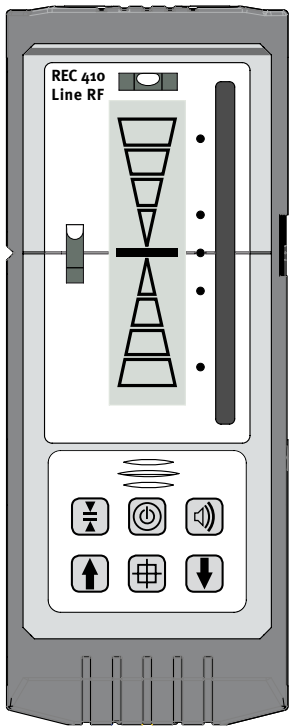
STABILA®

# REC 410 Line RF

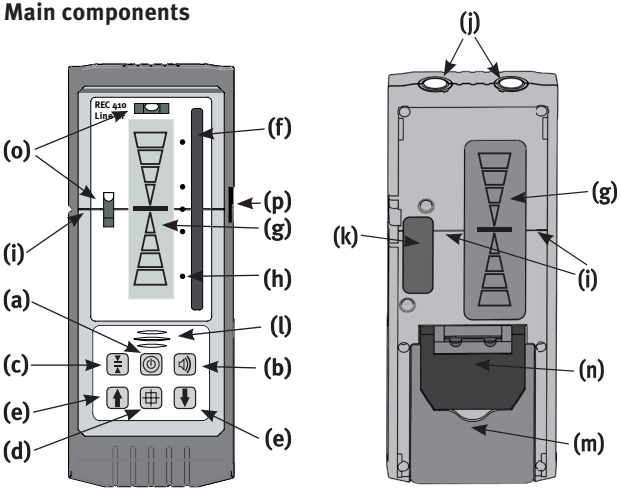
en Operating instructions



## Operating instructions

The STABILA REC 410 Line RF is a simple-to-use receiver for the rapid capture of laser lines. The STABILA REC 410 Line RF can only receive pulse modulated laser beams. The receiver will not work with rotation lasers. We have endeavoured to explain the unit's handling and functioning in as clear and comprehensible manner as possible. If, however, you still have any unanswered questions, we should be pleased to provide advice over the telephone at any time on the following telephone number:
**0049 / 6346 / 309-0**

## Main components




(a) ON/OFF
(b) Volume
(c) Accuracy
(d) Automatic precision adjustment
(e) Manual precision adjustment
(f) Laser receiver glass
(g) Display
(h) LED display ( red, yellow, green)
(i) „In line" marks
(j) Magnet for fixing the receiver directly to a metal surface
(k) Integrated steel plate to attach the receiver directly to the magnet of the bracket
(l) Beeper
(m) Battery compartment cover
(n) Fold-out support for using the receiver on a flat surface
(o) Vial
(p) Fold-out indicator notch

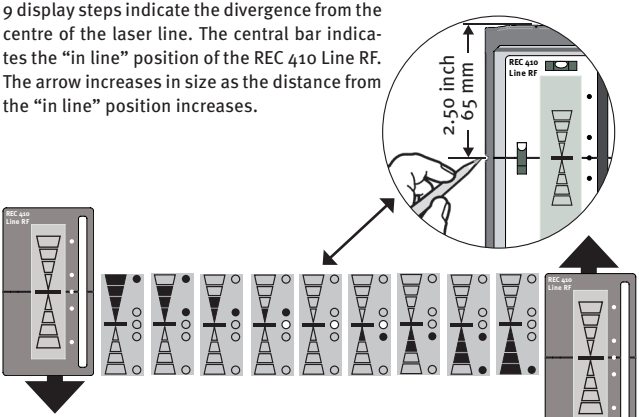
## Getting started

(a)

Press the ON/OFF button (a). An audio signal, a brief flash from the display and the LEDs confirm that the receiver is switched on. Press the ON/OFF button (a) quickly once to switch the instrument off. If the instrument is not used, it will automatically switch itself off after 30 minutes.

## Display

9 display steps indicate the divergence from the centre of the laser line. The central bar indicates the “in line” position of the REC 410 Line RF. The arrow increases in size as the distance from the “in line” position increases.



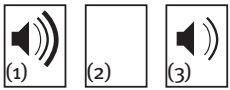

(b)

## Audio signals

| High-pitched audio signal = too high ▸ back | Medium-pitched audio signal + a constant audio signal = “in line” | Low-pitched audio signal = too low ▸ forward |
|---|---|---|

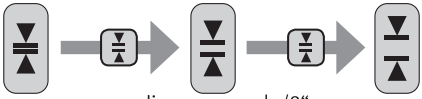
### Setting the volume

The volume is increased/decreased by repeatedly pressing the button (b): **Loud (1)**, **out (2)** or **soft (3)**. If the instrument is set to “silent” only a short beep is emitted when the laser beam is received.



## Measuring modes

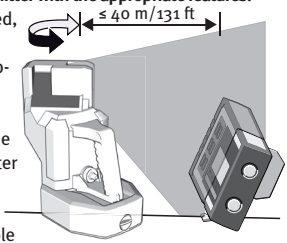
**Accuracy:** fine ± 1 mm | 5/128“ wide ± 5,0 mm | 25/128“



medium ± 3,0 mm | 1/8“

## Automatic precision adjustment:

**Only operates in conjunction with a laser transmitter with the appropriate features.**




The precision adjustment function can be used, for example, to align laser lines exactly with the required reference lines, edges,or components. The laser transmitter continues to rotate automatically until the laser line is precisely “in line“ with the receiver. Using the remote operation function the laser transmitter can be aligned with the REC 410 Line RF within the range ± 5°*. The receiver must be registered with the laser for this to be possible (**» Registration**). It is only sensible to use this function if the receiver is positioned on a flat surface*.

* particularly in conjunction with LA180L

**1. Align the laser approximately with the receiver.**

**2. Precision adjustment can be undertaken in two different operating modes.**

## A. Semi-automatic

Use the arrow buttons (e) for precision adjustment in the required direction. The laser transmitter will rotate in a single movement in the direction indicated.


## B. Fully automatic

The laser transmitter initially rotates to the limit of the operating range (± 5°) and then moves in the opposite direction until it reaches the position where the maximum strength of laser signal is received.

**B1. Simple mode**

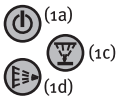
The laser transmitter will rotate in a single movement until it reaches the position where the maximum strength of laser signal is received.


**B2. Continuous mode**

Continuous, independent rotation/ tracking of the receiver by the laser beam.

## Registering the receiver with the laser transmitter

Registering the REC 410 Line RF receiver with the laser transmitter

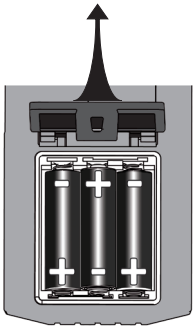



1. Switch off the laser transmitter (button 1a)
2. Press and hold down buttons (1c) and (1d).
3. Switch on the laser transmitter - (button 1a)
4. The laser transmitter is in registration mode
   The LEDs (red and green) flash alternately.
5. Press the button “automatic precision alignment“ (d) on the REC 410 Line RF receiver.
6. The red and green LEDs on the laser transmitter will flash 3 times: » **Registration was successfully completed!**

**(d)**

## Replacing the batteries

**Battery display**

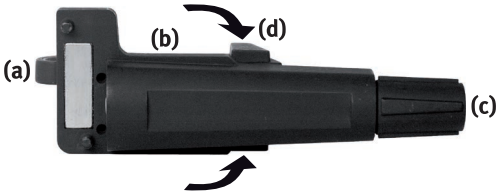
Open the battery compartment cover (m) in the direction of the arrow. Insert new batteries as indicated by the symbols in the battery compartment. 3 x 1.5V miniature alkaline batteries, size AA, LR6. Remove the batteries if the receiver will not be used for a long period.

## Protective casing

**Do not unscrew receiver! Do not submerge into water! Protection IP 54**


## Bracket

(a) Magnet: For securing the receiver.
(b) Reading reference: The edge is “in line“ and can therefore be used for taking accurate readings on levelling staffs.
(c) Securing knob. Turning the securing knob fixes/releases the clamp with the receiver to/from the levelling staff.
(d) Moveable clamping jaw – for fixing to the levelling staff.




## Care and maintenance ▸ Cleaning

Please do not remove dust and dirt from the receiving or display window by using dry cloths or abrasive materials as this procedure scratches the windows. A soft cloth and mild soap and water are effective. The unit can be cleaned under a tap or with a hose with a low water pressure. Do not use any other fluids other than water or glass-cleaner, as they may attack polymer components.

## Prohibited Uses

- Operation without instruction.
- Operation other than the intended uses.
- Opening the detector, except the battery compartment.
- Modification or conversion of the detector.

## Important information

The person in charge of the detector must understand the instructions in this manual and ensure other users do also. Periodically carry out test measurements, particularly after the detector has been subjected to abnormal use and before and after important measurements.

▸ Positioning and adjustment of the instrument:

When setting up the instrument, take care that the laser beam does not produce any unwanted reflections from reflective surfaces. These reflections may also be captured by the receiver and produce incorrect readings.

## Recycling programme for our EU customers:

In accordance with the WEEE regulations, STABILA provides a disposal programme for electronic products at the end of their service life.
For more details, please contact: 0049 / 6346 / 309-0

## Responsibilities

Manufacturer of the product STABILA Messgeräte Gustav Ullrich GmbH hereinafter referred to as STABILA, is responsible for supplying the product, including the user manual and original accessories, in a completely safe condition.

## Person in charge of the product

**The person in charge of the product has the following duties:**

To understand the safety instructions on the product and the instructions in the user manual. To be familiar with local regulations relating to safety and accident prevention. To inform STABILA immediately if the product and the application becomes unsafe.

### WARNING

The person responsible for the product must ensure that it is used in accordance with the instructions. This person is also accountable for the training and the deployment of personnel who use the product and for the safety of the equipment in use.

### Hazards of Use

**WARNING!**

The absence of instruction, or the inadequate imparting of instruction, can lead to incorrect or adverse use, and can give rise to accidents with farreaching human, material, financial and environmental consequences.

**Precautions**

All users must follow the safety directions given by the manufacturer and the directions of the person responsible for the product.

## Electromagnetic Compatibility (EMC)

The term Electromagnetic Compatability is taken to mean the capability of the product to function smoothly in an environment where electromagnetic radiation and electrostatic discharges are present, and without causing electromagnetic disturbances to other equipment.

### WARNING

Electromagnetic radiation can cause disturbances in other equipment. Although the product meets the strict regulations and standards which are in force in this respect, STABILA cannot completely exclude the possibility that other equipment may be disturbed.

### CAUTION!

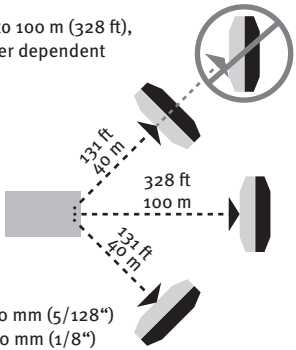
Disturbances caused by electromagnetic radiation can result in erroneous measurements. Although the product meets the strict regulations and standards whichin this respect, STABILA cannot completely exclude the possibility product may be disturbed by very intense electromagnetic radiation, near radio transmitters, two-way radios or diesel generators.

### Precautions

Check the plausibility of results obtained under these conditions.

## Technical data

| | |
|---|---|
| Working range*:<br>* At 21 °C, under optimum atmospheric conditions. | up to 100 m (328 ft),<br>Laser dependent |




| | |
|---|---|
| Accuracy: | |
| fine: | ± 1,0 mm (5/128“) |
| medium: | ± 3,0 mm (1/8“) |
| wide: | ± 5,0 mm (25/128“) |
| Detectable spectrum: | 610 - 700 nm |
| Acoustic signals: | Loud: 100 dBA, Low: 70 dBA |
| Batteries: | 3 x 1,5V Mignon cells Alkaline, Size AA, LR6 |
| Battery display: | Yes (LCD symbol) |
| Operating life: | › 50 hours of receiver operation + 1000 activations of the buttons during remote operation |
| Automatic Shut Off: | 30 minutes |
| Operation temperature range: | -10°C to +50°C (14°F to 122°F) |
| Storage temperature range: | -20°C to +70°C (-4°F to 158°F) |

## Notice for Canada

This Class B digital device meets all requirements of Candian Radio Standards Specification RSS-210.

## FCC Statement, Applicable in U.S.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the

instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

**WARNING!**

Changes or modifications not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

## Automatic precision adjustment :

The range of wireless connections strongly dependents on the environmental conditions. Thus wireless transmitters (e.g. WLAN or Bluetooth connections) and operation directly on the ground can impair reception. If the automatic alignment function will not start, it is helpful to increase the height of the laser or the receiver.

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