

Operating Instructions

Precision Laser PL-74L



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

The automatic precision laser PL-74L is an all-round laser for horizontal use capable of electronic self-levelling over two axes. It emits a laser beam, which turns into a light plane as it rotates.

1.1 Robust Light Metal Housing, 100 % watertight

Plastic-coated, swept and filled with nitrogen

1.2 Handle

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

1.3 Laser Warning Sign

PL-74L: Laser class 2, 1 mW

1.4 Keyboard

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

1.5 Charging Socket

Behind the dust guard cap.

1.6 Identification

1.7 Bulging Ground Area, niro St.

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

1.8 LCD Display

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

Rotor speed
 T = Kick guard active (see 3.2.)
 Power supply indicator 1/4 1/2 3/4 4/4
 Laser beam symbols:
 * Laser blinks when levelling
 ■ Laser off when levelling
 Rotor speed (8 = 800 rpm)

Automatic self-levelling cutted out for both axes:

```

0  X  Y  *
8  OFF OFF *
  
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2. Buttons

2.1 = ON/OFF Button

The device is switched on by pressing this button. The device and company data are then shown, followed by the LCD main level (see 1.8). 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.

2.2 = Select Menu Level

Keep the button pressed until the adjustment menu is shown:

Factory defaults	
1	D = Rotor speed
2	A = Automatic levelling
3	E = Sensivity
4	T = Kick guard
5	B = Duty type - laser beam
6	W = Factory defaults
7	S = Service/workshop
Factory defaults on/off * Laser blinks when levelling ■ Laser off when levelling on/off 1 - 3 = approx. 5 - 15 mm/100 m ✓ Automatic levelling on + Automatic off X + Y axes Rotor speed 0 - 8 (8 = 800 rpm)	

or **2.3 = Select Letter**
 The selected letter begins to blink.
Y axes inclination setting (see 3.2)

or **2.4 = Change Settings**
X axes inclination setting (see 3.2)

= **Back to Operating Display**

3. Device Settings

3.1 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.

= Factory defaults

3.2 Automatic Levelling Cut-Out

= Automatic levelling switched on (factory defaults)

= 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.

3.3 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

3.4 Kick Guard (Automatic Laser 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.

3.5 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.

3.6 Factory Defaults

= All set to factory defaults.

3.7 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.



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4. Power Supply

7.4 V DC internal lithium ion rechargeable battery or 12 V DC external rechargeable battery via connection cable 0117.02.

4.1 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 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. 5 hours the charging time is finished. The display goes out 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.

5. Inclination Works in x and/or y Axes

- Please note:** Inclination setting is only possible without automatic levelling.
- Align laser to the inclination axis.
 - Switch off automatic levelling.
 - Set inclination by points of reference, roughly more than ± 5 % by tilting forwards the device, finely with the arrow buttons.

6. Adjustment

6.1. Checking the Adjustment

Set up the laser standing upright and mark the laser beam at the required measuring distance. Turn the laser by 180° and mark again. If the adjustment is correct, the first marking does not deviate from the second. If there is a deviation, the target axis lies in the middle between the first and second marking.

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 personnel. See the special adjustment instructions in this regard.

7. Troubleshooting

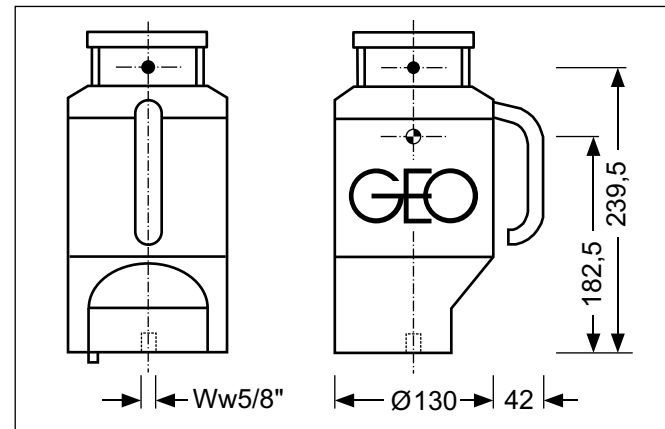
1. No laser beam - check battery charge.
2. Low range - clean laser beam exit window.
3. Laser beam blinks slowly - move device into the levelling range by tilting forwards. If the error is not corrected within 2 ½ minutes, the device is switched off automatically.
4. Laser switched off automatically (kick guard) - see 3.3.

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.

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9. Dimensional Sketch



10. Technical specifications

Laser class: 2, < 1 mW
 Laser: diode laser, visible red, 635 nm
 Beam diameter: 5 mm at laser

Range: from 0.5 m to 100 m, Ø 200 m
 depending on circumstances and laser receiver
 Self-levelling range: ± 5 %
 Accuracy: ± 0.025 mm + ± 0.024mm/m

Rotor speed: adjustable in steps of 0 to 800 RPM

Operating time with 7.4 V DC Li Ion recharg. battery: to 28 hours
 External power supply: 11 to 14 V DC with cable 0117.02
 Low battery cut-out: yes
 Watertight: to 3.5 m
 Temperature range: 0° C to + 40° C

Weight: 3.4 kg
 Adjustment: possible in the field without having to open the device

Guarantee: 24 months

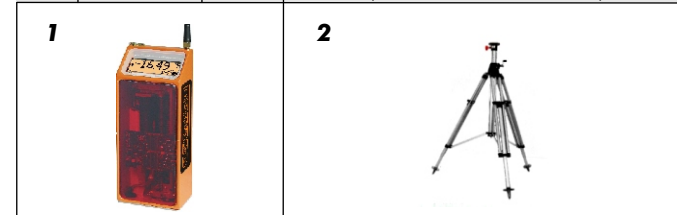
11. Standard Delivery Package

No.	Order No.	Type	Description
01	0001.775	PL-74L	Precision laser
02	0037.18	NE-80	Battery charger
03	0077.36		Transport case
1-3	0001.775.1	PL-74L	with standard delivery package



12. Optional Accessories

No.	Order No.	Type	Description
1	0009.38.1	LE-71	Laser receiver with digital data display
1	0009.39.1	LE-72	Laser receiver with digital data display
2	0059.06.1	ST-10	Alu. crank tripod, min. 0.55 m, max. 0.94 m
2	0059.01.1	ST-20	Alu. crank tripod, min. 0.93 m, max. 1.99 m
2	0059.11.1	ST-30	Alu. crank tripod, min. 1.18 m, max. 3.00 m
Further optional accessories on request			



Notes:
