

## Operating Instructions



**LINER<sup>2</sup>**

**NEDO  
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## 1.1 For your safety

### Documentation



Please familiarise yourself with these operating instructions and the safety information provided before you start to work with the **X-Liner 2**.

The safety information is based on the current standards EN 60825-1:2007 and IEC/TR 60825-14:2004. Observing these instructions and information ensures safe working.

### Laser radiation

The **X-Liner 2** conforms to EN 60825-1:2007 (VDE 087 Part 1).



**LASER RADIATION**  
NEVER LOOK INTO THE BEAM  
OR VIEW IT DIRECTLY WITH  
OPTICAL EQUIPMENT  
**LASER CLASS 2M**

**EN 60825-1:2007**  
**P ≤ 1mW**  
**λ: 630-680 nm**



### Warning signs

Never remove the warning signs on the unit.



### Laser exit openings



## 1.2 Proper use

### Use

The **X-Liner 2** is suitable for marking heights, for aligning, plumbing, levelling and for carrying out similar work. The unit is designed for indoor use.

### Repair

Repairs may only be carried out by NEDO or an authorised customer service agent. Never open the unit, doing so cancels the warranty.

### Careful handling

The **X-Liner 2** is a sensitive, high-precision instrument and should therefore be handled with appropriate care.

## 1.3 Environment

### Disposal



Dispose of the unit in accordance with the applicable materials recycling regulations.

### Batteries/rechargeable batteries

Batteries/rechargeable batteries are hazardous waste and may not be put into domestic waste. They must be properly disposed of according to the respective national guidelines.



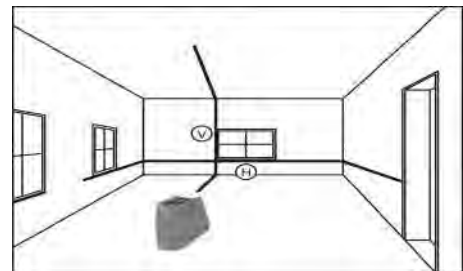
1. Transport bag
2. X-Liner 2
3. Batteries
4. Strap
5. Ball-and-socket joint adapter
6. Multifunctional mounting
7. Operating Instructions
8. Laser target board

## 3 Technical Features

### 3.1 How it works

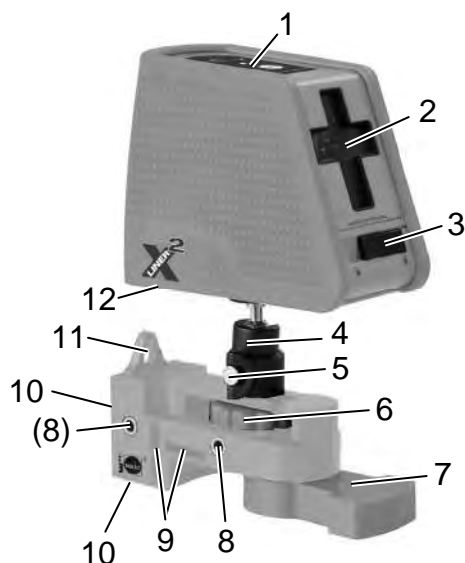
The **X-Liner 2** projects a horizontal (H) and a vertical (V) laser line, which cross in front of the unit.

The **X-Liner 2** is equipped with a pendulum for self-levelling and levels out tilted positioning of the unit by up to 4° in each direction.







## 4 Structure of the Instrument

### 4.1 Overview

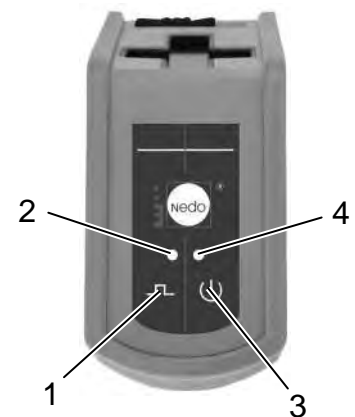


1. Control panel
2. Laser exit window - horizontal and vertical beam
3. Pendulum locking device
4. Articulated base with fixing screw BSW 1/4"
5. Clamping screw for articulated base
6. Clamping screw with BSW 1/4" thread
7. Swing-out foot with threaded connection BSW 1/4" and BSW 5/8" thread on the underside
8. Brass sleeves for screw fixing
9. Slits for belt fastening
10. Magnets, for fixing to steel elements
11. Pear-shaped eyelet for fixing to a nail
12. Battery compartment

Unit ON/OFF switch and pendulum locking device	
1	 <p><b>Position 1</b> The pendulum locking device is locked. The self-levelling is disabled and the LED (4) on the keypad lights up red if the laser beam is switched on.</p> 
1	 <p><b>Position 2</b> The pendulum locking device is unlocked. The self-levelling is enabled and the LED (4) on the keypad lights up green if the laser beam is switched on.</p> 





ON/OFF or rather selection button and LED display	
1	<p><b>PULS button</b> Switches the laser to PULS mode for use of a laser receiver.</p>
2	<p><b>LED display above PULS button</b> "OFF": Pulse mode is switched off. "BLUE": Pulse mode is switched on.</p>
3	<p><b>ON/OFF button</b> Switches the laser beam on and on/off in the relevant order:</p> <p>Press 1x: Switch on unit, Horizontal laser beam (H) Press 2x: Vertical laser beam (V) Press 3x: Horizontal (H) and vertical (V) laser beam</p> <p>To switch the unit back off again, press the <b>ON/OFF button</b> for longer than 3 secs.</p>
4	<p><b>LED display above ON/OFF button</b> "RED" : Unit switch in position 1. "GREEN": Unit switch in position 2.</p> <p>If the battery charge is weak the LED display (4) above the ON/OFF button (3) begins to flash. If the batteries are too weak the laser switches off.</p>



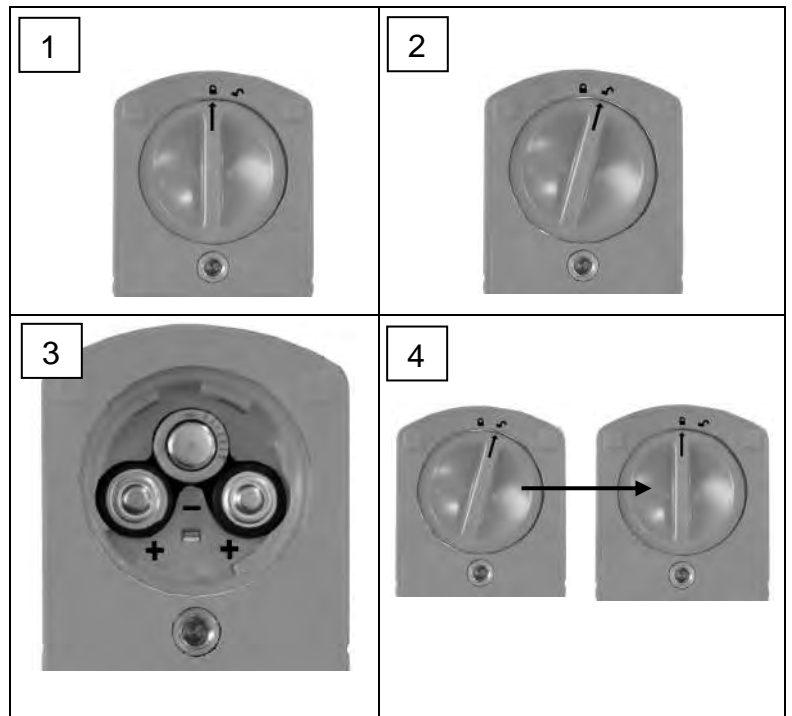
When starting up the *X-Liner 2* for the first time, install the three batteries supplied, as shown in the battery compartment.

## Insert /replace batteries

The *X-Liner 2* requires 3 batteries, 1.5 V (AA).



- Turn the battery compartment cover in the direction of the arrow .
- Remove the battery compartment cover.
- Insert/replace batteries as specified. Ensure pole direction is correct!
- Attach the battery compartment cover and press downward.
- Turn the battery compartment cover in the  direction.

If the battery charge is weak, the LED display (4, Fig. p10) begins to flash. If the batteries are too weak the laser switches off.



# 6 Operation

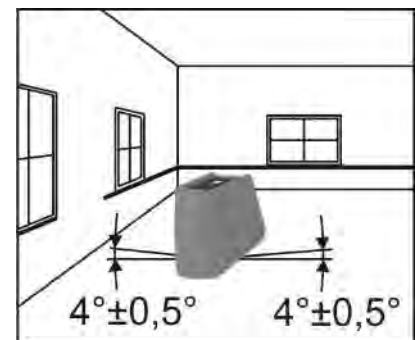
## 6.1 Starting up the unit

- Set up or fix the unit according to the intended use. Ensure the levelling range of  $\pm 4^\circ$  is not exceeded.
- Lock the pendulum locking device for use **without self-levelling**. To do this, push the **unit switch into position 1**  and use the **ON/OFF** button to switch on the unit.
- Release the pendulum locking device for use with self-levelling. To do this, push the **unit switch into position 2**  and switch on the unit with the **ON/OFF** button. If the laser lines flash in this position the *X-Liner 2* is outside the self-levelling range.
- If you have finished working with the unit, lock the pendulum locking device and use the **ON/OFF** button (press for 3 secs.) to switch off the unit.

## 6.2 Self-levelling

The *X-Liner 2* has a self-levelling feature. If the unit is placed in a slanted position of up to  $4^\circ$  in any direction, the laser beams are plumb and horizontal.

If the  $4^\circ$  range is exceeded, the projected laser line flashes.



Type	<b>X-Liner 2</b>
Ref.-No.	<b>460 870</b>
Laser configuration	2 lines: 1 horizontal, 1 vertical, together 1 cross (H/V)
Accuracy	Levelling accuracy: $\pm 0.3$ mm/m
	Horizontal beam: $\pm 0.3$ mm/m
	Vertical beam: $\pm 0.3$ mm/m
Damping	Magnetic
Thread	BSW 1/4" and BSW 5/8" on the multi-functional base
Working range	30m
Wavelength	635 nm
Laser class	2M
Output	< 1 mW
Self-levelling range	$\pm 4^\circ$
IP protection class	IP54
Power supply	Batteries: 3 x 1.5 V (AA)
Battery life	approx 20 h
Operating temperature	-10 °C bis +50 °C
Storage temperature	-20 °C to +70 °C
Dimensions	L 128 mm / W 58 mm / H 97 mm
Weight	0.47 kg

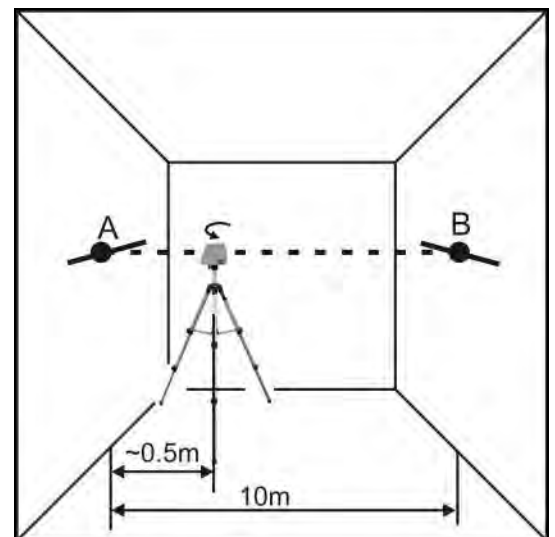
We reserve the right to make technical changes.

## 8 Checking the Unit's Accuracy

The accuracy of the laser beam should be checked regularly. This requires a free measuring length of 10 m. The check is carried out in two steps.

### Step 1

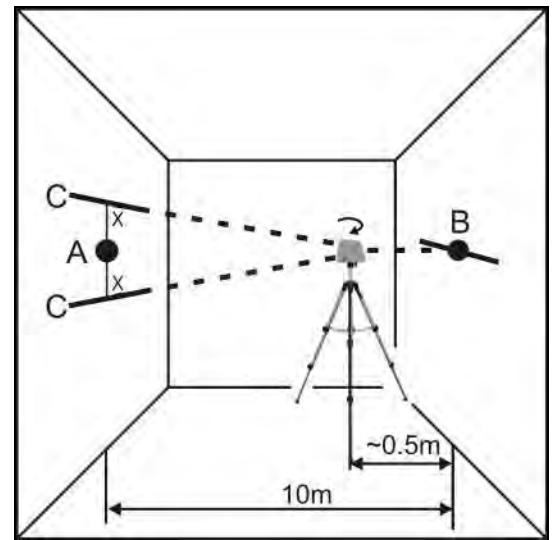
- Position the **X-Liner 2** as shown in the figure to the right.
- Switch on the horizontal beam at the **X-Liner 2**.
- Mark point **A** on the laser line.
- Rotate the **X-Liner 2** through 180° and mark point **B** on the laser line.



## Step 2

- Position the **X-Liner 2** opposite as shown in the figure to the right.
- Align the **X-Liner 2** with marking **B**.
- Rotate the **X-Liner 2** through 180°.
- Measure the plumb distance **H** between marking **A** and laser line **C\***.
- If the measured distance **H** between marking **A** and laser line **C\*** < 6 mm, the **X-Liner 2** is within the tolerance range.

\* The laser line **C** can be both above or under marking **A**.



**Note:** If the plumb distance **H** measured between marking **A** and laser line **C** is outside the tolerance range, the **X-Liner 2** must be checked by an authorised customer service or by NEDO.

## 9 Troubleshooting

### Note:

If the errors cannot be rectified using one of the listed remedies, the **X-Liner 2** must be examined by an authorised customer service agent or by NEDO.

Error	Cause	Remedy
No horizontal laser line is projected after pressing the unit switch.	No power supply	Insert batteries
	Inadequate power supply	Replace batteries
The laser line flashes after pressing the unit switch in position 1.	Unit outside the self-levelling range.	Realign the <b>X-Liner 2</b> within the self-levelling range of $\pm 4^\circ$ .