

Smart Laser & Plasma Systems

LS-DP-LIBS

Elemental composition measurement system



What is LS-DP-LIBS?

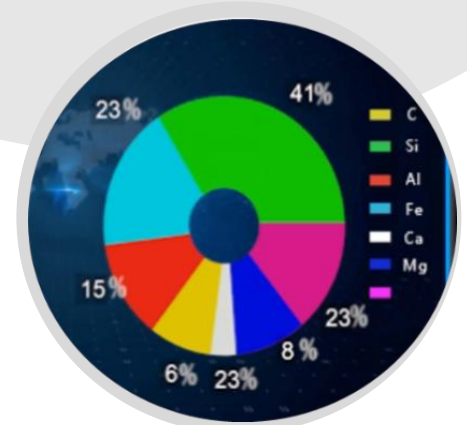
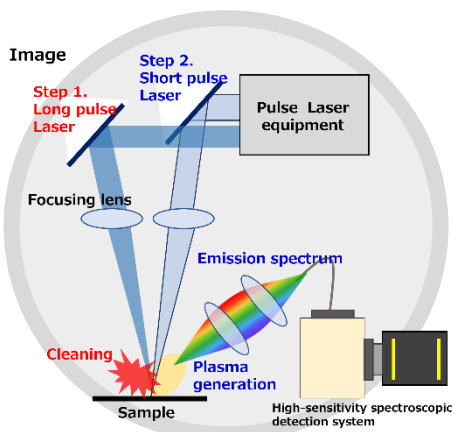
The LS-DP-LIBS is a LIBS system that eliminates the need for pretreatment of the target by using long and short laser beams and can measure multiple components simultaneously in a few seconds. The long-pulse laser beam stabilizes the surface of the target and the generated plasma, while the short-pulse laser beam is responsible for plasma generation, enabling stable and accurate measurement.

Applications

- Capable of simultaneous measurement of multiple components
- High response and real-time measurement
- No need for target pretreatment
- Auto focus function
- No sample shape required
- On-line measurement on the process is available for process control and monitoring

Equipment

- Two laser beams of different wavelengths are focused on a target using a focusing lens.
- The emission signal from the target is detected by a combination of a spectrometer, an ICMOS (or ICCD) camera, and auxiliary equipment.

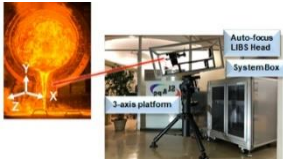
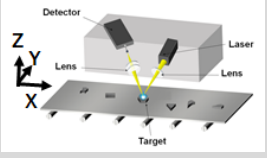
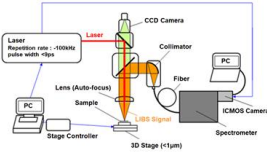


Specification

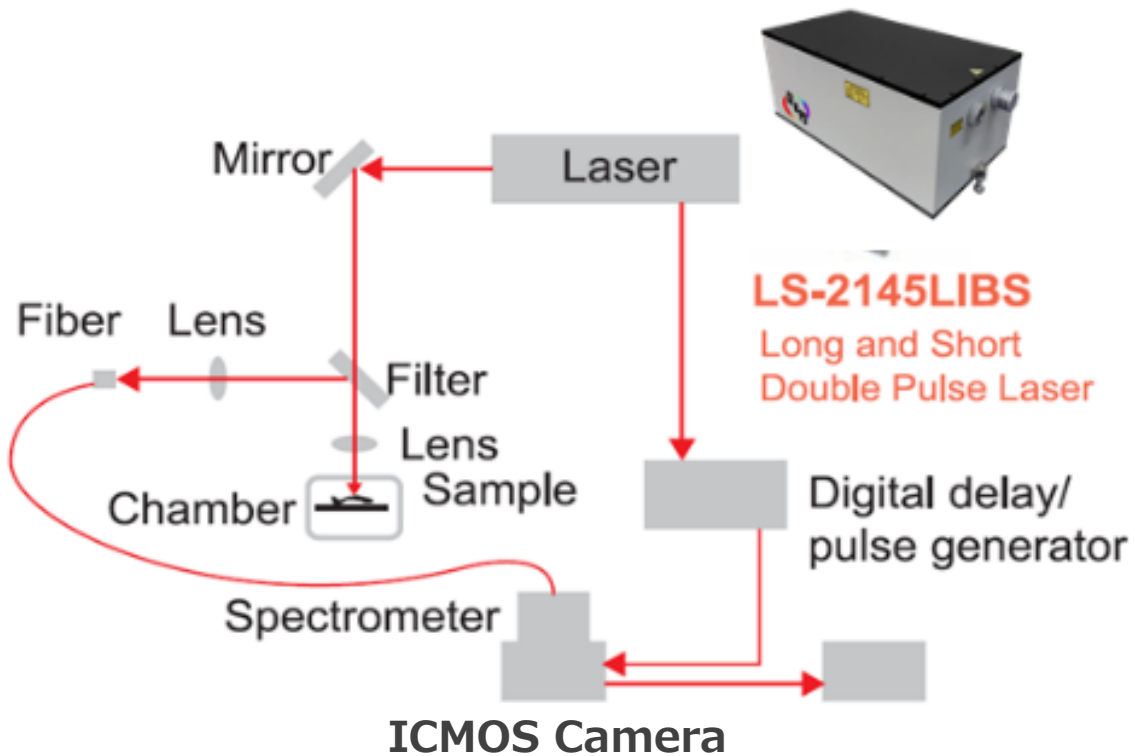
Custom design is also possible.

Laser wavelength	1064nm
Method	Long Short – Double Pulse- Laser-induced breakdown spectroscopy (LS-DP-LIBS)
Target	High temperature furnace, Burner, Rubber, Semiconductor manufacturing equipment, etc.
Detectable elements	Temperature (Room temperature~1850°C), Fe, C, Mn, Al, S, Ni, Co, Li, etc.
Camera	Auto focus function
Detector	ICMOS, ns-gated CCD line sensor
Responsiveness	10-1000Hz



Specification by type

Image	Type	Product Number	Description
	Remote LIBS	R-LIBS-1	<p>Automatic object detection by 2D distance meter</p> <p>Laser irradiation position control</p> <p>Automatic focus and measurement by auto focus</p> <p>Measurement object : molten metal, high temperature material, plant wall, etc.</p> <p>Response time : Depends on system</p> <p>Detection sensitivity : Depends on measurement component</p>
	Built-in LIBS	Bi-LIBS-1	<p>Automatic object detection by 2D distance meter (X, Y, Z display of object on conveyor belt)</p> <p>Laser irradiation position control (X, Y direction)</p> <p>Automatic focus and measurement by auto focus (Z direction)</p> <p>Measurement object : metal, rubber, non-metal, mineral, etc.</p> <p>Response time : Depends on system (2D rangefinder : ~30Hz)</p> <p>Detection sensitivity : Depends on measurement component</p>
	Mapping LIBS	M-LIBS-1	<p>Spatial resolution : ~1 μm</p> <p>Mapping speed : - 25 minutes (100x100)</p> <p>Measurement target : steel, metal, carbon materials, etc.</p> <p>Detection sensitivity : Depends on measurement component</p> <p>Display : 2D, contour, etc.</p>

Example System configuration



Related product

Image	Product name	Part number	Description
	ICMOS Camera	ICMOS-LIBS-1	Effective pixels : 1920(H) × 1200(V) A/D converter resolution : 12 bits Input mount : C mount Image intensifier size : Φ18mm
	Fiber spectrometer	OFS-LIBS-1	Number of channels: 1-12 channels (expandable) Diameter of fiber bundle core : Φ200 μm Solarization resistance fiber : 180-1200nm Wavelength : 180-500nm (-0.01nm/pixel) Effective pixel : 2048x1



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