

MATERIAL CHARACTERIZATION SYSTEM

LIBSCAN Modular LIBS System

Versatile, adaptable, upgradeable – for laboratory and field use



LIBSCAN is suitable for routine sample characterization use and, by virtue of its highly modular design, is also well-suited to research and development work and so will appeal to development scientists working on industrial, security and defense applications of LIBS technology. LIBSCAN can be operated in “open-beam” mode as a Class IV laser system or fitted with one of the family of fully-interlocked modular sample chambers as a Class I laser system. In either configuration the system can be operated with the LIBSCAN head held or mounted in any orientation offering further flexibility in the types of sample that can be analysed.

Features

- Modular and versatile design, suitable for laboratory and field applications
- High efficiency plasma light collection optics (6-channel and 8 channel versions available)
- Laser options: 50 mJ 1064 nm laser (LIBSCAN 50) and 100 mJ 1064 nm laser (LIBSCAN 100)
- May be operated with sample chamber (to Class I laser safety standards) or without (Class IV “open beam” configuration)
- LIBSCAN head and sample chambers may be operated in any orientation
- Optional vertical support stand with height adjustment (facilitates operation of LIBSCAN head in vertical orientation – with or without sample chamber)
- Gas purge feature (for connection to external inert gas supply – Argon, Nitrogen, Helium, Air)
- Optional Imaging Kit (IMG-1) – allows close-up colour images of the sample surface to be viewed on a monitor
- Choice of modular, removable sample chambers
- Up to eight spectrometer modules may be installed (approx. 185 – 1000 nm)
- External laser power supply easily disconnected to facilitate transportation
- May be operated with laptop PC or other suitable device running Microsoft Windows and having USB2.0 port
- 355 nm, 266 nm laser options and double-pulse 1064 nm laser option also available
- LIBSoft™ data acquisition and control software with free upgrades for 2 years

General Specifications

Technology:	Laser-Induced Breakdown Spectroscopy	
Laser source:	Q-switched Nd:YAG operating at 1064 nm (Class IV laser device)	
Laser pulse energy:	Up to 50 mJ (LIBSCAN 50) or 100 mJ (LIBSCAN 100) – user adjustable	
Laser pulse duration:	5 – 7 nanoseconds	
Laser PRF:	Up to 20 Hz (user adjustable)	
Optical spectrograph:	Up to eight spectrometer modules may be installed. Spectrometer module 1: 182 nm – 254 nm, DUV detector coating, FWHM = approx. 0.05 nm Spectrometer module 2: 252 nm – 312 nm, DUV detector coating, FWHM = approx. 0.04 nm Spectrometer module 3: 311 nm – 413 nm, DUV detector coating, FWHM = approx. 0.04 nm Spectrometer module 4: 412 nm – 497 nm, FWHM = approx. 0.03 nm Spectrometer module 5: 496 nm – 618 nm, FWHM = approx. 0.09 nm Spectrometer module 6: 617 nm – 716 nm, FWHM = approx. 0.07 nm Spectrometer module 7: 715 nm – 903 nm, FWHM = approx. 0.15 nm Spectrometer module 8: 902 nm – 1057 nm, FWHM = approx. 0.11 nm	
Size:	LIBSCAN head: 350 x 160 x 120 mm, weight: ~4 kg Spectrometer console (6-channel): 375 x 335 x 165 mm, weight: ~8 kg Spectrometer console (8-channel): 375 x 355 x 165 mm, weight: ~9 kg Laser power supply: 435 x 360 x 133 mm, weight ~14.5 kg Optional transit case: 650 x 540 x 280 mm, weight ~10 kg	
Umbilical:	Approx. 1.8 m between LIBSCAN head and spectrometer console	
Sample interface:	Via use of modular sample chamber or via use of LIBSCAN head alone (ie. “open beam” path to sample)	
Sample chambers:	Type SC-1: Compact modular sample chamber (110 mm x 120 mm x 200 mm approx. dimensions), manual single axis translation stage (20 mm travel), Type SC-2C: Compact modular sample chamber (110 mm x 120 mm x 250 mm approx. dimensions), Manual 2-axis translation stage (20 mm travel) Type SC-2M: Mid-size modular sample chamber (170 mm x 170 mm x 270 mm approx. dimensions), manual 2-axis translation stage (20 mm travel) Type SC-2L: Large modular sample chamber (260 mm x 260 mm x 320 mm approx. dimensions), manual 3-axis translation stage (50 mm travel), internal LED light, fume extraction port.	
System software:	Data acquisition, processing and recording via user-friendly LIBSoft™ software	
Power requirements:	ICE 450: 100 – 240 VAC, 50-60 Hz, 850 VA	Spectrometer console: 12 VDC (2.5A) via plug-in power supply
Product classification:	Class I laser product when used with modular sample chambers and instructions given in User’s Manual are adhered to. Class IV when used without modular sample chamber	

Example configurations



