Dual-band Portable Raman Spectrometer

DTR3200

Features!

- Dual bands：532, 633, 785, 1064nm (optionaldual wavelengths combination)；
- High sensitivity, SNR>3000:1
- High Stability
- Hamamatscu CCD, excellent performance；
- High performance spectrometer
- USB2.0 connect to PC

Application

- Scientific Research
- Biology Science
- Forensic Science
- Material Science
- Medical Immunology
- Agriculture and food identification
- Water Pollution analysis
- Gemstones and inorganic mineral
- Environment Science

Description

In many cases in lab is uncertain of wavelengths better for their application, DTR3200 dual-band Raman spectrometer integrate two wavelengths laser sources to detect small sample. It requires no contact, no treatment to make an undestructive detect. This instrument has advantages of high performance-to-ratio, smart size can detect liquids,including fabrics, biology, alcoholics, crystals etc.

DTR3200 built-in 532nm, 633nm, 785nm Raman spectrometers, all of them employs cooled high sensitivity Raman signal enhanced CCD, high efficient Raman probe with a laser power up to 600mW narrow linewidth lasers, combined with high reliable optical design, circuit design, structure design, detect result is very stable, and super SNR.

TR3200 built in 1064 Raman, employs ultra high cooled semi-conductor lasers, 2nd class cooled ultra high sensitivity InGaAs linear array CCD. As a result, with high performance, high sensitivity can fit to scientific research, medical instrument industry.

1.lOrder guidance

DTR3200-785+1064	785+1064	500	200-3500	3-8
		500	200-2600	7-15
DTR3200-532+633	532+633	100	200-3700	5-12
		50	200-3800	6-11
DTR3200-532+1064	532+1064	100	200-3700	5-12
		500	200-2600	7-15
DTR3200-532+785	532+785	100	200-3700	5-12
		500	200-3500	3-8
DTR3200-633+1064	633+1064	50	200-3800	6-11
		500	200-2600	7-15

Book 1 DTR3200TW Built-in Raman Spectrometer Performance Parameters

Excitation	Excitation/nm	Power /mW	Wavenumber/cm-1	Resolution/cm-1
532 nm	532	100	200 - 3700	5-12
633 nm	633	80	200 ～3800	6-11
785 nm	785	500	250 - 2700	3-6
			200 - 3500	4-8
			200 - 4200	5-0
1064 nm	1064	500	200 - 2600	7-15
Optional other wavelengths				

In many cases in lab is uncertain of wavelengths can better fit for their applications, such as 532nm,785nm, 1064nm have their own characteristics I

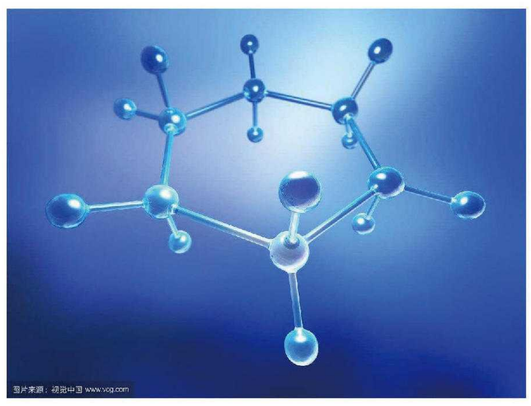
Excitation	Advantage	Disadvantage
532nm	High excitation efficiency, short detect time	Greatly disturbed by fluorescence
1064nm	Fluorescence Resistance	High cost, low laser excitation efficiency, long detect time
785nm	High comprehensive, low cost, high excitation efficiency	

Parameters

Types	DTR3200-532nm	DTR3200-633nm	DTR3200-785nm	DTR3200-830nm	DTR3200-1064nm
Interface	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Integration Time	lms - 120s	lms -64s	4ms - 120s	4ms - 120s	4ms - 120s
Power Voltage	AC 220V(+/-5%)	AC 220V(+/-5%)	AC 220V(+/-5%)	AC 220V(+/-5%)	AC 220V(+/-5%)
Working Temperature	-10 - 40°C	-10 - 0 °C	-10 - 40°C	-25 - 50 °C	-10 - 0 °C
Working Humidity	< 95%	< 95%	< 95%	< 95%	< 95%
Size (L*W*H)(mm)	800*500*300	800*500*300	800*500*300	800*500*300	800*500*300
Channels No.	100	100	100	100	100
Rail Accuracy	0.625 pm	0.625pm	0.625pm	0.625pm	0.625pm
Weight	12Kg	13Kg	12Kg	12Kg	14Kg

Reliability					
Spectral Stability	o/p < 0.5% (COT 8 hours)	a/p< 0.5% (COT 8 hours)	a/p< 0.5% (COT 8 hours)	a/p< 0.5% (COT 8 hours)	a/p< 0.5% (COT 8 hours)
Temp Stability	shift < 1 cm-1 (10-40°C)	shift < 1 cm-1 (10-40 °C)	shift < 1 cm-1 (10-40 °C)	Shift <1 cm-1 (10-40°C)	Shift <1 cm-1 (10-40°C)
Spectral intensity change (in 5-40°C)	〈±5%	<±5%	<±5%	<±5%	<±5%
Optical parameters					
SNR	>1500:1	>3000:1	>3000:1	>3000:1	>3000:1
Detector					
Detector	High sensitivity Cooled CCD	High sensitivity Cooled CCD	High sensitivity Cooled CCD	High sensitivity Cooled CCD, Raman signal enhanced back-thinned CCD	High sensitivity 512 pixels InGaAs detector
Detector cooled Temp	-10°C	-10 °C	-10°C	-10°C	-20 °C
Detector Range	200-1100nm	200-1100nm	200-1100nm	200-1180 nm	900-1700nm
Dynamic Range	50000: 1	10000： 1	50000： i	30000： i	80000： i
Excitation					
Central Wavelengths	532nmdt0.5nm	633nm±0.5nm	785nm±0.5nm	830 nm±0.5nm	106nm±0.5nm
PWHM	≤0.1 nm	≤ 0.1 nm	0.08 nm	0.1 nm	0.1 nm
Max. Power	≥100mW	≥100mW	≥500 mW	≥500 mW	≥500 mW
Power Stability	a/p <±0.5%	a/p <±0.5%	a/p <±0.2%	a/p <±0.2%	a/p <±0.2%
Raman Probe					
Working Distance	6 mm	6 mm	6 mm	6 mm	6 mm
	OD>8	OD>8	OD>8	OD>8	OD>8
	0.3	0.3	0.3	0.3	0.3
Aperture	7mm	7mm	7mm	7mm	7mm
Operation System			Android		
Interface			WIFI, 4G (optional)		
System parameters					
Interface			USB 2.0		
Operation Mode			Touch screen, PC		
Power supply			110V-220V, 0.5A		
Ntegration Time			4ms - 120s		
Power Voltage			DC 19V(+/-5%)		
Power			Max. Power： 50W		
Working Temp.			-10 - 50 °C		
Working Humidity			< 95%		
Size(L*W*H)			350(d) x 296(w) x 172(h) mm		
Weight			12 Kg		

Application



Chemical

Material come in/out test and certification online detect of in-process analysis technology

Analyze physics/chemistry performance relative relationship (Molecular mass, Viscosity, glass transition Temp. etc) Petrol product identification and analysis Resin, petrol chemical products, daily products identification

Biology

In-situ, tissue cells non-contact detect, nondestructive, free sample preparation.

Chemical imaging of internal cell

Lipid content of Biofuel

Detect bacterial

SERS of low energy organism

Land safety defense

IED/HME explosives detect

Unknown materials

Forensic analysis

Border patrol and check

Geology

Nondestructive identification geological materials

Fake gemstones

Identify minerals and gemstones origins

Evaluate mining prospect and change minerals

Pharmacy

Drugs polymorph/solvent detect and classification

Drugs crystals identification

Tablets, capsule, liquid content analysis

Additives and excipients quality guarantee and control

Fast analysis tool of high throughput screen

Evident Identification

Non-destructive, safe drugs and tranquilizer identification, save evidences

Explosives identification

Forensic identification analysis, including fibers, hairs, pigment, ink,fiber fabrics

Toxic solvent identification

Food Safety and Agriculture

Gutter oil detects

Pesticide residues

Food additives

Port of entry check

Pesticide & Herbicide

Wetland check

Bacteria pollution

Semi-conductor and thin-film

Wafer defect check

Thin-film coating

Online process

Quality safety and control

Attachment

Fig 1 Liquid sample cell (similar to Thermo)

Fig 2 Long distance (2meters) Fiber Raman probe (Optional)

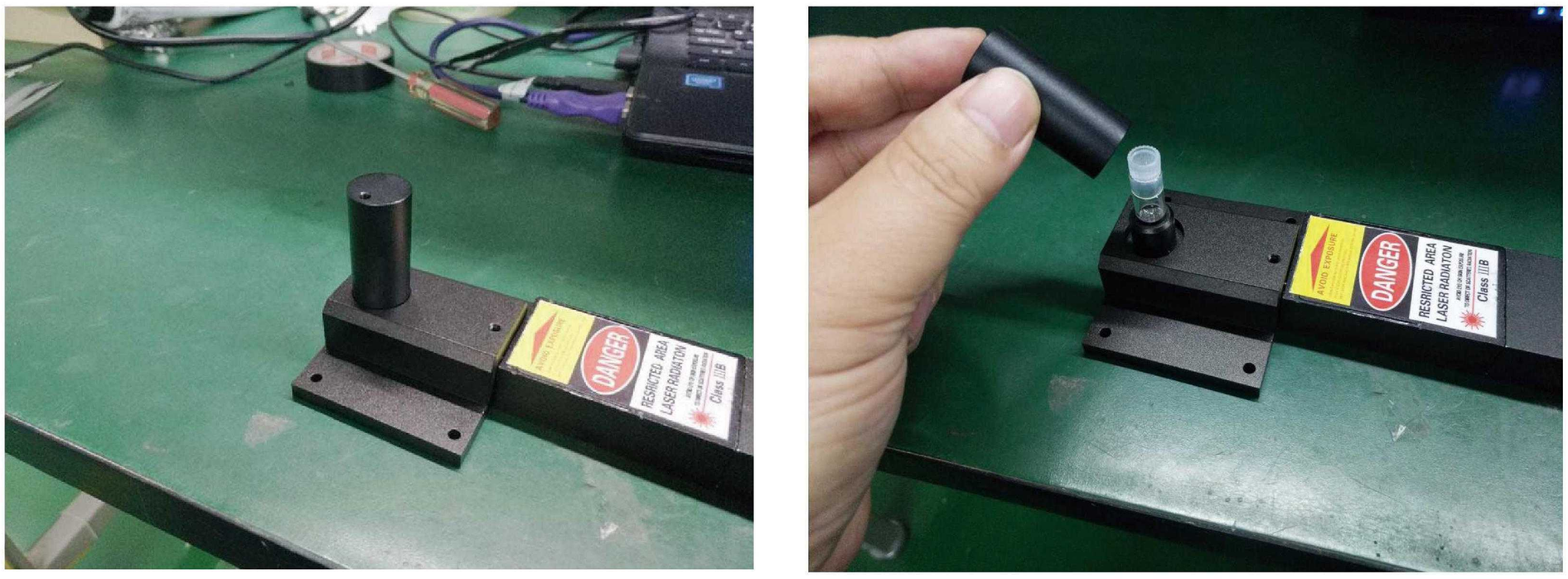


Fig 3 Liquid sample cell (Liquid chromatogram bottle, micro) (optional).

Fig 4 Gun-type Raman probe (Optional)

Fig 5 XY probe holder (solid ＆powder)(Optional)