

Image Intensifier specification  
18 millimetre micro-channel wafer  
**XR5™ Technology**  
XW2540BF



184-3788A1

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## Description

The Image Intensifier Assembly, 18 millimetres micro-channel wafer, shall have a minimum useful photocathode and phosphor screen diameter of 17.5 millimetres (mm). The assembly shall employ a micro-channel electron multiplier plate with proximity focus on the input and output. The assembly shall include the high voltage multiplier and oscillator and shall be encapsulated within a hard surface insulating sleeve or boot and assembled in a hard plastic housing. The tube is equipped with **AUTO-GATING**

Phosphor : P45 (White)  
Input window : AVG glass  
Output window : Inverting fibre-optic

## Construction

The assembly shall be fabricated in accordance with the applicable drawing.

## Limiting values

	<u>Minimal</u>	<u>Maximal</u>	<u>Unit</u>
Continuous input Supply voltage	2.0	3.5	V
Reversed Polarity (60 sec)	-3.7	+3.7	V
Storage temperature (4 hours max)	-56	+65	°C
Storage temperature long term	-35	+35	°C
Operating temperature (4 hours max.)	-52	+52	°C

## Operating conditions and characteristics

Operating Supply voltage : 2.7 V  
Ambient temperature : 20 ± 1°C

When the image intensifier is operated under the conditions mentioned above, unless otherwise specified, the characteristic values that follow are attainable:

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# PHOTONIS

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	Minimal	Typical	Maximal	UNIT
Cathode sensitivity at 2850K	700	800		µA/lm
Radiant sensitivity at 830 nm	60	70		mA/W
Signal to noise ratio (Photocathode illuminance 108 µlx)	23	25		
Operational life T = 10000 hours (signal to noise ratio)	11			
Gain at 2.10-5lx	7000		10000	cd/m <sup>2</sup> /lx
Maximum Output Brightness	4		8	cd/m <sup>2</sup>
Luminance dynamic range	1x10 <sup>-6</sup>		5x10 <sup>4</sup>	lx
Input current			35	mA
Limiting resolution at centre	64	70		lp/mm
High light resolution	57			lp/mm
E.B.I.			0.25	µlx
Burn-in	50			hours
Useful cathode diameter	17.5			mm
Output uniformity over Ø17.0 mm at 2850K			3:1	
Fixed Pattern Noise at 2 mlx (mean luminance deviations)	8		8	%
Mass		80	85	gram
Image inversion	179		181	°
Image alignment			0.3	mm
Shear distortion			50	µm
Gross distortion			65	µm
Halo Diameter (spot 0.2 mm)		0.6	0.8	mm

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## Shock:

The Image Intensifier tube shall comply with the performance specifications after being exposed to 6 shock impacts parallel to and 6 shock impacts perpendicular to the optical axis. Impacts shall be half sine waves with a minimum peak amplitude of 500 g's and a duration of  $2 \pm 0.2$  milliseconds.

## Vibration:

The Image Intensifier tube shall comply with the performance specifications after being subjected to vibration conditions parallel to and perpendicular to the optical axis over a frequency range of 5Hz to 55Hz, 2.54 mm amplitude, 10 cycles in each plane..

## Spots:

Maximum number of dark spots (contrast over 30%) will be according to the following table:

SPOTS DIAMETER IN MICROMETERS	ZONE 1 dia. 5.6mm	ZONE 2 dia. 5.6mm-14.7mm	ZONE 3 dia 14.7mm-edge
>300	0	0	0
230 – 300	0	0	0
150 – 230	0	1	1
75 – 150	0	2	2
< 75	Minimal	Minimal	minimal

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