



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 Na 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).

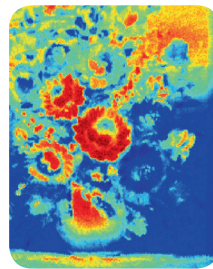
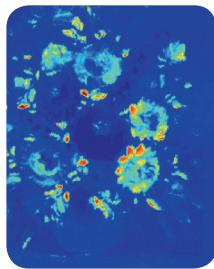
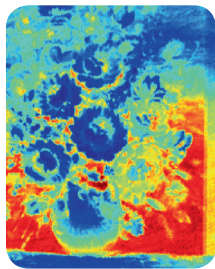
The measurement head is mounted on a motorized stage that allows for up to 60 cm x 45 cm scanning area. The motorized frame and the support trolley can be easily dismantled for transportation. CRONO can be turned into a portable spot XRF device by installing the measurement head on a light tripod.

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.

Element Maps



Element maps of a 50 cm x 40 cm painting (first left). Measurement time ~ 30 min, line speed 20 mm/s, collimator aperture 2 mm, X-ray tube settings 50 kV and 100 μ A. From second left: Ba L α , Pb L α , Ca K α ; the element concentrations range from high values in red over yellow and green color to low values in blue.

Technical Data

Parameter	Specifications												
Excitation	Rh-target X-ray tube (Au, Ag, Mo, W on request), 10 – 50 kV, 5 – 200 μA, 10 W, four software selectable X-ray filters												
Detection	Large area 50 mm² SDD with CUBE technology, energy resolution <140 eV for Mn Kα 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	Na (Z = 11) to U (Z = 92), light elements capable down to Na with optional He purge												
Alignment and monitoring	Integrated video microscope camera for magnified image of the analysis area, field of view ~ 10 x 10 mm². 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 - Measurement head - XYZ frame - Trolley	<table><tr><td>W</td><td>D</td><td>H</td></tr><tr><td>280 mm x 150 mm x 150 mm, 3 kg</td><td></td><td></td></tr><tr><td>950 mm x 250 mm x 750 mm, ~ 15 kg</td><td></td><td></td></tr><tr><td>1200 mm x 610 mm x 900 mm, ~ 50 kg</td><td></td><td></td></tr></table>	W	D	H	280 mm x 150 mm x 150 mm, 3 kg			950 mm x 250 mm x 750 mm, ~ 15 kg			1200 mm x 610 mm x 900 mm, ~ 50 kg		
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Power supply	110/230 V ± 10%; 50/60 Hz; max. power consumption 250 W												

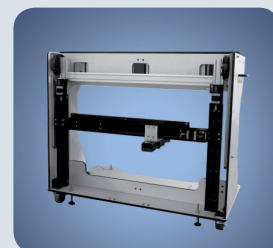
Mounting Options



Vertical mounting



Horizontal mounting



Assembling for transport

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