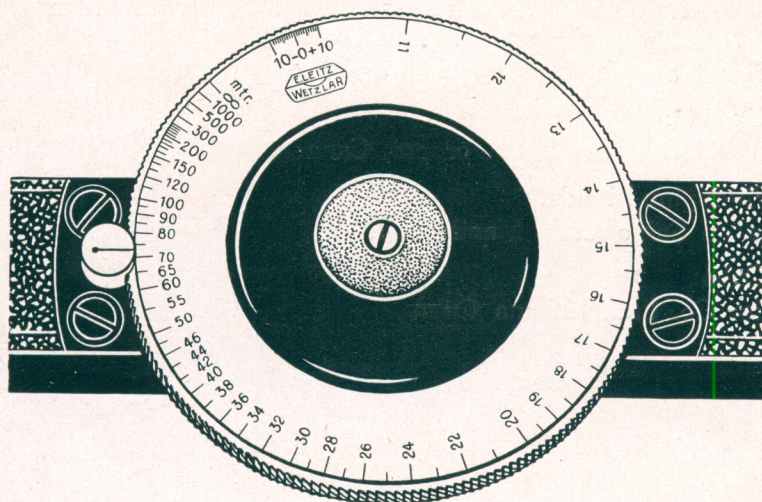


Leitz

'FARDI' RANGE FINDER,
FOR INDUSTRIAL PURPOSES.



Ernst Leitz
Optical Works
Wetzlar

U. S. A. Agents:
E. Leitz, inc.,
60 East 10th Street,
New York.

Special Agencies controlled by New-York Office:

For Western States: California, Washington, Oregon, Idaho, Utah,
Montana and Arizona:

Spindler & Sauppe, 86 Third Str., San Francisco, Cal.

For Canada:

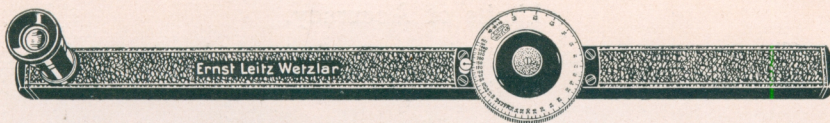
The J. F. Hartz Co. Ltd., Toronto, Canada.

For Philippine Islands:

Botica de Santa Cruz, Manila P. I.

For Cuba:

Texidor Co. Ltd., Habana Cuba.



Description.

General Features.

This range finder embodies the principle of complete coincidence like the small Leitz 'Fodis' near range finder, which was mainly designed for photographic purposes and which has already been described in a separate leaflet.

From the latter the 'Fardi' range finder differs in the first place by its longer base, viz 40 cm. and 20 cm. respectively (as against the 8 cm. base of the 'Fodis' range finder), and secondly in that it is fitted with an unscrewing Galilean telescope magnifying about 3 times. This greatly extends the range of the instrument and the accuracy of the readings.

The range finder with a base of 40 cm. is invariably furnished with the above mentioned telescope, whilst the model with a base of 20 cm. is supplied with or without it. After the removal of the eyepiece cup the telescope attaches without trouble.

The Body.

The instrument consists of a rectangular brass tube of a length of about 45 cm. or 25 cm. respectively containing at one end a glass cube with a diagonal septum, which partially transmits and partially reflects light, and furnished at the other end with a right-angled prism. This optical combination produces a double image of a sighted object, and the process of finding the range consists in rendering these two images coincident. This is done by turning a knurled disc, which turns the prism about its pivots. The knurled disc is graduated in terms of distances, and readings are taken against a fixed index.

The instrument is covered with leather and is dustproof and watertight.

The Reading Scale.

The Reading Scale of the instrument with a base of 40 cm. covers a range from 12 to 300 metres (or 13 to 300 yards) and has finer subdivisions. In addition, there are marks for 400, 500, 1000 metres (or yards) and infinity ∞ . These, however, are not sufficiently accurate for actual measurements and are only provided for general guidance.

The range finder with a base of 20 cm. has a reading scale ranging from 4 to 100 metres (or 5 to 100 yards) with sub-divisions; the other marks for 200, 300, 400, 500 metres (or yards) and infinity ∞ are only approximate figures.

Limits of Accuracy.

The limits of accuracy of the range finder with a base of 40 cm. and telescope are as follows:

up to 50 metres	±	$\frac{1}{2}\%$
from 50 to 100	„	± 1%
from 100 to 200	„	± 2%
from 200 to 300	„	± 3%

The instruments should not be used for measurements beyond the latter distance.

The range finder with a base of 20 cm. and telescope is a little inferior to the larger one in the matter of accuracy. Up to 100 metres the percentage error is about double that given above. When the instrument is used without a telescope, the accuracy diminishes still further.

Means of Rectification.

The adjustment of the various parts of the instrument is liable to be disturbed by thermal and other influences. In order to correct the resulting errors, the scale is not fixedly attached to the knurled disc but can be freely displaced after the release of a screw head, by which it may be reclamped in the corrected position. In this respect the 'Fardi' range finder has a notable advantage over the small 'Fodis' photographic near range finder.

Directions.

Before using the instrument set it sharply to your sight and make sure that coincidence occurs at 'infinity' (∞) or, by way of an alternative, range off 20 metres, say, and verify the reading on the scale-disc. Coincidence is established when the double image of the object, as seen in the field of view of the telescope, i. e. a secondary image within the smaller bright circle, coincides with the primary image. If no coincidence results when the scale is set to the measured distance or at ∞ establish coincidence, release the knurled screw head at the centre of the scale disc, and displace the scale disc to the distance scale line in question, i. e. to ∞ or 20 in this case, and firmly reclamp the scale disc. The small auxiliary scale from 0 to ± 10 and the corresponding index serve as a guide in estimating the amount of the deviation. When rectified, the readings should be verified by a few tests. This re-adjustment should be carried out with the utmost care as this determines the accuracy of the readings.

When taking the range it is advisable to take a mean of several readings. In general, it is immaterial whether the instrument is used in a horizontal or vertical position. When taking the range by sighting the objects which have sharply defined lateral contours, such as lightning conductors, telegraph poles, or flag staffs, it is generally best to hold the range finder in a horizontal attitude, while objects with sharp horizontal outlines, such as roof lines, forest contours and river course, should be ranged in with the instrument held vertically.

Scope of uses.

The range finder can be employed with advantage in all cases where distances up to 300 metres or 100 metres, as the case may be, are to be measured expeditiously with an approximate degree of accuracy or where the width and depth of inaccessible plots of land are to be roughly estimated. The instrument is accordingly well adapted for such purposes as laying out cable lines, in railway construction, agricultural lay-outs, hunting, height measurements of all kinds, cinematographic telephotography, provisional surveys in the colonies, etc.

Price Key.

No.

Codeword

40. Leitz Range Finder with base of 40 cm.
and unscrewing Galilean Telescope
magnifying 3 times, in canvas bag with
carrying strap

Fardi 20.00

Weight incl. bag $2\frac{1}{2}$ lbs.

Weight excl. of bag $1\frac{1}{2}$ lbs.

20. Leitz Range Finder with base of 20 cm.
and unscrewing Galilean Telescope
magnifying 3 times, in canvas bag with
carrying strap

Farno 56.00

Weight incl. bag $1\frac{7}{8}$ lbs.

Weight excl. of bag 1 lb.

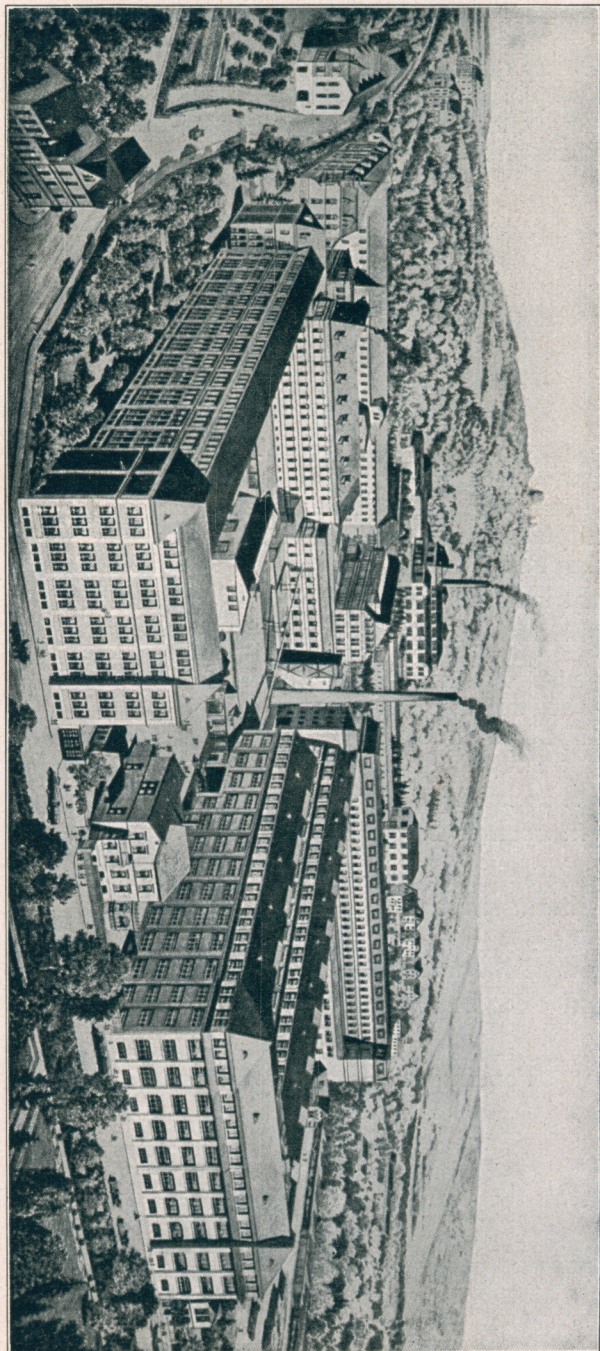
21. Leitz Range Finder with base of 20 cm.
but without telescope, in canvas bag with
carrying strap

Farse 45.00

Weight with bag $1\frac{3}{4}$ lbs. .

Weight excl. bag 14 ounces.

Packing is charged for at cost price.



ERNST LEITZ, Optical Works, WETZLAR