

Rugged three-stage electrostatically focused image intensifier with automatic brightness control, fiber-optic windows, and integral high-voltage supply for military night vision.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	— / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Other
No fixed ratings recorded.
Published ratings/characteristics audited; detailed numeric data retained in parameter table.

The TH9303 is a rugged three-stage electrostatically focused image-intensifier tube with automatic brightness control, fiber-optic input and output windows, and an integral high-voltage supply for demanding military night-vision service.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1972 Thomson CSF

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1972 THOMSON CSF

Section 1 · Other

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
® EXTENDED RED PHOTOCATHODE, ¢	256	® EXTENDED RED PHOTOCATHODE, ¢ 256 mm
® VERY HIGH LUMINANCE GAIN [1]	25	® VERY HIGH LUMINANCE GAIN : 25 000 cd/m ² /lux (80 000 fL/fc)
® VERY HIGH LUMINANCE GAIN [2]	0	® VERY HIGH LUMINANCE GAIN : 25 000 cd/m ² /lux (80 000 fL/fc)
® VERY HIGH LUMINANCE GAIN [3]	80	® VERY HIGH LUMINANCE GAIN : 25 000 cd/m ² /lux (80 000 fL/fc)
® VERY HIGH LUMINANCE GAIN [4]	0	® VERY HIGH LUMINANCE GAIN : 25 000 cd/m ² /lux (80 000 fL/fc)
The oscillator requires a dc voltage of [1]	6.25 V	The oscillator requires a dc voltage of 6.25V (Note 1).
The oscillator requires a dc voltage of [2]	1 V	The oscillator requires a dc voltage of 6.25V (Note 1).
The photocathode is of S2 [1]	0	The photocathode is of S20 ER type (extended red sensitivity) and the yellow-green fluorescent P20
The photocathode is of S2 [2]	0	The photocathode is of S20 ER type (extended red sensitivity) and the yellow-green fluorescent P20
Battery dc input voltage (for [1])	6 V	Battery dc input voltage (for 6. 26 V nominal} (Note 1) max. 6.5 A
Battery dc input voltage (for [2])	26 V	Battery dc input voltage (for 6. 26 V nominal} (Note 1) max. 6.5 A
Battery dc input voltage (for [3])	1 V	Battery dc input voltage (for 6. 26 V nominal} (Note 1) max. 6.5 A
Battery dc input voltage (for [4])	6.5 V	Battery dc input voltage (for 6. 26 V nominal} (Note 1) max. 6.5 A

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Photocathode illumination e max	100	Photocathode illumination max. 100 lux
Operating teMPERatUre e e e e e e e e max. +	52	Operating teMPERatUre e e e e e e e e max. +52 °C
Battery dc input voltage (Note [1])	1 V	Battery dc input voltage (Note 1) e e e e e e e e 6. 25 \'
Battery dc input voltage (Note [2])	6 V	Battery dc input voltage (Note 1) e e e e e e e e 6. 25 \'
Battery dc input voltage (Note [3])	25 V	Battery dc input voltage (Note 1) e e e e e e e e 6. 25 \'
Battery current (NOte [1])	2 A	Battery current (NOte 2) e 30 mA
Battery current (NOte [2])	30 A	Battery current (NOte 2) e 30 mA
Photocathode voltage. i e e e e e	0 V	Photocathode voltage.)
Color temperature of inCident light SOUFCE o o v v o et e e e e e e e e s	2854	Color temperature of inCident light SOUFCE o o v v o et e e e e e e e s 2854 °K
Photocathode sensitivity (Note	3	Photocathode sensitivity (Note 3)
Screen LUMINANCEe ittt e e e e	500	Screen LUMINANCEe cd/m?
Luminance uniformity (Note [1])	12	Luminance uniformity (Note 12) — - 4
Luminance uniformity (Note [2])	4	Luminance uniformity (Note 12) — - 4
The tube is subjected to a [1]	75	The tube is subjected to a 75 g peak half-sine- wave shock of 6 *2 ms duration. Six xhock pulses are applied in
The tube is subjected to a [2]	6	The tube is subjected to a 75 g peak half-sine- wave shock of 6 *2 ms duration. Six xhock pulses are applied in
The tube is subjected to a [3]	2	The tube is subjected to a 75 g peak half-sine- wave shock of 6 *2 ms duration. Six xhock pulses are applied in

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The tube is vertically mounted with the photocathode end up and is subjected to sine wave vibrations of	1.3	The tube is vertically mounted with the photocathode end up and is subjected to sine wave vibrations of 1.30 mm
amplitude for a vibration cycle having a duration of [1]	1	amplitude for a vibration cycle having a duration of 1 minute during which time the frequency is varied from 10 to
amplitude for a vibration cycle having a duration of [2]	10	amplitude for a vibration cycle having a duration of 1 minute during which time the frequency is varied from 10 to
The tube is subjected to a temperature cycle within the + [1]	52	The tube is subjected to a temperature cycle within the + 52 °C to —54 °C range and is held at these
The tube is subjected to a temperature cycle within the + [2]	-54	The tube is subjected to a temperature cycle within the + 52 °C to —54 °C range and is held at these
Published value [1]	1 V	1 - Onrequest, the tube can be factory-adjusted for use with batteries producing a nominal voltage of 6. 75 V.
Published value [2]	6 V	1 - Onrequest, the tube can be factory-adjusted for use with batteries producing a nominal voltage of 6. 75 V.
Published value [3]	75 V	1 - Onrequest, the tube can be factory-adjusted for use with batteries producing a nominal voltage of 6. 75 V.
Published value [1]	2 A	2 - This current is constant between 10'4 and 100 lux,
Published value [2]	10 A	2 - This current is constant between 10'4 and 100 lux,
Published value [3]	4 A	2 - This current is constant between 10'4 and 100 lux,
Published value [4]	100 A	2 - This current is constant between 10'4 and 100 lux,
Published value [1]	3	3 - The photocathode sensitivity is measured on a surface of 3 cm2 with a flux of 0. 01 lumen,
Published value [2]	3	3 - The photocathode sensitivity is measured on a surface of 3 cm2 with a flux of 0. 01 lumen,
Published value [3]	0	3 - The photocathode sensitivity is measured on a surface of 3 cm2 with a flux of 0. 01 lumen,
Published value [4]	1	3 - The photocathode sensitivity is measured on a surface of 3 cm2 with a flux of 0. 01 lumen,

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
At [1]	800	At 800 nm and 850 nm, the radiant sensitivity is measured with the incident light being filtered before falling on the photocathode.
At [2]	850	At 800 nm and 850 nm, the radiant sensitivity is measured with the incident light being filtered before falling on the photocathode.
Published value [1]	4	4 - The conversion factor or luminance gain is measured at 10 ⁴ lux incident illumination for a photocathode surface of 3 cm ² .
Published value [2]	10	4 - The conversion factor or luminance gain is measured at 10 ⁴ lux incident illumination for a photocathode surface of 3 cm ² .
Published value [3]	4	4 - The conversion factor or luminance gain is measured at 10 ⁴ lux incident illumination for a photocathode surface of 3 cm ² .
Published value [4]	3	4 - The conversion factor or luminance gain is measured at 10 ⁴ lux incident illumination for a photocathode surface of 3 cm ² .
Published value	6	6 - The resolution, both horizontal and vertical, is determined with a test pattern consisting of alternate black and white lines of
Published value [1]	7	7 - Peripheral resolution is measured at a distance of 10 mm from the optical axis of the tube.
Published value [2]	10	7 - Peripheral resolution is measured at a distance of 10 mm from the optical axis of the tube.
corresponding points on the photocathode. The points on the photocathode are separated by a distance of	2	corresponding points on the photocathode. The points on the photocathode are separated by a distance of 2 mm centered on the
Published value [1]	9	9 . The peripheral magnification Mp is measured as is Mc, except that the distance between two points of the photocathode is 20 mm.
Published value [2]	20	9 . The peripheral magnification Mp is measured as is Mc, except that the distance between two points of the photocathode is 20 mm.
Published value [1]	11	11 - A spot of 0. 1 mm is produced at the center of the photocathode. The center of the image on the screen will fall within a circle

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value [2]	0	11 - A spot of 0.1 mm is produced at the center of the photocathode. The center of the image on the screen will fall within a circle
Published value [3]	1	11 - A spot of 0.1 mm is produced at the center of the photocathode. The center of the image on the screen will fall within a circle
Published value [1]	12	12 - Luminance uniformity is defined as the ratio of the maximum and minimum screen luminances over a 20-mm diameter concentric
Published value [2]	20	12 - Luminance uniformity is defined as the ratio of the maximum and minimum screen luminances over a 20-mm diameter concentric
Figure [1]	1	Figure 1 - S20 ER photocathode spectral response.
Figure [2]	0	Figure 1 - S20 ER photocathode spectral response.
Screen luminance {cd.m ⁷	2	Screen luminance {cd.m ⁷²)
Figure	4	Figure 4 - Typical screen luminance as a function of photocathode illumination.
— & [1]	430	— & 43,0-42, 8—» Photocathode
— & [2]	-42	— & 43,0-42, 8—» Photocathode
— & [3]	8	— & 43,0-42, 8—» Photocathode

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