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Comparison of Technical Parameters for Various Models of HGX-8 Series Products

Configuration and application model	HGX-8 Ore Analyzer	HGX-8 Alloy Analyzer	HGX-8 Soil Heavy Metal Detector
Analysis object	Raw ore, rock core, mineral powder, slag, mining soil, etc.	Aluminium alloy, Stainless steel, alloy steel, tool steel, chromium/-molybdenum steel, copper alloy, zinc alloy, cobalt alloy, precious metals, etc.	Soil, sludge, sediment.
Instrument weight	Weighing 1.5kg with battery and 1.3kg without battery.		
Range of measured elements	Mg (Magnesium) to U (uranium)		
Content detection range	0.0001%～99.99%		
Digital multi channel	Low noise, high-performance 4096-channel digital pulse processor.		
Detector	Fast-SDD		
X-ray source	Integrated programmable radiation source, Ag target, adjustable tube voltage from 0 to 50KV, adjustable tube current from 0 to 200uA.		
Wave filter	Built-in single channel collimation and filter.		
Camera	Built in high-definition sample camera and environmental camera, capable of capturing samples and outputting images along with reports.		
GPS	Optional		
Operating system	Linux		
Analysis software	Built-in ore analysis software	Built-in alloy analysis software	Built-in soil heavy metal analysis software
Remote connection	It can be connected to Android phones and computers through WiFi to achieve remote control and data sharing of the instrument. It can also be connected to a computer through USB-OTG to achieve remote operation of the instrument. It can be connected to a portable printer via Bluetooth to print data.		
Battery hot plug and unplug	Equipped with hot swappable function, it can directly plug and replace the battery without shutting down. After unplugging the battery, the standby time of the instrument should not be less than 5 minutes.		
Sound and light safety warning	The instrument has a three state LED status display and sound prompt. When powered on and in standby, the LED displays green. When excited by X-rays, the orange LED status indicator flashes while breathing. When a fault occurs, the red light flashes. When the test starts and ends, an sound prompt is emitted.		
Instrument heat dissipation	The shell of the instrument has a large area of metal, which can timely dissipate internal heat and ensure the thermal stability of the instrument.		
Calibration system	External automatic calibration		
Air pressure correction system	Built-in air pressure compensation correction module, software can calibrate test results based on air pressure values.		

HGX-8 series

handheld X-ray fluorescence spectrometer

Fast, non-destructive, accurate, and reliable

Basic working principle

X-rays refer to electromagnetic radiation with wavelengths ranging from 0.01 to 10 nm, and each element's atom has its own characteristic X-ray spectral line.

In an XRF analyzer, a controlled X-ray source emits X-rays to irradiate the object being measured. A portion of the shell electrons of the atoms generate stimulated radiation, releasing X-ray fluorescent photons that characterize the characteristics of the element. The X-ray fluorescent photons are captured by the detector to generate electrical signals, which are amplified, filtered, AD converted, and digitally processed to form spectral information. The spectral information is processed by a specific algorithm to calculate the concentration of the element.

Product advantages

Scientific design, powerful configuration, user-friendly features, and ultra-high performance.

- Large area heat dissipation ensures the stability of the instrument.
- One click start test, no need to press the trigger for a long time.
- 4-core 1.8GHz processor, 2GB memory, 24GB data storage, expandable up to 128GB, equipped with industrial grade Linux operating system, powerful computing power, extremely high data security and confidentiality.
- High signal-to-noise ratio digital 4096-channel pulse processor, million level CPS.
- 4.5 hour high-definition capacitive touch screen with adjustable screen brightness, good human-computer interaction experience.
- 360° tri color breathing indicator light, real-time display of X-ray status, sound and light warning linkage.
- Built in WiFi, Bluetooth, and pressure compensation calibration.
- Rubber anti slip handle.
- The battery level display on the controller allows for real-time observation of the battery level.

The ergonomic center of gravity design brings a good handheld experience, and the whole machine contains **only 1.5 kilograms** of battery.

- High resolution Fast SDD detector with energy resolution up to 125eV.
- Equipped with self-locking spring tablets, the window protective film can be quickly replaced without the need for tools.
- Sample camera with macro function.
- Leading ultra short X-ray optical path, extremely high X-ray fluorescence photon detection efficiency.
- The head sensor can sense the sample, preventing empty side and detecting excited X-rays.

- 8-channel filter system, programmable automatic switching, optional single channel filter
- Auto focus high-definition environmental camera (optional)
- Leading ultra narrow head design that can adapt to corners and narrow slits.

- Smooth operation experience, with a startup time of only 15 seconds.
- Software can be operated through joystick buttons.
- Status indicator light and sound prompt.
- A single battery has a range of 8-10 hours, with a leading battery hot plug design that allows for battery replacement without shutting down. After unplugging the battery, it can provide no less than 6 minutes of working time, making it very suitable for large-scale continuous operation users.

Technical parameter

Usage environment	Operating temperature: -10 °C~50 °C; Usage humidity: 0~90% (20 °C).
Overall dimensions and weight	Overall dimensions: 27.6cm × 24.5cm × 8.2cm; Weight (including battery): 1.5Kg, 1.3Kg without battery.
Scope of analysis of elements	From Mg to U.
Detector	Adopting high-performance SDD detector with electric refrigeration.
X-ray source	Optional Rh, W and Ag target, adjustable tube voltage from 0 to 50KV, adjustable tube current from 0 to 200μA.
Microcomputer system	Industrial grade 4-core 1.8GHz processor; 2GB RAM, 24GB data storage, capable of storing approximately 300000 spectral data; Built in 4.5-inch high-definition backlit touch integrated color display screen, display resolution: 854 × 480; The startup time is less than 20 seconds, with a joystick button that can be used to control the software through the joystick. The trigger can be triggered or the screen can be clicked to start the test without the need to pull the trigger for a long time.
Operating system	Industrial-level Linux
USB interface	Two USB ports, capable of connecting USB flash drives to copy data, can be connected to PC.
Wireless interface	Built in WiFi and Bluetooth module, can connect to PC, Android phone or Bluetooth printer.
Remote control	Through WinGUI software and Android APP, data sharing can be achieved by connecting to a computer or phone via USB or WiFi.
Camera	High definition sample camera.
Pressure correction and filtering collimation system	Built in air pressure calibration, optional single filter or combination of multiple filters, optional internal or external calibration
Analysis software	Soil heavy metal analysis software, ore analysis software, specialized NDT alloy analysis software.
Operating language	Standard Simplified Chinese, switchable between Traditional Chinese and English, customizable for multiple languages.
Radiation safety	Equipped with password protection function; The head is equipped with an infrared sensor that can automatically identify the sample and automatically prohibit the excitation of X-rays during aerial testing; Multi interface X-ray status warning.
Battery	The battery has a built-in power display; The working time of a single battery is about 10 hours; The battery has a hot plug function, which allows for direct plugging and replacement without shutting down the device; During work, the battery level can be displayed synchronously on the controller and screen.
Transportation safety	Compliant with ISTA 3A packaging transportation drop, vibration, and impact standards.
Environmental adaptability	Complies with GB/T2423.1, GB/T2423.2 high and low temperature test standards.
Instrument packaging	Special shock and drop resistant protective box for instruments, containing a cushioning substrate.
Spare parts	6600mAh lithium battery *2, charging adapter *1: input 110~240V/1, 2A, output 12.0V/4A; USB-OTG cable *1, 16GB USB flash drive *1, test window film *5, wristband *1; Optional accessories: Radiation Shield *1, Portable Folding Stand *1, Strap *1.