

## Technology and specifications

Measuring range	Mg to U
Processor and RAM	CUP: 667MHz RAM:256M Maximum expanded storage: 32G Standard configuration: 2G , for storage of large amounts of data
Analytical range	ppm~99.99%
Testing time	3-30 seconds
GPS, WIFI	Built-in GPS & WIFI system
Battery	Chargeable lithium battery, with capacity of 7800mAh, continuously providing 8 working hours ; Equip with wide voltage (110V-220V) general adapter
Testing object	Solid, liquid , powder
Detector	25mm <sup>2</sup> ,SDD
Detector resolution	Minimum resolution:139eV
Excitation source	Target: Ag High voltage: 5-40kv Tube current: 1-100 μ A
Collimator and filter	Collimator kinds: 2 (4.0 mm and 2.0mm diameter) Filter types: 6 Automatic switch: YES
Video system	CMOS HD camera
Screen	Semi-transmission & semi-reflection LCD touch screen, resolution 640*480
Detection limit	Detection limit: ppm level
Safety	Self-contained password manager mode
Testing window	φ 12mm
Gas charging system	Optional Helium charging system
Operational environment	Humidity ≤90% Temperature: -20°C~+50°C
Size	234×306×82mm(L×H×W)
Weight	Net weight:1.6kg Battery : 0.3kg



# SPECTROLAB

**Outstanding** small, light, beautiful, safe, convenient, long standby time, waterproof, precise and rapid

Rapid | Accurate | Non-destructive



## SS-100 Genius Hand Held - EDXRF Mg - U



### Simultaneous analysis of all minerals and metals from Mg to U

The SS-100 Genius XRF spectrometer is a unique hand held EDXRF spectrometer designed for analysing all elements from Mg to U simultaneously. The SS-100 Genius is a very sensitive analyser employing the latest "Silicon Drift" detectors for measuring all elements including light elements with extremely high sensitivity. Innovative technology allows the instrument to employ a very low power "ultra safe" X-ray source to achieve state of the art performance for both qualitative and quantitative analysis and as such can be considered as the most versatile "hand held" XRF instrument on the market today.

**Super, small, light weight, beautiful, convenient, long standby time, waterproof, precise and fast**



# SPECTROLAB

[www.spectrolab.co.uk](http://www.spectrolab.co.uk)  
[sales@spectrolab.eu](mailto:sales@spectrolab.eu)

[sales@spectrolab.co.uk](mailto:sales@spectrolab.co.uk)

[www.spectrolab.co.uk](http://www.spectrolab.co.uk)

Partners  
Spectrolab work with a number of partners in the field of X-ray analysis and in particular Anaspec Ltd, Skyray Instruments and X-ray Associates



# SS-100 Genius

## Performance advantage

The SS-100 Genius spectrometer employs innovative technologies to ensure the highest possible sensitivity for all elements including very light elements such as Mg, Al, Si P and S. These technologies include the use of a unique low power integrated end window X-ray tube, a large diameter high transmission window and a “state of the art” ultra low noise TE cooled Silicon Drift detector which currently is the best detector of its kind in the world. This together with our proprietary digital MCA ensure the shortest measure time and the highest possible sensitivity and compares directly with most if not all existing desk top EDXRF spectrometers

## Small and compact plus easy to carry and operate

The SS-100 Genius is a light weight and rugged analyzer that is convenient to use in the field, on the side of a mountain, in a warehouse or in the lab and can be used by anyone- anywhere

## High definition integrated camera

The design incorporates a high definition camera to allow the user to record the detail of the sample and picture its location while it is being analysed

## GPS

GPS facilities are provided allowing exact location to be determined and recorded. This feature is particularly useful when the instrument is being used for prospecting and general field use

## Direct analysis and screening

Genius can measure all elements from Mg to U present in any sample both in terms of quantity and quality and without the need for sample preparation. Simply place a sample in front of the analyzer and click the trigger. A few seconds later the analysis is completed and the results displayed on the data screen. Samples can be alloys, steel, minerals, plastic, residues, sediments, soil or anything else.

## Easy to calibrate

Genius is easy to use and incorporates many features that allow a complete analysis to be made on any sample type using a single key function. Integrated programs allow the percentage of an element to be determined with high accuracy even when samples are inhomogeneous or have an irregular shape

## User indicator light

A dual light indicator system is incorporated whereby a green light is illuminated when power is on and a yellow light when a measurement is being made

## Professional software

Excellent software with combined FP and EC is provided with dedicated programs for a wide variety of applications. Programs include metals and metal alloys including Ni or Ti stainless steel, aluminium alloys, copper alloys, etc. A precious metals program is available including Pt, Ag, Au where gold can be shown in terms of number of carats. Also a full range of minerals, RohS and polymers. Plus programs for scrap sorting etc

## High Efficiency combined X-ray filter / collimator

This unique and highly efficient combined filter / collimator allows multiple groups of elements to be analyzed with improved S:N. The Genius filter system expands the normal 4 group filtering to 12 groups and so improves the overall efficiency by X3. Measure time is significantly reduced

## Super Fast data acquisition and transmission

Very fast data transmission is ensured by employing an embedded Windows CE system plus high definition touch screen technology, plus a digital multi channel MCA along with SPI data transmission. Together these technologies improve measure times with lower dead band leading to enhanced accuracy, shorter measure time and optimum resolution.

## Radiation protection

Genius provides “Multi “ safety features which includes an auto sensing function to automatically shut down X-rays in just 2 seconds when an analysis is being made without a sample plus extra internal X-ray screening. The result is a radiation level far lower than that required by International safety standards making Genius the safest hand held EDXRF available today.

## High power Li battery

Battery power is provided by way of a 7800maH Lithium battery that can be used continuously for 8 hours without requiring a recharge. This means that the instrument can be used continuously for a complete work shift. It also means that when used in the field Genius can be used for several days without a charge under normal conditions. A spare battery charger is provided for both mains voltage or car battery use.

## Rugged durable design

The design is based on a durable tough outer case that is both water proof and dust proof. This allows the analyzer to operate in extremes of temperature and humidity . Durable reinforced construction also ensures that the effects of shock are minimised



## Applications

The SS-100 Genius EDXRF analyzer can be used for a wide range of applications including metallurgy, mineralogy , RoHs , petrochem, precious metals, scrap sorting, screening incoming materials, product certification etc. Samples can be solids or liquids , powders , gels , finished products or components. Because X-rays do not penetrate the sample to any depth or extent , plating and plating thickness can also be measured with high accuracy. Measure times vary according to sample type but always qualitative measurements can be made in just a few seconds allowing materials to be screened or measured for their type or class at high speed. Software programs are supplied for all type of analysis including ferrous and non ferrous alloys, Titanium and Nickel alloys, minerals of all types including ores , rocks and sediments, plus of course precious metals and there ores etc

## Analytical Programs

- SS-100-3000 program calibration for RoHS
- SS-100-5000 program calibration for metal and metal alloys of all types
- SS-100-7000 program calibration for minerals
- SS-100-9000 program calibration for soil environmental
- Other programs are also available

Multi programs can be incorporated into the Genius memory when required

## Typical applications

- Cement, glass, ceramics
- Steel alloys
- Aluminium alloys
- RoHs
- Mining and geology
- Prospecting
- All minerals
- Copper alloys
- Nickel and Titanium alloys
- Chemical analysis
- Environmental
- Precious metals

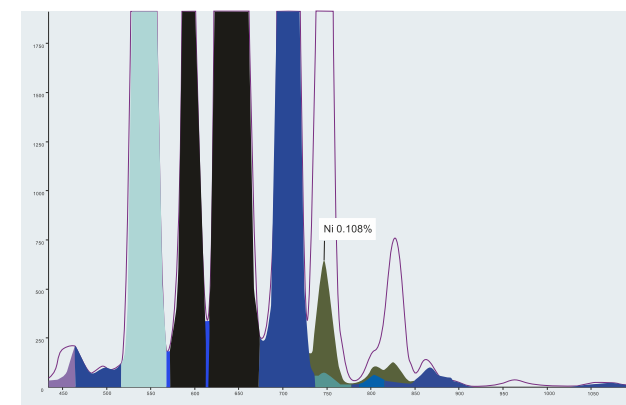
## Reliable fast analysis

To use the instrument simply place the probe onto the sample and press the trigger to begin an analysis, Wait a few seconds and the measurement will be completed. Results are clearly displayed on the screen provided and shown in terms of the element and there concentration. For alloys data is also presented in terms of its alloy type making product certification simple and precise. Reporting is not necessary in that data is recorded on the instruments memory and can be down loaded onto another computer or central processor if required

## How does it work?

Different elements have extra nuclear electron orbitals that have characteristically different energies. All materials can be analysed for their constituent elements by measuring the quantity of photons that are emitted (fluorescence) as well as the concentration of each element in that material

	Cr	Mn	Ni	Cu	Mo
Average value	18.232	0.926	8.072	1.236	0.288
Standard deviation	0.072	0.055	0.086	0.043	0.008
Relative standard deviation(%)	0.395	5.936	1.067	3.506	2.693



Amplified Figure of Ni Content as 0.108% in Stainless Steel

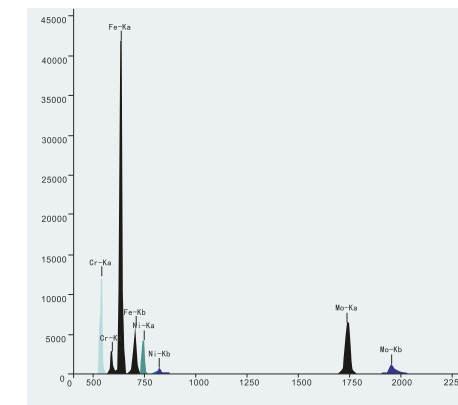


Figure of Stainless Steel (316) Sample