Operating Instructions

Interior Installation Laser IL-90L/-91L

Congratulations on your new GEO laser

This operating instructions contain enclosed in addition to information on how to use the laser **important safety information.** Please note: First read the safety instructions on the supplement page 1 - 3 and then the operating instructions carefully before using the laser.

1. Description

1.1

The automatic precision laser PL-95L is an all-round laser for horizontal and vertical use capable of electronic self-levelling over three axes. Equipped with a beam split prism in the rotor head, it can also be used as a square or plumb laser. It emits a stationary or rotating laser beam, which turns into a light plane. It is additionally equipped with manual rotor setting, plumb-down function, aligning function and box levels for horizontal and vertical mounting each.

1.2 Robust Metal Housing

plastic-coated, swept and filled with nitrogen, 100 % watertight.

1.3 Laser Warning Sign

Laserklasse IL90L: 2, < 1 mW
Laserklasse IL91L: 3R, < 5 mW

1.4 Keyboard

Clear layout. Big, user-friendly, self-explanatory keys.

1.5 Charging Socket

Behind the dust guard cap.

1.6 Box level

Aid for horizontal set-up

1.7 Bulging Ground Area, niro St.

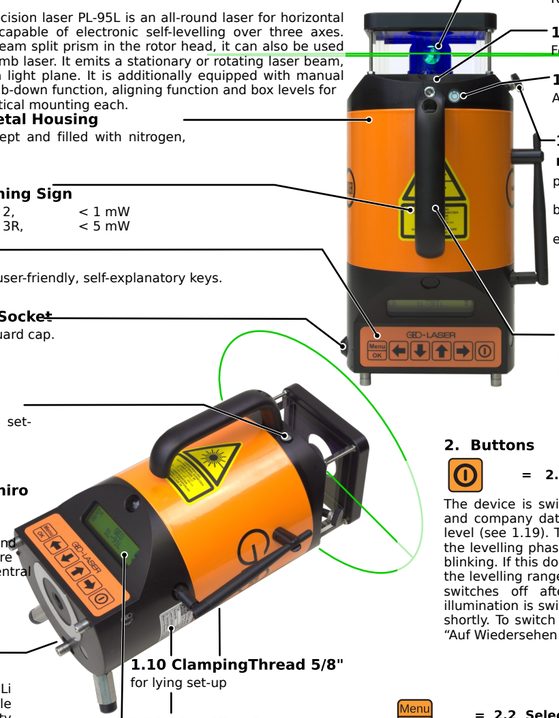
protects against damages of coat and guarantees a secure stand. Central fastening thread 5/8".

1.8 Battery Box

Watertight with Li Ion rechargeable battery and safety valve.

1.9 LCD-Display

Clearly legible, illuminated display for on/off, company data, device data, rotor speed, duty type and battery level.



1.10 ClampingThread 5/8"

for lying set-up

1.11 Identification

Address of manufacturer, laser power, type designation

1.12 Rotor Head

Rotation speed adjustable from 0 - 800 rpm.

1.13 Box Level

For plumb-down function

1.14 Box Level

Aid for vertical set-up

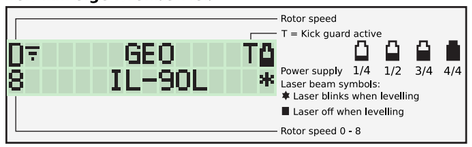
1.15 Manual Rotor Setting with rotary motion

pressed:	rotor motor is switched off
by turning:	setting of the desired position
extracted:	rotor motor switched on again

1.14 Handle

for easy handling, safe transport and simple set-up.

LCD-Anzeige Drehbetrieb



2. Buttons

= **2.1 On/Off**

The device is switched on by pressing this button. The device and company data are then shown, followed by the LCD main level (see 1.19). The device is then levelled automatically. After the levelling phase the laser beam and laser beam symbol stop blinking. If this does not happen, the device must be moved into the levelling range by tilting it forwards. The display illumination switches off after approx. 30 seconds automatically. The illumination is switched on again by pressing the ON/OFF button shortly. To switch off the device, press the ON/OFF button until "Auf Wiedersehen !" appears.

Menu OK = **2.2 Selection - Adjustment - Acknowledgement**

By pushing the menu/OK button, one after the other the rotor speed D and the rotor scanning operation are selected. For identification the position cleared blinks and can be adjusted by the arrow up/down buttons as per the following description. If the adjustment does not take place within approx. 20 seconds, the clearing is cancelled.

or = **2.3 Setting of Rotor Speed**

When D is blinking, the rotor speed changes by 100 rpm when pushing briefly the arrow button. Setting range: 0 - 800 rpm

+ = **2.4 Zero Setting of Rotor Speed**

When D is blinking, the rotor speed is set to zero.

or = **2.5 Rotor Scanning Operation**

When is blinking, the rotor head is vibrated for clear visibility of laser line. At the LCD display additional symbols for modification of rotor scanning operation are indicated. They can be selected by the arrow left/right buttons and changed by the arrow up/down buttons.

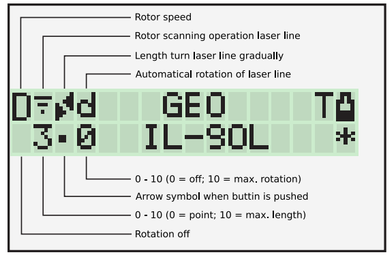
That means:

= Adjust laser line length from point (0) to approx. 1/4 turning (10)
= Turn laser line to the left or the right.
= Laser line is standing (0) or rotating by 360°.
d 1 = slowly to 10 = max. rotating speed

Finish adjustments by pressing briefly the On/Off button. If the selection does not take place within approx. 20 seconds, the clearing is cancelled and the activation mark is indicated under the scanning symbol.

Leave scanning operation: When D is blinking, press the arrow up/down button.

LCD Display scanning level



or = **2.6 Direction Setting (horizontal set-up)**

Push the corresponding button for electromotive fine/coarse adjustment of the laser beam in direction. Pushing longer changes the direction with increasing speed. When end position is reached, the laser beam blinks slowly. The setting must then be moved back within 2.5 minutes. If this is not done, the laser is switched off automatically.

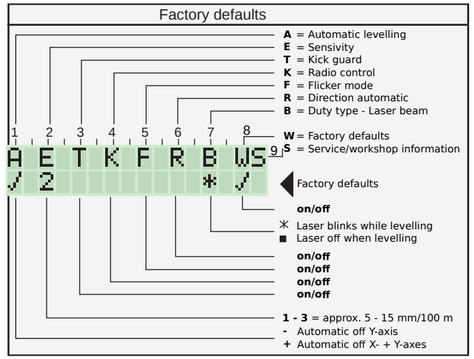
2.7 Quick Setting

In addition to the respective arrow buttons also press the On/Off button.

3. Device Settings

Menu OK = **Select Menu Level**

Keep the button pressed until the adjustment menu is showWerkseinstellungen ändern



Changing the factory defaults

or = **Select Letter**
The selected letter starts blinking.

or = **Change Settings**

= **Back to Operating Display**

A **3.1 Automatic Levelling Cut-Out**

✓ = Automatic levelling switched on (factory default)

▬ = Automatic levelling cutted out for the Y-Axis
On the display Y-A OFF is indicated

✚ = Automatic self-levelling cutted out for both axes
On the display X-A OFF + Y-A OFF is indicated.

When the automatic is cutted out, the laser can be positioned just as you like it. For electromotive fine/coarse adjustment of the laser beam, push the respective arrow buttons. Longer pushing changes the direction with increasing speed.

E

3.2 Sensivity Setting (Wind/Vibration)

The self-levelling function corrects even the smallest deviation. Additionally the laser beam and the laser beam symbol at the operating mode display blink when the limit values of step 1 to 3 are exceeded, i.e. by influence of wind and/or vibration.

1 = 0,005 % no effect
2 = 0,010 % weak effect (factory defaults)
3 = 0,015 % strong effect

T

3.3 Kick Guard (Automatic Laser Beam Cut-Out)

✓ = Kick guard switched on. It is only active after 30 sec. Then a T appears in front of the battery symbol at the operating mode display.

This means the laser is switched off automatically as a precautionary measure in the event of a jerky movement (bump). The T then begins to blink. The laser must be switched on again and the positioning checked and corrected if necessary.

= Factory defaults: Kick guard switched off.

K

3.4 Radio Control On/Off

Is required for the operation with the locking receiver FE-53.

= off (energy-saving mode)
✓ = on (factory defaults)

Table of contents

Designed, developed and made in Germany

GEO-Laser GmbH
Solinger Str. 8
45481 Mülheim an der Ruhr
Deutschland

Telefon +49 208 99357 - 0
Telefax +49 208 99357 - 25
info@geo-laser.de
www.geo-laser.de

F

3.5 Flicker Mode

Flickering makes the laser beam significantly easier to see in unfavourable light conditions.

= Factory default: Flicker mode off.

R

3.6 Direction Automatic Monitoring

When using the locking receiver FE-53 the automatic locking can be monitored. The laser beam switches off when the laser or radio contact is interruped for more than 3 min. It can be switched on again by briefly pressing the laser ON button.

= off (factory defaults)
✓ = on

B

3.7 Operating Mode Laser Beam

✱ = Laser beam and laser beam symbol blink at the operating mode display when levelling (factory defaults).

= Laser beam is off when levelling. However the symbol blinks at the operating mode display.

W

3.8 Factory Defaults

✓ S = Reset all settings to the factory defaults.

3.9 Service/Workshop Notice

First off all a phone no. for service/help appears. Then authorized personnel can put in a numerical code to come to the adjustment mode.

4. Locking and Measuring Receiver FE-53 Functions

4.1 Laser Receiver

The laser receiver type FE-53 receives a rotating laser or diode laser beam and indicates its position to the light plane by way of two resp. three LEDs and various signal tones .

4.2 Locking Receiver for the Y-axis (Direction)

The rotating laser beam is received by the locking receiver FE-53 and then automatically directed to the position fixed before. Deviations are detected and corrected immediately. Accuracy to ± 1mm/100 m.

5. Power Supply

7,4-V-DC internal Li Ion rechargeable battery or 12-V-DC external battery in combination with converter cable 0117.02.

5.1 Battery Charging

- Carry out charging only with the power and charging unit, type NE-80 or a 12 V DC external rechargeable battery via connection cable 0117.02.
- Keep charger dry and only use it in rooms.
- For charging take the laser out of the transport case.
- Permissible charging temperature 0° C to + 40° C, as best + 10° C to + 25° C.
- After approx. 10 hours the charging time is finished. The display turns off or the battery symbol shows a full battery.
- Low ambient temperatures reduce the running time, high temperatures reduce the battery life.
- Damaged batteries must be disposed.

6. Adjustment

6.1. Checking the Adjustment

Set-up the laser upright and mark laser beam in the height of the required measuring distance. Turn laser device on the tripod by 180°, mark once again. If the adjustment is perfect, the first mark does not deviate from the second one. Turn device by 90°, repeat this process.

6.2. Adjustment

The laser can be adjusted in the field without having to open the device. For safety reasons, however, adjustment should only be carried out by authorized personal. See the special adjustment instructions in this regard.

7. Troubleshooting

1. No laser beam - check battery charge.
2. Low range - clean laser beam exit window.
3. Laser beam blinks slowly - move device into the levelling range by tilting forwards.
4. Laser beam and banking arrows blink slowly - reset laser from the limitation. If the errors of points 3 and 4 are not corrected within 2.5 minutes, the device is switched off automatically.
5. Laser switched off automatically (kick guard or direction automatic monitoring) - Switch on l aser beam by pressing the ON button shortly.
6. Rotor does not rotate: Manual rotor setting: extract knob by turning it (see 1.13).

8. Maintenance

The laser requires no special maintenance. Keep the electrical connections clean. Do not clean with water spray. Clean glass parts with a soft, clean cloth. Store dry. Always transport the laser in its original case.

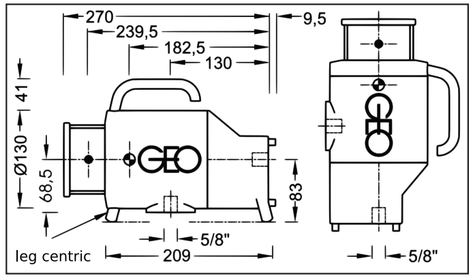
9. Remote Control

The device is fully controllable via an optional remote control FB-10 or with a android based smartphone and our free app "GEO-Remote". While the remote control FB-10 is paired once with your laser device, the app can be paired with multiple lasers. Therefore you will need the MAC-address of your laser device. For further information and an installation guide please visit our website www.geo-laser.de. A simultanious use of an remote controll and a locking receiver is not possible.

10. Technical specifications

Laserclass IL-90L ..... 2 < 1 mW
Laserclass IL-91L ..... 3R < 5 mW
Laser: ..... diode, visible green, 520 nm
Beam diameter: ..... at Laser 5 mm
Range IL-90L/IL-91L: ..... to Ø 200 m
..... depending on the surrounding conditions and the receiver
Automatic function: ..... horizontal und vertical
Automatic function can be switched off: ..... yes
Self-levelling range: ..... ± 5 %
Permissible deviation: ..... ± 0,005 %
Rotor speed: ..... adjustable in steps from 0 to 800 U/Min.
Operating time IL-90L: ..... up to 21 Stunden
Operating time IL-91L: ..... up to 18 Stunden
External power supply: ..... 11 to 14 V DC via cabel 0117.02
Low battery cut-out: ..... yes
Watertight: ..... up to 3,5 m
Temperature range: ..... - 10° C up to + 50° C
Weight: ..... 3,4 kg
Adjustment: ..... possible in the field without having to open the device
Guarantee: ..... 12 months

11. Dimensional sketch

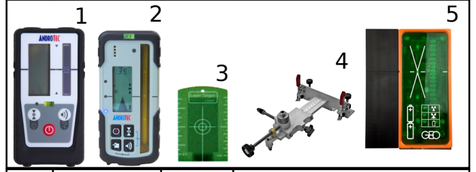


12. Standard delivery package

No.	Order.-Nr.	Type	Description
1	0001.8x6	IL-9xL	Rotary Laser
2	0037.18	NE-80	Power unit
3	0077.36		Transport case
1-3	0001.806.1	IL-90L	with standard delivery package
1-3	0001.816.1	IL-91L	with standard delivery package

13. Optional accessories

No.	Order.-Nr.	Type	Description
1	1035.86	Structor	Laser Receiver
2	1035.87	Metor	Laser Receiver with digital display
3	1034.44.001		Laser target, green
4	0061.01.2	BW-80	Base Plate/Wall Mount
5	0009.44.1	FE-53GN	Locking Receiver, green



No.	Order.-Nr.	Type	Description
--	0085.03	LM5	Laser-Messfix S, 5 m
--	1001.03	TN21	Flexi rod
--	1021.09	FS-23	Alu crank tripod, min. 1,05 m, max. 1,70 m
--	1021.21	FS-30L	Alu crank tripod, min. 0,95 m, max. 2,85 m
--	0059.06.1	ST-10	Alu crank tripod, min. 0,55 m, max. 0,94 m
--	0059.01.1	ST-20	Alu crank tripod, min. 0,93 m, max. 1,99 m