

A WORLD-LEADING ANALYTICAL TESTING SOLUTIONS PROVIDER !

The new generation Genius XRF series are designed to meet the needs of on-site X-ray analysis in the field in a wide range of applications. The Genius is small, light and well balanced with a newly designed easier to use user interface featuring more powerful hardware enabling faster testing with increased accuracy and precision than ever before with quicker and easier access to results. The new hardware configuration including the digital multi-channel technology significantly improve the detection limit, stability and increase its field application.

Technology specification

Model	The 4 th generation EDX analyzer-Genius XRF series
Measurable range	Mg to U
Processor and RAM	CPU: 667MHz RAM:256M Maximum expanded storage: 32G Standard configuration: 2G , for storage of large amounts of data.
Content range	ppm~99.99%
Testing time	3-30 seconds
GPS、WIFI	Built-in system of GPS & WIFI
Battery time	Re-chargeable lithium battery, with capacity of 7800mAH, continuously providing 8 working hours ; Equipped with wide voltage (110V-220V) general adapter
Testing object	Solid, liquid , powder
Detector	25mm ² 0.3mil,SDD detector
Detector resolution	Minimum resolution:139eV
Excitation source	Target: Ag High voltage: 5-40kv Tube current: 1-100 uA
Collimator and filter	Collimator kinds: 2 (4.0 mm and 2.0mm diameter) Filter types: 6 Automatic switch: YES
Video system	HD CMOS camera
Screen	TFT-LCD touch screen resolution 640*480
Detection limit	Detection limit: ppm level
Safety	Self-contained password manager mode
Gas charging system	Optional: Helium charging at ordinary pressure
Operational environment	Humidity ≤90% Temperature -20℃ ~+50℃
Size	234×306×82mm (L×H×W)
Weight	Net weight:1.6kg Battery weight: 0.3kg

Rapid | Accurate | Non-destructive

Genius 7000 XRF

Handheld Mineral Analyzer



Super small | Super light | Super beautiful | Super safe | Super convenient
 Super long standby time | Super waterproof | Super precise | Super fast



Portable and handheld, convenient for testing !

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Test data in this manual, if not noted, is our company's test data.
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The ISO 9001:2008 international quality certification system is adopted by our company

Performance Advantage

01 Perfect performance as desktop

The three main core technologies, low power integrated miniature X-ray tube, large area beryllium window electric cooling SDD detector (the best in the world) and the miniature digital signal multi-channel processor significantly reduce testing time and deviation and increase the detection precision to a level of performance similar to the desktop.

02 Small, light and easy to use

Small, light, easy to carry ... perfect for field work. Can carry out on-site and in-situ analysis anytime and anywhere.

03 Non-destructive detection

No marking or destruction of samples

04 Fast detection

Within 1-2 seconds the Genius can detect the elements present, however, testing for 10 seconds is enough to produce a result of similar in precision to a lab.

05 Light element detection

The Genius can ordinarily detect the light elements starting from Mg without the use of a gas purge. However, the Genius also incorporates a helium gas purge system to further improve detection should it be required.

06 HD camera for more accurate testing

Built-in HD camera as standard enabling easier sample alignment to the exact test point for increased precision.

07 Direct testing

The Genius can test objects directly with no need for sample preparation. Various kinds of samples can be tested including electronic products, alloys, geological and mining, soil, rock, residues, small solid particles, liquid sediments and so on.

08 Easy deviation calibration

Testing couldn't be more simple. With multiple testing modes, free adding of modes and the Automatic Matching Test function, tests can be carried out at the one click of a button or pull of the trigger. Also, built-in intensity calibration methods calibrate and take into account the deviation caused by different sample geometry and inhomogeneous structure density.

09 Professional, easy to use software

Brand new software interface and core designed for easier quicker operation and access to results. The combination of both FP and EC software means it is more stable and has wider applications fields than ever before.

10 Improved efficiency

Employing a combination of automatically selectable collimators with filters, the Genius has a wider range of collimator-filter combinations increasing its performance and widening its capability.

11 Faster data transmission

Incorporating a new Embedded Windows CE system, HD touch screen (res. 640x480), digital multi-channel technology and SPI data transmission, the data transmission and processing ability is significantly improved mastering testing data in every environment.

12 Radiation protection, care for health

Triple safety protection function and an automatic sensor automatically switch off X-ray production within 1-2 seconds when no sample is present, preventing accidental exposure. With no X-ray leakage when operating the radiation level is far lower than the international safety standard (can be combined with a desktop test stand with closable lid).

13 Last lasting power

Lithium ion batteries with maximum capacity of 7800 mAh can continuously operate for 8 hours, 2 times longer than previous generations. Equipped with a wide voltage ac and 12 V adapter and charger to ensure you can test anywhere anytime.

14 Warning Indicators

Equipped with a light warning system, a green LED lights to indicate the power is on and a flashing red LED when testing to prevent mistaken operation and accidental exposure to X-rays.

15 Durable design

The instrument is designed to be waterproof and dust-proof and continuously operate under high temperature and humidity. The carry case is manufactured of high strength military grade material which are moisture-proof, shockproof and pressure resistant.



Application Case in Geology and Mineral Industry

1. Geological soil detection

Simply pull the trigger and within seconds you will know the trace metal element content.

2. Ore discovery

Can very quickly follow abnormalities of mineralisation on-site and highlight the ore boundary. The Genius can simply scan and analyse rock core samples and determine the grade of the boundary.

3. Mine analysis

The Genius 7000 handheld XRF can very quickly and effectively be used to clearly identify the core mineral vein and determine the grade of ores, sub-prime ores and non-ores. It can also improve the productivity of the mine greatly reducing wasted time and the cost of chemical examination and transportation.

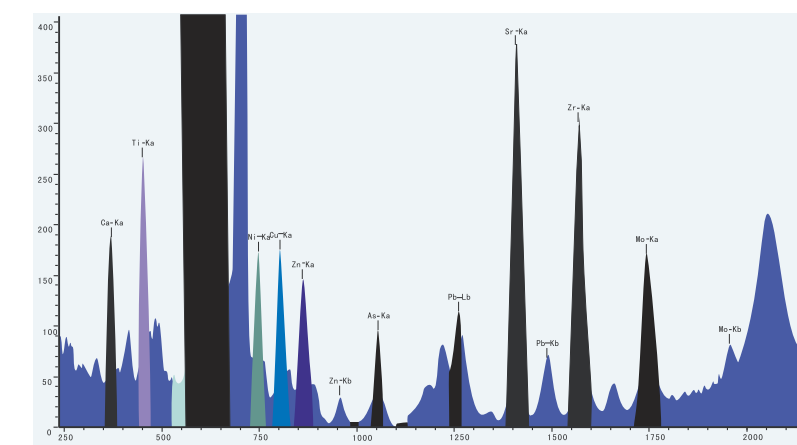
Analytical Precision

Measurement Precision of the Main Elements in an International Poly-metallic Nodule Sample

Sample	Ti	V	Mn	Fe	Co	Ni	Cu
07249_1	1.027	0.055	20.85	18.75	0.352	0.347	0.267
07249_2	1.052	0.053	20.85	18.76	0.351	0.350	0.249
07249_3	1.066	0.055	20.89	18.72	0.347	0.354	0.265
07249_4	1.024	0.054	20.89	18.74	0.347	0.337	0.280
07249_5	1.035	0.058	20.85	18.71	0.359	0.346	0.261
07249_6	1.032	0.053	20.86	18.76	0.350	0.344	0.273
07249_7	1.056	0.057	20.85	18.70	0.353	0.353	0.275
Average Value	1.042	0.055	20.862	18.734	0.351	0.347	0.267
Standard Deviation	0.0161	0.0018	0.0195	0.0244	0.0039	0.0059	0.0104
RSD/%	1.55	3.35	0.09	0.13	1.12	1.71	3.88

Sample	Zn	As	Pb	Ca	Sr	Zr	Mo
07249_1	0.056	0.018	0.097	2.020	0.122	0.064	0.037
07249_2	0.056	0.018	0.096	2.063	0.122	0.064	0.037
07249_3	0.055	0.018	0.097	2.050	0.123	0.064	0.037
07249_4	0.054	0.018	0.100	2.074	0.121	0.065	0.038
07249_5	0.055	0.018	0.098	2.040	0.120	0.063	0.037
07249_6	0.055	0.018	0.096	2.062	0.122	0.064	0.037
07249_7	0.056	0.017	0.083	2.072	0.122	0.063	0.037
Average Value	0.055	0.018	0.095	2.054	0.122	0.064	0.037
Standard Deviation	0.0007	0.0003	0.0058	0.0193	0.0010	0.0005	0.0005
RSD/%	1.29	1.89	6.05	0.94	0.80	0.79	1.45

Spectrum of above sample



Mineral testing advantage

- Fast categorisation of ore sample. Auto multi-element qualitative and quantitative analysis. Choice of ore samples and free adding of samples.
- Built-in intensity calibration methods allowing calibration of the deviation caused by different different sample geometry and uneven structure.
- Can record GPS position of sample tested in the field which is saved along with the test data and included in the report.
- Can quickly test a large mining area, effectively detect the land belt mode and survey and map the distribution of ores and mines, helping to pinpoint the mining rich mineral areas.
- Test raw ore, concentrate and tails when washing the ores.
- Quickly determine of raw ores and concentrates when purchasing.
- Determination of light elements such as Mg, Al, Si, P, S etc.
- Equipped with an HD camera, you can directly visualise the test area of the mineral vein and mineralised points increasing accuracy of the result.

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Handheld Mineral Analyzer

