

27M3

 NINE STAGE PHOTO-ELECTRIC MULTIPLIER
 (U.V. SENSITIVE)
RATING.

Maximum Supply voltage Secondary K10 to Cathode	
K1, (DC or Peak AC) volts	950
Maximum Potential Anode/Secondary cathode k10 (volts)	150
Maximum Anode Current (mA)	.1
Cathode k1 sensitivity (μ A/lumen)	• 10
(Vk1 = 0, all secondary cathodes joined at 100 volts)	

- The Sensitivity is on the basis of a lamp colour temperature of 2700°K and a light area of 4mm x 20mm.

Note: It is recommended that the bleeder current in the potentiometer providing the secondary cathode voltages should be of the order of 15 times the maximum working current output of the tube.

GENERAL.

The 27M3 is a high vacuum photo-cell with high response in the visible and ultra-violet region. The photo electric current produced at the Cathode is multiplied many times by secondary emission occurring at successive cathodes within the valve.

It is capable of multiplying very small currents produced under weak illumination by an average value of one million times, when operated at 100 volts per stage.

The resultant output current is a linear function of the exciting illumination, under normal operating conditions. Since secondary emission occurs simultaneously, the frequency response is flat up to the frequencies at which transit time becomes a limiting factor.

Because of its great sensitivity, low noise level, low dark current and freedom from distortion the 27M3 may be used for light operated relays, for film scanning, facsimile transmission and in scientific research involving low light levels: and in many applications its small size is an advantage.

It should be appreciated that with photo-electric multipliers, large variations in overall sensitivity may be present between individual valves.

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TYPICAL OPERATION.

Voltage between anode and secondary cathode k10 (volts)	50
Voltage difference per stage (volts)	100
Anode dark current (max) (μ A)	¶ 0.25
Luminous sensitivity (amps/lumen)	† 10
Current amplification.	§ 10 ⁶

† The sensitivity is on the basis of a lamp colour temperature of 2700 °K and a light area of 4mm x 20mm.

§ Ratio of anode sensitivity/cathode sensitivity.

¶ With 100 volts between anode and secondary cathode k10.

Note: By joining together pins 8,9 and 10, the cell may be used as a 7 stage multiplier. Volts per stage not to exceed 100 volts.

By joining together pins 6, 7, 8, 9, and 10 the cell may be used as a 5 stage multiplier. Volts per stage not to exceed 100 volts.

INTER-ELECTRODE CAPACITANCES.

Anode to all other electrodes (μ pF)	6.7
Anode to cathode k10 (μ pF)	4.1

DIMENSIONS.

Maximum Overall Length (mm)	99.0
Maximum Bulb diameter (mm)	28.5
Maximum Base diameter (mm)	33.4
Light centre from seat (mm)	49.2±2.4
Cathode Length (mm)	24
Cathode Width (mm)	8

BASING - Special 11 pin Sub Magnal.

CONNECTIONS.

Pin. 1.	Cathode 2
2.	Cathode 3
3.	Cathode 4
4.	Cathode 5
5.	Cathode 6
6.	Cathode 7
7.	Cathode 8
8.	Cathode 9
9.	Cathode 10
10	Anode
11	Cathode 1

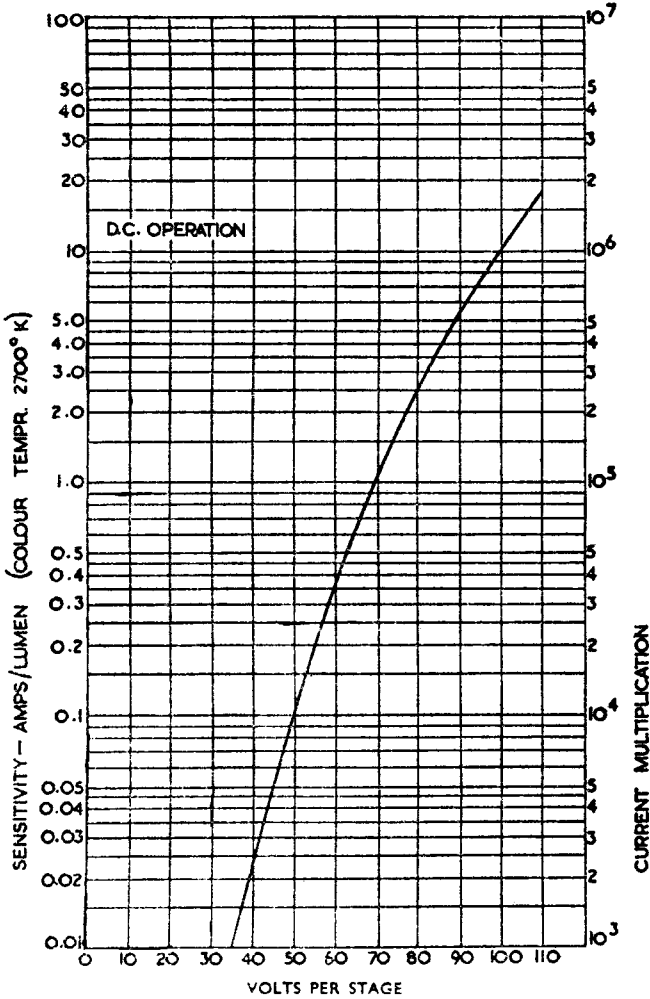


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Direction of light.

Viewed from free end of pins.

Note: Pin 1 is taken as the first pin to the left of the keyway. Similarly pin 11 which is connected to the photo emitting cathode k1 is taken as the first pin to the right of the keyway.

27M3
NINE STAGE PHOTO-ELECTRIC MULTIPLIER
CHARACTERISTIC CURVE (D.C. OPERATION)



27M3

NINE STAGE PHOTO-ELECTRIC MULTIPLIER

TENTATIVE CHARACTERISTIC CURVE

