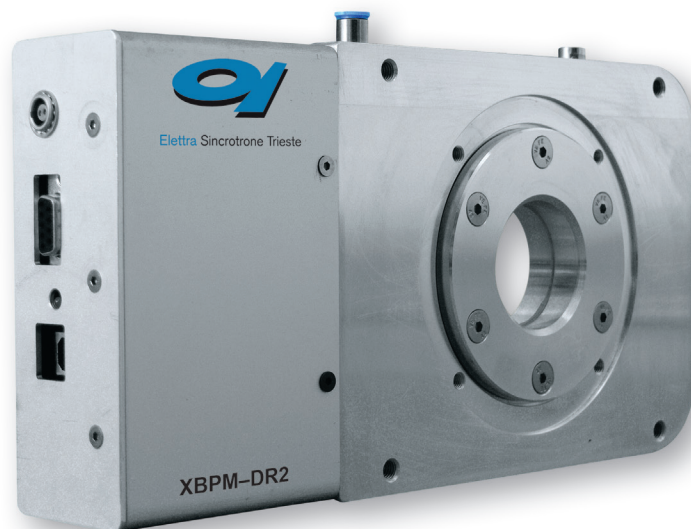


XBPM-DR2

X-Ray Beam Position Monitor



HIGHLIGHTS

FEATURE	BENEFIT
Detector hardware completely integrated with the readout electronics	Minimizing the potential pick-up noise (before being fully analysed, the analogue current signals travel only few centimetres on properly shielded low noise cables)
Stand-alone device	Does not require any additional signal amplifier, converter or scaler unit
Ethernet High-Speed link	Very fast data acquisition (up to 1 kHz) without significant dead time data transfer
The incident X-rays parallel to the collecting field	Allowing very accurate absolute intensity measurements (i_0) with a precision better than 0.3%
Seven different gains can be set (from 50 pC to 350 pC full scale range)	Adjusting the optimum working conditions to different experiments

APPLICATIONS

The XBPM-DR2 is designed for high flux synchrotron radiation experiments, using low or medium high X-ray energies [from 5 KeV to 40 KeV]:

- X-ray diffraction (protein, powder, small molecules, etc.)
- EXAFS
- Fluorescence
- X-ray imaging experiments, etc.

It is perfectly suitable for all kinds of experiments that require precise and simultaneous I0 calibrations in the order of a % down to a ppm for quantitative measurements.

HOW DOES IT WORK?

XBPM-DR2 can measure an X-ray beam position to an extreme degree of accuracy and low noise in both vertical and horizontal directions with a sampling rate as high as 1 kHz. The precision of the position encoding is below 5 μm at a sampling rate of 1 kHz with a moderate flux of 108 photons/sec at 9 KeV. This proves that the XBPM-DR2 can easily achieve micron- and submicron-level resolution with typical fluxes available at 3rd generation X-ray sources.

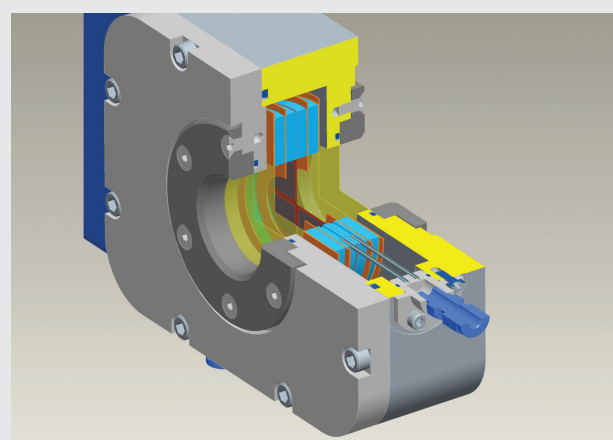
The analogue readout is directly connected to the digital part through a sealed feedthrough. The readout electronics performs

state-of-the-art 20-bit current measurements with integration times ranging from 1 ms to 1 s.

An embedded microcontroller handles communication to the outer world via an Ethernet link. The input noise of the digital readout has been characterized to be 10 ppm srms at the highest gain for a typical input capacity of 200 pF of a quarter segment anode. As an alternative to the Ethernet High-Speed link, a standard serial communication port for longer distance data transmission is also available.

SPECIFICATIONS

Input channels	4
Current measuring range	50 pA – 1.8 μA
Current polarity	Positive only
Integration time	1 ms – 1 s
Data transfer	Up to 1 k samples/s
Resolution bits	20
Noise (@ 1ms, 200 pCFS)	< 7 ppm
Allowable x-Ray Energies	5 keV – 40 keV
Linear position range	± 2 mm
Position resolution	< 1 μm up to 5 μm (depending on measurement conditions)
Intensity measurement precision	Better than 0.3 %
Communication interface	Ethernet 10/100 (TCP/IP and UDP)
I/O signal	CONV output – TRIGGER input
HV supply voltage	200 V – 500 V (suggested 300 V)
HV supply voltage stability	Better than 1 %
HV connector	SHV
Supply voltage	From 9 V to 15 V
Max supply current	350 mA
Dimensions	250 x 130 x 60 mm
Weight	3300 g



The XBPM-DR2 Detector - Inner view

DELIVERABLES

- XBPM-DR2
- High voltage power supply
- Oscilloscope LabView Software

Contact us!

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