Portable XRF Analyzers
DELTA Handheld X-ray Fluorescence

Fast, Accurate, Nondestructive Elemental Analysis of Materials
The DELTA Handheld XRF for Elemental Analysis

Nondestructive DELTA Handheld X-ray fluorescence analyzers provide decisive results to multiple industries with varied applications. Elements such as lead, mercury, arsenic, copper, gold, silver, platinum, and more are detectable in concentrations of parts per million (PPM) up to 100%, with little or no sample preparation requirements.

Scrap Sorting and Recycling
The DELTA scrap sorting handheld XRF provides reliable identification in 1-2 seconds for most alloy grades and pure metals. It is designed for durability – to withstand the toughest environments. It is ideal for checking a wide variety of materials including ferrous and non-ferrous metals, glass, and plastics in seconds.

Alloy Positive Material Identification/QA/QC
The DELTA analytical and positive material inspection (PMI) analyzer is vital for quality control and assurance in the metal manufacturing and fabrication industries. It is used for compositional analysis and alloy grade identification, from critical components to raw materials to welds.

Precious Metals Identification
The DELTA provides fast, accurate alloy chemistry and karat classification with one nondestructive, non intrusive test. Whether importing precious metals, selling or producing jewelry, or processing scrap metal, the DELTA is the ideal choice.

Regulatory and Safety Screening
The DELTA screens for pollutants and poisons such as lead, cadmium, chromium, mercury, arsenic and other toxic elements. It is used to help ensure safety and to help comply with global regulatory programs directed by EPA, RoHS/WEEE EU Member States’ Enforcement Bodies, CPSC, FDA, Border Patrol and more.

Geochemistry and Mining Exploration
The DELTA provides immediate results to help determine the next course of action throughout the entire mining process – exploration, grade/process control, and environmental sustainability. On-site detection of metals, minerals & contaminants and GPS-GIS XRF for instant metal mapping ensures time and cost savings.

Research and Education
The DELTA adds an amazing dimension to research and education in the classroom and in the field. It’s versatility and rapid response engage students, making the periodic table of elements and science come alive. Environmental, forensics, archaeology and chemistry education benefit immediately.

X-ray Fluorescence Technology
Thousands of units are in use worldwide, from show rooms and assembly lines to remote desert and arctic regions. DELTA Handheld XRF analyzers are optimized to be responsive and effective to meet the needs of both economically and regulatory driven businesses, from recycling, mining and fabrication to environmental assessment and consumer product safety, and to scientific research and education.

The DELTA series analyzers are configured with powerful miniature X-ray tubes, Si-PIN detectors or highly advanced Silicon Drift Detectors (SDD), specialized filters, and multi-beam optimization for the ultimate in XRF field analysis. The DELTA’s real overall value is to help make decisions in real time with minimal reliance on off-site laboratory testing.

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Alloy Positive Material Identification/QA/QC

Precious Metals Identification

Regulatory and Safety Screening

Geochemistry and Mining Exploration

Research and Education

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DELTA Handheld XRF Configuration

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DELTA workstation with integrated safety-lock shielding can be controlled with a PC.
The DELTA Handheld XRF
Provides Fast, Decisive Results

Alloy ID and Scrap Sorting

The DELTA can take results and compare them to a library of alloy compositions to “match” an unknown material to known alloys. Pop up messages can be preprogrammed for immediate sorting or coding instructions to increase efficiency and throughput.

Precious Metals ID

The DELTA can automatically identify and characterize a wide range of alloys, including precious metals including Au, Ag, Pt, and Pd. It can be preprogrammed to provide on-the-spot gold karat classification, 0-24 kt.

Regulatory and Safety Screening

The DELTA can provide positive/negative or pass/fail results for rapid regulatory and safety screening of Pb, Cd, As, Hg, Cr and other toxic metals in consumer products. Archived DELTA images and results make it the ideal tool for a Reasonable Testing Program.

DELTA Handheld XRF for Overall Value

Geochemistry and Mining Exploration

The DELTA metal and light element compositional results can be transferred wirelessly for XRF-GPS-GIS “instant geochemistry”. It provides the ability to map, visualize, assess and follow up on targets immediately for better mining exploration decision making.

Environmental Assessments

The DELTA can take pollutant metals results and transfer them wirelessly for XRF-GPS-GIS “instant pollutant metal mapping”. It provides fast decisive results for site characterizations, assessments, property evaluations and contamination tracking.

Research and Education

The DELTA can provide qualitative and semi-quantitative elemental information to guide research and identification of unknown or complex materials. It can provide results fast and relevant enough to keep students engaged in applicable science-based projects.
The DELTA Series
Everything You Need in Handheld XRF with State-of-the-Art Innovation

The New Generation DELTA Handheld XRF Analyzers are ergonomically advanced with a forward looking design incorporating the latest in electronics, components, and software technology.

The newly available DELTA X-act Count Technology can provide even better sensitivity and precision in faster time for more materials than before. Throughput is increased with the same or better precision in half the time for most elements.

Features and Benefits
- Powerful 4W X-ray tube, 200 µA current (max), optimized beam settings
- Tight geometry for exceptional LODs and high analysis throughput
- Large-Area SDD and customized x-ray tube options for exceptional sensitivity and precision for more elements and materials
- Patent-pending automatic barometric pressure correction that adjusts calibration as needed for more accurate analysis of light element.
- Lightning-fast data acquisition for faster testing time
- Floating Point Processor: Provides more calculations in less time, and leverages more advanced calibration algorithms
- Integrated Bluetooth® for data input and output available in most countries
- Integrated wide area heat sinks throughout the DELTA body for high power use in extreme temperatures
- Analysis indicator lights visible from 360° to help ensure safe use
- Advanced colortouch LCD screen for clarity, brightness, responsiveness, and energy efficiency for indoor/outdoor use
- Accelerometer technology puts the unit into sleep mode to save energy when not in use; logs impacts for tool management
- DELTA PC Software for enhanced data analysis, calibration modeling, and optional closed beam workstation operation
- USB interface port for high-speed downloads and seamless PC control
- Ergonomic rubberized handle for enhanced grip

Docking Station and Hot Swap Batteries

A variety of accessories and options are available to take full advantage of the DELTA Handheld XRF in the field. From portable bench-top setups for prepped samples to XRF-GPS-GIS setups for full-scale, large area, in-situ instant metal mapping, these accessories help maximize efficiency of field XRF testing.

1. DELTA Portable Workstation
- Portable workstation with integrated safety-lock shielding is convenient for bagged, prepped, filters, dust wipes and liquid samples or for multiple small objects; a PC is connected for remote control of this closed-beam DELTA set-up.

2. DELTA Holster
- The holster keeps the DELTA by your side and within easy reach.

3. DELTA Soil Foot
- The soil foot provides hands-free analysis with the DELTA for long testing times.

4. DELTA 50kV Safety Shield
- The safety shield provides additional shielding from open beam radiation for field use of the full 50kV power.

5. DELTA Xplorer
- The Delta XRF-GPS-GIS Xplorer Configuration provides seamless connectivity between XRF and GIS for rapid targeting and real time decision making.

6. DELTA Soil Stick
- The soil stick minimizes wear and tear on your back and knees and provides push button operation of the DELTA from an adjustable height. It’s most applicable for in-situ testing on large scale soil geochemistry and environmental programs.

DELTA Professional
The DELTA Professional with a 40kV tube and SDD detector is the best value solution from Olympus for handheld XRF analyzers. It provides superior performance in speed, LODs, and elemental range.

DELTA Premium
The DELTA Premium with a 40kV tube and large area SDD detector is best for ultra quick, analytically demanding applications, such as trace levels and light elements in low alloy steel, soil, mining, and metallurgical samples.

Some DELTA Professional and Premium models can be configured with a 50kV tube to optimize LODs for high-Z and challenging elements, such as Ag, Cd, Sn, Ba, Cr, Bi, Tl, and Rare Earth Elements (REEs).

DELTA Classic Plus
The DELTA Classic Plus with a 40kV tube and Si-PIN detector is ideal for simple applications. It provides quick ID, screening, sorting, and elemental and metals analysis.

The unique DELTA Docking Station frees you from having to power down the analyzer. The station charges the analyzer battery and a spare, and performs periodic calibration checks. DELTAs can be operated 24/7 in the field with hot swap battery replacement.

DELTA Field Accessories
The DELTA Line

The DELTA series handheld XRF analyzers are configured with powerful miniature X-ray tubes, Si-PIN, or highly advanced Silicon Drift Detector (SDD) detection, specialized filters, and multi-beam optimization for the ultimate in XRF field analysis.

## DELTA Specifications

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<tr>
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<th>DELTA Premium</th>
<th>DELTA Professional</th>
<th>DELTA Classic Plus</th>
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<tbody>
<tr>
<td><strong>Excitation Source</strong></td>
<td>4W Rh, Au, or Ta anode (per application) X-ray tube</td>
<td>4W Ag, Rh, Au, or Ta anode (per application) X-ray tube</td>
<td>4W Au or Ta anode X-ray tube</td>
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<tr>
<td><strong>Detector</strong></td>
<td>Silicon Drift Detector</td>
<td>Silicon Drift Detector</td>
<td>Si-PIN Diode Detector</td>
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<tr>
<td><strong>Analytical Range</strong></td>
<td>Alloy and Mining: Mg and up for Rh/Ag and Al and up for Ta/Au; Soil: P and higher</td>
<td>Alloy and Mining: Ti and higher; Soil: P and higher</td>
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<tr>
<td><strong>Weight</strong></td>
<td>1.5 kg (3.25 lbs) without battery</td>
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<tr>
<td><strong>Dimensions</strong></td>
<td>260 × 240 × 90 mm (10.25 × 9.5 × 3.5 in.)</td>
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<td><strong>Environmental Temp Range</strong></td>
<td>-10 ºC to 50 ºC (14 ºF to 122 ºF)</td>
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<td><strong>Processing Electronics</strong></td>
<td>530 MHz CPU with integrated FPU with 128 MB RAM; Proprietary Olympus Digital Pulse Processor (DPP)</td>
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<td><strong>Smart Electronics</strong></td>
<td>Accelerometer; Barometer for atmosphere pressure corrections of light elements’ measurements</td>
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<td><strong>Power</strong></td>
<td>Rechargeable Li-ion battery; Hot-swap maintains analyzer power during battery charge</td>
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<td><strong>Data Display</strong></td>
<td>32 bit Color QVGA resolution, Blanview transmissive backlit touchscreen; 57 × 73 mm (2.25 × 2.9 in.)</td>
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<tr>
<td><strong>Data Storage</strong></td>
<td>1 GB microSD (stores ~75,000 readings)</td>
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<tr>
<td><strong>Data Transfer</strong></td>
<td>USB, Bluetooth®</td>
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### Standard Accessories

- Waterproof Carrying Case
- Two (2) Li-ion Batteries
- Docking Station
- Mini USB Cable
- 316 Stainless Steel Calibration Check Reference Coin
- Ten (10) Spare Windows
- Integrated Wrist Strap
- DELTA PC Software
- Factory Authorized Training and Support