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 μm. 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 ± 10 %	V
Heater current	0, 15	A
Spectral response	see curves	
Focusing method	magnetic	
Deflection method	magnetic	

Mechanical

Base	ditetrar 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		

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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

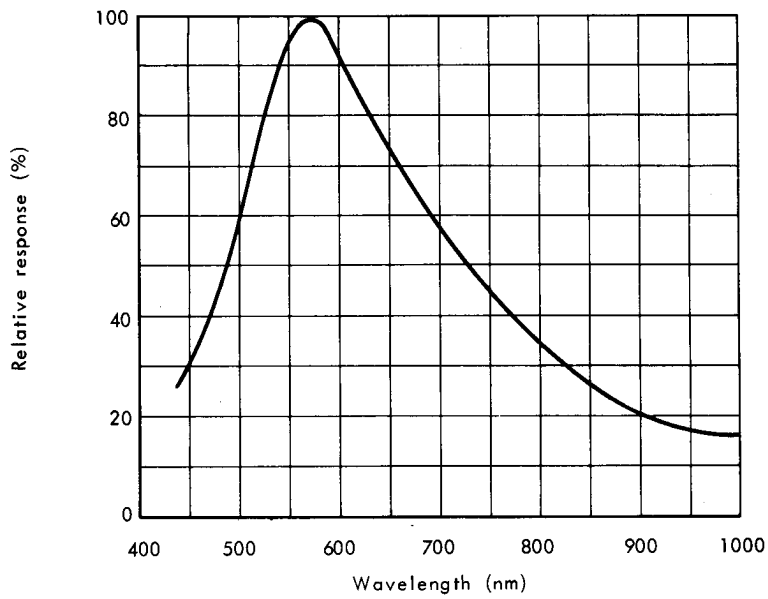
Signal electrode voltage	40	to	100	V
Grid n° 3 and grid n° 4 voltage	250	to	300	V
Grid n° 2 voltage			300	V
Grid n° 1 voltage	−45	to	−100	V
Signal output current at 10 IR lux 1 IR f.c.	0. 07	to	0. 20	μA
Dark current	0. 001	to	0. 005	μA
Minimum blanking peak to peak voltage :				
- when applied to grid 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

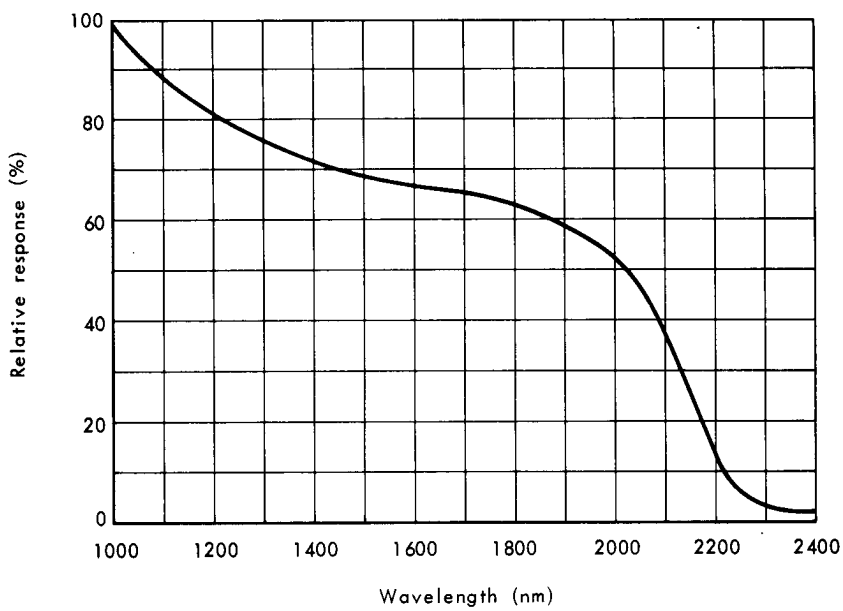
1 - *1 IR. lux is defined as the infra-red illumination intensity through an infra-red filter where illumination intensity from a tungsten lamp of colour temperature 2854 °K is 1 lux.*
Spectral transmittance of filter :

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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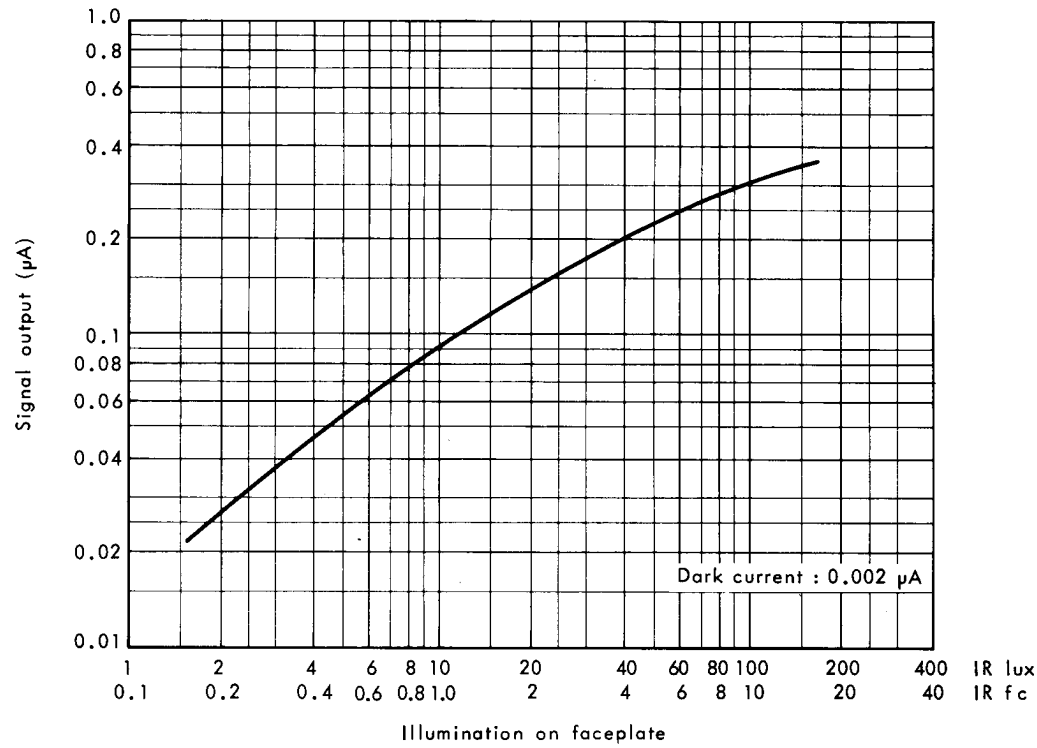
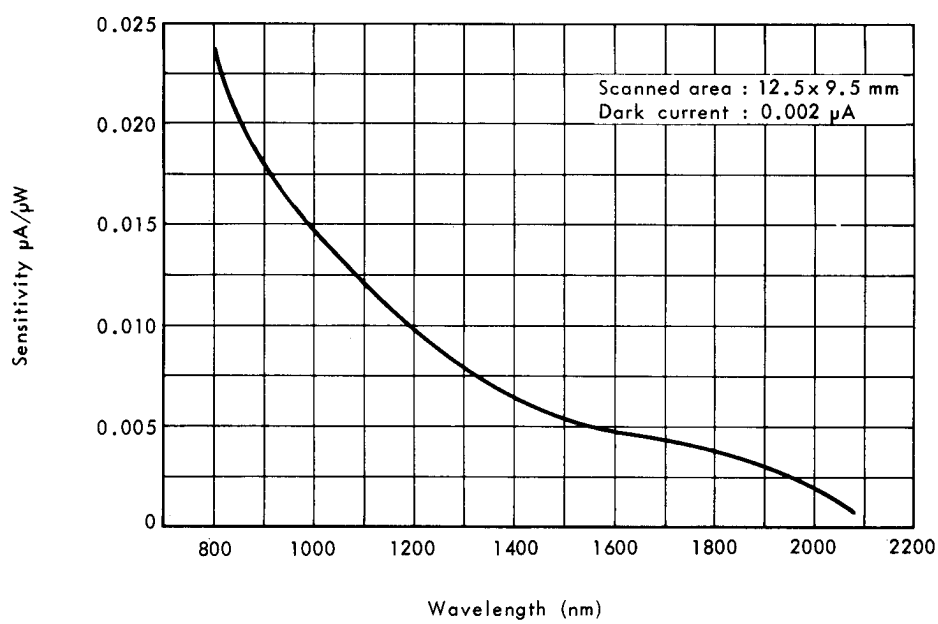
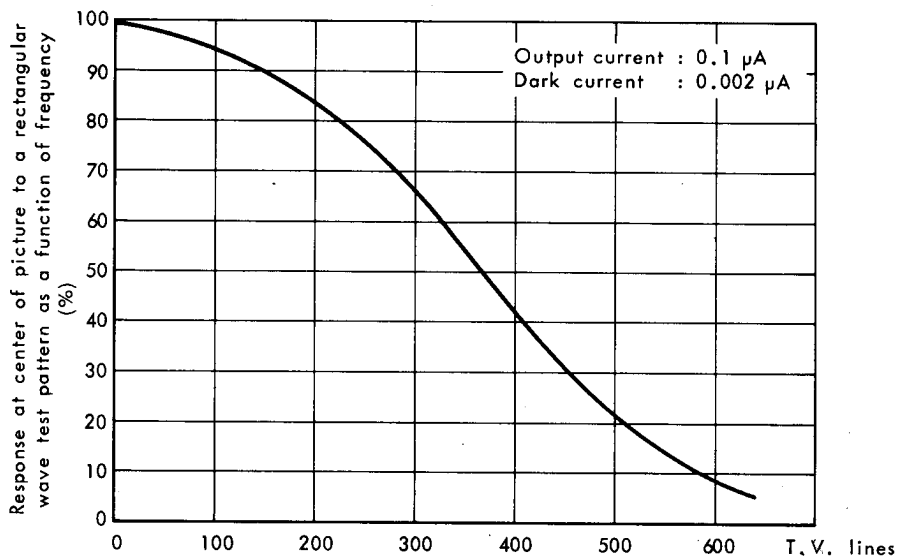
LIGHT TRANSFER CHARACTERISTICS



SPECTRAL SENSITIVITY



MODULATION TRANSFER FUNCTION



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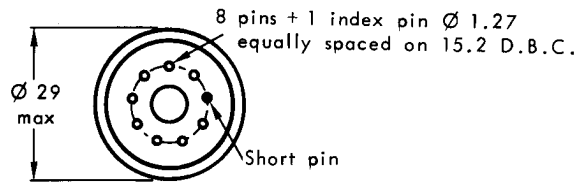
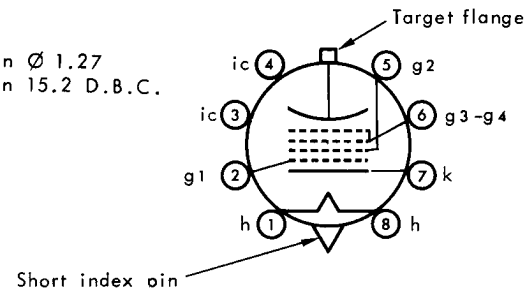
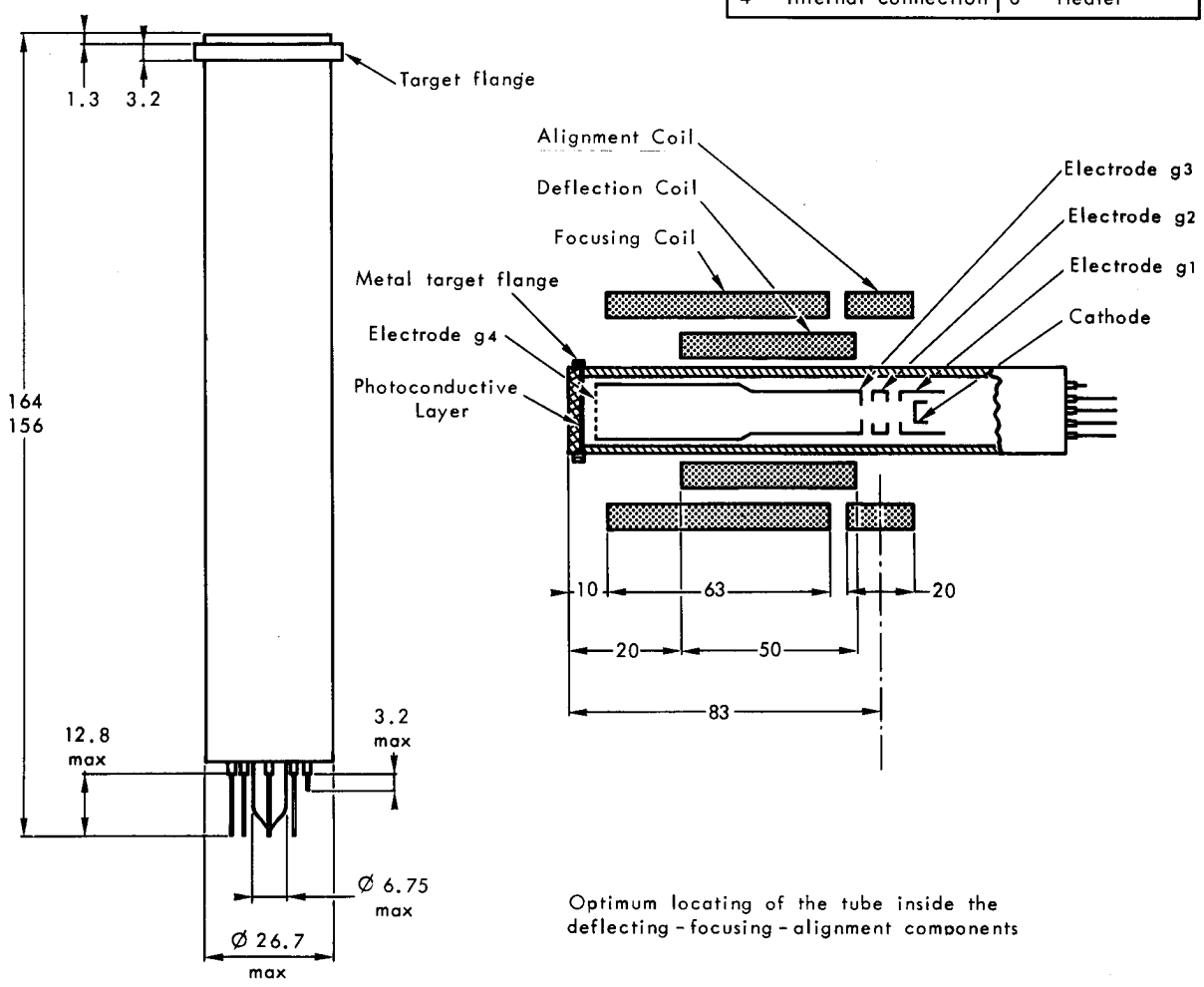
OUTLINE DRAWING



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.