

WILNOS Hand-held Probe Densitometers

LCD 301 and LCD 51

WILNOS LCD series hand-held probe densitometers are used for **measurement of diffuse optical density D** in X-ray films. They have an extremely wide **measuring range**, from 0.0 to 5.0, which is adequate for practically all density measurements required in industrial radiography.

The pen-shaped hand-held probe, with the dimensions of a slimline ballpoint, is connected to the main unit by means of a highly flexible 1.30 m long cable. The densitometer is **zeroed at the push of a button** after positioning of the probe on the viewing surface of an adequately bright film viewer (approx. 30 000 to 100 000 cd/m²). This special technical feature superseded the awkward turning of a zeroing potentiometer previously necessary. After zeroing, the area on the X-ray film to be measured is positioned below the aperture of the probe, and the density is then directly displayed in digital form.

Measuring accuracy can be checked either against the reference film supplied or other reference films (e.g. BAM-tested density step tablet) and readjusted if necessary.

For this purpose, these instruments feature an externally accessible calibration trimmer as required in the relevant calibration specifications, such as ASME SE 1079 and ASTM E 1079 ("Standard practice for calibration of transmission densitometers"). The instruments are ready to run immediately after switching on. They do not require any warm-up phase.

For measuring the interesting film area is to be put under the hand-held probe. When using sufficiently bright viewing equipment this area can be positioned very precisely also for rather high densities. The luminance of the measuring area of densitometer with built-in light source is only up to densities of about D ~ 3.0 scarcely sufficient. For densities in the >=4.0 it is simply insufficient.

LCD 301 hand-held probe densitometer, List No. 23 12 02, battery and mains operated, featuring a large and particularly easily legible LCD display.

The instrument is for both stationary and laboratory as well as for mobile and site use suited. In stationary use with plug-in power supply the display is permanently backlit to allow optimum legibility at reduced room lighting. If not desired the backlighting may be switched off by shortly depressing the on/off button. In the battery mode the backlighting is not automatically activated, but it may be switched on by shortly depressing the on/off button. Also to save battery capacity the densitometer will automatically switch off after eight minutes switch-on time.

Technical data

Power supply

9V Alkaline Battery 6LF22 or equivalent type
 Attached plug-in power supply 230V, 50 - 60 Hz

Aperture diameter

2 mm, other diameters available on request

Measuring range

0 to 5.0 D

Measuring accuracy

± 0.05 in the 0 to 5.0 range

Reading accuracy

± 0.01

Dimensions

L 190 mm B 105 mm H 59 mm

Weight

Instrument about 390 g, battery included
 Plug-in Power supply approx. 100 g



List No. 23 12 02
 LCD 301 densitometer, complete,
 including interchangeable hand-held
 probe, battery and plug-in power supply

Serial bidirectional Interface RS 232, Data communication on inquiry

LCD 51 hand-held probe densitometer, List No. 23 11 02,

the LCD 301's "little brother", ideal for mobile use.

This instrument is battery operated, the measured value is displayed in digital form on an LC-display. Ultra-modern electronic components have made it possible to keep power consumption exceptionally low. The 9V alkaline battery (low-mercury "Green" type) supplied is therefore adequate for an extremely long operating period. Should power nonetheless diminish, a "LO BAT" signal on the display panel reminds the user to replace the battery in good time. A particularly handy accessory just right for mobile use is the carrying case for the LCD 51, which can be ordered under List No. 23 11 12.

Technical data

Battery

commercially available 9V alkaline battery, F22/6LR61.

Please use low-mercury "Green" battery types.

Measuring aperture

2 mm diameter

Measuring accuracy

± 0.05 in the 0 to 5.0 range

Measuring range

0 to 5.0

Display accuracy

± 0.01

Single measurement period

up to D = 4, approx. 1 sec.,

up to D = 5, approx. 5 sec.

Dimensions

approx. 8 x 14.5 x 4 cm

Weight

210 g including battery



List No. 23 11 02
 LCD 51 densitometer, complete
 with battery

List No. 23 11 02
 Carrying case for LCD 51

