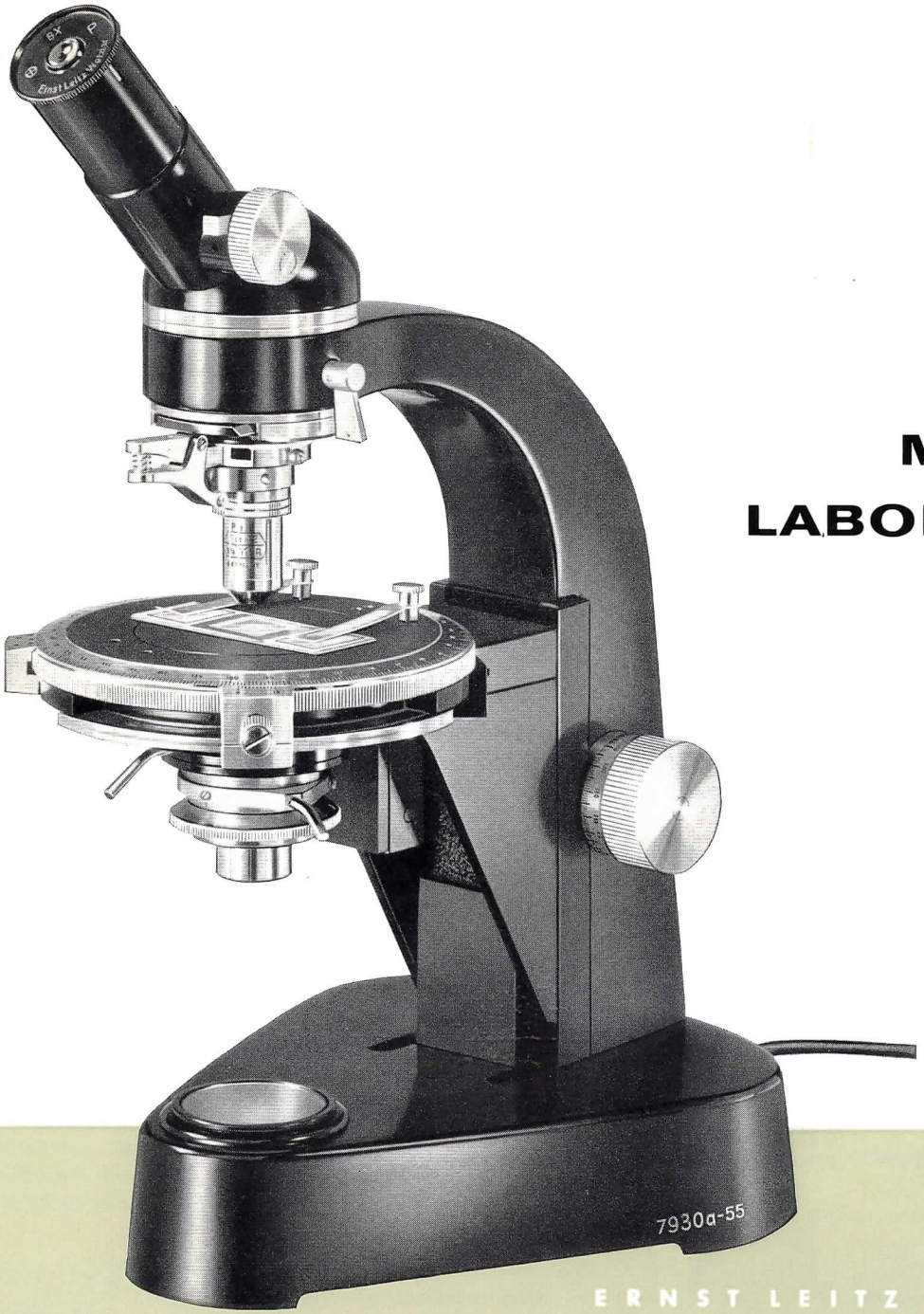


Polarizing Microscope LABORLUX®-POL

ERNST LEITZ GMBH WETZLAR

Monocular-binocular laboratory stand with built-in light source
(Built-in lamp interchangeable against sodium lamp.)

Designed for polarizing microscopic methods of investigation in transmitted and incident light as well as with phase contrast illumination.

Excellent conditions also for binocular observation.

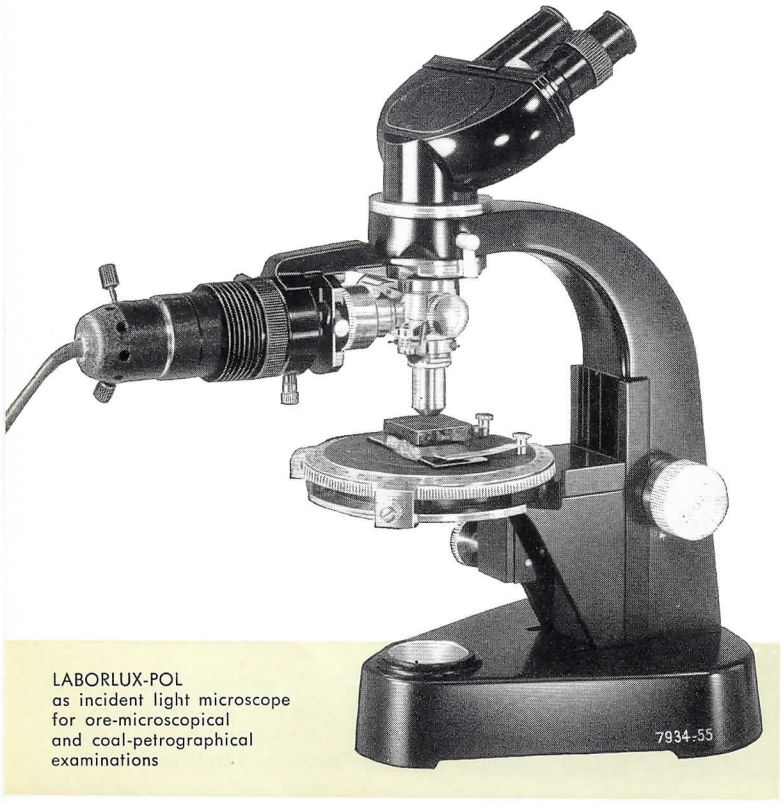
Changing devices for polarizing tubes, objective holders, and condensers.

55-15 e / Engl.

Polarizing Microscope LABORLUX-POL

In the design of the LABORLUX-POL stand particular attention was paid to all those properties and details which facilitate and simplify practical operation. The clear, smooth shape of the stand, the convenient position of the operating points, the prominent arrangement of the scales and last but not least the built-in lamp are characteristics of this basic principle.

The low, combined coarse and fine stage focusing mechanism with single-knob control must also be mentioned. The height of the eyepiece tube remains unchanged during focusing. The entire focusing mechanism operates along polished ball-races, which provide particularly smooth movement absolutely free from play, and unaffected by atmospheric influences; it requires neither lubrication nor any other maintenance.



LABORLUX-POL
as incident light microscope
for ore-microscopical
and coal-petrographical
examinations

The built-in lamp has the advantage of constant readiness for service, with centred illumination. The light intensity is adjustable and high enough for photomicrography. For investigations in the monochromatic light of the D-line, the 6 V, 15 W low-voltage lamp housed in the foot of the stand can be replaced by a sodium lamp. In addition, separate light sources such as spectral lamps, arc lamps, as well as monochromators can be used conventionally in connection with a microscope mirror.

The polarizing equipment consists of neutral-grey extinguishing polarizing filters of the best micro-quality, which offer valuable advantages compared with the Nicol prisms exclusively used in the past. The image is very brilliant and free from astigmatism without any special optical aids.

The stand can be equipped with a monocular or a binocular tube. The tube can be removed or attached with a single movement, always remaining centred to the object stage. Crossline eyepieces can be set for normal and diagonal positions. All inclined "Pol" tubes permit the undisturbed observation of all polarization effects even with the analyser swung out. Due to the special set of prisms in the binocular pol-body the insertion of an additional crystal plate beneath the beam-splitting prism is unnecessary here. The possibility of conoscopy with the monocular tubes, which have a built-in Bertrand lens, must be specially mentioned. Conoscopy with the binocular tubes can be carried out with the aid of a diopter or an auxiliary microscope (light focusing magnifier) in one of the eyepiece tubes.

The objective changing devices (objective centring clutch, or revolving nosepiece with individual objective centration, as well as vertical illuminators) are interchangeable. The LABORLUX-POL microscope can therefore also be equipped for ore-microscopical and coal-petrographical investigations. The LABORLUX-POL has proved particularly useful in these last-mentioned types of investigation. To allow for the use of the universal rotating stage method a sufficiently large vertical adjustment range of the object stage has been provided. This permits the observation even of high objects in incident light.

The following summary gives further information about other technical details and innovations.

Constructional features of the LABORLUX-POL

STAND:

Large stand with combined coarse and fine adjustment mechanism actuating the object stage along ballraces with low-set single-knob control on both sides of the stand (1 micrometer scale division = .002mm. in the fine adjustment range). The top portion of the stand carries the tube changer with bayonet fitting and a swing-out filter analyser.
Horizontal dovetail slide for the detachable objective changing device.
Circular, rigidly centred rotating object stage No. 38 on ball bearings, with 360° graduation and two verniers for reading the rotation to an accuracy of .1°. Adjustable friction and arrest by means of a clamping screw. Stage diameter 130mm. in addition two object holders and a special stage inset for the use of the universal rotating stages.
Substage rack-and-pinion movement, with dovetail changer, for vertical condenser adjustment.
High microscope foot to house the lamp unit.
As a supplement: attachable mechanical stage for cross movement of the preparations.

TUBES:

The following tubes can be used on the LABORLUX-POL:

1) Monocular inclined Pol-tube P 11 for the use of 30mm diam. eyepieces. Built into the tube: swing-out Bertrand lens and a swing-out independently operated pinhole stop for singling out object detail during conoscopical examinations.
2) Binocular inclined Pol-tube S 20, for standard eyepieces, 23.2mm diam.
3) Straight photo tube O 14 with Bertrand lens and pinhole stop as under 1).
4) Binocular inclined Pol-photo-tube FS 22, for standard eyepieces 23.2mm diam., and straight tube part for 30 mm diam. eyepieces, as well as accessory holding ring and index.

OBJECTIVE CHANGERS:

The following objective changers with horizontal dovetail fitting can be used on the LABORLUX-POL:

1) Objective centring clutch with compensator slot under 45°, together with four centring objective changing collars.
2) Revolving nosepiece for 5 objectives with compensator slot under 45°, with centring device for each individual objective.
3) Vertical illuminator with compensator slot under 45°, prism polarizer and 6 V 15 W lamp, for investigations in incident light and bright field.
4) ULTROPAK® incident-light illuminator with 6 V 15 W lamp for incident-light, dark field investigations.

CONDENSER AND POLARIZER:

1) Three-lens polarizing condenser No. 54 with swing-out part, aperture iris diaphragm A 0.90 and vertically removable filter polarizer in rotating mount graduated at 90° intervals with dovetail fitting.
2) All other condensers with dovetail fitting for bright and dark field as well as phase contrast.

ILLUMINATION:

Microscope lamp unit fitting into the foot of the stand, with 6 V 15 W lamp with transformer. Interchangeable with sodium lamp and starting equipment.
Inclining and rotating plane- and concave mirror, fitting into the foot for use with separate light-sources or daylight.

ACCESSORIES:

λ-plate and $\lambda/4$ plate.
Information about further accessories will be found in our comprehensive catalogue on LEITZ polarizing instruments (55-20/Engl.).

Complete outfits

Polarizing Microscope LABORLUX-POL, comprising stand with detachable objective centring clutch with 4 objective changing collars (7·74·—·—)
rack and pinion movement, with dovetail changer for the condenser, built-in 6 V 15 W lamp for transmitted light (—·—·—·31)
Pol-tube P 11,
rotating object stage No. 38,
polarizing condenser No. 54,
λ-plate,
$\lambda/4$-plate,
wooden cabinet with lock and key, dust cover
Basic outfit
(LABORLUX-POL M 7·74·5·31 P 11 38/54) **PIUHS**

General purpose optical equipment:
Achromatic objective P 3.5/0.10 PEBAY
Achromatic objective P 10/0.25 PETRI
Achromatic objective P 50/0.85 PECAZ
Achrom. oil immersion P 100/1.30 PELIM
Huygens eyepiece P 8× (30mm. dia.) with focusing eyelens and crosslines IIAXU
Huygens eyepiece P 6× (30mm. dia.) with focusing eyelens, graticule, micrometer scale 10mm. with 100 intervals, and crosslines IBLTI-OCBUH
Stage micrometer 2mm. with 200 intervals OBMET
Screw-in immersion condenser cap N. A. 1.40 PUKAP

Optical equipment No. B 2 mon **IMJIT**
(magnifications 21–800×)

Polarizing Microscope LABORLUX-POL with objective centring clutch and optical equipment B 2 mon **PIUJT**
(LABORLUX-POL M 7·74·5·31 P 11 38/54 B 2 mon)

Polarizing Microscope LABORLUX-POL with revolving nosepiece with individual centring devices for 5 objectives and optical equipment B 2 **PIUSC**
(LABORLUX-POL M 7·35·5·31 P 11 38/54 B 2 mon)

Electrical equipment
regulating transformer for 110–240 V, 50–60 c/s a.c. RESEV
regulating transformer with ammeter, for 110–240 V, 50–60 c/s a.c. RETAV

Accessories for incident light investigations
Vertical illuminator on horizontal changing slide, compensator slot set at an angle of 45°, 6 V 15 W lamp attachment, Berek compensating prism on rapid changing axis with plane glass plate, horizontally adjustable collimator, illuminated field iris diaphragm, detachable rotating prism polarizer, central stop slide, half-stop aperture iris diaphragm with vertical adjustment, illuminating lens and 5 objective changing collars (7·55·—·35) PEDAB

The illuminator PEDAB can, if desired, be supplied without the changing slide with a set of central stops: Vertical illuminator, as described above, but without the central stop changing slide (7·58·—·35) PEHAF

The vertical illuminator can be easily adapted for use in conjunction with a separate light source (sodium lamp, monochromators etc.) by screwing a special collecting lens in place of the lamp unit.
Collecting lens for separate light sources PEHEG
Optical outfits see List **55-20**/Engl.

Vertical illuminator ULTROPAK for LABORLUX-POL
ULTROPAK illuminator with rigidly built-in inclined mirror with central aperture as light guidance element for the ring condenser of the UO objectives, bayonet changing mount for the latter, rigidly attached 6 V 15 W lamp with slot for the accomodation of filters, sector diaphragms and a slip-in rotating filter polarizer (7·22·—·35), in case PEULT
ULTROPAK objectives – see cat. 55-20

Supplementary Equipment

Pol-tube P 11, inclined, for wide-field eyepieces 30 mm. dia. (as included in above outfits) PEBOC
Binocular Pol-tube S 20, inclined, for eyepieces 23.2mm. dia. PEBIB
Photo-Pol-tube FS 22 for binocular observation (23.2mm.) and photomicrography (30mm.) PEGAD
Paired eyepieces for the S 20 and FS 22 tubes:
PERIPLAN widefield eyepieces GF 10×, one with focusing eyelens and crosslines PAVEH
Photographic Pol-tube O 14 for eyepieces 30mm. dia. with Bertrand lens, diaphragm and flange with index for top analyser PEFIF
Detachable revolving nosepiece with centring devices for five objectives (7·35·—·—) PEXOY
Detachable objective centring clutch with 4 objective changing collars (7·74·—·—) PEZOB
Attachable mechanical stage, No. 42, graduated, with verniers PIRAZ
Sodium lamp, (without Burner) to fit in the foot of the microscope NATID
sodium burner NAPOB
Starting unit for 220 V 50 c/s NARAY
Starting unit for 240 V 50 c/s NAYUL
Starting unit for 110 V 60 c/s NAPUC
Starting unit for 110 V 50 c/s NAYOK
Storage cabinet, separate PEIMS
Flexible plastic dust cover ISDEC
6 V 15 W filament lamp, separate LINOP
For further accessories, objectives and eyepieces for transmitted and incident light investigations see list **55-20**/Engl.

Design subject to alteration without notice.

ERNST LEITZ GMBH WETZLAR GERMANY
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List **55-15e**/Engl. Printed in Germany VII/65/LX/SD