

Laser-Induced Breakdown Spectroscopy (LIBS)

LIBSCAN Modular LIBS System
Versatile, adaptable, upgradeable – for laboratory and field use



LIBSCAN is suitable for routine sample characterisation 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 4 laser system or fitted with one of the family of fully-interlocked modular sample chambers as a Class 1 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.

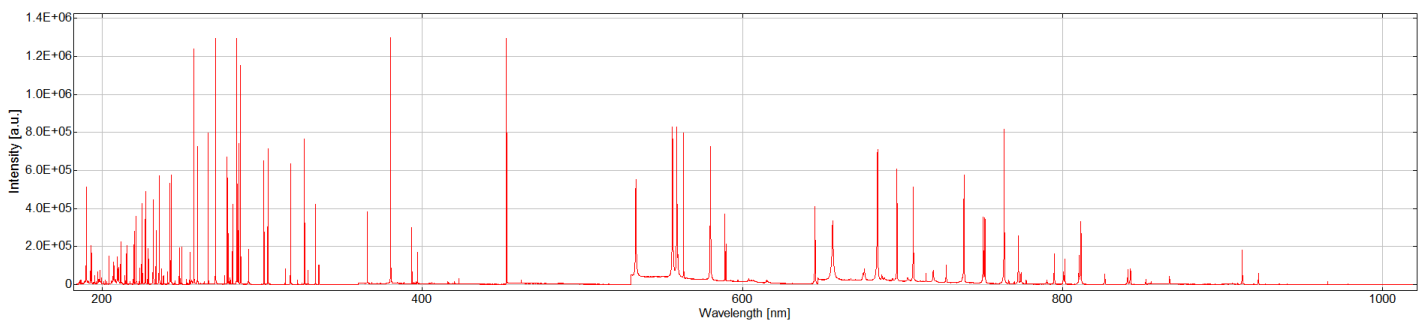
Features

- Modular and versatile design, suitable for laboratory and field applications
- High efficiency plasma light collection optics (6-channel and 8-channel versions available)
- Laser: 100 mJ 1064 nm laser
- Compatible with our range of modular sample chambers
- May be used without sample chamber in Class 4 “open beam” mode
- LIBSCAN 100 head 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-HR) – allows close-up colour images of the sample surface to be viewed on a monitor
- Up to eight spectrometer modules may be installed (approx. 185 – 1000 nm)
- External laser power supply easily disconnected to facilitate transportation
- LIBSoft™ data acquisition and control software with free upgrades for 2 years
- Requires a separate laptop or other suitable computer (contact us for minimum specification information)

General Specifications

Technology:	Laser-Induced Breakdown Spectroscopy		
Laser source:	Q-switched Nd:YAG operating at 1064 nm		
Laser pulse energy:	Up to 100 mJ (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. 0.04 nm	
	Spectrometer module 2:	252 nm – 312 nm, DUV detector coating, FWHM = approx. 0.04 nm	
	Spectrometer module 3:	311 nm – 361 nm, DUV detector coating, FWHM = approx. 0.05 nm	
	Spectrometer module 4:	360 nm – 454 nm, FWHM = approx. 0.07 nm	
	Spectrometer module 5:	453 nm – 530 nm, FWHM = approx. 0.09 nm	
	Spectrometer module 6:	529 nm – 648 nm, FWHM = approx. 0.09 nm	
	Spectrometer module 7:	647 nm – 853 nm, FWHM = approx. 0.14 nm	
	Spectrometer module 8:	852 nm – 1016 nm, FWHM = approx. 0.14 nm	
Approx dimensions:	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	
Sample interface:	Via use of modular sample chamber or via use of LIBSCAN head alone (ie. "open beam" path to sample)		
Sample chambers:	See our website for details of range of modular sample chambers		
System software:	Data acquisition, processing and recording via user-friendly LIBSoft™ software		
Data connectivity:	USB 3.0		
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 1 laser product when used with any of our modular sample chambers		

Example configurations



Example spectrum of high-purity tin with argon purge gas (20-shot accumulation, 1.27 μ s delay, 50 mJ laser pulse energy)