PHOTONIS

Image Intensifier specification 18 millimetre micro-channel wafer **XR5^{tm} Technology** **XW2550**	XR5™ Ultimate Night Vision Technology	184-3790A3 Page 1 of 3

Description

The Image Intensifier Assembly, 18 millimetres microchannel wafer, shall have a minimum useful photocathode and phosphor screen diameter of 17.5 millimetres (mm). The assembly shall employ a microchannel 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 : Non-inverting fibre-optic

Construction

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

Limiting values	Minimal	Maximal	Unit
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:

	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^2/lx
Maximum Output Brightness	4		8	cd/m^2
Luminance dynamic range	1x10^{-6}		5x10^4	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		2:1	3:1	
Fixed Pattern Noise at 2 mlx	8		8	%
(mean luminance deviations)				
Mass		80	95	gram
Halo Diameter (spot 0.2 mm)		0.6	0.8	mm

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 halve 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

In case the assembly has more numerous dark spots of smaller dimension within a zone, the total quantity of dark spots in the zone should be within the total quantity of dark spots in the considered zone as specified in the above table.
For example, if a tube is showing [3 Ø75-150µm] dark spots in zone 2 instead of the [2 Ø75-150µm + 1 Ø150-230µm] specified ones, the tube will be considered to be compliant with the specification.