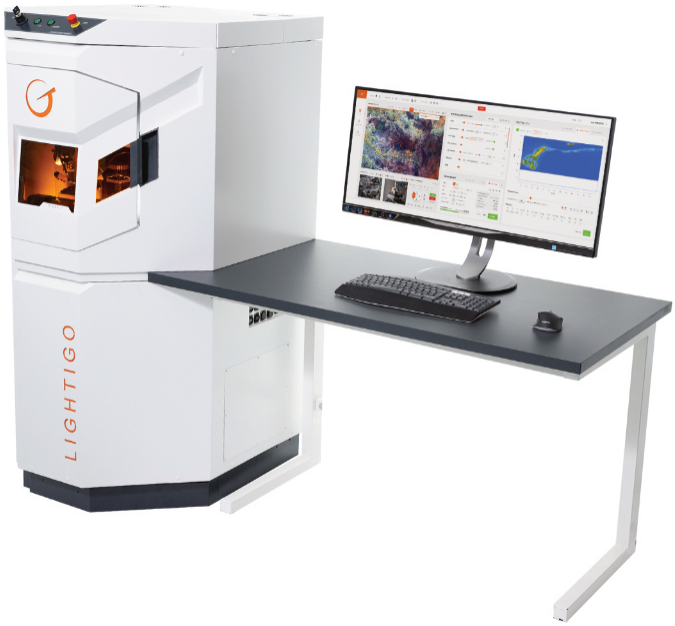
LIGHTIGO

FireFly

Workhorse
for fast elemental analysis



What is FireFly?

FireFly is an analytical instrument for rapid **multi-elemental analysis** and **chemical imaging**.

FireFly utilises the Laser-Induced Breakdown Spectroscopy (LIBS) - one of today's most promising technique of elemental analysis.

With FireFly, you can easily apply the key benefits of LIBS technology in your elemental analysis application.

Applications

LIBS is fast and flexible, sensitive to the most of the chemical elements with detection limits of 1-100 ppm. Potential applications are:

- Metallic, geology, plastic or biology materials
- Elemental imaging (mapping)
- Depth profiling of multiplayer materials
- Toxic / heavy metals detection
- Markers and nanoparticles detection

Equipment

- Motorised 3-axis stage, resolution: <1 µm
- Microscopy view with objective turret
- Motorised laser spot size changing
- Motorised wavelength switching
- Gas purge and extraction
- Up to 100 Hz repetition rate

Geology

Biology

Plastics

Metals

FireFly specification

Table contains a list of generally available system parameters. Individual values may differ depended on the particular configuration.

Motorised Stage	**Travel**	100 × 100 × 70 (X × Y × Z) mm.
	Parameters	<1 µm micro step / 5 µm full step, speed up to 20 mm/s.
Sample handling	**Sample size**	Max 100 × 100 × 70 mm (irregular shape allowed).
	Sample holders	For general use: Universal clamp holder. For standard pellets: 12 × 12 mm | 2 × 30 mm | 1 × 50 mm.
Sample View	**Sample view**	Plan Apo objectives on motoroized objective turret
	Stage view	Varifocal objective, Global shutter +Trigger-In.
Laser Focusing	**Objective**	Macro lens, long depth of focus, f = 75 mm, AR for 266/532/1064 nm. Aspherical micro-focus lens, f = 20 mm, AR for 266/532/1064 nm.
	Spot size	Motorised in a range of ~ 20–150 µm.
Laser	**Type**	Diode-Pumped Solid State, 5 ns, up to 100 Hz
	Wavelength	1064 nm (60 mJ) | 532 nm (30 mJ) | 266 nm (12 mJ)
	Features	Motorised wavelength switching and energy regulation.
Detection	**Spectrometers**	Czerny-Turner or Echelle; 180-1100 nm, resolution < 0.05 nm.
	Detectors	CCD/CMOS or intensified detectors, up to 100 Hz full frame, <10 ns gate width.
Synchronisation	**Output**	TTL output for synchronizing external devices, precision < 10 ns.
Gas Modules	**Gas Purge**	Continuous or triggered inert gas purging (gas input required).
	Gas Extraction	Active gas/dust extraction system with changeable filters.
Accessories	**Calibration lamp**	Hg-Ar line lamp (independent unit).
Control	**Hardware**	PC, LCD, keyboard, mouse.
	Software	Control software + Lightigo ImageLab SW Interactive spectra / chemical map browser, user profiles, multispot / lin-escan / mapping modes, measurement guides, elements database: NIST + LIBS, chemometrics, etc.
Technical Data	**Mains Supply**	110-240V 50/60Hz 10A.
	Protection	Interlock system on doors, laser filters on windows.
	Working environment	Indoor, 10-30 °C.
Dimensions and Weight	**W × D × H**	720 × 940 × 1500 mm.
	Weight	300 kg.

LIGHTIGO
LIGHT UP YOUR RESEARCH

Lightigo s.r.o
Producer of the analytical instruments based on the Laser-Induced Breakdown Spectroscopy

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