

TH 9890 1" VIDICON

- HIGHLY SENSITIVE TO INFRA-RED RADIATION
 - UP TO 2 MICRONS WAVELENGTHS
 - MAGNETIC FOCUS AND DEFLECTION

TH 9890 is a television camera tube of Vidicon type, the threshold wavelength of which extends over $2 \mu\text{m}$. It is suitable both for television operation in infra-red light and for observing hot bodies.

The sensitivity of Vidicon TH 9890 is sufficient to image objects at 200°C by their own thermal radiation ; it can thus be used to measure temperature and to observe its distribution.

Other interesting applications of TH 9890 are : measurement of the emission coefficient of a radiator, observation of dislocation and homogeneity in silicon and germanium, viewing of laser patterns, observation of hydrogen flames in sunlight, infra-red night-vision instruments. TH 9890 can be used in any television camera which is suitable for the operation of conventional 1" Vidicon.



GENERAL CHARACTERISTICS

Electrical

Heating	unipotential cathode indirect
Heater voltage	$6,3 \pm 10\%$ V
Heater current	0,15 A
Spectral response	see curves
Focusing method	magnetic
Deflection method	magnetic

Mechanical

Base	ditetlar 8 pins (JEDEC E8 - 11)
Socket	metox - 30.250
Dimensions	see drawing
Photoconductive layer :	
- normal dimensions of image on target	12,7 x 9,5 mm
- maximum useful diagonal diameter (4 x 3 aspect ratio)	17 mm
- orientation of quality rectangle :	
horizontal scan parallel to the plane passing through the tube axis and short index pin	



OPERATING CONDITIONS

Maximum ratings

Scanned area : 12.7 x 9.5 mm.

Signal electrode voltage	125	V
Grid n° 4 and grid n° 3 voltage	350	V
Grid n° 2 voltage	350	V
Grid n° 1 voltage :		
- negative bias value	125	V
- positive bias value	0	V
Peak heater-cathode voltage :		
- heater negative with respect to cathode	125	V
- heater positive with respect to cathode	10	V
Dark current	0.05	μA
Faceplate :		
illumination	500 lux - 1000 IR lux (1) or 50 f.c. - 100 IR f.c.	
temperature	60	°C

Typical operation

*Grid n° 3 connected to grid n° 4
 Scanned area : 12.7 x 9.5 mm
 Faceplate temperature : 25 to 35 °C*

Signal electrode voltage	40 to 100	V
Grid n° 3 and grid n° 4 voltage	250 to 300	V
Grid n° 2 voltage	300	V
Grid n° 1 voltage	-45 to -100	V
Signal output current at 10 IR lux 1 IR f.c.	0.07 to 0.20	μA
Dark current	0.001 to 0.005	μA
Minimum blanking peak to peak voltage :		
- when applied to grid n° 1	40	V
- when applied to cathode	10	V
Field strength at centre of focusing coil	40	Gauss
Field strength of alignment coil	0 to 4	Gauss

NOTE

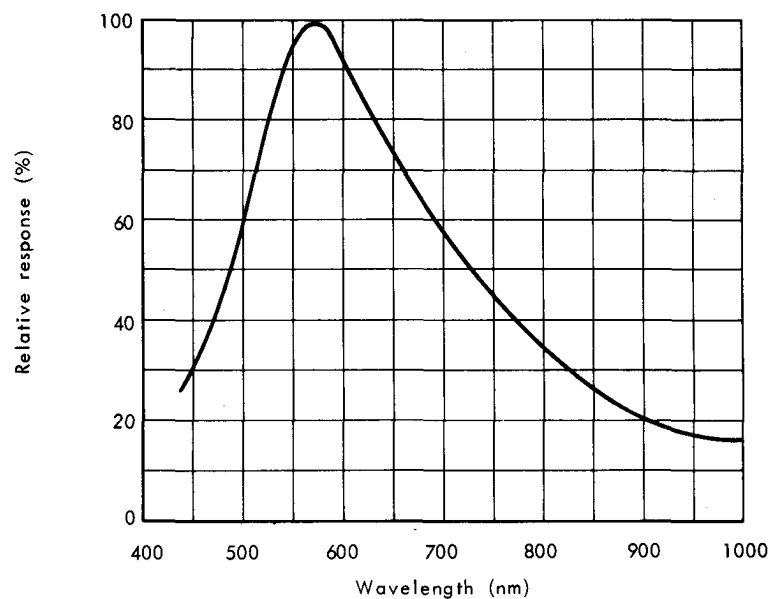
- 1 - 1 IR. lux is defined as the infra-red illumination intensity through an infra-red filter where illumination intensity from a tungsten lamp of colour temperature 2854 °K is 1 lux.

Spectral transmittance of filter :

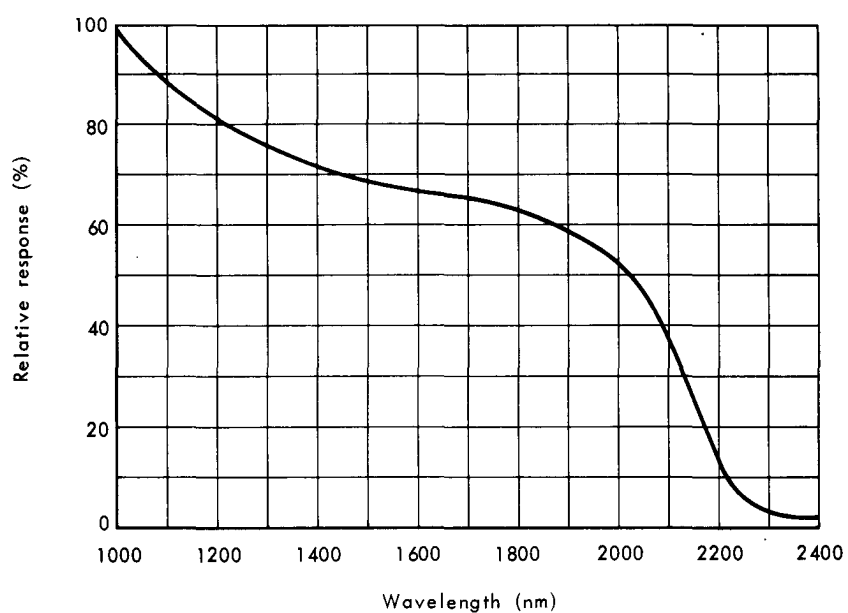
0 % at 800 nm
 60 % at 1000 nm
 85 % from 1300 nm to 2400 nm



SPECTRAL RESPONSE
(visible and near infra-red region)

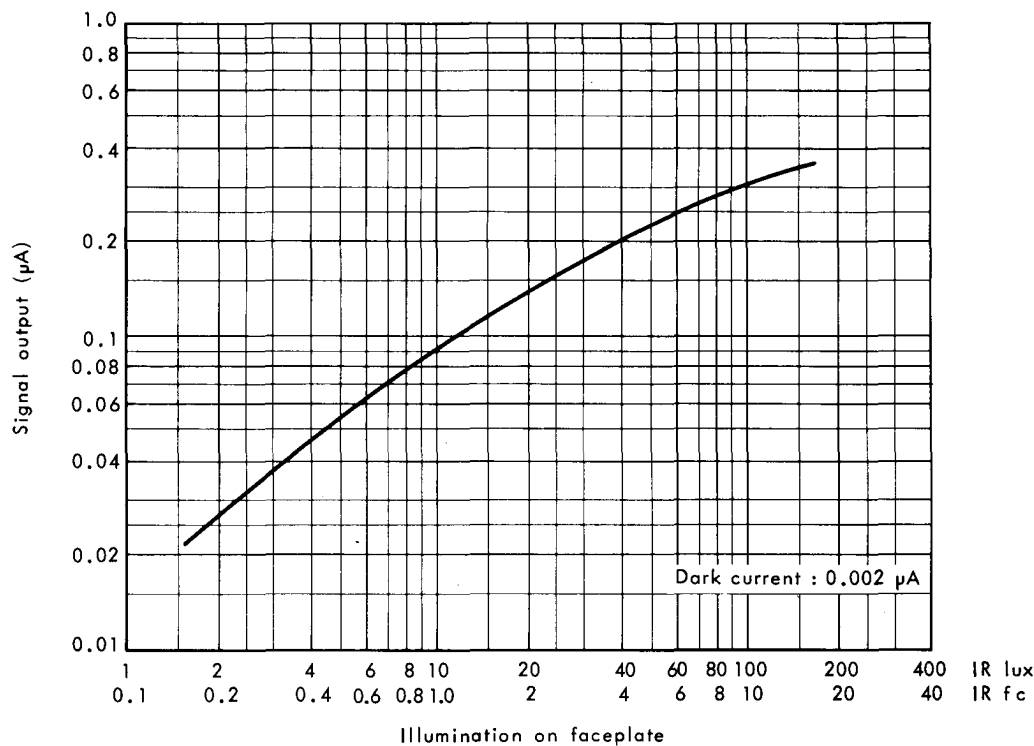


(infra-red region)

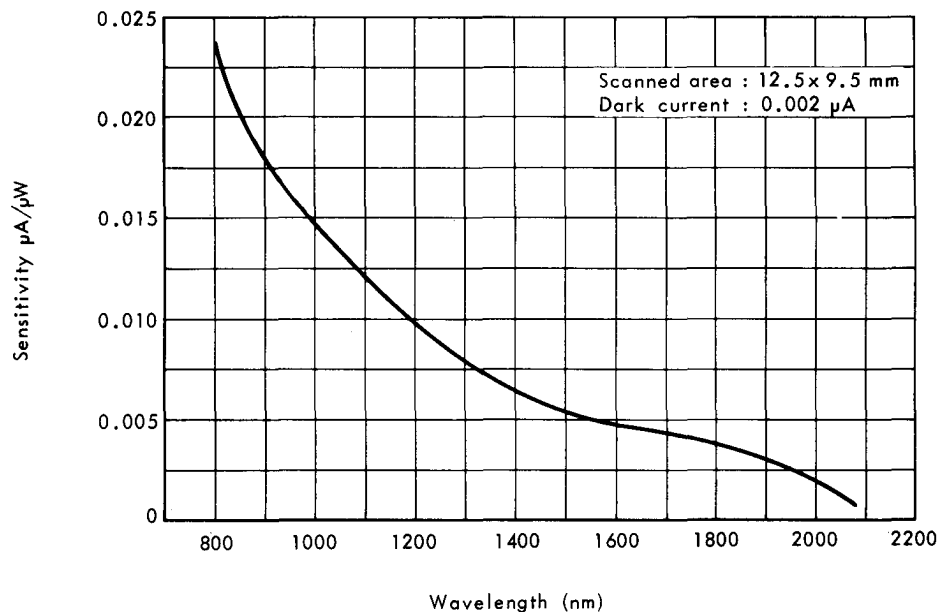


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LIGHT TRANSFER CHARACTERISTICS



SPECTRAL SENSITIVITY





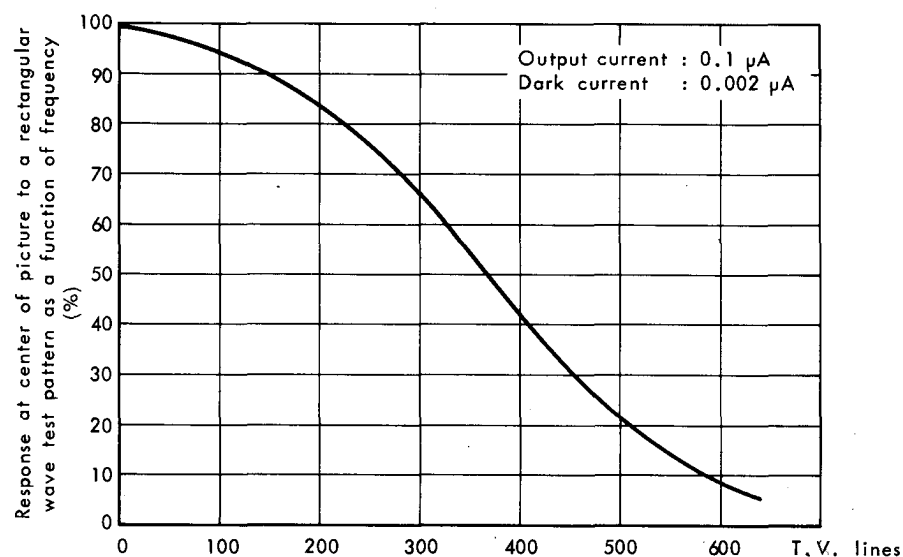
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DATA TEV 3076

TH 9890

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MODULATION TRANSFER FUNCTION

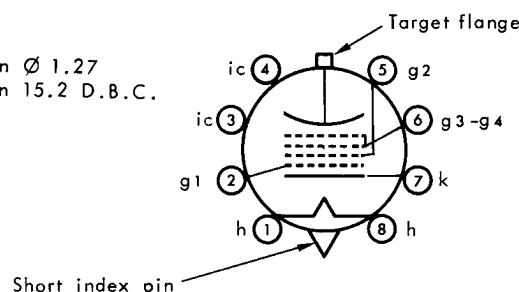
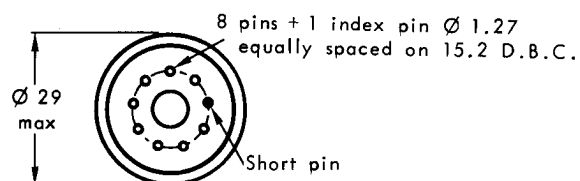




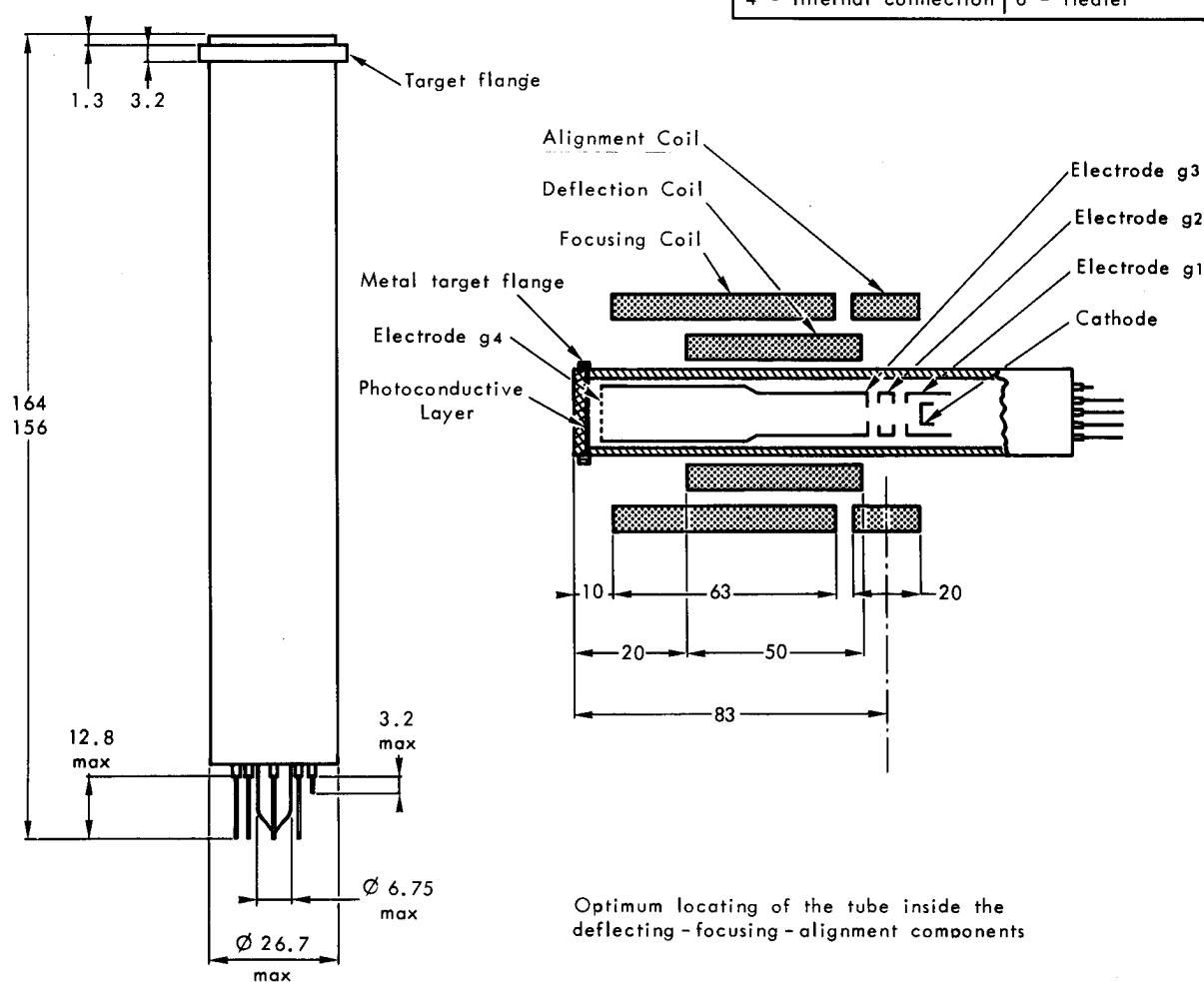
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OUTLINE DRAWING

BASING DIAGRAM



1 - Heater	5 - Electrode g2
2 - Electrode g1	6 - Electrodes g3g4
3 - Internal connection	7 - Cathode
4 - Internal connection	8 - Heater



Optimum locating of the tube inside the
deflecting - focusing - alignment components

Dimensions in mm.

