum. Some of the libraries included are:

▶ Art Media

▶ Catalyst

▶ Chemical Reagent

▶ Drug

▶ Vapour Phase

▶ Fiber

▶ Gems

▶ Grating EPA Infrared

▶ Inorganic Reagent

▶ Minerals

▶ Oil and Additives

▶ Polymer Chemicals

▶ Polymer

▶ Solid Reagent

▶ Surfactant

▶ Veterinary Drugs

▶ Volitile organic

▶ Medicine

▶ Organic Reagent

Seperate Scan

Overlay Scan

The FTIR 7800 spectrophotometer is available with a comprehensive range of starter kits based around core accessories. Each starter kit is the result of combining modular application packs to form a kit that meets the specific needs of the user and is configured to include a wide range of essential accessories, offering everything a spectoscopist will need to analyse sample types.

ATR Accessory Fitted to instrument

The FTIR 7800 spectrophotometer is available with a comprehensive range of starter kits based around core accessories. Each starter kit is the result of combining modular application packs to form a kit that meets the specifc needs of the user and is confgured to include a wide range of essential accessories, offering everything a spectoscopist will need to analyse sample types.

Simply choose the pack you're interested in and select which starter kit best suits your needs. Gas packs can be added to any starter kit.

Starter Kit Liquid Pack

Starter Kit Type	Basic	Analyst	Research	Advanced
Part Number	7800-100	7800-200	7800-300	7800-400
Liquid Pack	✓	✓	✓	✓
Basic Solid Pack	✓		✓	
Advanced Solid Pack		✓		✓
ATR 7800-500			✓	✓
With Added Gas Pack	7800-150	7800-250	7800-350	7800-450

Basic Solid Pack

Gas Pack

ATR 7800-500

Basic

Liquid Pack	Basic Solid Pack	Gas Pack
• Luer Syringe 2ml • Omni® Cell assembly • KBr windows (pair) for liquids • CaF2 windows (pair) for liquids • KBr windows (pair) for Mulls • 10 off assorted PTFE Liquid Cell Spacers • 5 off PTFE 0.1mm Mull Cell Spacers • Bottle of Nujoi (25ml) • Bottle of Fluorolube (25ml)	• Mini-Pellet Press (2T) • 7mm Pellet Die with Pellet Ring Holder • 7mm spare pellet Ring Holder • Pestle and Mortar • KBr Powder 50g • 7mm Disc Holder with rectangular mount	• KBr Windows (Pair) • Storm 10cm Cell Mount • Storm 10cm Pyrex Cell gas Cell (Body Only) • Storm 10cm Complete Seal Kit

Analyst

Liquid Pack	Advanced Solid Pack	Gas Pack
• Luer Syringe 2ml • Omni® Cell assembly • KBr windows (pair) for liquids • CaF2 windows (pair) for liquids • KBr windows (pair) for Mulls • 10 off assorted PTFE Liquid Cell Spacers • 5 off PTFE 0.1mm Mull Cell Spacers • Bottle of Nujoi (25ml) • Bottle of Fluorolube (25ml)	• 15T manual Hydraulic Press • Pestle and Mortar • Kbr Powder (50g) • 13mm Disc Holder with rectangular mount • 13mm Evacuable Pellet Die	• KBr Windows (Pair) • Storm 10cm Cell Mount • Storm 10cm Pyrex Cell gas Cell (Body Only) • Storm 10cm Complete Seal Kit

Research

Liquid Pack	Basic Solid Pack	Gas Pack	ATR 7800-500
• Luer Syringe 2ml • Omni® Cell assembly • KBr windows (pair) for liquids • CaF2 windows (pair) for liquids • KBr windows (pair) for Mulls • 10 off assorted PTFE Liquid Cell Spacers • 5 off PTFE 0.1mm Mull Cell Spacers • Bottle of Nujoi (25ml) • Bottle of Fluorolube (25ml)	• Mini-Pellet Press (2T) • 7mm Pellet Die with Pellet Ring Holder • 7mm spare pellet Ring Holder • Pestle and Mortar • KBr Powder 50g • 7mm Disc Holder with rectangular mount	• KBr Windows (Pair) • Storm 10cm Cell Mount • Storm 10cm Pyrex Cell gas Cell (Body Only) • Storm 10cm Complete Seal Kit	• ATR Single Reflection ATR with ZnSe Flat Crystal Top Plate

Advanced

Liquid Pack	Advanced Solid Pack	Gas Pack	ATR 7800-500
• Luer Syringe 2ml • Omni® Cell assembly • KBr windows (pair) for liquids • CaF2 windows (pair) for liquids • KBr windows (pair) for Mulls • 10 off assorted PTFE Liquid Cell Spacers • 5 off PTFE 0.1mm Mull Cell Spacers • Bottle of Nujoi (25ml) • Bottle of Fluorolube (25ml)	• 15T manual Hydraulic Press • Pestle and Mortar • Kbr Powder (50g) • 13mm Disc Holder with rectangular mount • 13mm Evacuable Pellet Die	• KBr Windows (Pair) • Storm 10cm Cell Mount • Storm 10cm Pyrex Cell gas Cell (Body Only) • Storm 10cm Complete Seal Kit	• ATR Single Reflection ATR with ZnSe Flat Crystal Top Plate

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Technical Specifications

Component	Specification
Interferometer	*Cube-corner Michelson interferometer*
Beam splitter	*Multilayer Ge coated KBr*
Detector	*Room temperature DLATGS module (standard)*
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	*Better than 20,000:1 (RMS value, at 2100cm^{-1} ~ 2000cm^{-1} or 2100cm^{-1} ~ 2200cm^{-1}, resolution: 4cm^{-1}, detector: DLATGS, 1 minute data collection)*
Wavenumber Accuracy	*±0.01 cm-1*
Scanning Speed	*Microprocessor control, different scanning, speed selectable*
Software	*Main FT-Win software suite workstation, compatible to all version Windows OS (including Windows 10 touch screen)*
Communication	*Ethernet interface (standard) WiFi wireless communication (optional)*
Data Output	*Standard data format, report generation and output*
Status Diagnosis	*Power on self-check, real-time temperature, humidity and reminders*
Certification	*FDA 21 CFR Part 11 compliance, IQ/OQ/PQ (available as an accessary)*
Environment Conditions	*Temperature: 10°C-30°C Humidity: Less than 70%*
Power Supply	*220V±22V, 50Hz±1Hz 110v 50Hz±1Hz (optional)*
Accessories	*Transmition sample holder (standard)*
Dimensions	*52 x 43.5 x 25.5cm*
Weight	*24kg*

The highly qualified and long experienced team at PG Instruments Ltd are recognised experts in electrochemistry and relevant technology. They have been developing and manufacturing analytical instruments for science for over a decade and have a worldwide recognised reputation for excellence in their field.