

LANScientific

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# Handheld LIBS alloy analyzer



One-second detection



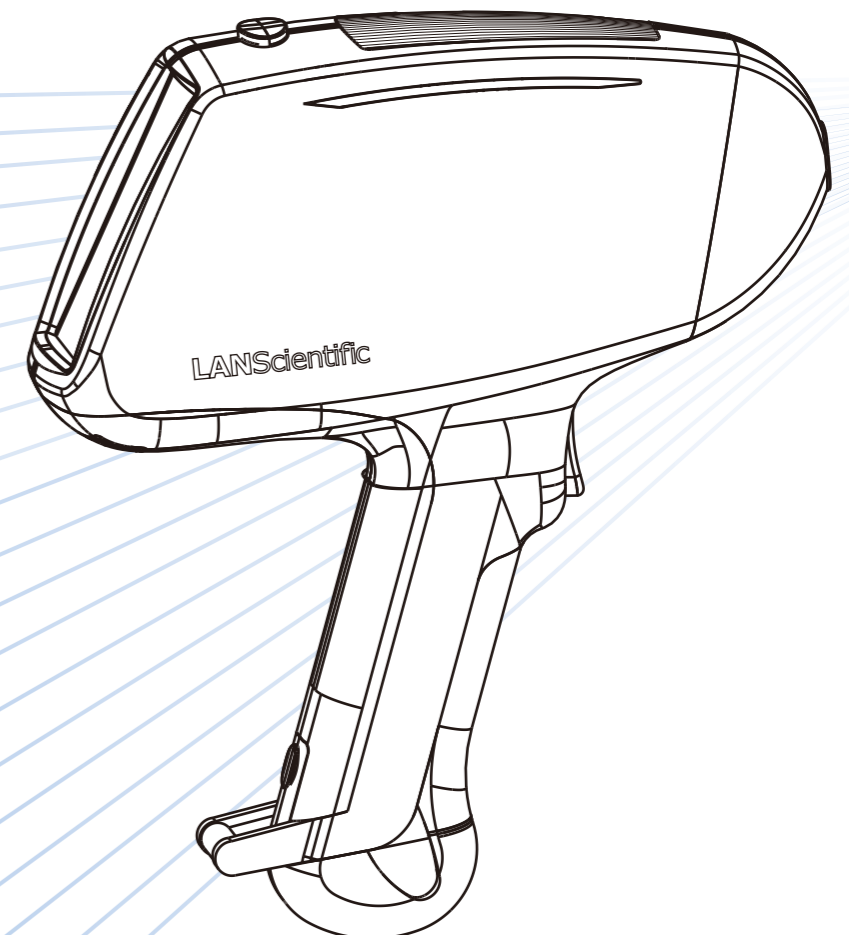
Safety laser



Portable and lightweight



No need for sample preparation



## Product Introduction

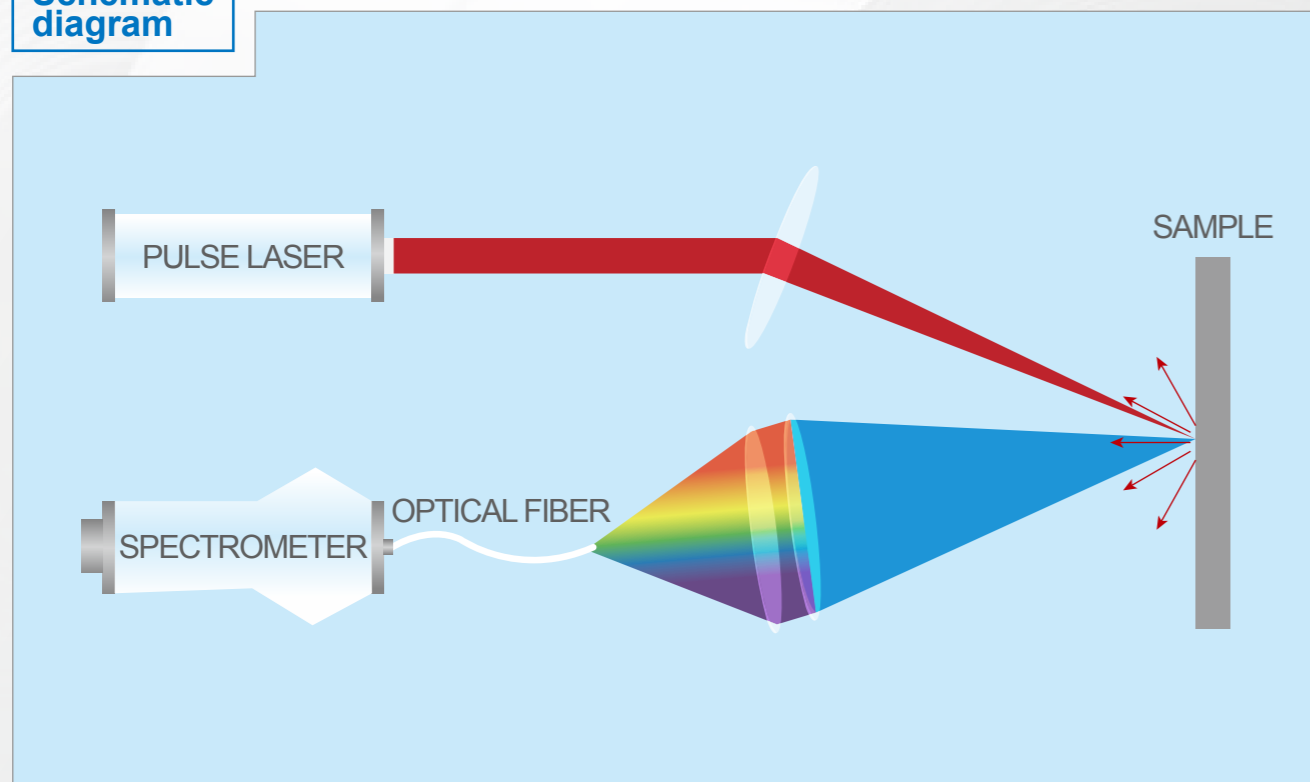
Handheld LIBS alloy analyzer is an advanced spectral analysis tool, integrated with laser-induced breakdown technology and spectral analysis methods. It is light and portable and with the characteristics of easy to operate, fast analysis speed, no need for sample preparation, low destructiveness, small point detection area and simultaneous online detection of multiple elements. It gives accurate grade identification and element quantitative analysis of metal materials, and is especially suitable for the detection of light elements such as magnesium, aluminum, and silicon.

Handheld LIBS alloy analyzer provides a convenient and efficient elemental analysis solution for metal materials, metallurgical smelting and other industries, and provides users with a reliable tool for accurate and real-time sample analysis in complex environments.

## Product Principle

Laser-induced breakdown spectroscopy (LIBS) technology belongs to laser ablation analysis technology. It focuses the laser onto the sample surface. When the energy density of the laser pulse is greater than the breakdown threshold energy, plasma will be generated locally in the sample. As the plasma expands, it gradually cools down and emits a spectrum that characterizes the sample components. The spectrum is then collected by a high-resolution spectrometer. It is a rapid qualitative and quantitative industrial analysis technology.

### Schematic diagram



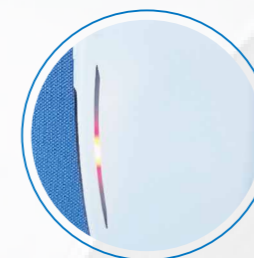
## Product Configuration



Intelligent two-color warning system  
Power on and the green light is on



Better backlight performance  
Clearly visible under strong light outdoors



Red light flashes during testing  
Easy to check instrument status



One-key operation. "Start- Target and Test - Check Results"  
the whole test process can be completed in second  
simple to operate, even for non-technical personnel



## Software Advantage

### Intuitive Operation

The software design prioritizes user experience, offering an intuitive interface that allows users to operate it effortlessly without extensive training.

### Professional Grade Library

The built-in grade library includes multiple alloy grades, addressing the conversion challenges of international standards in specialized industries. Additionally, users can customize and expand the alloy grade library as needed.

### Data Processing

The software features powerful built-in data processing capabilities, enabling automatic spectral data correction to enhance analytical accuracy. Furthermore, it supports upgrades and expansions to accommodate future analytical needs and technological advancements.

### User Customization

The analysis report supports export in formats such as Excel and PDF, allowing users to flexibly incorporate company information, spectral graphs, and detailed sample data for streamlined follow-up research or decision-making.

### User Management

The software enables users to manage existing instrument accounts and add new users. Its intelligent user management system allows for effortless yet precise recording, analysis, and management of spectral data.

Intelligent software brings excellent user experience to customers

**1 User Management**

**2 easy to customize**

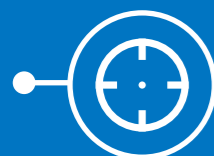
**3 Select test method**

**4 Data editing**

**5 Test Results**

**6 Multiple format output**

## Performance Advantages



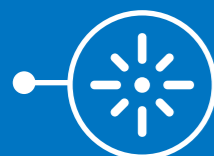
### Fast analysis

One-Click operation, 1-Second typical readout.



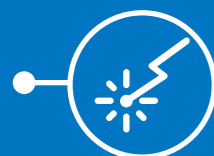
### Portable and lightweight

The whole machine weighs only 1.5 kg, is small in size, meets ergonomic requirements, has strong battery life, and can meet the testing needs of field applications.



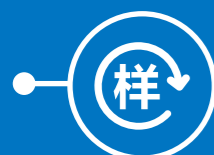
### Safety laser

Using high-energy pulse safety (3B) laser technology, normal use is absolutely harmless to the human body. In addition, the instrument is equipped with a sensor laser safety interlock to help reduce the risk of accidental laser exposure.



### Small ablation damage

Micro-destructive, the ablation damage to the sample target surface is very small and basically invisible to the naked eye.



### No need for sample preparation

Capable for having elemental analysis of any form of matter (solid, liquid, gas, and mixed states) with no or only a small amount of sample preparation.



### Low detection limit

High-resolution hardware configuration and independent fitting algorithm bring higher accuracy and lower detection limit to the instrument. In most general applications, LIBS technology offers a wide detection range, spanning from ppm to percentage levels, making it suitable for diverse analytical requirements.

## Technical Parameters



Item	Parameter
Dimensions	255mm*294mm*80mm
Core Technology	Integrated laser-induced breakdown technology and spectral analysis methods
Weight	1.5kg (with battery)
Display system	4.3-inch industrial-grade resistive touch screen, Automatically adjust display brightness according to external environment brightness
Storage function	32G
Laser	Solid state laser
Spectral parameters	<0.2nm resolution
Single test time	Results in 1 second
High precision test mode	Quick inspection model, general inspection model, precise inspection mode (the average value of multiple single test values can be analyzed through the algorithm)
Test elements	Mg, Al, V, Cr, Cu, Fe, Li, Mn, Ni, Si, Ti, Zn, Zr, Pb, Sn, Sr, etc. (different models can test different elements)
Alloy base	<b>LIBS 800:</b> Magnesium alloy, aluminum alloy <b>LIBS 810:</b> Magnesium alloy, aluminum alloy, copper alloy, nickel alloy, titanium alloy, lead alloy, zinc alloy, stainless steel, medium-low alloy steel, etc.
Sample type	Cylinders, thin plates, wires above 1mm in diameter, foils (~0.02mm), large fragments (no powder)
Detection limit	Varies according to different base and elements
Work temperature	Standard 0~40 C
Software	Application update, data download and grade library custom editing, test report generation, calibration file editing, etc.
Safety	Sensing light safety interlock device
Battery	Equipped with MSBUS bus smart battery, two single batteries can work continuously for about 8 hours, and the remaining battery capacity can be directly checked. It complies with aviation dangerous goods transportation regulations.
Waterproof performance	IP54 waterproof and dustproof rating

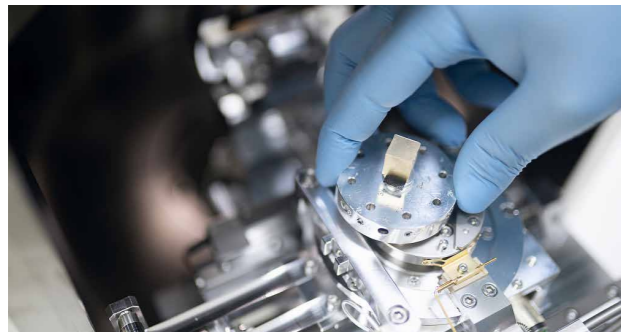
## Application



01 Automobile manufacturing



02 Aerospace



03 Metal processing



04 Waste recycling



05 Building materials industry



06 Electronics industry

## Application Case

Aluminum alloy is a kind of light metal material that is based on aluminum and adds a certain amount of other alloying elements. In addition to the general properties of aluminum, it also has high strength, electrical and thermal conductivity, corrosion resistance and weldability. It is widely used in the marine industry, chemical industry, aerospace, metal packaging, transportation and other fields.

Aluminum alloys can be divided into Al-Si alloys, Al-Zn alloys, and Al-Mg alloys according to different elements. Each system has its own brand and is relatively complex. The instrument comes with up to 1500 pre-installed grades. Containing standard libraries such as AISI, JIS, and GB, it can obtain reliable aluminum alloy grades within one second, with high detection accuracy and good repeatability

Use K6063b samples for on-site testing, and repeat testing the sample to verify the stability of the instrument.

Display of testing results									
Test sample:K6063b Test time:1 second/each poin									
	Al	Mg	Si	Ti	Cr	Mn	Fe	Cu	Zn
Standard value	98.698	0.547	0.419	0.023	0.024	0.020	0.223	0.019	0.027
1	98.605	0.554	0.409	0.023	0.031	0.020	0.219	0.010	0.076
2	98.592	0.546	0.434	0.023	0.025	0.026	0.233	0.008	0.084
3	98.585	0.548	0.432	0.026	0.025	0.022	0.241	0.009	0.066
4	98.532	0.542	0.438	0.029	0.019	0.015	0.242	0.010	0.061
5	98.591	0.554	0.419	0.021	0.026	0.026	0.212	0.009	0.055
6	98.535	0.549	0.424	0.023	0.031	0.023	0.237	0.010	0.059
7	98.595	0.541	0.416	0.023	0.031	0.021	0.228	0.011	0.071
8	98.622	0.542	0.421	0.023	0.029	0.023	0.214	0.010	0.059
9	98.611	0.556	0.429	0.022	0.027	0.028	0.253	0.010	0.062
10	98.613	0.542	0.430	0.025	0.025	0.024	0.237	0.010	0.053
Mean value	98.588	0.547	0.425	0.024	0.027	0.023	0.232	0.010	0.065
STD	0.031	0.006	0.009	0.002	0.004	0.004	0.013	0.001	0.010
RSD	0.03%	1.04%	2.12%	9.66%	14.07%	16.12%	5.72%	8.49%	15.12%

The above test results demonstrate the excellent performance, stability and consistency of the handheld laser-induced breakdown spectrometer.



## ABOUT US

LANScientific Co., LTD. has been devoted to R&D of precise instrument technology since founded in 2012. With more than 10 significant innovation patents, LANScientific has been increasingly professional and mature in fields including XRF, TXRF, EDXRF, X-Ray crystallography, XRD, RAMAN, SEM, LIBS, X-Ray optical devices, laboratory automation and X-Ray sources.

Based on accumulated professionalism and technical know-how, LANScientific insists on customer-oriented philosophy and unceasing innovation, committed to providing turn-key analytical solution to complex and diverse demands.

### FOR THE PACKET LAB

LANScientific products have been exported to the United States, Dubai, Russia, Brazil, India and other more than 50 countries and regions, agents all over the world. In the future, we will continue to expand business territory with better products and more intimate service, so that domestic instruments to the world!