

„Miniwatt“ SPECIAL VALVES

PHOTO-ELECTRIC CELL

3512



CHARACTERISTICS

Cathode	Caesium
Anode voltage V_a	= 100 V
Sensitivity N	= 20 $\mu A/lm$
Anode-to-cathode capacity . . . C_{ak}	= 3 pF
Maximum anode voltage . . . $V_{a\ max}$	= 500 V
Maximum anode current . . . $I_{a\ max}$	= 5 μA
Maximum temperature . . . t_{max}	= 50° C

SPECIAL ADVANTAGES

1. High sensitivity to red and infra-red light
2. Great stability
3. Very large window (20 cm²)
4. Protective coating of lacquer to prevent damage by incidental illumination

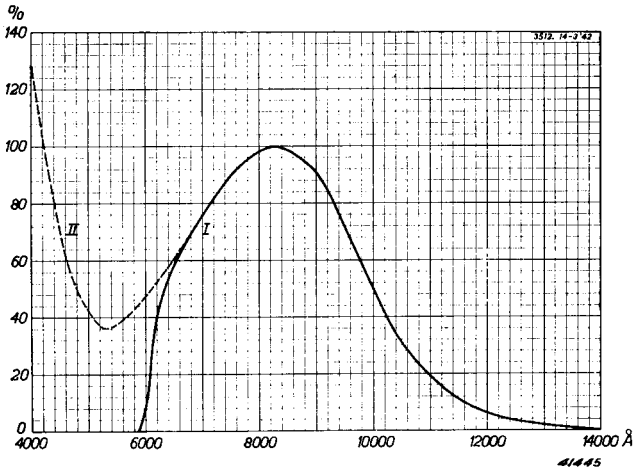
DESCRIPTION

The 3512 is a vacuum photocell with a caesium cathode, whose highest sensitivity is to light of 8500 Å wavelength; the cell is thus best fitted for working in the red and infra-red regions of the spectrum. The high sensitivity to light of the longer wavelengths necessitates a cathode with a very low work-function; this requirement is met by coating a first layer of silver with a second one of specially treated caesium oxide. The coating contains free atoms of caesium which are readily ionisable. Accordingly, the cathode would be damaged by exposure to strong ultra-violet radiation.

In order that the cell may be used in daylight, the bulb is covered with a red lacquer which is impenetrable to light of shorter wavelength than 6000 Å; this protective covering has negligible effect on sensitivity when an incandescent lamp is used as light source. For special applications the cell can be supplied unlacquered. The diagram overleaf shows the relative sensitivity as a function of wavelength, with and without the lacquer filter.

The curves may be used for calculating the strength of any kind of light source, it being remembered that 100% corresponds to a sensitivity of 1070 $\mu A/W$. That

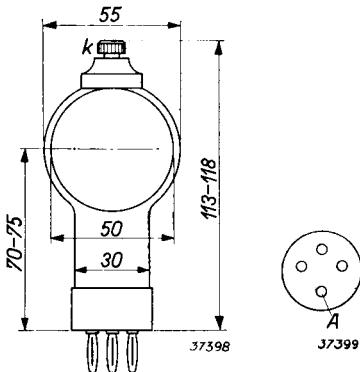
PHILIPS "MINIWATT" SPECIAL VALVES



Relative sensitivity as a function of wavelength; Curve I with lacquered bulb, curve II with unlacquered bulb. 100% corresponds to a sensitivity of 1070 $\mu\text{A}/\text{W}$.

is to say, a current of 1070 μA will flow when the cell is touched by a radiation energy of 1 W.

The illumination should be adjusted so that anode current never exceeds 5 μA ; observing this precaution will ensure constancy of working. The 3512 cell has a normal 4-pin base, but three pins are not used; the anode pin is joined to the anode, while the cathode is taken to the top cap.



Electrode connections, and maximum dimensions in millimetres.