

2nd generation, 50/40 mm inverter tube

Description

{ Input

Photocathode : S25
 Input window : straight f.o.

{ Output

Screen phosphor : P20
 Output window : straight f.o.
 Output surface : plane

{ General

Image inversion : yes
 Magnification : 0.66
 Optical length : 99.2 mm
 Mass : max. 850 g
 Power supply ① : standard
 Connections : contacts

Applications

This tube assembly is designed to be incorporated in night vision devices, in particular in tank driving periscopes.

The XX1335/Q features the some of highest resolutions available on the market and allows direct viewing without the use of a fibre optic expander.

Reference

This specification must be read in conjunction with the XX1330 tube family basic specification.

Optical characteristics

Photocathode sensitivity
 white light : typ : 250 min : 200 μ A/lm
 at 800 nm : typ : 22 min : 15 mA/W
 at 850 nm : typ : 12 min : 6 mA/W

Luminance gain at 50 μ lx : min : 9500 max : 19000 $\text{cd/m}^2/\text{lx}$
 min : 30000 max : 60000 lm/lm

Scr. luminance control level : min : 4 max : 8 cd/m^2

E.B.I. ② : max : 0.2 μ lx

Resolution
 centre : typ : 30 min : 18 lp/mm
 peripheral (\varnothing 28 mm) : typ : 30 min : 18 lp/mm

Modulation transfer function
 5 lp/mm : min : 78 %
 10 lp/mm : min : 53 %
 20 lp/mm : min : 18 %

Signal to noise ratio at 13 μ lx ③ : min : 4.5

Image alignment ④ : max : 4 mm

Screen lum. uniformity (white) : max : 3 / 1

Useful photocathode diameter : max : 50 mm

Magnification :
 centre : min : 0.62 max : 0.71
 peripheral (\varnothing 40 mm) : min : 0.71 max : 0.77

maximum number of dark spots in zone (contrast over 30 %)		zone diameter on screen in mm		
		zone 1	zone 2	zone 3
		<12,2	12.2 to 32.5	32.5 to edge
spots	Over 0,61	0	0	0
dia.	0,48 to 0,61	0	1	2
at	0,37 to 0,48	0	5	8
input	0,24 to 0,37	1	9	23
(μ m)	0.10 to 0,24	4	35	35
	0 to 0.10	not specified	not specified	not specified

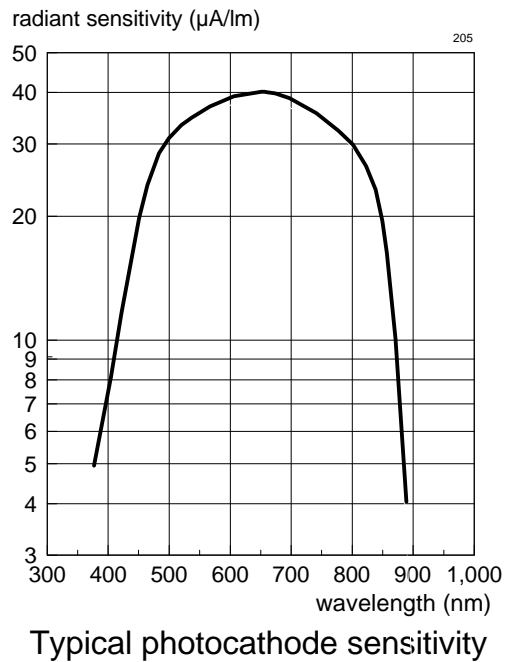
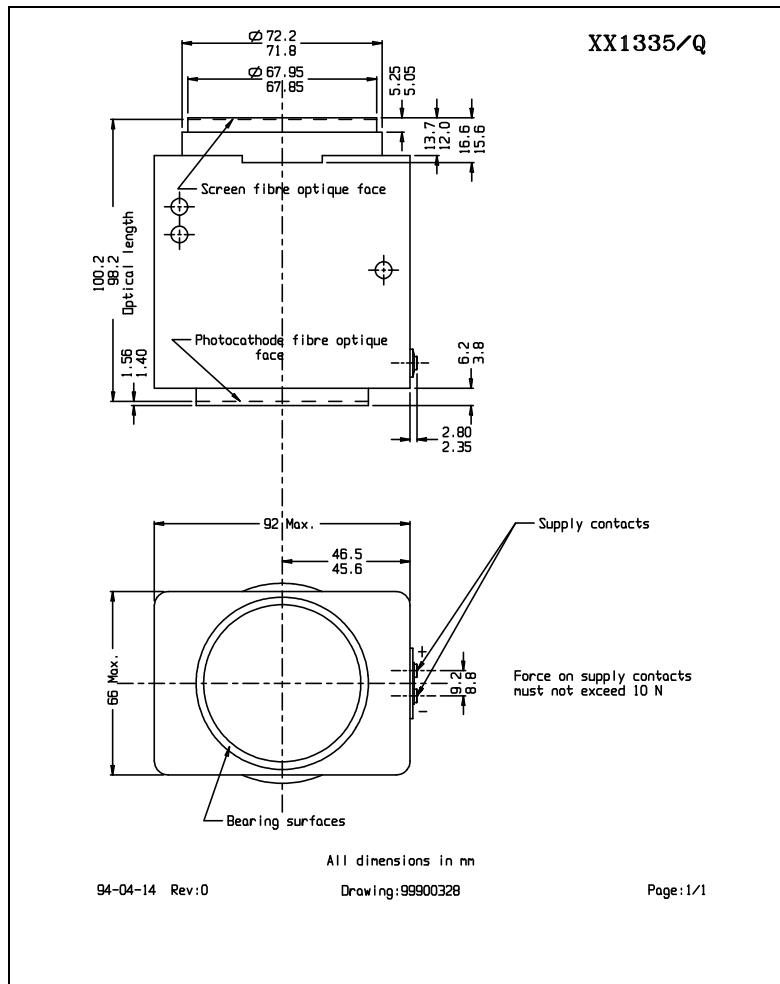
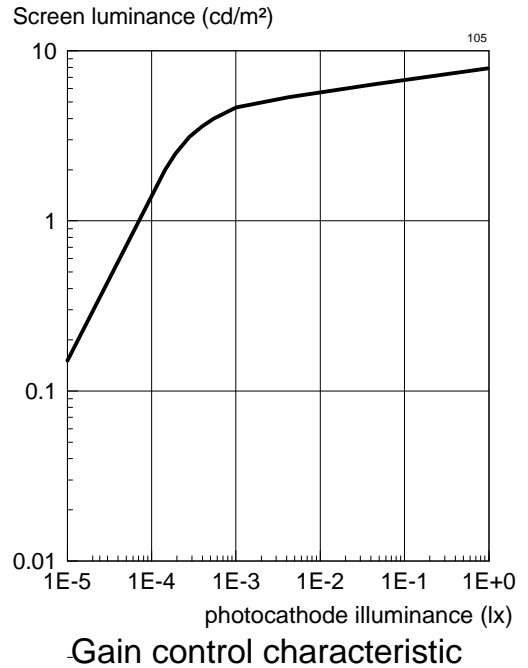
XX1335/Q

Electrical characteristics

Operating supply voltage :	min :	6.5	max :	6.75 V
Reverse polarity (60 s max) :			max :	-6.75 V
Supply current at ambient temp.:			max :	50 mA

Environmental characteristics

Mean time to failure ⑤ :	min :	5000 h		
Force on bearing surface :	max :	150 N		
Shock acceleration ⑥ :	max :	1000 m/s ²		
Vibration acceleration ⑦ :	max :	20 m/s ²		
Temperature in operation :	min :	-40	max :	+52 °C
2 h storage :	min :	-40	max :	+70 °C
Humidity at +40°C ⑧ :	max :	95 %		



Notes

- ① The power supply unit incorporates an automatic screen luminance control (ABC) and bright source protection.
- ② E.B.I. : Equivalent background illumination, measured after up to 10 minutes stabilisation in the dark with the supply voltage applied.
- ③ S/N ratio over a Ø 0.4 mm area. Equivalent bandwidth of 10 Hz.
- ④ Image alignment : twice the deviation between the optical and mechanical axis measured on the output window.

- ⑤ MTF measured at 20°C and 100 µlx, on 2.5% of the tube production. End of life : or luminance gain ≤ half min. value.
- ⑥ Six 6 ms half sine impacts along each of 3 axis parallel and perpendicular to the optical axis.
- ⑦ Ten 8 minute cycles from 58 to 150 Hz, along 3 axis parallel and perpendicular to the optical axis.
- ⑧ For 4 days, power off. Measured after 6 h at room temperature and 15 % maximum humidity.