



Micro-XRF

CRONO

Mobile large area micro-XRF spectrometer

CRONO is a mobile and reconfigurable fast micro-XRF scanner. Based on the EDXRF technique, it has been designed for in-situ, non-destructive and high-speed examination of large objects.

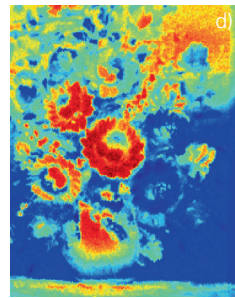
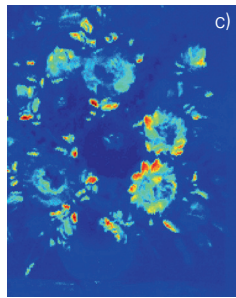
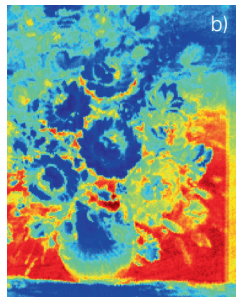
The XRF components are fully integrated into a compact measurement head and allow the detection of elements in the range from Mg to U with good efficiency even in the region below 2 keV and above 25 keV (e.g., Sn, Sb, and Ba K-edge emissions).

The measurement head is mounted on a motorized stage that allows a scanning area of up to 60 cm x 45 cm. The motorized frame and the support trolley can be easily dismantled for transportation. CRONO can be turned into a portable spot XRF device by installing the measurement head on a light tripod.

The system works in a complete non-contact mode with an optimum focus distance of 5 - 7 mm from the sample. The analysis area is always under control thanks to several monitoring systems.

CRONO benefits from two flagship technologies. CUBE is a CMOS preamplifier that enables high-speed acquisition with best spectral quality. The digital pulse processor DANTE provides extremely fast on-the-fly scanning of samples.

The CRONO's software allows complete instrument control and monitoring from one interface which shows spectra and maps even while acquisition is running. A spectrum is stored for every pixel. The intuitive report tool automatically generates a report of a single measurement or a project in pdf format.



a) Painting 50 cm x 40 cm,
b) - d) Element maps for
Ba K α , Pb L α , and Ca K α
with element concentrations
ranging from high (red) to low
values (blue).

Technical Data

Excitation	Rh-target X-ray tube (Au, Ag, Mo, W on request), 10 – 50 kV, 5 – 200 μ A, 10 W, four software selectable X-ray filters
Detection	Large area 50 mm ² SDD with CUBE technology, energy resolution <140 eV for Mn K α with input count rate of up to 500,000 cps
Electronics	DANTE digital pulse processor with high resolution and count rate performance, integrated PC for local and remote instrument control
Collimation	Three software selectable collimators, typically 0.5 mm, 1 mm, and 2 mm diameter
Analysis range	Mg (Z = 12) to U (Z = 92), light elements capable down to Mg with optional He purge
Alignment and monitoring	Integrated video microscope camera for magnified image of the analysis area, field of view ~ 10 x 10 mm ² . External USB HD video camera for large field of view images, axial and focal laser for precise analysis point adjustment.
Scanning	Motorized XYZ frame with a scanning range of 600 mm x 450 mm x 75 mm with a speed of up to 42 mm/s, tiltable trolley between -20° and +90°, up to 220 cm height
Software package	Sophisticated software including instrument control, data acquisition, data evaluation and presentation and report generation in one intuitive user interface
Analysis	Spectral deconvolution for qualitative analysis and standardless FP for semi-quantitative analysis
Dimensions and weight	W (mm) x D (mm) x H (mm)
- Measurement head	280 150 150, 3 kg
- XYZ frame	950 250 750, ~15 kg
- Trolley	1200 610 900, ~50 kg
Power supply	110/230 V \pm 10%, 50/60 Hz, max. power consumption 250 W

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