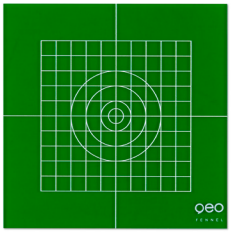
DE | EN | FR

FLP 150 GREEN

BEDIENUNGSANLEITUNG
USER MANUAL
MODE D'EMPLOI



www.geo-fennel.de
www.geo-fennel.com
www.geo-fennel.fr

Dear customer,

Thank you for your confidence in us having purchased a ***geo-FENNEL*** instrument.
This manual will help you to operate the instrument appropriately.

Please read the manual carefully - particularly the safety instructions. A proper use only guarantees a longtime and reliable operation.

geo-FENNEL
Precision by tradition.

Contents

A SUPPLIED WITH

- Laser zenith plummet FLP 150 GREEN
- Li-Ion battery
- Charger
- Target plate
- User manual
- Container

CHARACTERISTICS

- Easy to use with two laser plummets (up and down).
- Green laser dot visible up to ≥ 120 m / day.
- Illuminated plate level helps at adjustment under unfavourable light conditions.
- High accuracy for precision work.
- A precise laser plummet incorporating a coaxial telescope for both laser and optical observations. The laser dot can be focused and observed through the telescope. Green laser dot (upwards) for best visibility.

Technical data

Magnification	25 x
Clear objective aperture	36 mm
Shortest focusing distance	0,5 m
Plate level	20“ / 2 mm
Plumb point upwards (zenith)	
Laser diode / laser class	green / 2
Spot size Ø	3 mm / 50 m
Max visible distance (day)	≥ 120 m
Max. visible distance (night)	≥ 250 m
Deviation to optical axis	≤ 5“
Accuracy	± 2,5 mm / 100 m
Plumb point to the ground	
Laser diode / laser class	red / 2
Accuracy	± 1 mm / 1,5 m
Power supply	10 h / Li-Ion
Temperature range	-10°C up to + 45°C
Dust / water protection	IP 54
Weight	2,8 kg

B POWER SUPPLY

INSTALL THE BATTERY

Both the standard Li-Ion battery or 2 x AA Alkaline batteries can be used.

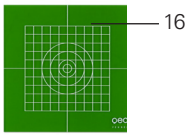
LI-ION BATTERY PACK
The instrument comes with Li-Ion rechargeable battery pack. Open the battery compartment, mount the battery pack (plug-in connector) and close the battery compartment.

2 X AA AKALINE BATTERIES
The laser can be used with Alkaline batteries alternatively.
Open the battery compartment, mount the Alkaline battery (take care of correct polarity) and close the battery compartment.

In case the laser dot becomes weak the batteries must be charged / exchanged.

C FEATURES

1. Objective
2. Battery compartment
3. Focusing knob telescope
4. ON/OFF plumb point upwards
5. ON/OFF plumb point to the ground
6. Charging socket
7. Fokusing knob plummet
8. Circular reading
9. Tribrach
10. Circular level
11. Foot screw (3 screws)
12. Handle
13. Eyepiece
14. Adjustment screw plate level
15. Plate level (illuminated)
16. Target plate



OPERATION

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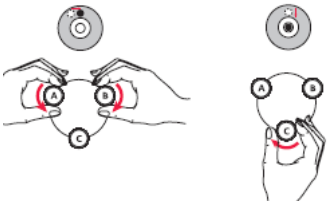
SET UP THE INSTRUMENT

Position the instrument onto a suitable tripod and place it as upright as possible. Retract the handle. Centre the circular level coarsly by means of the foot scews of the tribrach. For this, first turn two footscrews counter-rotating and use the third to centre the bubble.



Centre the plate level by using the same two footscrews. Rotate the instrument by 90° and centre the plate level once more using the third footscrew. Repeat this procedure until the plate level is perfectly centred in all positions. Optimum precision can only be achieved when the instrument is perfectly level.

Aim at the target and focus the crosshairs to the target. Now the instruments is perfectly level, the plumb point upwards, the plumb point to the ground as well as the optical axis are concentrical.

When the istrument is centered over a known point, turn the ON/OFF plumb point upwards and / or ON/OFF plumb point to the ground clockwise until you hear a click. The integrated filter will protect your eyes from the laser radiation. Turn the knobs anti-clockwise to power off the laser again. The visible distance of the plumb point upwards is up to 120 m in daylight conditions and 250 m in dark conditions. For all measurements exceeding these distances the instrument must be used optically.

Power on the plumb point to the ground and rotate the instrument 360° in 90° increments to check if the plumb down beam is exactly centred. Power on the plumb point upwards and rotate the instrument 360° in 90° increments. Repeat these procedures to achieve the optimum measuring accuracy.

When the zenith laser is focussed to the target the dot has the minimum diametre. When the unit is perfectly levelled the laser dot to zenith is exactly perpendicular.
The plumb beam down can be focussed.

ADJUSTMENT

The user is expected to carry out periodic checks of the instrument's accuracy.

PLATE LEVEL ADJUSTMENT

Secure the instrument onto a suitable tripod and proceed as follows:

- Level the instrument with the circular bubble
- Rotate the instrument until the plate level is parallel to a line between two footscrews
- Use these two footscrews to centre the plate level bubble
- Now rotate the instrument by 90° and centre the bubble once more using the third footscrew
- Repeat the procedure until the bubble is centre in all positions. If not, proceed, as follows:
- Rotate the instrument until the plate level is parallel to a line between two footscrews. Use these two footscrews to centre the plate level bubble
- Rotate the instrument exactly 180° and note the position of the plate level bubble
- If the bubble is not central the plate level should be adjusted
- Remove half of the deviation with the plate level adjusting screw with the adjusting pin supplied in the tool kit and half of the deviation with a footscrew
- Repeat the above procedures until the plate level is centred in all positions.

ADJUSTMENT OF CIRCULAR VIAL

With the instrument leveled as indicated in the previous paragraph check if the circular vial is centred. If not centre it with the adjusting pin supplied in the tool kit.

CENTRING LASER ADJUSTMENT

Fix the instrument on a suitable tripod and power on the centring laser. Rotate the footscrews to centre the laser beam exactly over a target plate. When the instrument is rotated by 360° the laser beam should stay centred in all positions. If not, the centring laser should be adjusted.

Adjust as follows:
Unscrew and remove the centring laser cover. Adjust the screws using the adjusting pin supplied in the tool kit until the laser beam coincides with the center of the target plate. Check by rotating the instrument 360° and ensure that the adjusting screws are secure with equal tension. These adjustments should be carried out by a trained engineer.

TROUBLESHOOTING

1. The instrument will not power on:
> The battery power is low > charge the batteries
or
> The instrument defect > contact your service provider

2. The laser intensity cannot be adjusted:
> Faulty switch > contact your service provider
or
> The PCB defect > contact your service provider

3. The visibility of the laser beam is weak:
> The battery power is low > charge the batteries
or
> The laser diode is defect > contact your service provider

4. The laser point is too large:
> Focussing error > adjust according to the user manual
or
> The optical axis is not parfocalized with collimation axis > adjust according to the user manual

5. The plate level cannot be centred:
> The plate level is not perpendicular to vertical axis > adjust according to the user manual

6. The laser dot moves when the instrument is rotated:
> The laser and optical axis are not parfocal > adjust according to the user manual

H SAFETY NOTES

SPECIFIC REASONS FOR ERRONEOUS MEASURING RESULTS

Measurements through glass or plastic windows; dirty laser emitting windows; after the instrument has been dropped or hit. Please check the accuracy.
Large fluctuation of temperature: If the instrument will be used in cold areas after it has been stored in warm areas (or the other way round) please wait some minutes before carrying out measurements.

ELECTROMAGNETIC ACCEPTABILITY (EMC)

It cannot be completely excluded that this instrument will disturb other instruments (e.g. navigation systems); will be disturbed by other instruments (e.g. intensive electromagnetic radiation nearby industrial facilities or radio transmitters).

CE-CONFORMITY

The instrument has the CE mark according to EN 61326-1:2006.

WARRANTY

This product is warranted by the manufacturer to the original purchaser to be free from defects in material and workmanship under normal use for a period of two (2) years from the date of purchase. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with the same or similar model at manufacturers option), without charge for either parts or labour. In case of a defect please contact the dealer where you originally purchased this product. The warranty will not apply to this product if it has been misused, abused or altered. Without limiting the foregoing, leakage of the battery, bending or dropping the unit are presumed to be defects resulting from misuse or abuse.

SAFETY INSTRUCTIONS

- Follow up the instructions given in the user manual.
- Do not stare into the beam. The laser beam can lead to eye injury. A direct look into the beam (even from greater distance) can cause damage to your eyes.
- Do not aim the laser beam at persons or animals.
- The laser plane should be set up above the eye level of persons.
- Use the instrument for measuring jobs only.
- Do not open the instrument housing. Repairs should be carried out by authorized workshops only. Please contact your local dealer.
- Do not remove warning labels or safety instructions.
- Keep the instrument away from children.
- Do not use the instrument in explosive environment.
- The user manual must always be kept with the instrument.

CARE AND CLEANING

Handle measuring instruments with care. Clean with soft cloth only after any use. If necessary damp the cloth with some water. If the instrument is wet clean and dry it carefully. Pack it up only if it is perfectly dry. Transport in original container / case only.

INTENDED USE OF INSTRUMENT

The instrument emits a visible laser beam in order to carry out the following measuring tasks:
Setting up plumbing points.

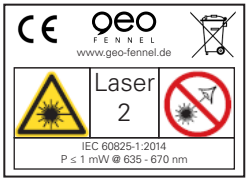
EXCEPTIONS FROM RESPONSIBILITY

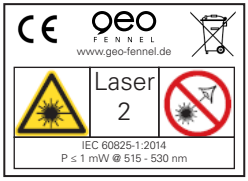
1. The user of this product is expected to follow the instructions given in the user manual. Although all instruments left our warehouse in perfect condition and adjustment the user is expected to carry out periodic checks of the product's accuracy and general performance.
2. The manufacturer, or its representatives, assumes no responsibility of results of a faulty or intentional usage or misuse including any direct, indirect, consequential damage, and loss of profits.
3. The manufacturer, or its representatives, assumes no responsibility for consequential damage, and loss of profits by any disaster (earthquake, storm, flood etc.), fire, accident, or an act of a third party and/or a usage in other than usual conditions.
4. The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits due to a change of data, loss of data and interruption of business etc., caused by using the product or an unusable product.
5. The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits caused by usage other than explained in the user manual.
6. The manufacturer, or its representatives, assumes no responsibility for damage caused by wrong movement or action due to connecting with other products.

LASER CLASSIFICATION

The instrument is a laser class 2 laser product according to DIN IEC 60825-1:2014.
It is allowed to use the unit without further safety precautions.
The eye protection is normally secured by aversion responses and the blink reflex.

The laser instrument is marked with class 2 warning labels.





Please note:

If you return instruments for repair / for adjustment to us please disconnect batteries or rechargeable batteries from the instrument - this is for safety reasons!
Thank you.