



# Extremely Intelligent QA Device

## Unfors Xi

The Unfors Xi is a new generation, multi-function, intelligent X-ray meter. Unfors is renowned for its pocket-sized and easy-to-use meters that improve productivity. Now the Unfors Xi adds even more user friendliness with Active Compensation for all beam qualities.

Active Compensation is a new proprietary feature of the Unfors Xi. Utilizing multiple sensors and advanced calculations, the beam quality is automatically determined thereby eliminating the need for further corrections of measured kVp and dose values. This built-in intelligence enhances ease-of-use.

Three versions of interchangeable Unfors Xi Detectors are available: R/F + Mammo, R/F only and Mammo only. The Unfors Xi Mammo detector handles the six most common beam qualities used in today's mammographic X-ray machines.

### Unfors Xi Base Unit I

- International Power Supply
- 2 & 10 meter detector cables
- 2 meter serial cable
- Unfors Xi Case
- Unfors Xi View software
- User's Manual

### Unfors Xi Options

- Unfors Xi Bluetooth serial adapter
- Unfors Xi HVL stand & detector holder
- Unfors Xi HVL kit

### Unfors Xi Base Unit II

- Unfors Xi Base Unit I
- mA/mAs capabilities
- 2 meter mA cable

### Unfors Xi Detectors

- R/F
- Mammo
- R/F + Mammo

There are two versions of the Unfors Xi Base Unit, Base Unit I and Base Unit II. Both Base Units are fully compatible and interchangeable with Unfors Xi Detectors as long as the firmware supports the Detector. The main difference between Base Unit I and Base Unit II is that Base Unit II also features invasive mA and mAs measurements with its built-in circuitry.

- **One meter - all modalities**
- **Active Compensation for all beam qualities**
- **No set-up time**
- **Easy to use**



### Unfors Xi

Measurements of kVp, dose, dose rate, pulses, pulse rate, dose/pulse, time, HVL, waveforms, mA, mAs and mAs/frame.

# Specifications Unfors Xi

## General

EMC tested	According to EN 61-000-4-2, EN 61-000-4-3 and EN 55011
Waveform	Single phase to high frequency and pulses with less than 2 s dead time interval.
Exposure needed	One
Power off	Automatic after 5, 20 or 60 min of inactivity
Reset	Automatic
Power source	Rechargeable NiMH standard 9V
Battery time	20 hours (11 h with Bluetooth)
Read out	Three row alphanumerical
Size Base unit (HxWxL)	28x74 x142 mm, (1.1x2.9x5.6 in)
Detector (HxWxL)	12x 22x117 mm, (0.5x0.9x4.6 in)
Weight Base unit	250 g, (8.75 oz)
Weight Detector	50 g, (1.75 oz)

## Dose

Range (auto)	10nGy - 9999Gy, (1 µR - 9999R)
Accuracy R/F	± 5 % (40 - 150 kVp and for HVL = 1.5 - 14 mm Al*, Active Compensation) or ± 10 nGy (1 µR)
Accuracy MAM	±5 % (22 - 40 kVp and for HVL up to 2.5mm Al added filtration, Active Compensation)
Resolution	0.01 nGy (1 nR)

## Dose rate

Range R/F low (auto)	10 nGy/s - 1 mGy/s (70 µR/min - 7 R/min)
Range R/F high (auto)	20 µGy/s - 1000 mGy/s (140 mR/min - 7000 R/min) at 70 kVp
Range MAM (auto)	10 µGy/s - 100 mGy/s (70 mR/min - 700 R/min)
Peak trig level R/F low	100 nGy/s (0.7 mR/min)
Peak trig level R/F high	100 µGy/s (0.7 R/min)
Peak trig level MAM	10 µGy/s (70 R/min)
Accuracy R/F low	± 5 % (40 - 150 kVp and for HVL = 1.5 - 14 mm Al*, Active Compensation) or ± 10 nGy/s (± 0.1 m/min)
Accuracy R/F high	± 5 % (40-150 kVp and for HVL = 1.5 - 14 mm Al*, Active Compensation) or ± 10 µGy/s (± 0.1 R/min)
Accuracy MAM	±5 % (22 - 40 kVp and for HVL up to 2.5mm Al added filtration, Active Compensation)

## kVp/kV

Range R/F (auto)	35 - 160 kVp/kV
Range MAM (auto)	22 - 40 kVp/kV
Accuracy R/F	± 2 % at 2.5 mm Al (Active Compensation for tube filter 1-12 mm Al)
Accuracy MAM	± 2 % or 0.7 kV, Mo/Mo (Active Compensation for variations of inherent Mo filtration and compression paddle)
Resolution	0.01 kV
Sensitivity R/F low	0.04 mA at 40 kV, 50 cm
Sensitivity R/F high	0.8 mA at 70 kV, 50 cm
Sensitivity MAM	10 mA at 28 kV, 65 cm

## Exposure time

Range (auto)	1,000 ms - 999.9 s
Accuracy	± 0.5 % or 0.2 ms

## Pulse\*\*

Range (auto)	1-9999 ± 1 pulses
Peak trig level R/F	> 3 µGy/s
Peak trig level mA	> 8 mA

## Frame rate\*\*

Range R/F (auto)	0.5 - 120 pulses/s
Range Base Unit II (auto)	0.5 - 120 pulses/s

## Dose/mAs per frame\*\*

Range Dose R/F (auto)	1 nGy (0.1 µR) - 9999 Gy(R)/pulse
Range mAs (auto)	0.001 - 2000 mAs/frame

## HVL

Range R/F	1.00 - 14.0 mm Al
Range MAM	0.2 - 1.2 mm Al depending on beam quality
Accuracy R/F	± 10% or ± 0.2 mm Al (within 1 % of max dose rate for selected sensor)
Accuracy MAM	± 5% (for HVL up to 2.5 mm Al added filtration to each beam quality)
Beam qualities MAM	Mo/Mo, Mo/Rh, Mo/Al, Rh/Rh, Rh/Al and W/Rh

\* 45 mm Al at 145 kVp gives a HVL of ~13 mm Al

\*\* Not available for MAM

## mA/mAs

Range mA (auto)	0.001 - 2000 mA
Accuracy	± 1 % or 0.02 mA
Range mAs (auto)	0.001 - 9999 mAs
Accuracy	± 1 % or 0.02 mAs
Resolution	0.001 mA/mAs
Max load	< 200 mA continuously, 500 mA < 1 s, 1000 mA < 0.5 s
Reproducibility	< 0.5 %
Over-voltage protection	70V

## Communication

Software	Unfors XiView for recording measured data, waveforms and export of test results to EXCEL
Data transfer via	RS-232 or Bluetooth
Data format	XML

## Waveform

Bandwidth	
R/F High	2.5 kHz
R/F Low	0.1 kHz
MAM	0.3 kHz
mA	0.5 kHz
Memory depth	
R/F MAM	160 ms
mAs	500 ms

Patents:	USA	5761270
	Japan	3449721
	Sweden	9302909-8
	France	0758522
	UK	0758522
	Germany	DE69430268.6-08

## PTB Approval

23.04  
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All specifications may change without notice.

**unfors**

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## The Unfors Concept



Accurate result



10 s to learn



Pocket sized