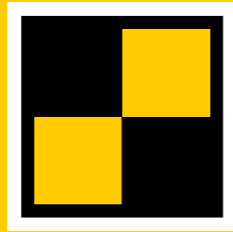


STABILA®



How true pro's measure

TECH 106 T

Operating instructions





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1. Intended use

Congratulations on the purchase of your STABILA measuring tool. The STABILA TECH 106 T is an electronic spirit level with 2 digital displays for measuring inclinations and angles. The telescopic extension enables an extremely large surface to be measured. The grippers allow the spirit level to be secured in timber frames so that entire frame elements can be aligned quickly.

 If you still have questions after reading through the operating instructions, you can obtain advice by telephone:

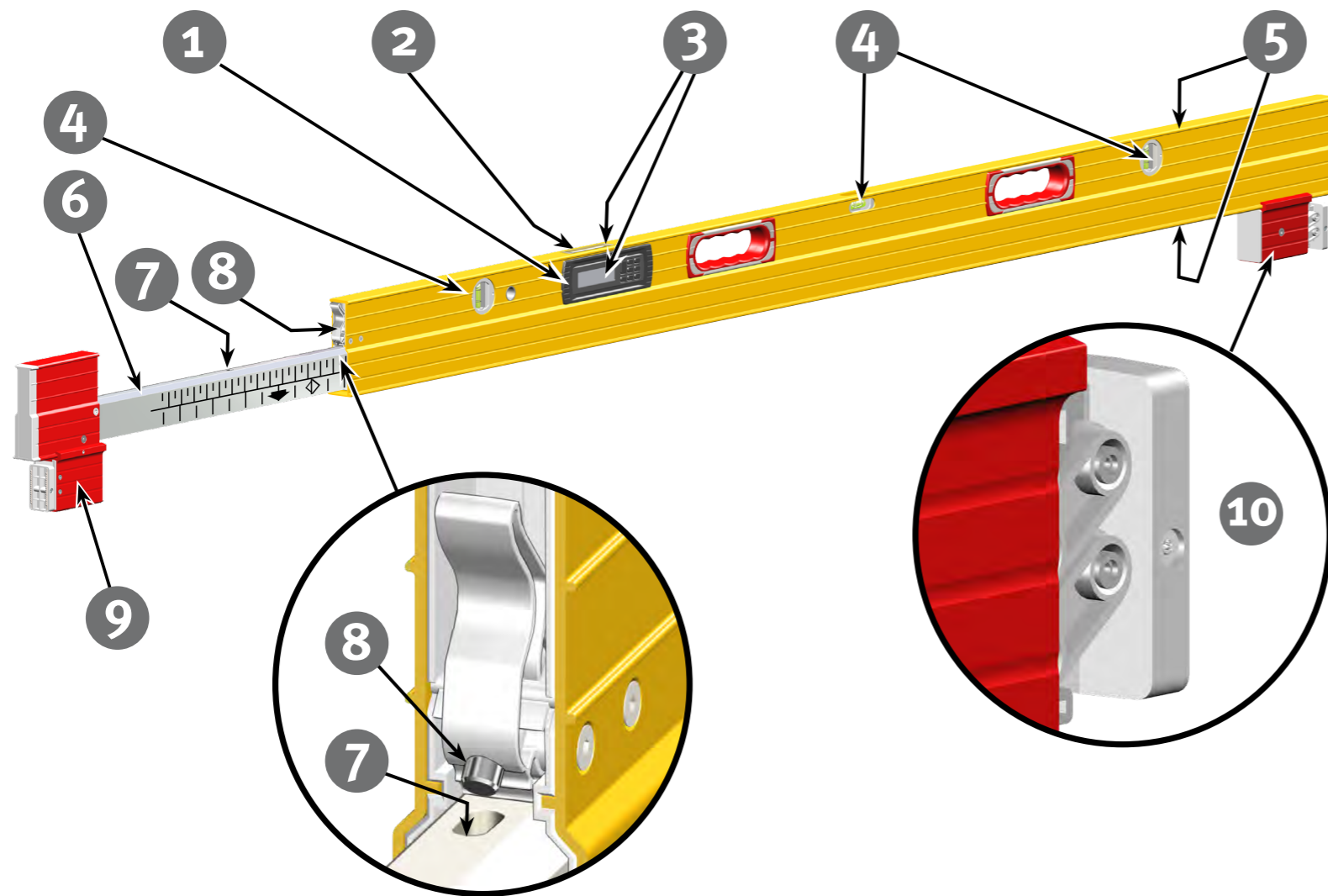
 800-869-7460

Equipment and functions:

- 2x vertical vials for vertical leveling, in reverse position too
- 1x horizontal vial for horizontal leveling, in reverse position too
- 2 measuring surfaces
- 2x finger-grip openings
- Electronic module with 2 digital displays for accurately determining inclinations
- Telescopic extension with scales on both sides for straightforward presetting
- Clamping lever to secure the telescopic extension at any length when using it as a spirit level
- 2 wall grips that mount to top and bottom plate for hands-free operation
- Telescopic extension can be precisely secured in 5 positions in the grid spacing of frame systems

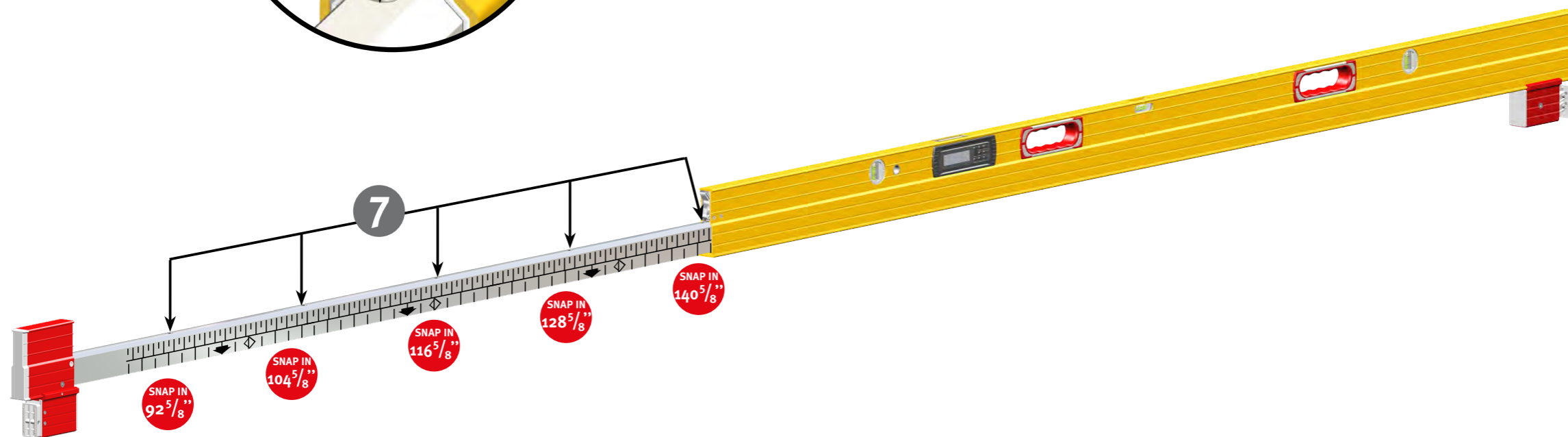
2. Safety information

Read the safety instructions and operating instructions through carefully.

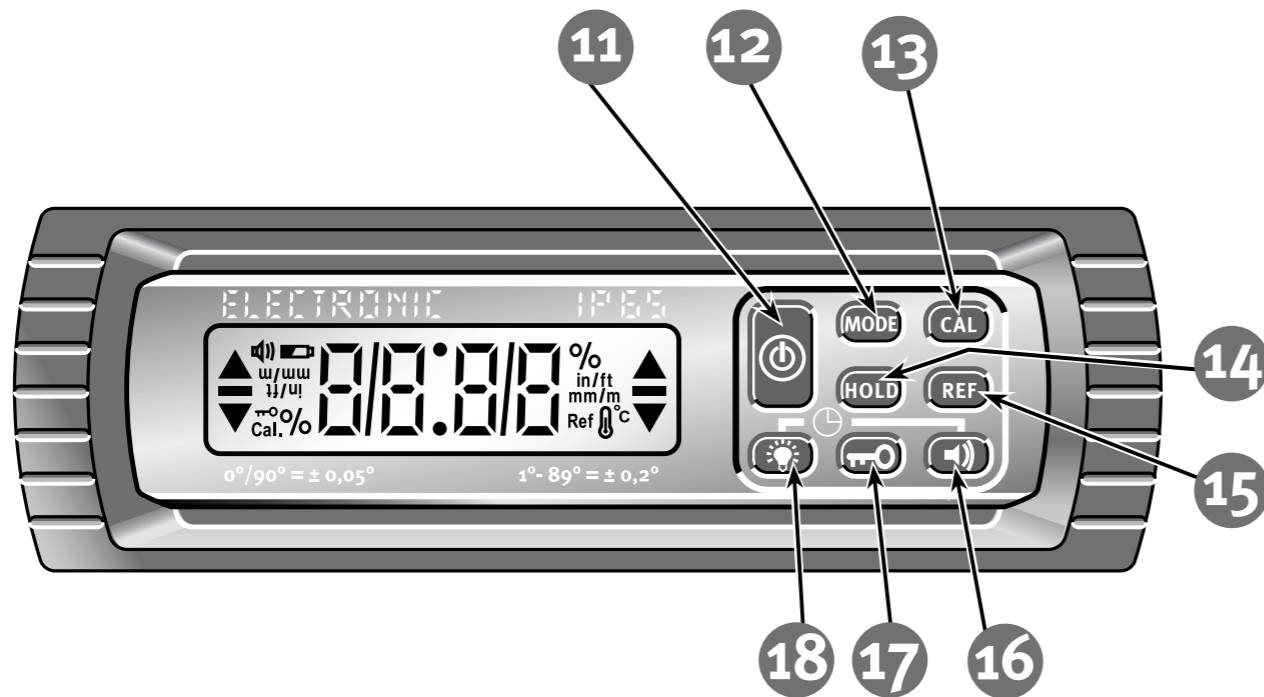


3.1. Components of the unit

- (1) Electronic module
(dust-proof and waterproof in accordance with IP 65)
- (2) Battery compartment lid
- (3) 2 displays
- (4) Vials – vertical and horizontal
- (5) 2 measuring surfaces
- (6) Telescopic extension with scales on both sides
- (7) Snap-ins
- (8) Clamping lever with spring-loaded bolt
- (9) Gripper
- (10) Gripper with spring mechanism



3.2 Buttons:



(11) On/Off



(12) Units of measurement: °, %, mm/m, in/ft



(13) Calibration and sensor adjustment



(14) HOLD – locking measurements



(15) Reference – freely selectable zero position



(16) Acoustic guidance

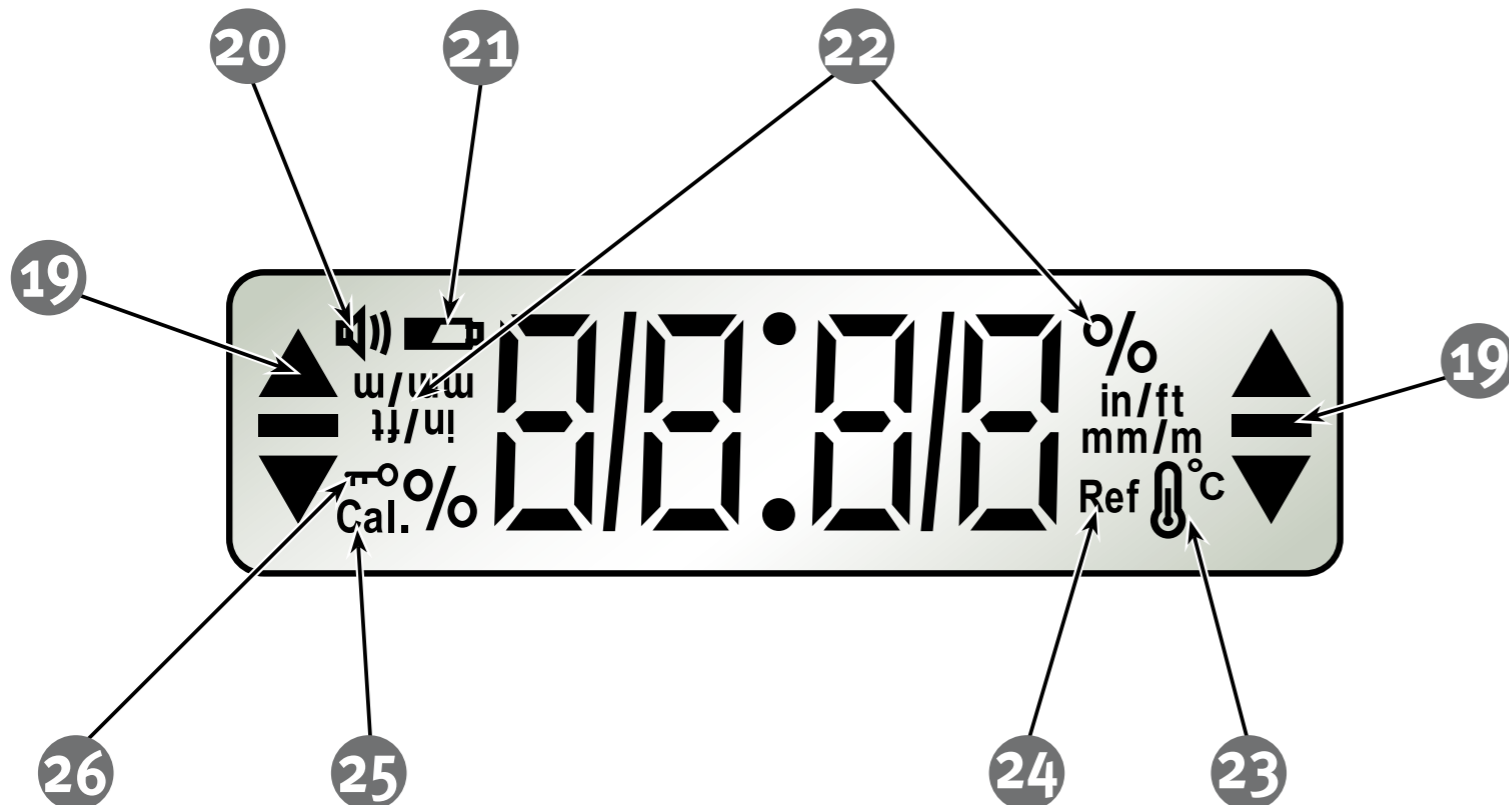


(17) Key lock



(18) Display lighting

4. Display elements



(19) Elements for visual guidance

(20) Acoustic guidance: activated

(21) Battery low – see chapter 5.1

(22) Units of measurement: °, %, mm/m, in/ft

(23) Significant temperature change – see chapter 9

(24) Reference: activated

(25) Sensor calibration necessary – see chapter 9

(26) Key lock: activated

5. Commissioning

5.1 Inserting batteries/battery replacement

Unscrew battery compartment lid on rear, insert new batteries according to symbol in battery compartment. Suitable rechargeable batteries can also be used.

The wedge in the battery door opposite the fastening screw needs to be engaged into the module prior to tightening the screw in order to ensure a watertight seal.

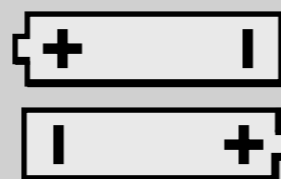
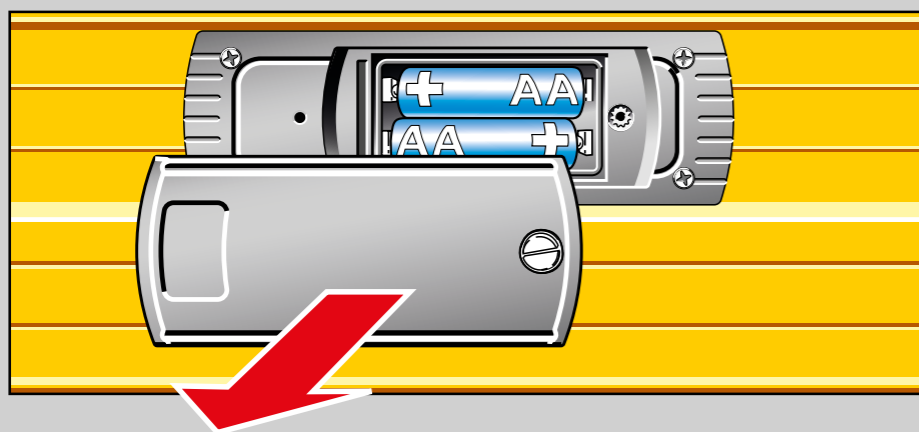
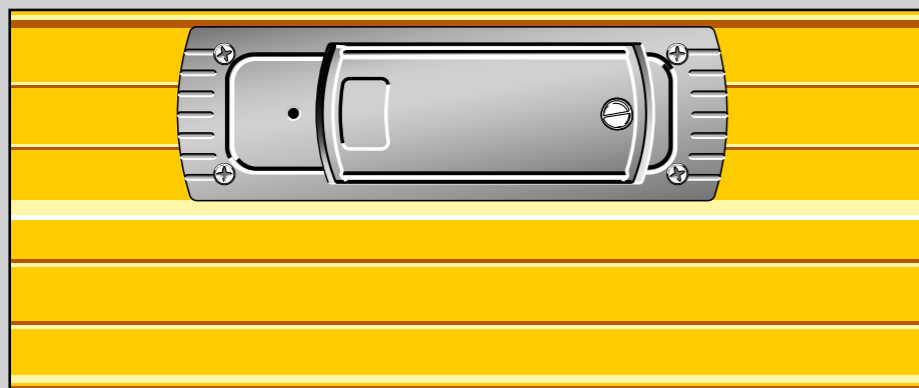
LCD:

low battery charge - insert new battery



Dispose of used batteries at suitable collection points - not with household waste. Do not leave in unit!

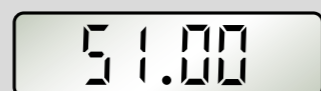
Remove the batteries if you do not intend to use the unit for some time!



2x 1,5V
Alkaline
AA, LR6, Mignon
MN 1500



Test



Software Version



Auto OFF



= OK ✓

5.2 Switching the unit on

After switching on with the "ON/OFF" button, an automatic test is carried out. All the display's segments are shown.

After the end of the test, the version number S x.xx of the software is briefly displayed and the automatic switch-off time (Auto OFF) is shown.

An acoustic signal indicates that the unit is ready for operation.

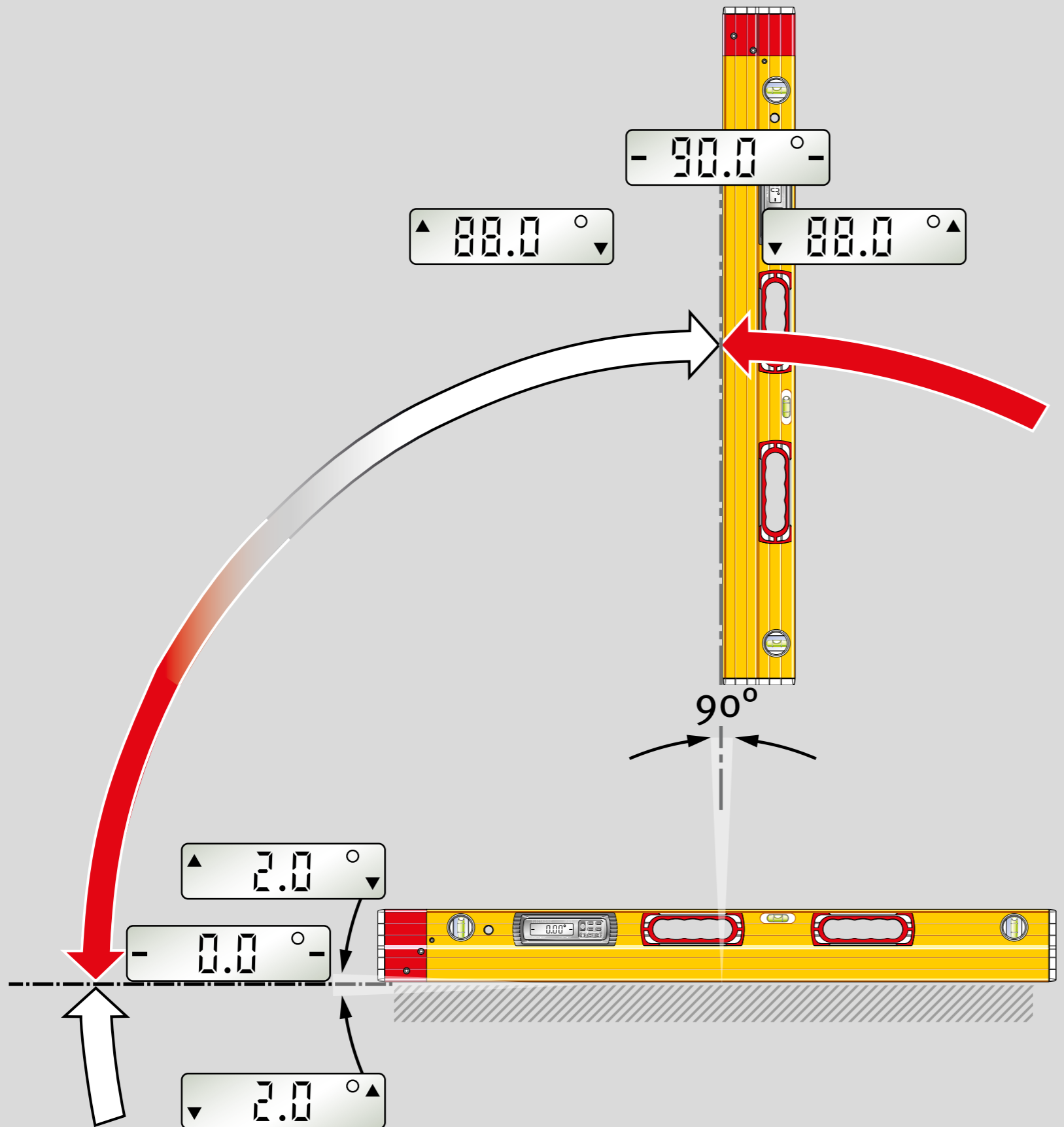
The display shows the angle measured in the set unit of measurement.

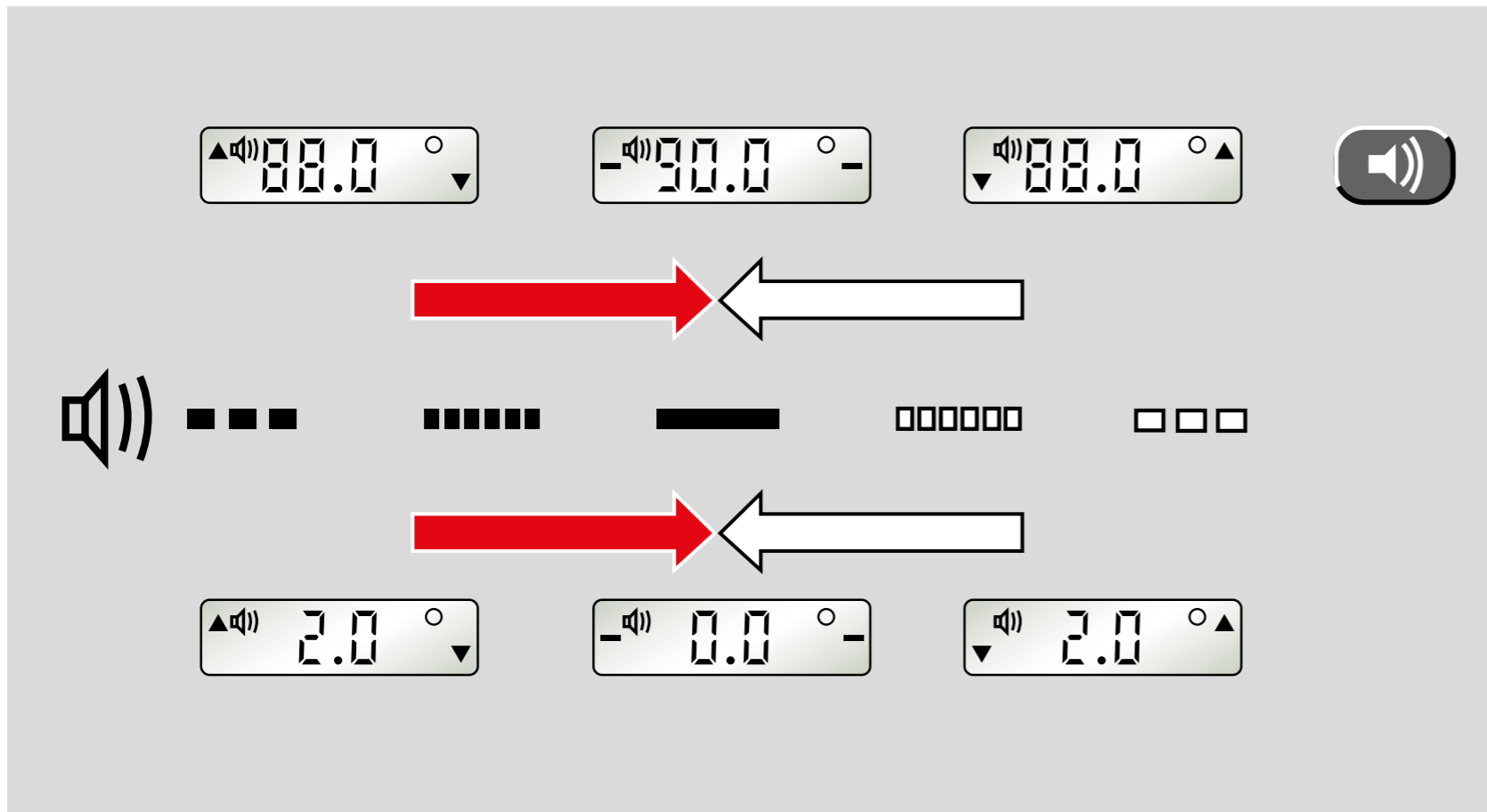
6. Functions

6.1 Visual guidance

In the range of $\pm 15^\circ$ to the horizontal (0°) or to the vertical (90°), arrows show which way to turn the digital protractor to reach 0° or 90° .

The 2 "center display" bars indicate the precise position at which 0° or 90° is reached.





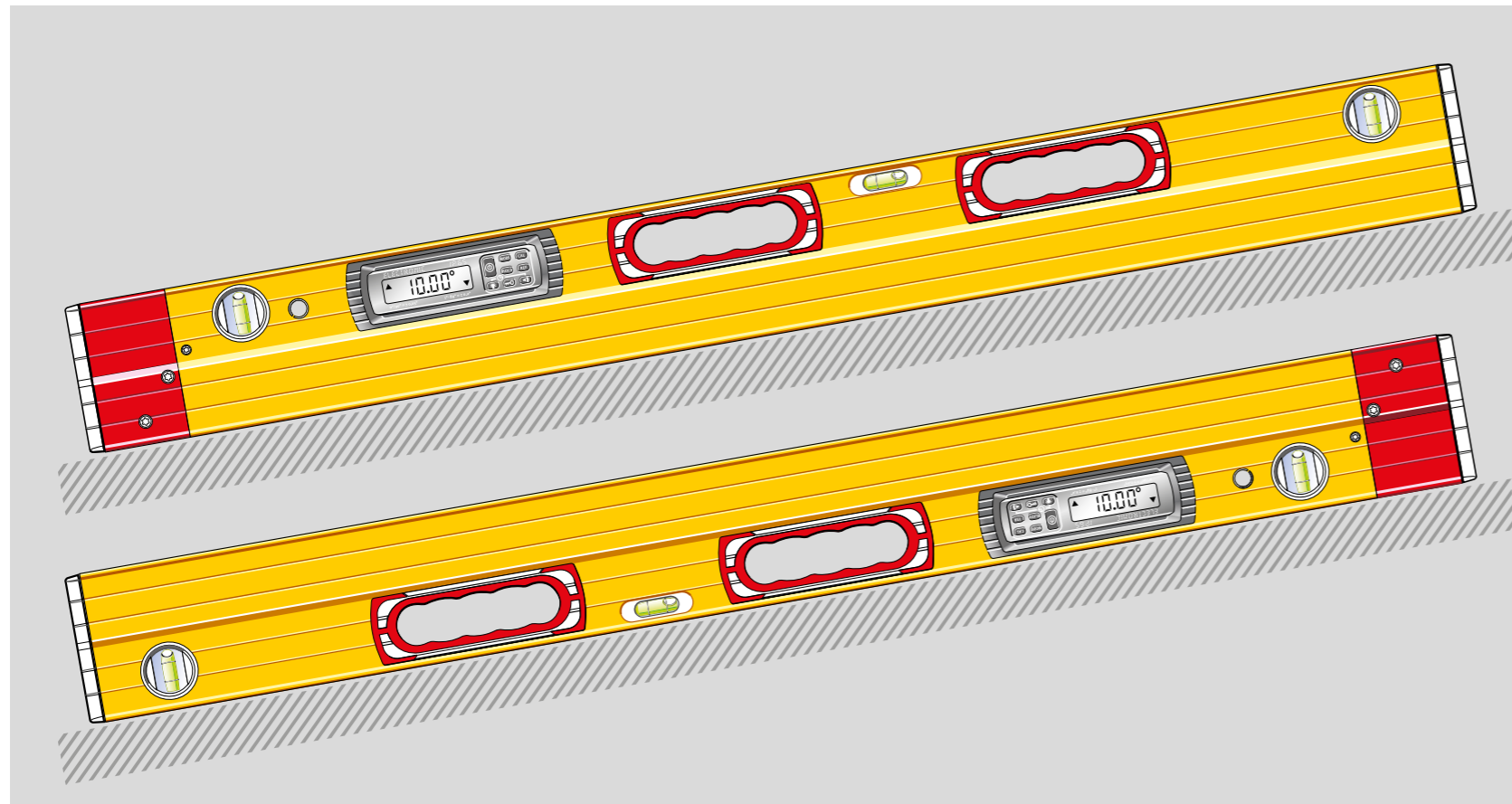
6.2 Acoustic guidance

The acoustic guidance is activated/deactivated using the "Loudspeaker" button. The tone sequence speeds up as the 0° or 90° position is approached in a range of $\pm 2^\circ$. A change in the pitch indicates that these positions have been exceeded.

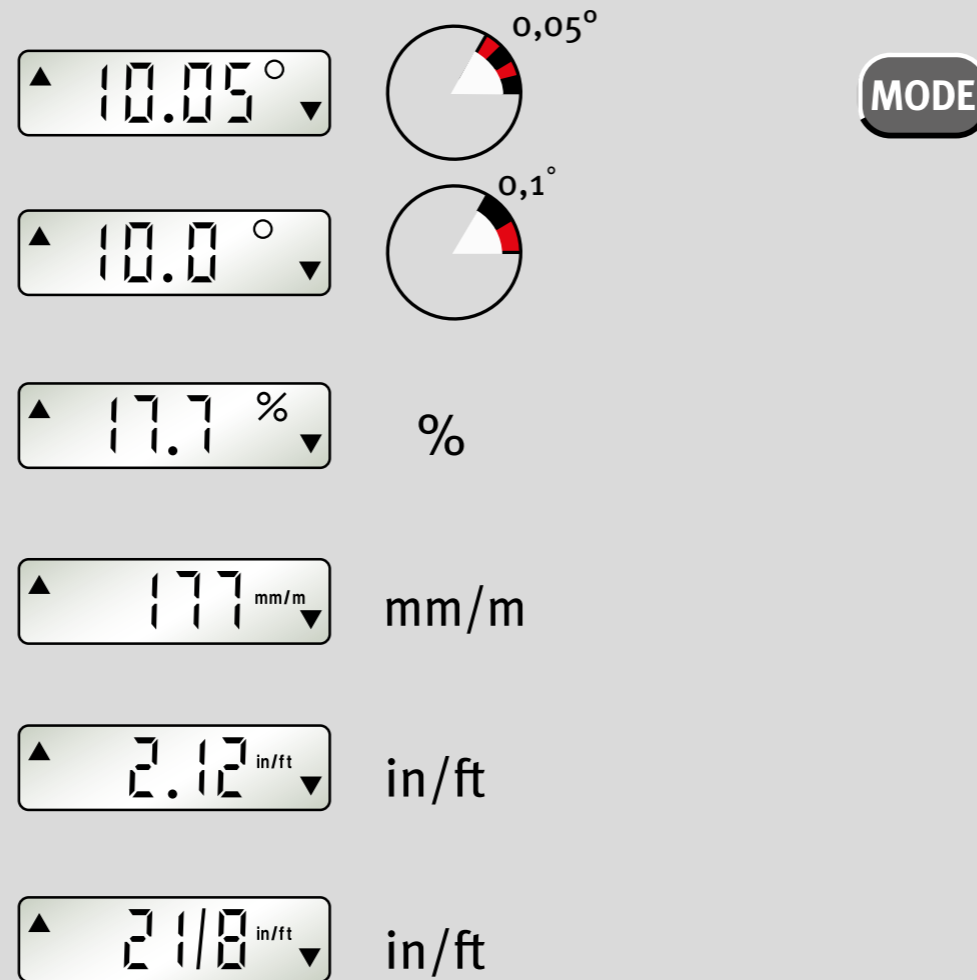
A continuous tone confirms the precise point at which 0° or 90° is reached.

6.3 Automatic display inversion







The display is inverted for overhead measurements so that they are always easy to read.



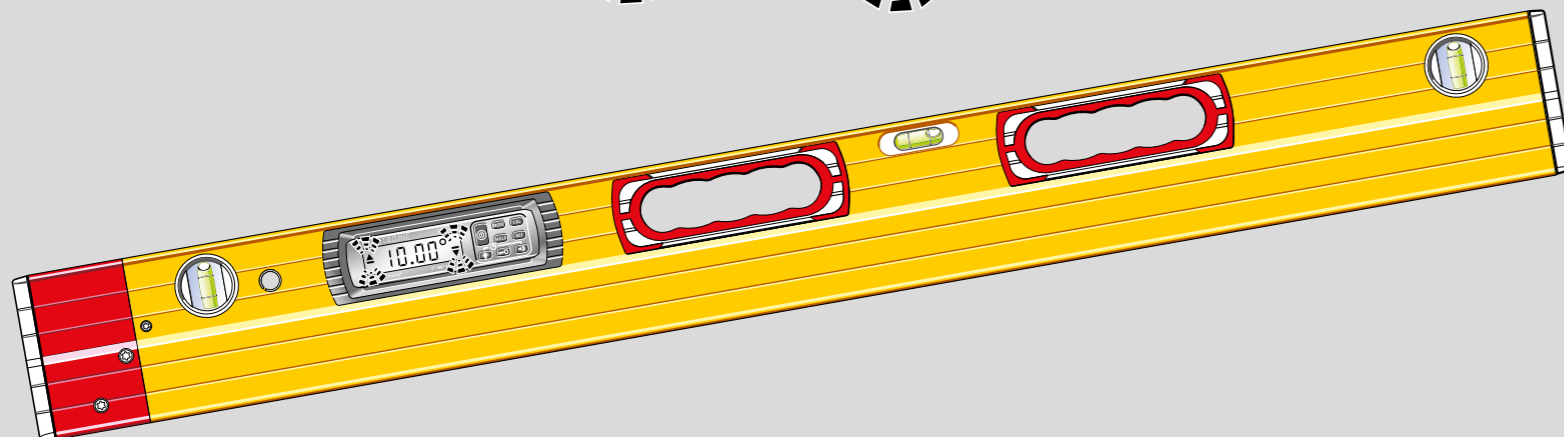
6.4 Setting the MODE unit of measurement



The unit of measurement is set by pressing the "MODE" button several times.

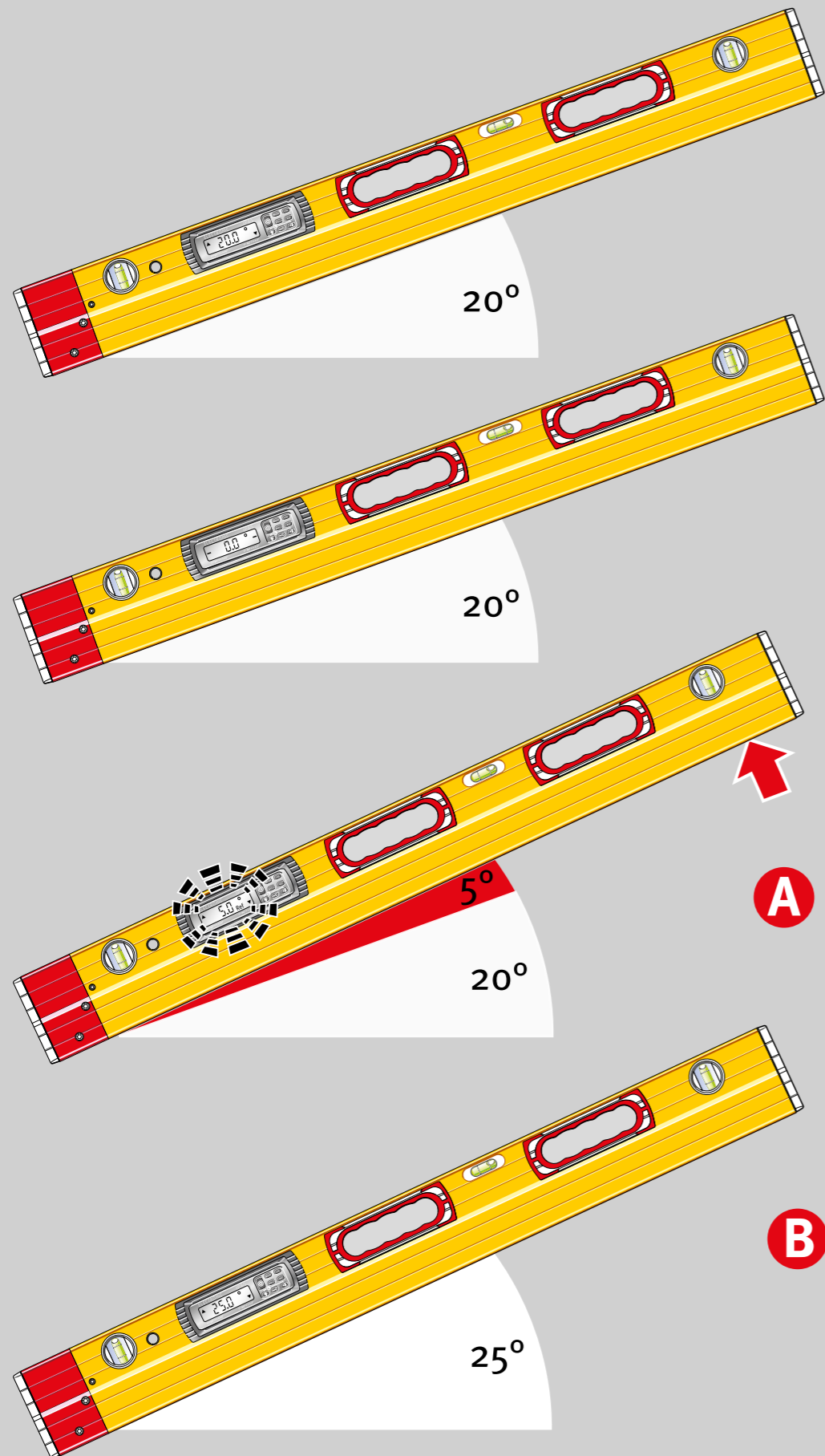
-  ° Fine: Display in 0.01° steps
-  ° Rough: Display in 0.1° steps
-  %: Display in 0.1 % steps
-  mm/m: Display in 1 mm/m steps
-  in/ft decimal: Display in 0.01 in/ft steps
-  in/ft fraction: Display in 1/8 in/ft steps

The set unit of measurement is retained after the unit is switched off.



6.5 Locking the measurement with HOLD

The current measurement can be locked by pressing the "HOLD" button. The visual guidance indicator flashes. The measurement is displayed continuously. The locked measurement is deleted by pressing the "HOLD" button again or switching the unit off.



20.0 °

REFERENCE

20°

REF

0.0 Ref

0°
(≅ 20°)

5.0 Ref

+5°
(≅ 25°)

REF

20.0 Ref

20°
(+ 5°)

2 sec

5.0 Ref

REF

3 sec ≥ 3 sec

25.0 °

RESET
REFERENCE

6.6 Freely selectable zero position REF

The "REF" button can be used to select any set angle as 0° reference. The angle details now displayed relate to this reference angle. The displayed value flashes with this setting.

A

The reference angle value is displayed for 2 seconds by briefly pressing the "REF" button.

B

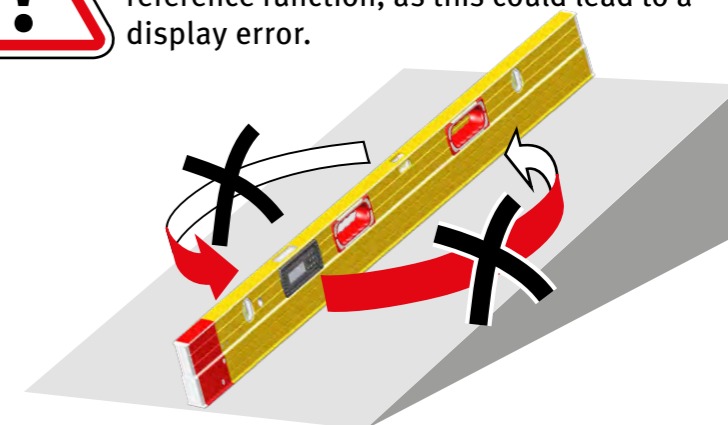
The reference angle is deleted by:

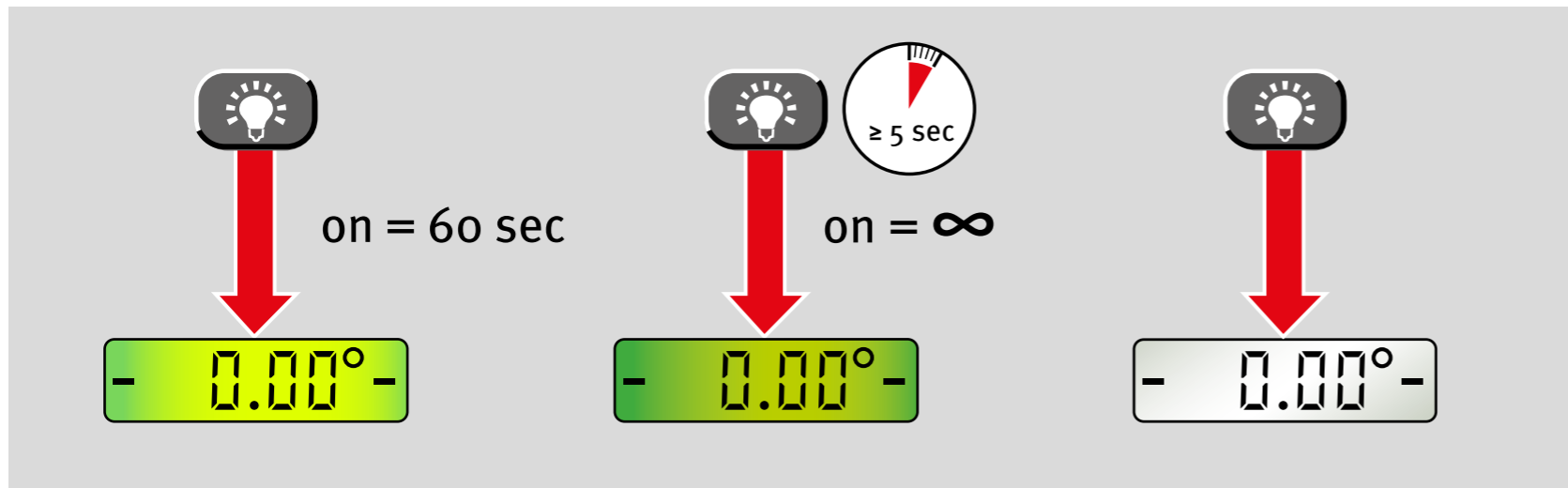
- pressing and holding (≥ 3 sec) the "REF" button. The activated button lock must be released before deleting the angle.
- Switching off
- The automatic switch-off function

The zero position then refers back to the original setting.



The alignment selected for the digital protractor must not be changed during the reference function, as this could lead to a display error.



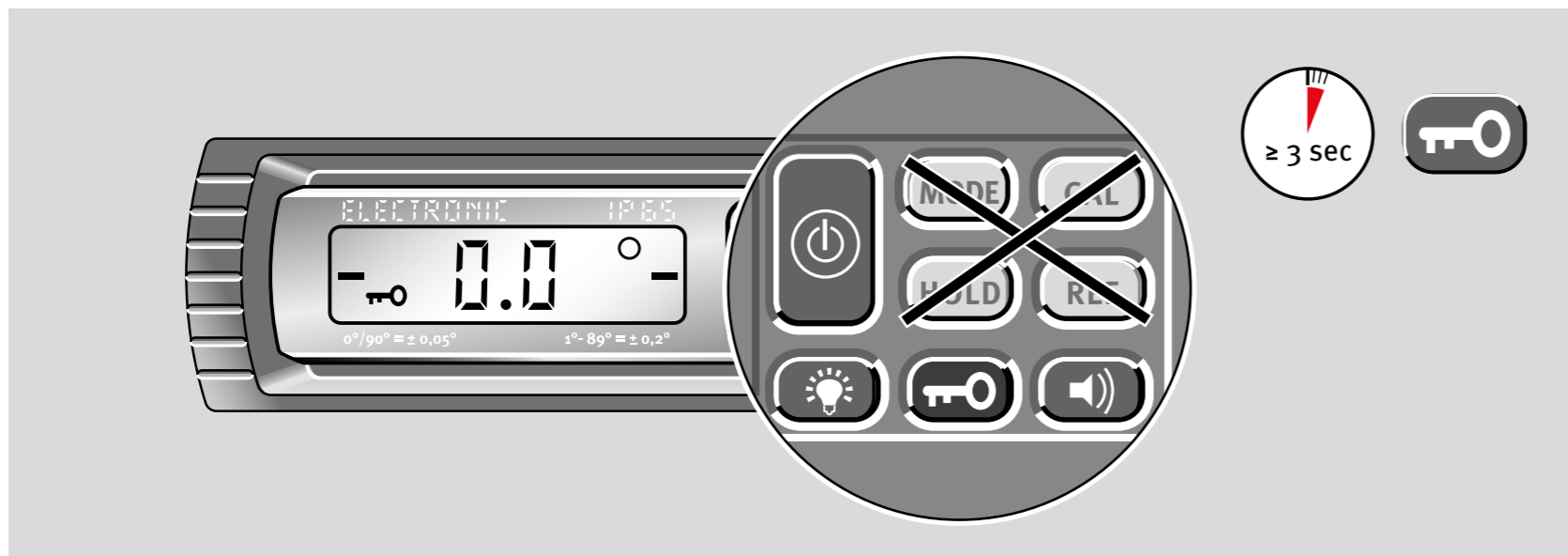


6.7 Lighting

Briefly pressing the "Lighting" button switches the display lighting on for approx. 60 seconds.

Pressing and holding (≥ 5 sec) the "Lighting" button makes the lighting darker and switches it on permanently.

The lighting is switched off by pressing the "Lighting" button again, or by switching off the unit.

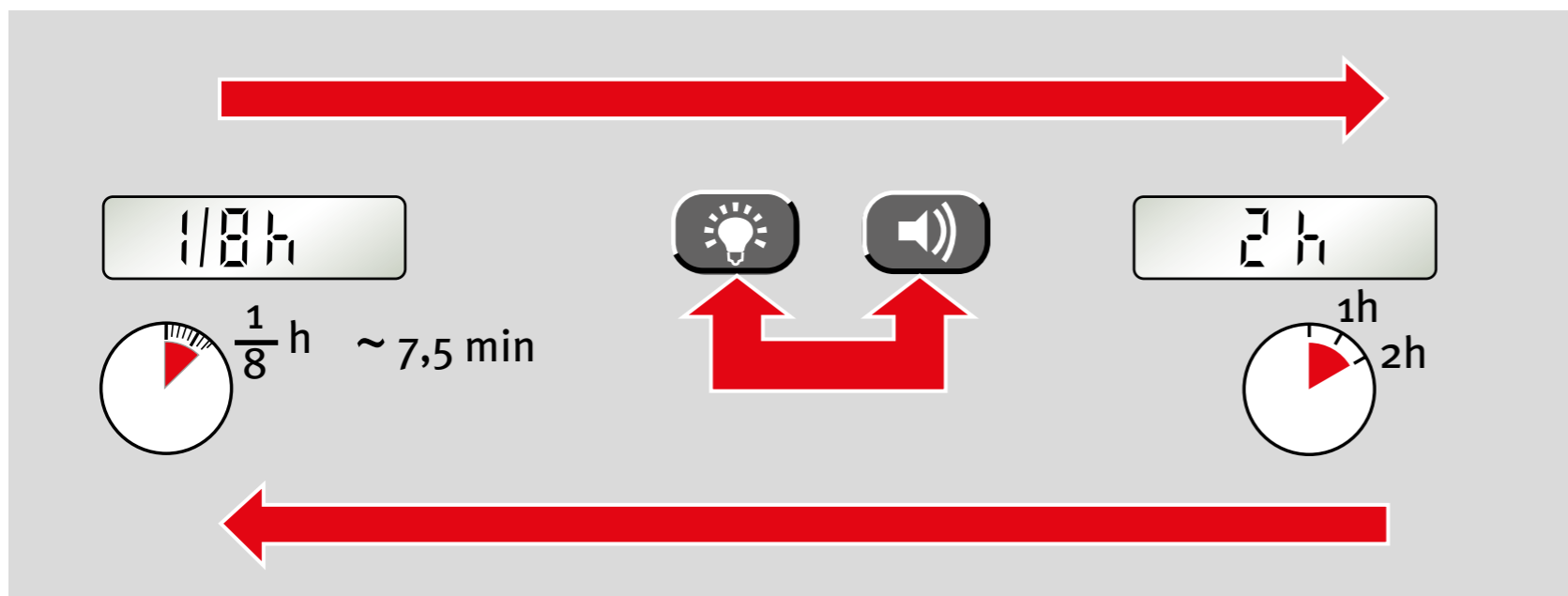


6.8 Key lock

Function: Key lock to prevent inadvertent activation.
Display after activation: key symbol.

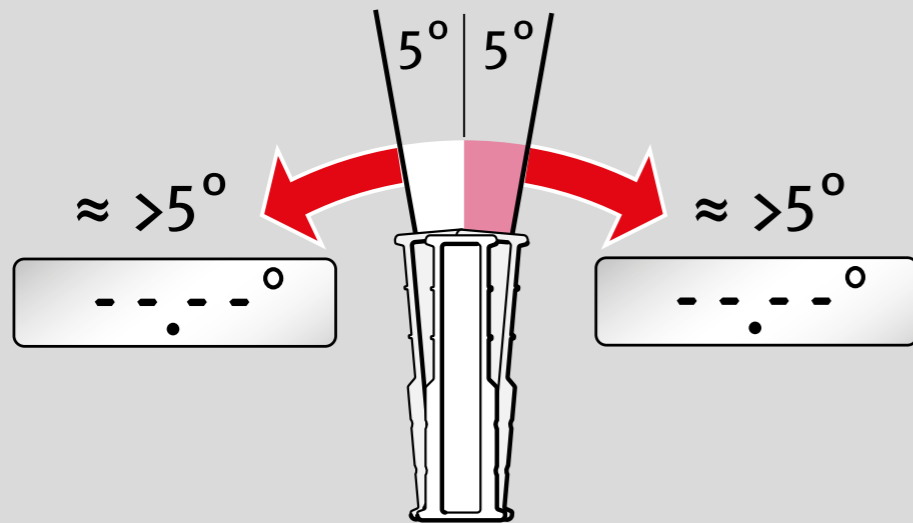
The lock is activated for the following buttons:
"MODE, CAL, HOLD, REF"

The key lock remains active after switching the unit off and back on again!
Pressing and holding (≥ 3 sec) the "Key" button disables the key lock.



6.9 Automatic switch-off time: Auto OFF

Pressing the "Lighting" and "Acoustic guidance" buttons at the same time allows the automatic switch-off time to be changed from 1/8 of an hour (approx. 7.5 minutes) to 2 hours. The set switch-off time is retained after the unit is switched off and is displayed briefly when it is switched on again.



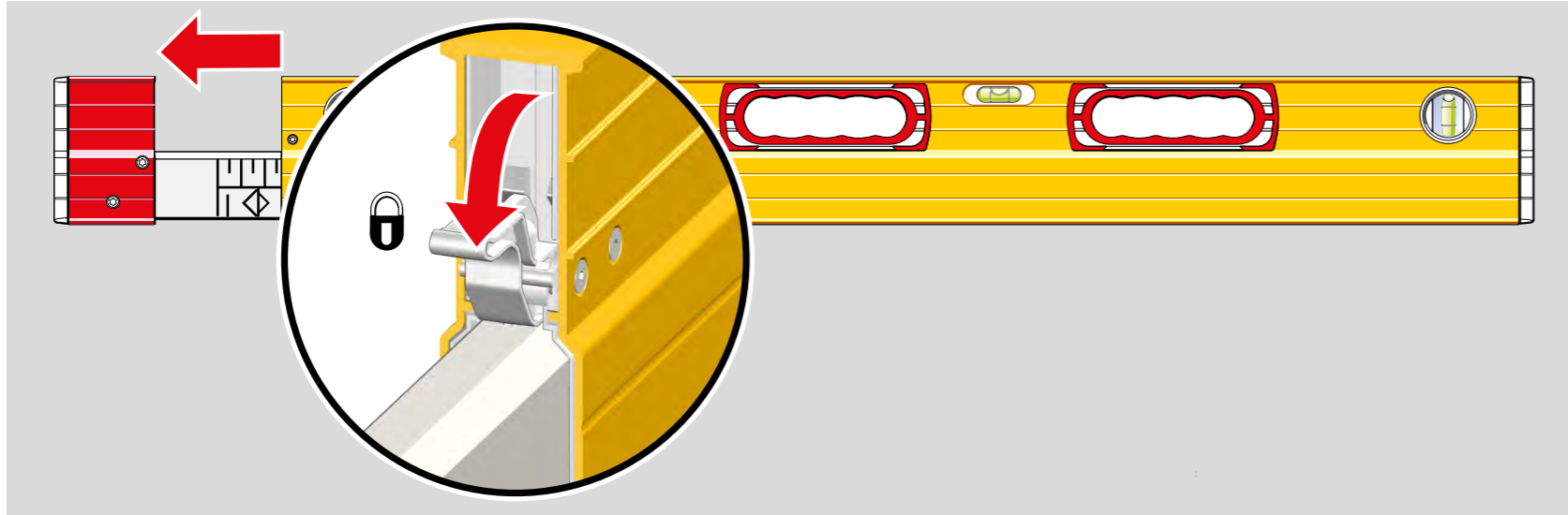
7. Tilt function

The measuring surfaces of the electronic spirit level should be positioned precisely for all measurement work. If positioned/tilted in excess of 5° , the tilt function prevents incorrect measurements. The display doesn't then show any measurements.

8. Usage

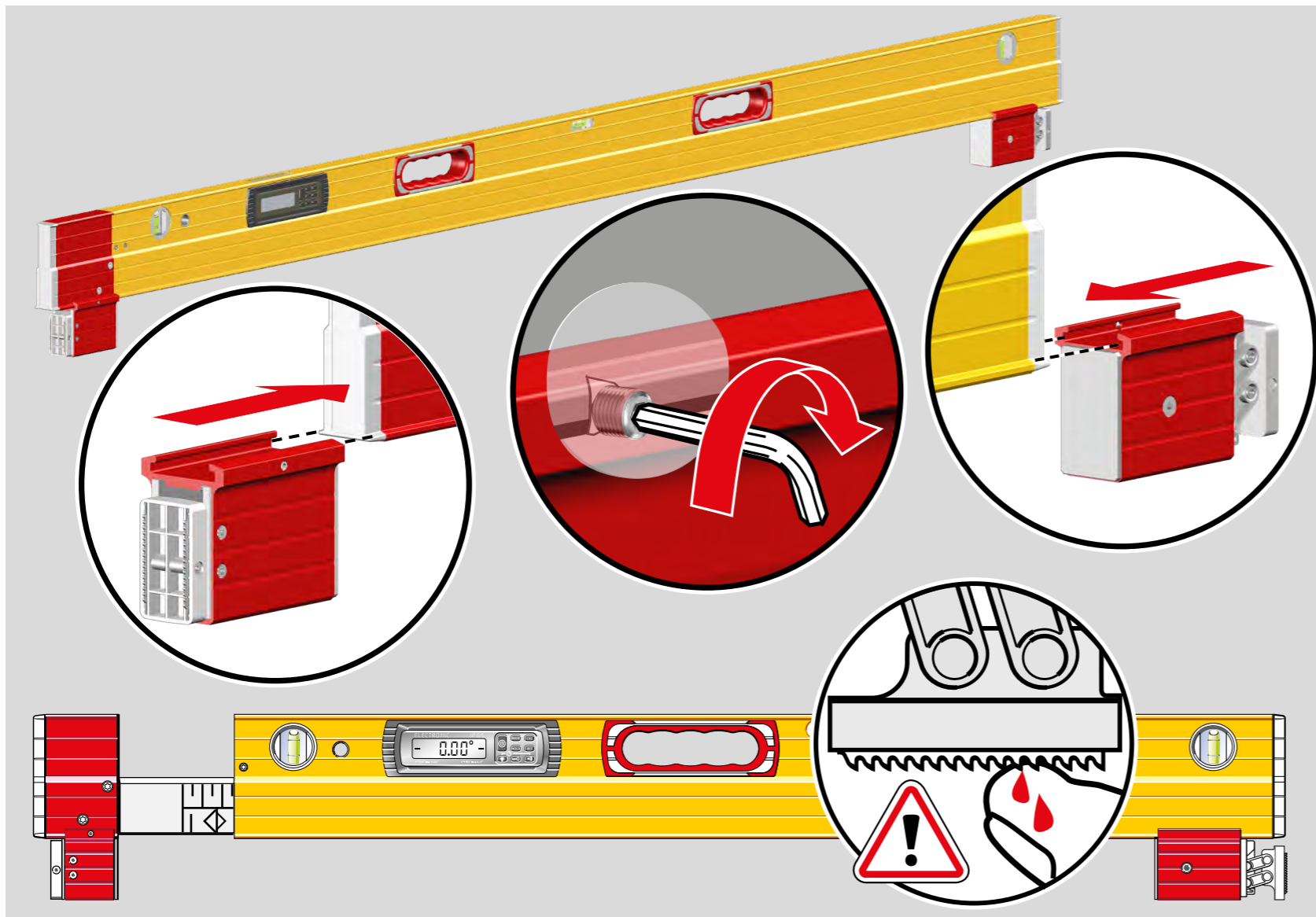
8.1 Usage as telescopic spirit level

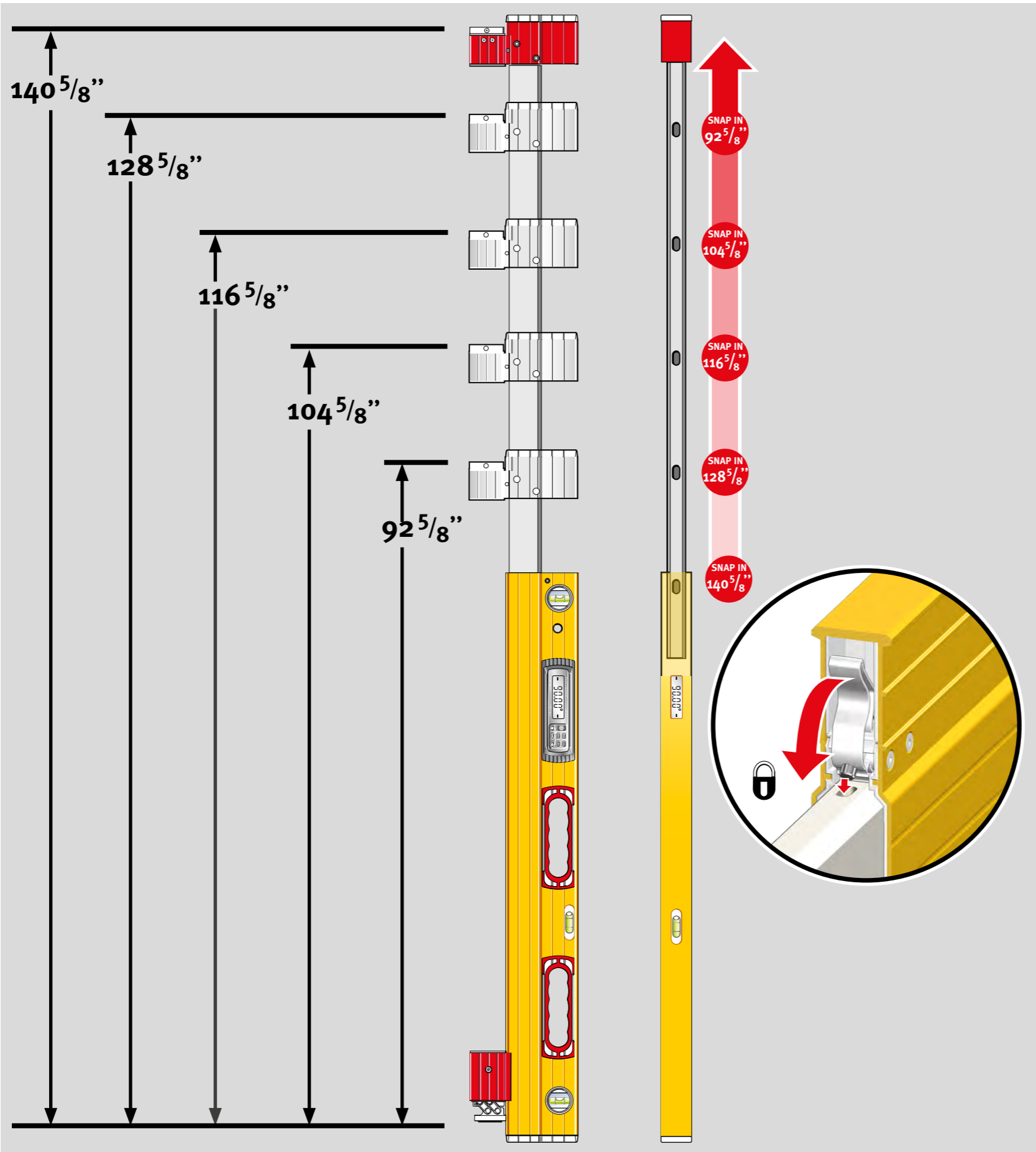
The telescopic extension enables an extremely large surface to be measured. Using the clamping lever, the telescopic extension can be secured at any length. Scales on both sides facilitate quick presetting.



8.2 Assembling the grippers

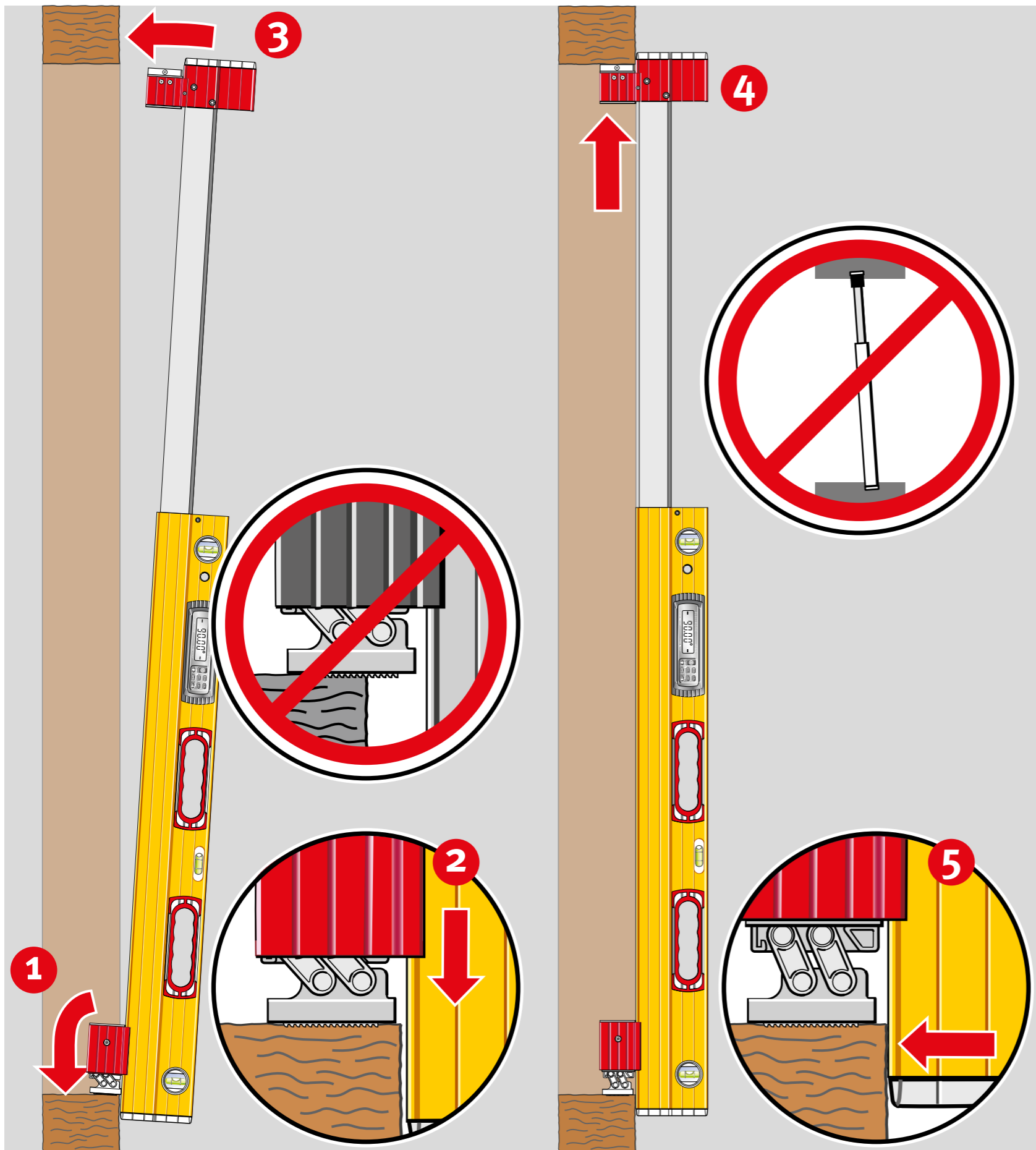
Slide the grippers onto the profile and secure them in the groove using the M5 grub screw.





8.3 Grid dimensions for the frame construction

The snap-ins are positioned at the standard dimensions for a timber frame construction. The spring-loaded bolt on the eccentric clamp engages precisely.

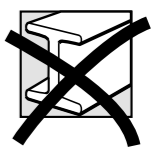
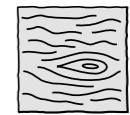


8.4 Placement in the timber frame

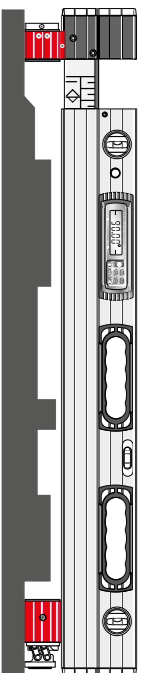
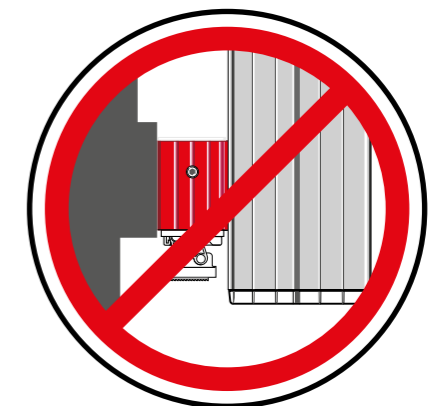
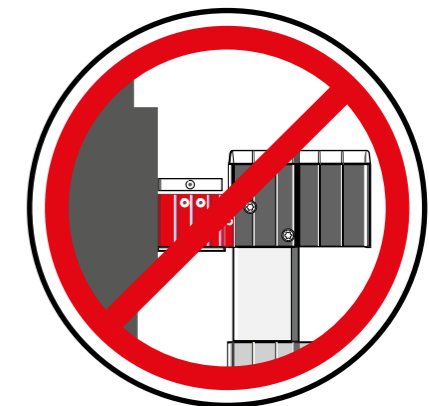
- 1** Once the spirit level has been preset to the required grid dimension, place it in the timber frame with the spring element.
- 2** The spring element must be compressed.
- 3** Next, place the upper measuring surface of the telescopic extension in the frame.
- 4** When you let go, the spring element pushes the spirit level securely into the timber frame.
- 5** The spring element ensures that the spirit level is positioned right against the timber frame.



Only use with timber materials



The grippers may only be used to clamp the spirit level in the timber frame. They are not spacers and are not designed for direct measurement with the spirit level.



9. Checking the measuring tool

9.1 Accuracy check



To prevent incorrect measurements, the accuracy must be checked at regular intervals, e.g. before you start work, or after hard knocks or major changes in temperature.

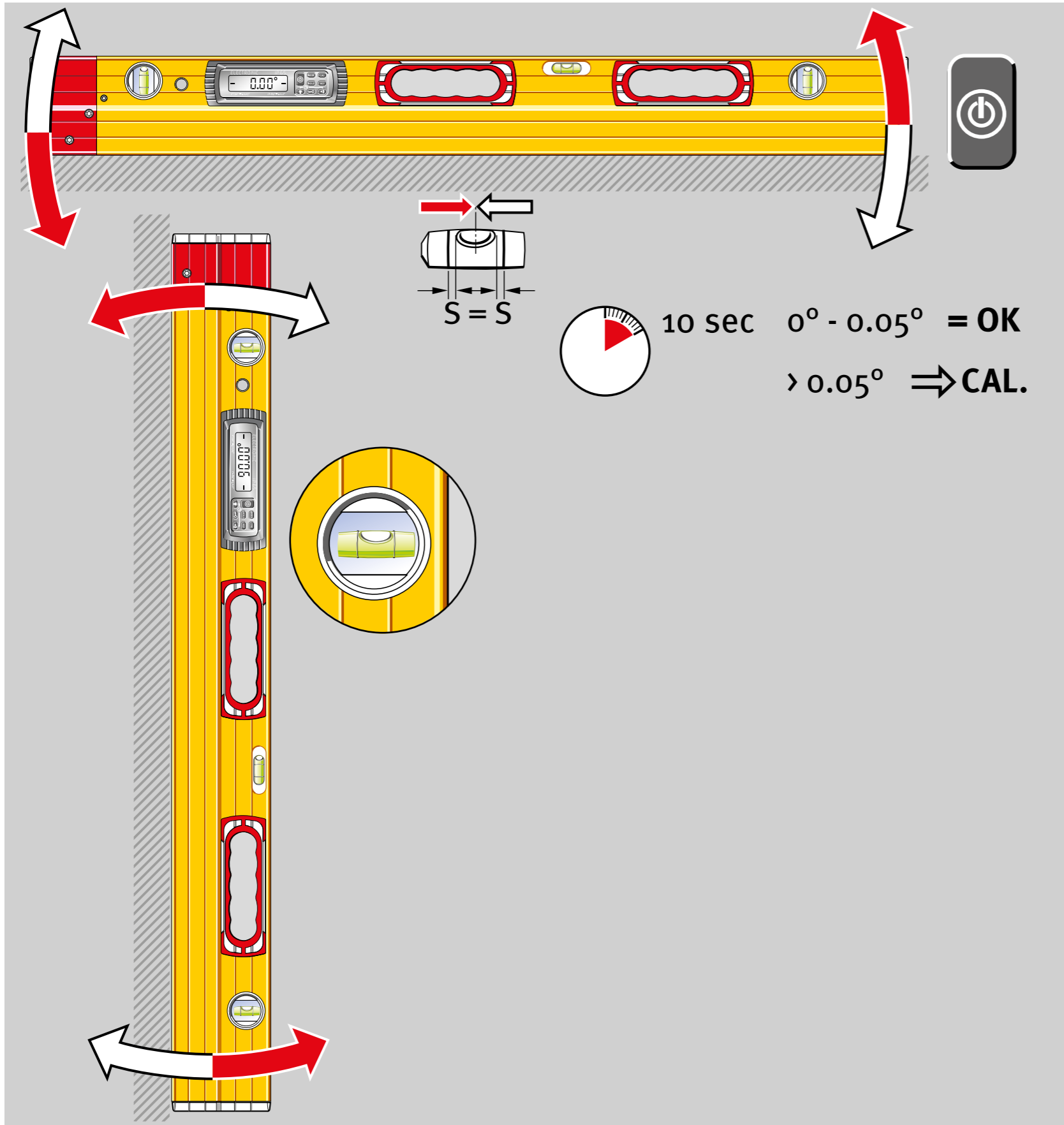
Step 1:

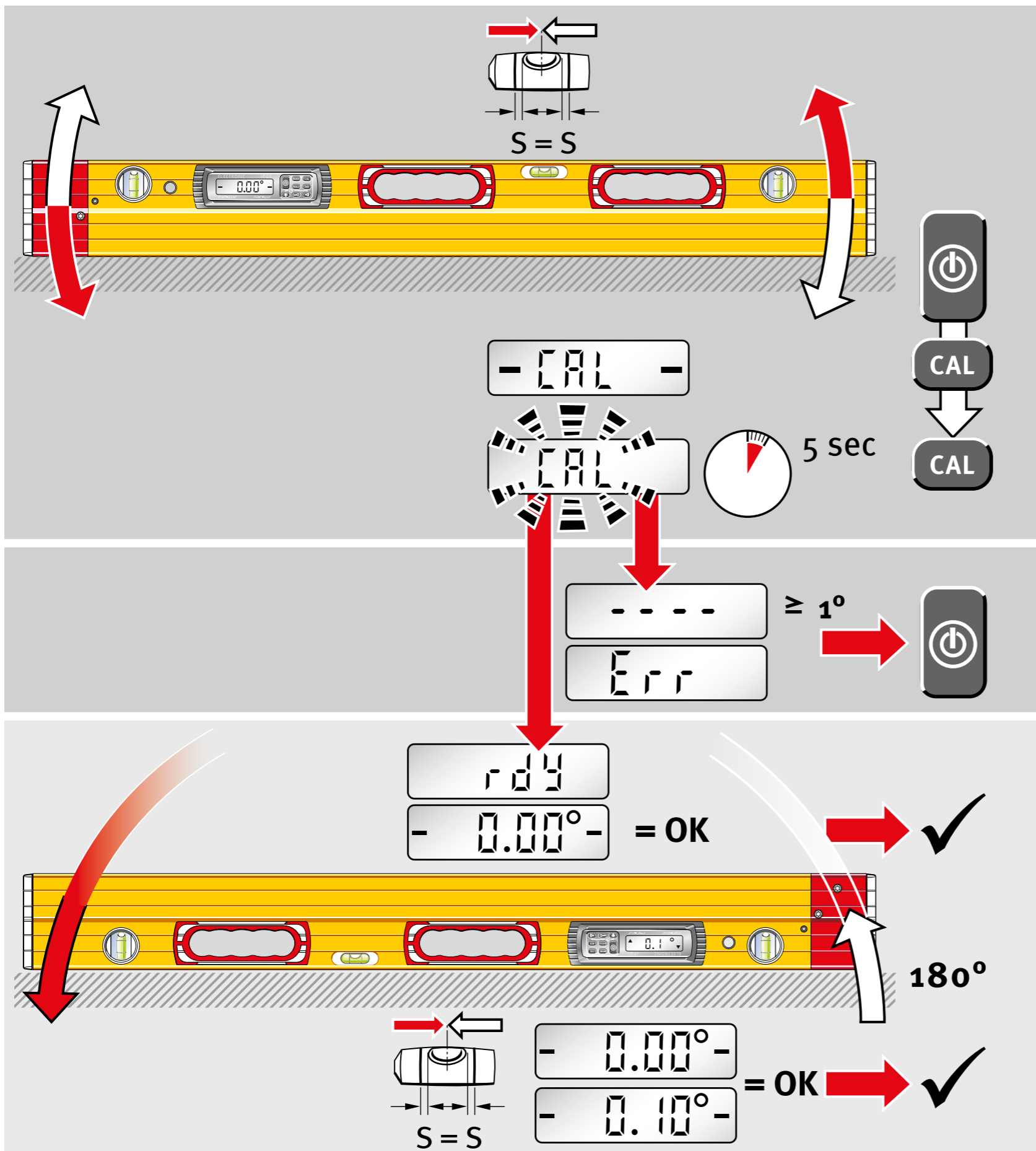
Switch on the electronic spirit level. Use the vial to accurately align the unit to a wall, for example, until the vial bubble is in the middle between the vial rings.

Step 2:

Wait 10 seconds. If the value displayed is $> 0.05^\circ$, the electronic spirit level must be recalibrated.

If mainly used for vertical measurements, the accuracy check can also be undertaken with the vertical vial.





9.2 Calibration

1. Switch on the electronic spirit level. Use the vial to accurately align the unit to a wall, for example, until the vial bubble is in the middle between the vial rings.

If mainly used for vertical measurements, the calibration can also be undertaken with the vertical vial.
2. Hold the electronic spirit level in this position and press the CAL button.
The CAL display shows calibration mode.
3. Calibration starts when the CAL button is pressed again.

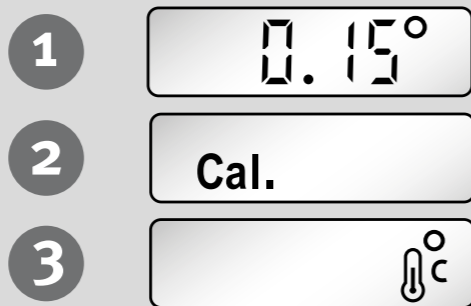
Newly calibrated value with deviation of $\geq 1^\circ$ from factory setting \Rightarrow Recalibrate spirit level

Vibration during calibration \Rightarrow Recalibrate spirit level

Calibration completed successfully \Rightarrow Spirit level ready

The reverse test checks the calibration.

Angle $\leq 0.1^\circ$ to normal position \Rightarrow Spirit level ready



9.3 Adjusting the sensor

Calibration in 4 positions is needed if the following is displayed:

1. The reverse test angle is $\geq 0.1^\circ$ to the normal position
--> too great a deviation.
2. Change in internal reference
3. Change in temperature since last calibration.

The electronic spirit level is calibrated in 4 measuring positions consecutively, turning $90^\circ / 180^\circ$ each time.

A:

All 4 planes are adjusted during the sensor adjustment.

B:

The sensor can only be adjusted if the two black bars appear on the display (in the range of 0° and 90°).

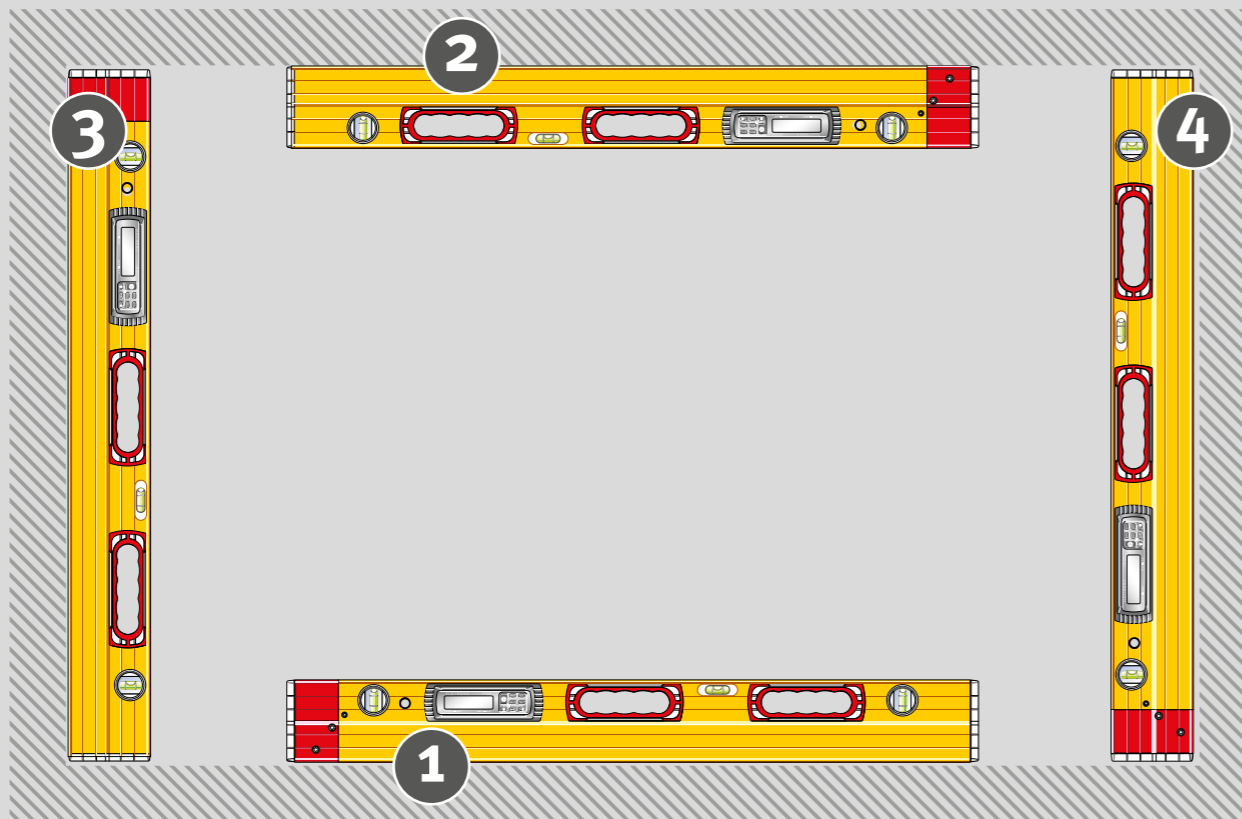
C:

CAL and the planes still to be adjusted flash alternately while the sensor is being adjusted for the respective plane..

D:

Planes that have not been adjusted flash in the display. Successfully adjusted planes are permanently indicated in the display.

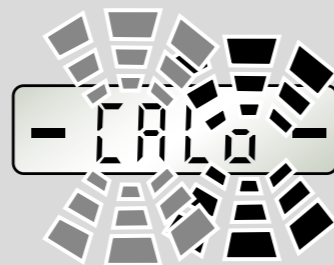
A



B

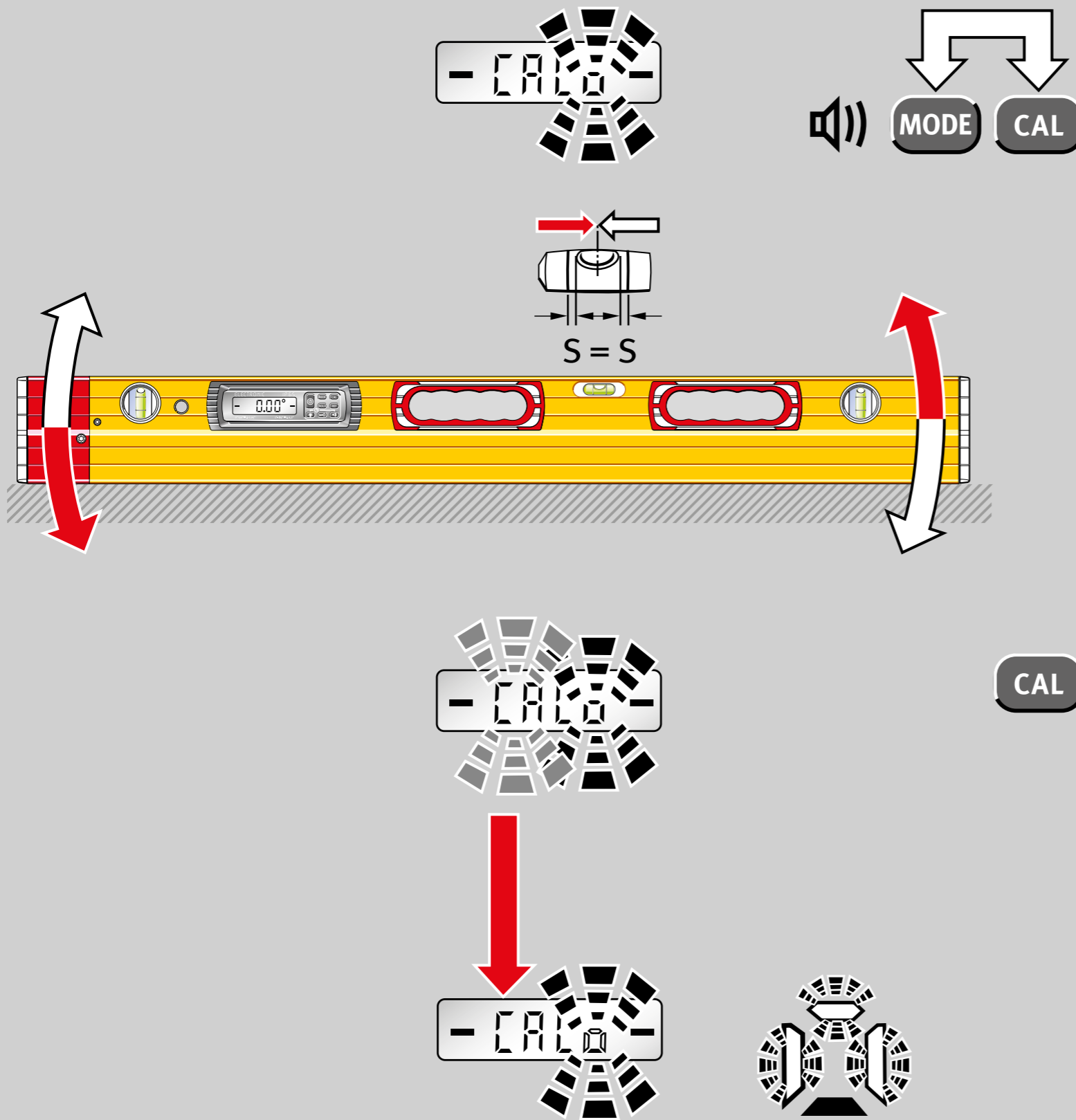


C



D






9.3 Adjusting the sensor

Step 1:

Simultaneously press the "MODE" and "CAL" buttons. Align the electronic spirit level accurately against a wall and press the CAL button to confirm.

 Step 1 must be performed with the vial. This ensures that the spirit level, the horizontal vial and the sensor are synchronised with each other.

Align the electronic spirit level accurately against a wall and press the CAL button to confirm.

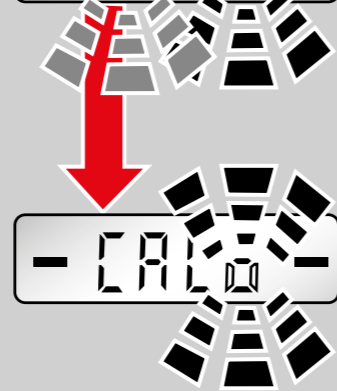
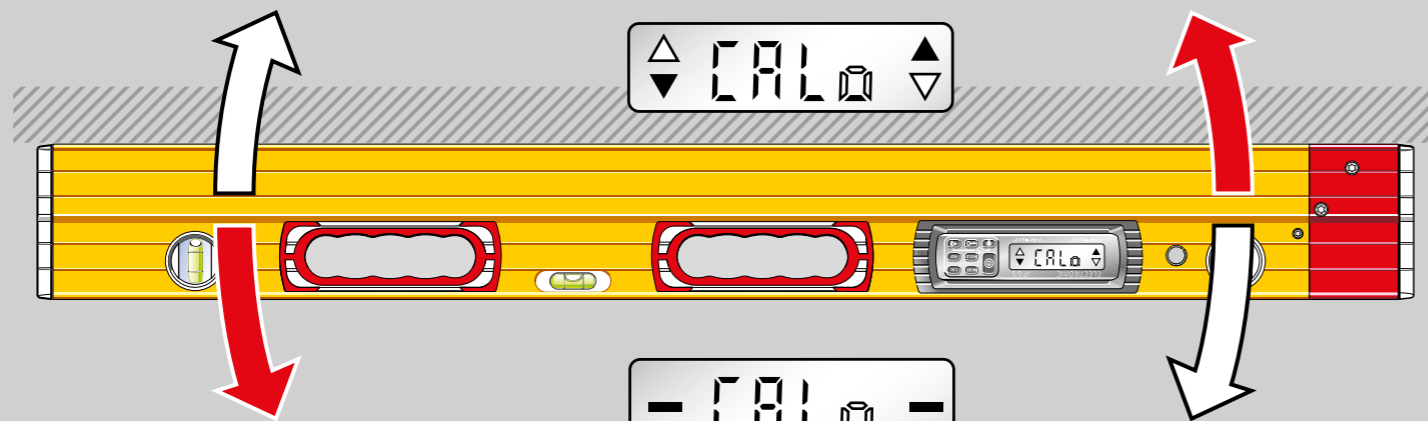
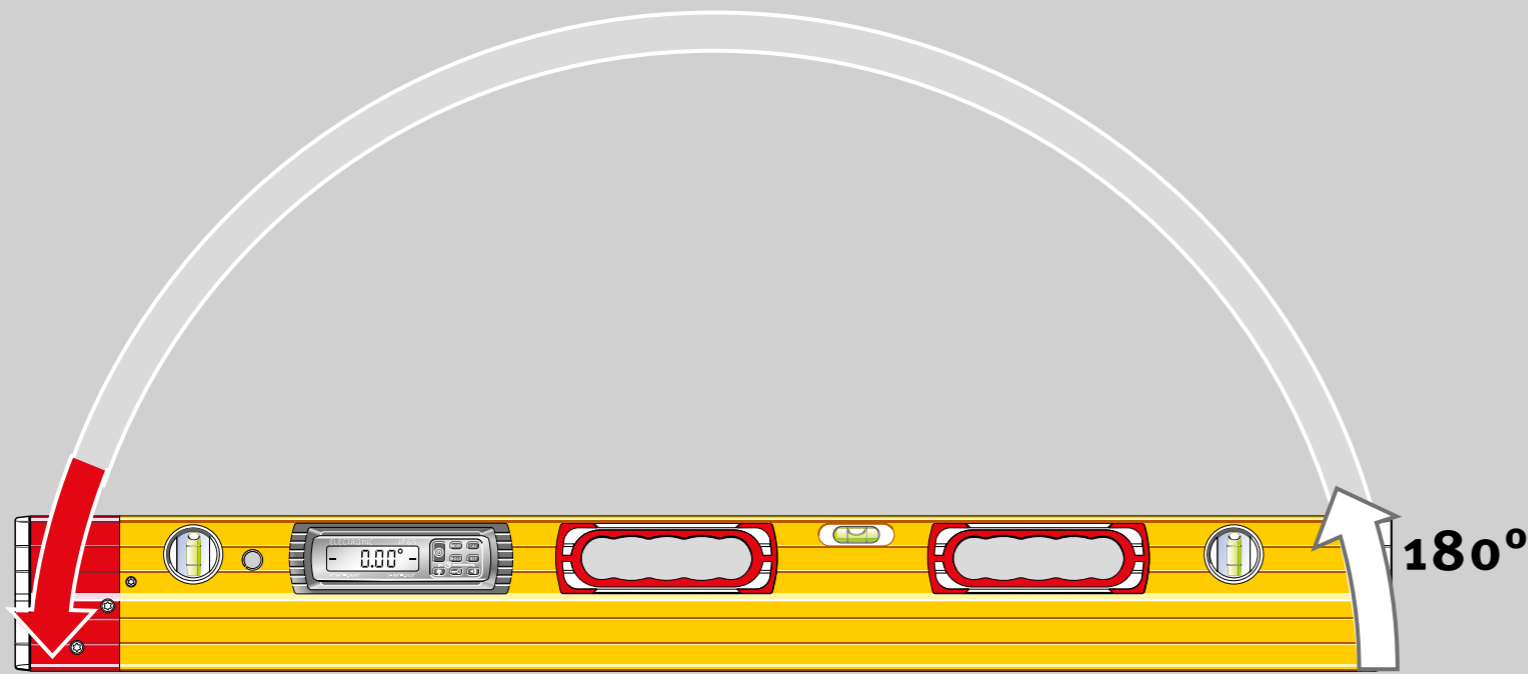
Flashing segments indicate the positions still to be calibrated.

Non-flashing segments indicate the positions already calibrated.

9.3 Adjusting the sensor

Step 2:

The electronic spirit level is turned 180° and aligned using the arrows displayed.



The electronic spirit level is aligned horizontally using the arrows displayed.

The 2 "center display" bars indicate the precise position at which the horizontal is reached.

Confirm by pressing the CAL button.

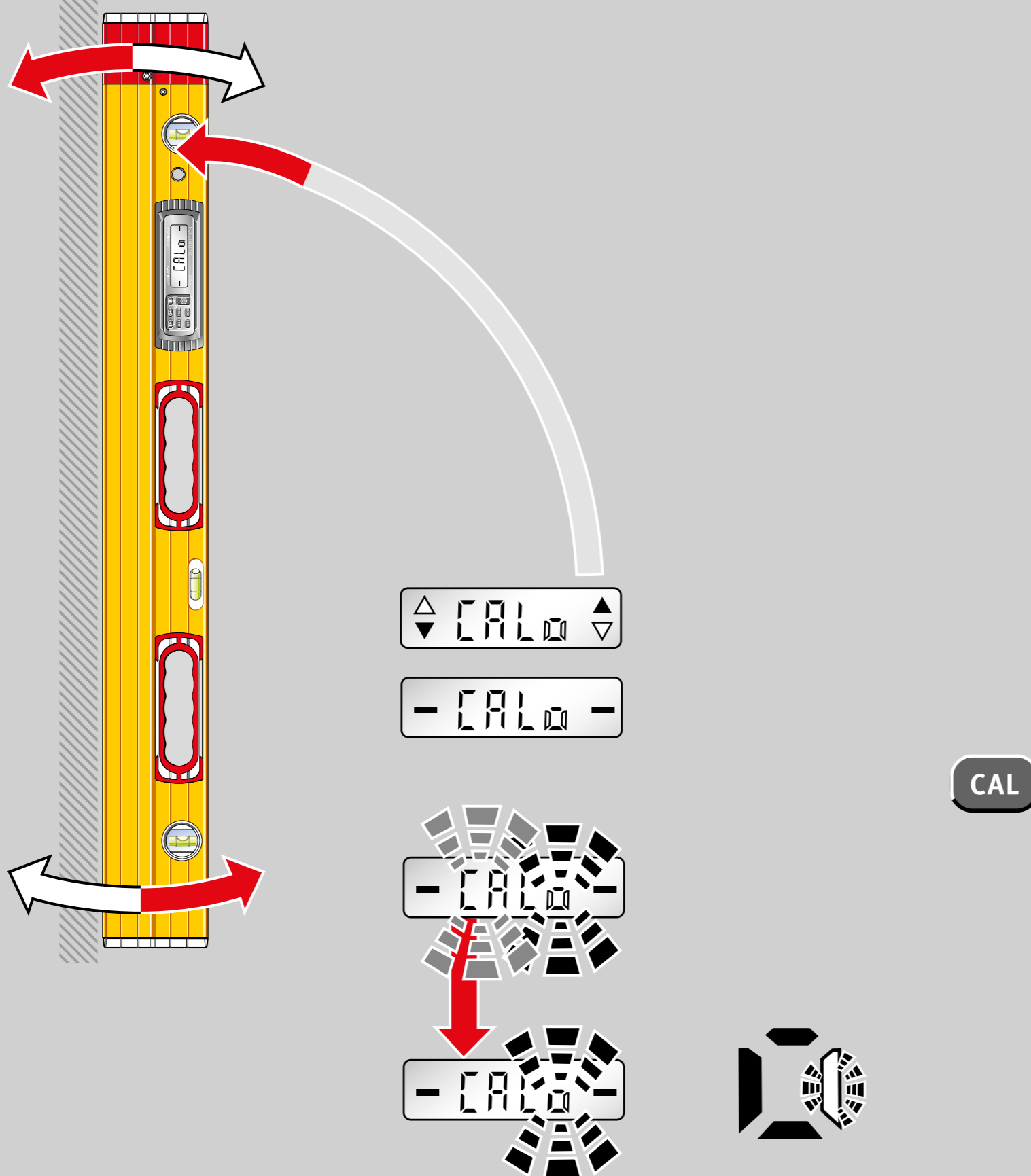
Flashing segments indicate the positions still to be calibrated.

Non-flashing segments indicate the positions already calibrated.

9.3 Adjusting the sensor

Step 3

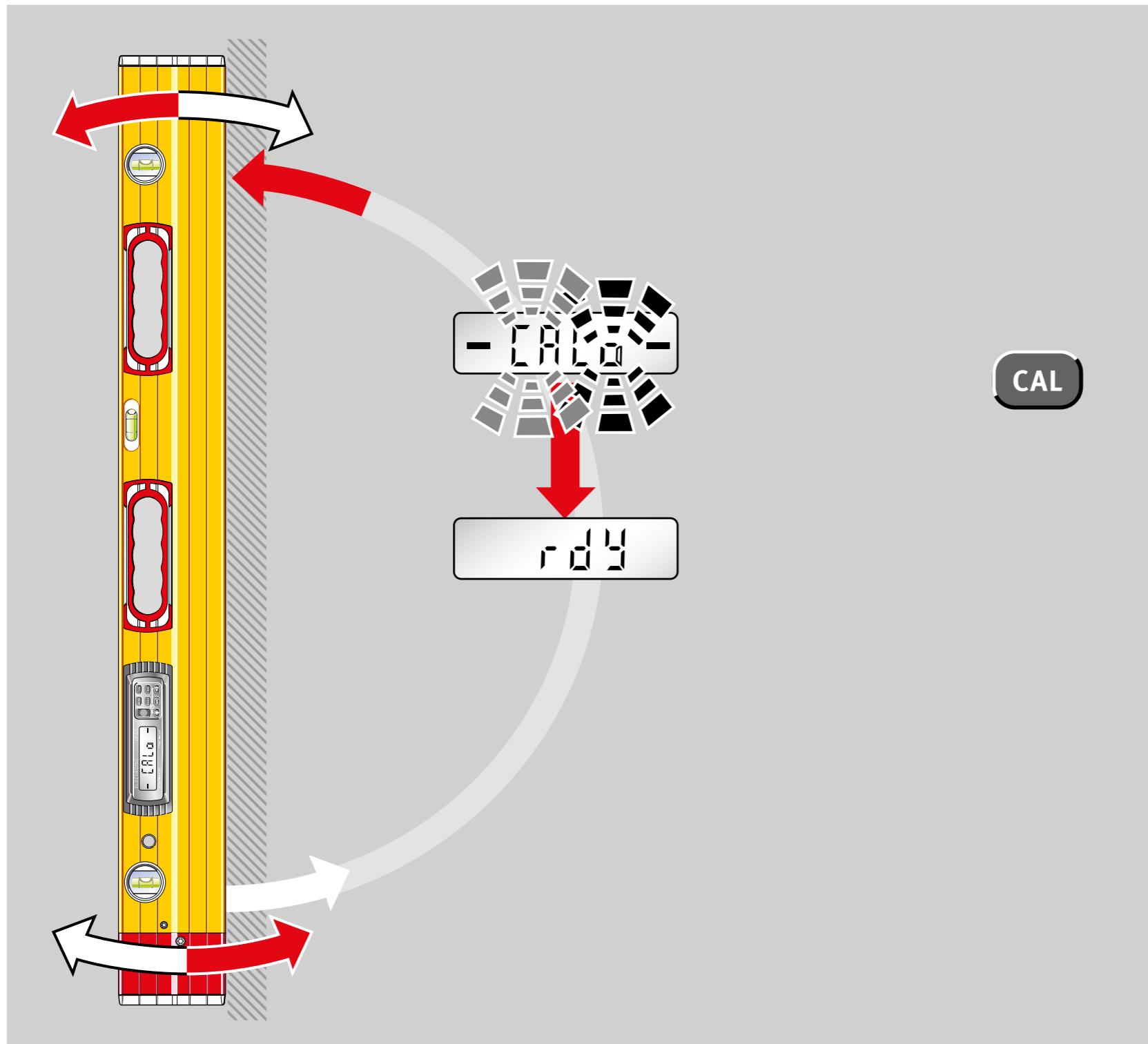
The electronic spirit level is turned 90° and aligned vertically using the arrows displayed.



The 2 "center display" bars indicate the precise position at which the vertical is reached. Confirm by pressing the CAL button.

The flashing segment indicates the position still to be calibrated.

Non-flashing segments indicate the positions already calibrated.



9.3 Adjusting the sensor

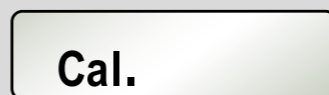
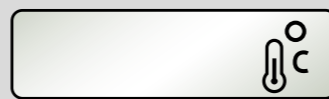
Step 4

The electronic spirit level is turned 180° and aligned vertically using the arrows displayed.

The 2 "center display" bars indicate the precise position at which the vertical is reached.

Confirm by pressing the CAL button.

"rdy" display:
Calibration in 4 positions successfully completed!



10. Error messages

Display: Cal. /temperature

The sensor must be adjusted if the temperature or Cal. symbols are indicated in the display.

Display: Err

The unit must not be moved or subjected to vibrations during the calibration/sensor adjustment. This can lead to measurement errors.

Display: ----

Unit inclination around longitudinal axis $> 10^\circ$

11. Technical data

Accuracy:

Electronic module

0° / 90° / 180° / 270° : ± 0,05°
In intermediate areas ± 0,2°

Spirit level

in normal position: .029° = 0,5 mm / m
in reverse position: .029° = 0,5 mm / m
in extended normal position .057° = 1,0 mm / m

Batteries : 2 x 1.5 V alkaline, Mignon, AA, LR6, MN1500

Operating life : ≥ 150 hours

Operating temperature range: 14 °F to 122 °F / -10 °C to +50 °C

Storage temperature range: -4 °F to 149 °F / -20 °C to +65 °C

Protection class: IP 65


Subject to technical modifications.

STABILA Messgeräte

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