X-MET® for mining

Fast, on-site ore analysis!

Highly accurate and repeatable sample analysis

At the pull of a trigger, Oxford Instruments' hand-held **X-MET**5000 and **X-MET**5100 X-ray fluorescence (XRF) analyzers deliver fast, highly accurate on-site sample screening and analysis.

Both analyzers provide real-time data in seconds, for:

- Ore exploration
- On-site excavation control
- Mine mapping
- Process monitoring: concentrates, tailings etc.
- Environmental control

What's more, **X-MET** enables precise portable GPS integration for real-time ore exploration and mine mapping.

Top of the range **X-MET**5100 combines Oxford Instruments' groundbreaking Silicon Drift Detector (SDD) with a powerful 45kV X-ray tube.

This cutting edge technology delivers a five times faster measurement speed, much better detection limits and significant accuracy improvement over conventional systems.

Isn't it time you used **X-MET** to improve ***your*** productivity and screening confidence?

FASTER ANALYSIS...LOWER DETECTION LIMITS
NEW
Oxford Instruments'
SDD45 Measuring Technology
INSIDE
Superior Light Element analysis

Reliable high speed mapping!

Minimal need for laboratory analysis

- Results obtained in seconds
- Portable GPS integration for real-time ore exploration and mine mapping
- Measure directly on drill core sample
- Certified IP54 NEMA 3 splash and dust proof
- Highly accurate multi-element ore analysis
- User interface in >10 languages
- Universal Fundamental Parameter analysis mode for measurement of ores without known standards
- User friendly Empirical Calibration package
- Go/No-Go user configurable result format
- Rapid data transfer to PC

Worldwide Technology Leader

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Rugged and reliable tool for fast, accurate analysis

- Withstands all weather conditions and rough treatment
- IP54 (NEMA 3) approved. Superior dust and moisture protection
- High-strength environmentally sealed housing
- Long battery operating time, charge indicator on battery and user interface

High performance

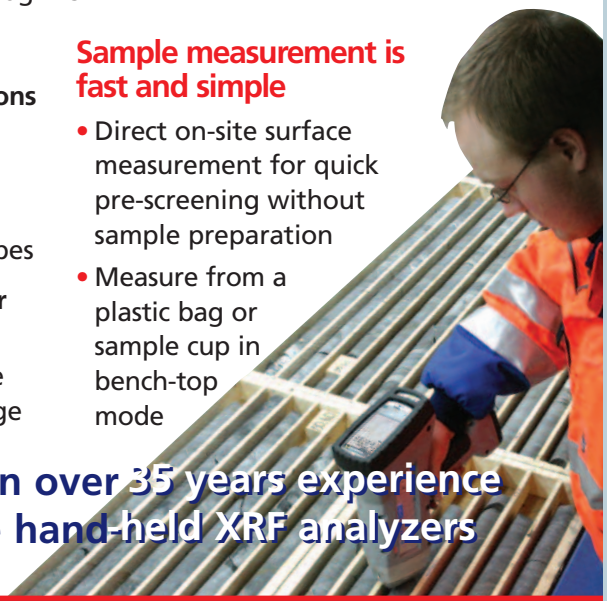
- Single-shot analysis of all important elements in ore exploration: Fe, Cu, Cr, Zn, Pb, Mn, Ni, Co, Mo, Ta, W etc.
- Rapid analysis with typical measurement times of 10 – 30 seconds (**X-MET**5000) or 2 – 5 seconds (**X-MET**5100) depending on the elements of interest and required precision
- Low detection limits, **X-MET**5000 can typically detect 5 – 30 ppm concentration with 120s measuring time. **X-MET**5100 detection limits are even lower and ppm level analysis can be done in just 10 – 30 seconds
- High speed automatic averaging – calculate averages of 2 – 50 measurements and save both individual results and average results in a log file

Choice of analysis modes

- **Fundamental Parameter Calculations when standards are not available**
  - Universal calibration to measure over 30 elements between Cl-U
  - Suitable for wide range of ore types
- **Empirical Calibration available for optimized accuracy**
  - Create custom calibrations on-site with optional PC software package

Sample measurement is fast and simple

- Direct on-site surface measurement for quick pre-screening without sample preparation
- Measure from a plastic bag or sample cup in bench-top mode



Proven design based on over 35 years experience in the field of portable hand-held XRF analyzers

CE

BSI REGISTERED UKAS QUALITY MANAGEMENT 003

Certificate No FM29142

Part no: OIIA/059/B/1008

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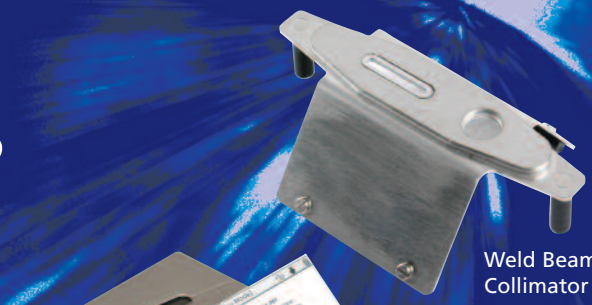
X-MET® Accessories



Weld Beam Collimator

Portable Bluetooth® Printer

Bench-Top Stand

Pistol Holster

Light Instrument Stand and Safety Shield for Small Samples

Worldwide Technology Leader

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Pistol Holder

Secure holster frees your hands when not measuring samples and makes the **X-MET** easy to access when needed. The holster is strap-secured to prevent the unit from falling.

- Improves comfort and convenience in everyday use
- Safety-strap to secure the unit
- Genuine leather belt included
- Analyzer nose fully protected

Bench-Top Stand

Advantages:

- Improved measurement precision
- Detection limits are optimized with bench-top stand due to simpler use of longer measurement times
- Optimized accuracy
- Operator-selectable, comfortable location

Designed for testing:

- Small metal parts
- Electronic components
- Toys and other plastic samples
- Prepared powder and liquid samples
- Bagged soil and mining samples

Closed beam operation for increased radiation safety

The stand improves radiation safety when measuring small, low density or oddly shaped samples. The enclosed sample chamber protects the user from scattered radiation and the lid interlock prevents X-ray generation when the lid is opened, keeping the user safe at all times.

Improved measurement precision

The bench-top stand allows users to target small samples, which can be difficult to position in hand-held operation, such as specific components on an electronic assembly or welds on a metal component.

Simplified operation

Hands-free use of the instrument allows for multi-tasking without loss of confidence in the measurement results. The instrument can be quickly swapped between hand-held and bench-top operating modes. The stand can be packed in an optional protective, rugged plastic case for easy transport.

Specifications:

- Unit dimensions: 328 W x 440 L x 398 H (mm)
- Weight: 13.1 kg
- Maximum sample size (size of sample compartment): 220 W x 210 L x 55 H (mm)
- Fast and easy installation. Quickly switch between hand-held and bench-top measurement modes
- Interlocked sample chamber for maximum radiation safety
- Adjustable PDA holder
- Red X-ray warning light visible in the front panel of the stand during measurement
- For use with **X-MET** range instruments
- Optional rugged plastic case for easy transport

Barcode Scanner

Barcode scanner eliminates the chance of user error in naming samples. It provides a fast and highly accurate way to input sample names into the **X-MET** whenever barcode information is available.

- Supports the common one dimensional bar codes
- Wireless data transfer directly to **X-MET** Name or Additional information field
- Pre-installed software when ordered at the same time as the **X-MET**
- Easy to use setup program and user interface
- Powered by two, easy to replace, AAA rechargeable batteries. Standard alkaline batteries can also be used
- Battery life up to 8000 scans
- Built in stylus-tip for PDA touch screens

Portable Bluetooth® Printer

Lightweight and durable printer, perfect companion when instant prints or handouts are required in the field. Print results directly from the PDA or use optional labels to attach the measurement result directly to the measured object or sample bag.

- Print screenshots without disconnecting the PDA or exiting **X-MET** software
- Easy, wireless Bluetooth® connection
- Direct thermal printing, no ink cartridges needed
- Special A7 size paper resists the dimming effect of heat and sunlight and does not curl
- A7 size labels also available
- Print over 100 copies on single battery charge
- Silent operation
- Pre-installed software when ordered at the same time as the **X-MET**
- All necessary software and instructions included in shipping

Specifications:

- Size: 9.9 W x 16 L x 1.8 H (cm)
- Weight: less than 300 grams

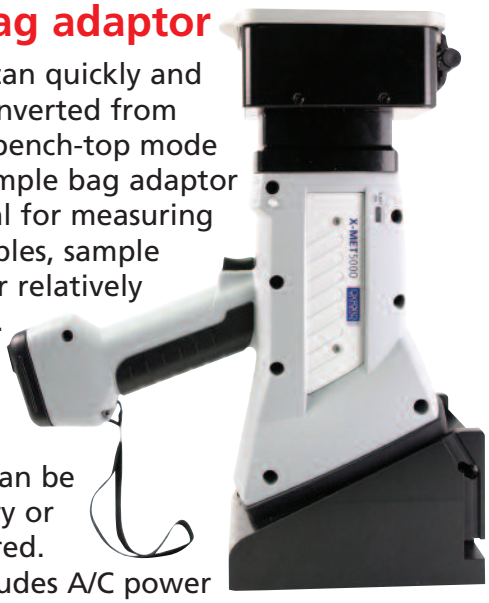
Light Instrument Stand and Safety Shield for Small Samples

Light instrument stand turns **X-MET** into a bench-top analyzer in a matter of seconds; convenient when longer measurement times are required e.g. while measuring plastics, soil or other low density/low concentration samples. Safety shield fits the analyzer nose and covers the sample, protecting the user from scattering radiation. Light travel stand, shield and analyzer fit perfectly in a custom designed rugged plastic travel case.

- Simple to assemble, the unit can be seated in the stand within seconds
- X-ray shield blocks all the direct and scattering radiation from small and low density samples
- Simple, stylish and durable design

Sample bag adaptor

- The **X-MET** can quickly and simply be converted from portable to bench-top mode using the sample bag adaptor which is ideal for measuring bagged samples, sample cups or other relatively small samples.
- In this bench-top mode the instrument can be either battery or mains powered. Package includes A/C power supply, mains cable and PDA remote cables.

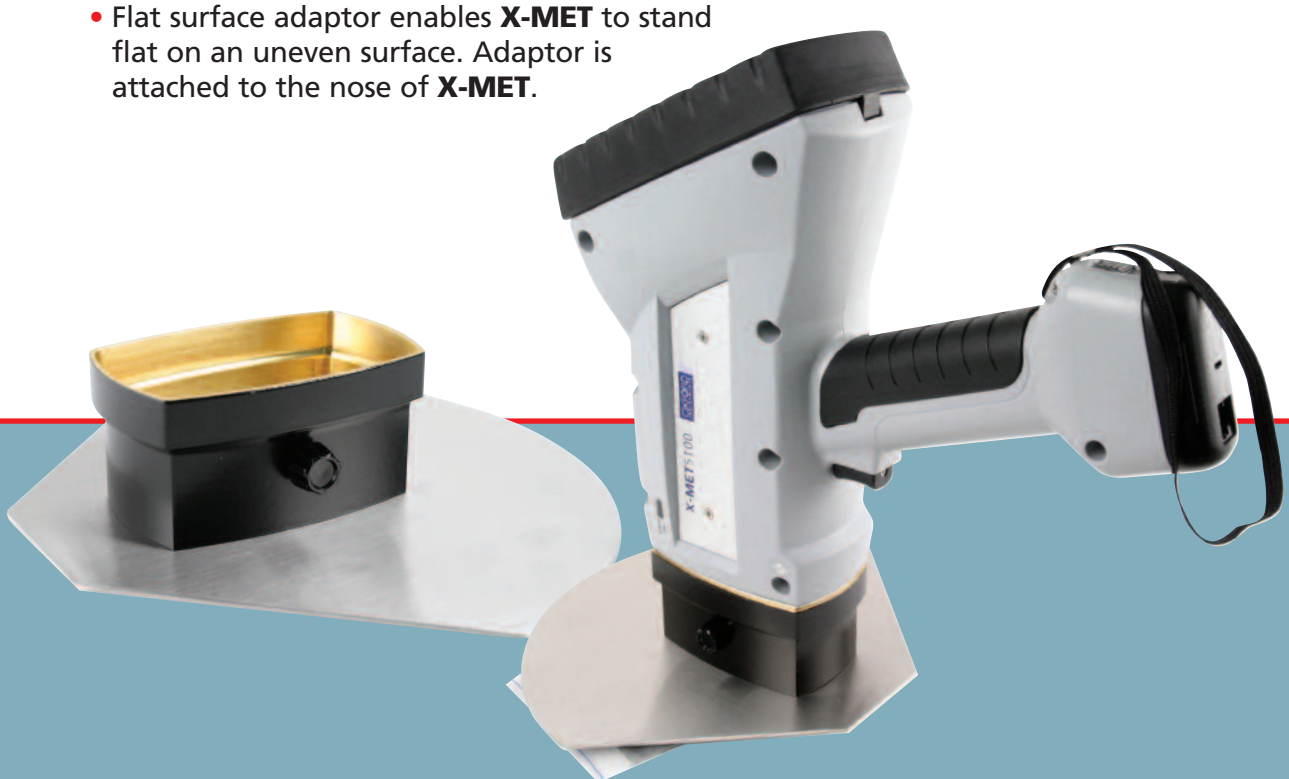


Bluetooth® GPS receiver

- **X-MET**'s GPS receiver is especially useful in geological mapping, ore exploration and soil screening in remote areas.
- Nokia LD-3W Bluetooth® GPS receiver combines location coordinates with the measurement results and automatically stores the location coordinates with assay data.
- Note: GPS pairing is a standard **X-MET** feature. Different GPS receivers can be used without purchasing this option. **X-MET** is compatible with most Bluetooth® GPS receivers that use NMEA protocol. If in doubt, compatibility can be confirmed in advance.

Flat surface adaptor

- Flat surface adaptor enables **X-MET** to stand flat on an uneven surface. Adaptor is attached to the nose of **X-MET**.



Background Plate

While measuring small, thin or low density samples such as wires, plastics, aluminium, wood, soil etc. it is possible that the analyzer will measure background through a sample. This can cause significant analysis error. The background can be standardized by using the Background plate.

- Standardizes the background
- Compact size (10 x 10 cm), easy to carry with the analyzer

Tools for Sample Preparation

A selection of sample cups, films and bags available for sample presentation.

Cups are made of interference-free plastic to ensure compromize-free results. Thin Mylar® or similar plastic films are optimal for measuring very low concentrations in e.g. soil and mining applications. Sample bags are ideal for gathering soil samples when fast analysis data are required; sample can be measured directly through the bag.

- The sample cups and clamp rings are made of interference free material which is invisible to **X-MET** and guarantees the best possible performance
- Easy to assemble
- High purity plastic sample bags
- Sample preparation tool to compress powders also available

Weld Beam Collimator

Weld beam collimator provides a precision X-ray beam, reducing the risk of significant analysis error by ensuring only weld seam material is measured.

- Easy, clip-on weld adaptor, designed specifically for welds less than 4 mm
- The adaptor ensures only weld material is measured, not the surrounding metal

click onto **www.oxford-instruments.com** for more information

Certificate No FM29142

Part no: OIIA/067/A/1108

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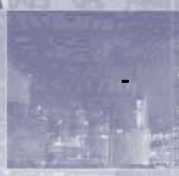
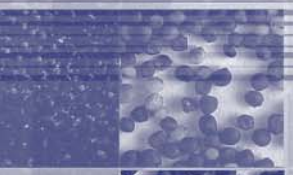
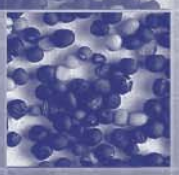
Specifications

X-MET5100







Analyzer:

Hand-held EDXRF Analyzer
Oxford Instruments Silicon Drift (SDD) high resolution detector
45 kV Rh target X-ray tube (max 50uA)
Automatic 5-position filter changer
Measurement spot size 9 mm
Operating temperature: -10°C to +50°C

Computer:

HP PDA with Windows Mobile 5.0 OS
128 MB Internal memory
Min. 1 GB Removable memory
Capable of holding > 100,000 results and spectra
Data transfer via supplied USB cable; IR; WiFi, Bluetooth
Touch-screen controlled graphical user interface (12 languages)

Calibrations:

Fundamental parameter (FP) and empirical factory calibrations available for various applications: Metals, plastics, soil, solder, mining, precious metals etc.
Customer specific calibrations

Analytical range:

From Mg to U, up to 35 elements depending on calibration

Batteries:

Rechargeable, removable inside handle
Li-Ion batteries (Quantity 2)
Typical duty cycle: 6 hours of operation each. Continuous (tube on) measurement: 3-4h.
110/230V 50/60 Hz battery charger, including AC adaptor.

Radiation Safety:

Password protection
IR proximity sensor
Three failsafe warning lights

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Dimensions: 9 cm(W) x 30 cm(L) x 27 cm(H)

Weight: 1.7 kg with battery and PDA installed

Carrying and Transportation:

Waterproof field carrying case
Wrist strap

Standard Accessories:

Protective PDA rain cover
Check samples (depending on calibrations)
Standardization sample
Memory card reader
User Manual (English)
Quick Start Guide (12 languages)
PDA cradle and AC adapter

Optional Accessories:

Bench-top stand with enclosed sample chamber and safety interlock
Light travel stand with safety shield for small samples
Holster for portable use
Barcode reader for sample name input
Portable Wireless printer
Weld beam collimator

Optional Software:

Empirical Calibration – enables user to create a calibration from a set of standards for unique applications. Also allows data acquisition and analysis using a PC.
PC Spectral Display – enables viewing and analysis of samples spectra on a user's PC.
PC Report Generator - enables the creation of specific reports containing user selected information and format.

Reliability:

CE and cCSAus approved
IP54 (NEMA 3) Splash/dust proof with separate rain cover
2 year Instrument warranty; including X-ray tube, excluding consumables

Note: In the interests of continued improvement, Oxford Instruments reserves the right to change any part of the description and specification without notice.

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Part no: 8
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X-MET5100

Element Detection Limits - Soil Package

Elemental detection limits on soil samples (SiO2 matrix)

Meas time	Ca	Ti	V	Cr	Mn	Co	Ni	Cu	Zn	As	Se	Sr	Zr	Mo	Rh	Ag	Cd	Sn	Sb	Ba	Ta	W	Au	Hg	Tl	Pb	Th	U
60s	438	106	58	34	22	9	6	4	3	3	3	3	6	5	20	16	18	28	34	227	9	8	11	5	5	5	6	6

Limit of detection (LOD) is quoted at three sigma (99.7%) confidence level. Individual LOD's improve as a function of the square root of the measuring time.
All detection limits are specified for interference-free matrix.
LOD's are listed in parts per million (ppm). Limit of detection reflects instrument precision (repeatability), but it is not a direct indication of instrument accuracy.

Limits of detection are dependent on the following factors.

- Matrix Interferences, overlapping elements etc.
- Level of statistical confidence (3-sigma)
- Measuring time

November 2008