



Luminance meter

EC1-L



Screen luminance and film density meter

The Hagner EC1-L Screen Luminance and Film Density Meter

The Hagner EC1-L is a compact instrument for measuring the luminance of luminous screens, for instance of film and slide viewers, X-ray viewers etc., and for easy calculation of film density. It has both an automatic zeroing and an on/off switch and the only controls needed are a four position range selection switch and a hold button to retain the displayed value.

The opening of the detector, which should be pressed against the screen, has a round aperture with an area of 100 mm².

The meter is normally calibrated to read from 1 cd/m² to 2,000,000 (2x10⁶) cd/m² in four measurement ranges. This calibration is suitable for X-ray viewers. Other ranges, for instance from 0.1 - 200,000 cd/m² can be supplied on request.

The calculation of film density requires also a simple calculator which will give the logarithm to base 10 of a number (LOG₁₀).

Measurement of film density

A. Measure the luminance (L_S) of the blank viewing screen and enter into the calculator.

B. Measure the luminance (L_F) of the film when placed over the screen.

Film density is then given by $D = \text{LOG}_{10} \frac{L_S}{L_F}$

Example

Screen luminance is 1,352,000 cd/m²
Film luminance is 107.2 cd/m²

Density is $D = \text{LOG}_{10} \frac{1,352,000}{107.2} = 4.10$

If the value of screen luminance is stored in the memory of the calculator, the density at several different positions on the film can be calculated very easily.

Instrument data

Detector	Silicon photodiode V _λ - filtered
Measurement range	1 - 2,000,000 cd/m ² (1 - 2 x 10 ⁶ cd/m ²)
Accuracy	Better than ± 3% (± 1 in last digit)
Power supply	9 volt battery type PP3 (lifetime 350 hours)
Dimensions	130 x 75 x 35 mm
Weight	0.24 kg

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