# ROLL APPLICATION

*English*

EASY-LASER®

05-0810 Revision 1
System version 12.0

# CONTENT

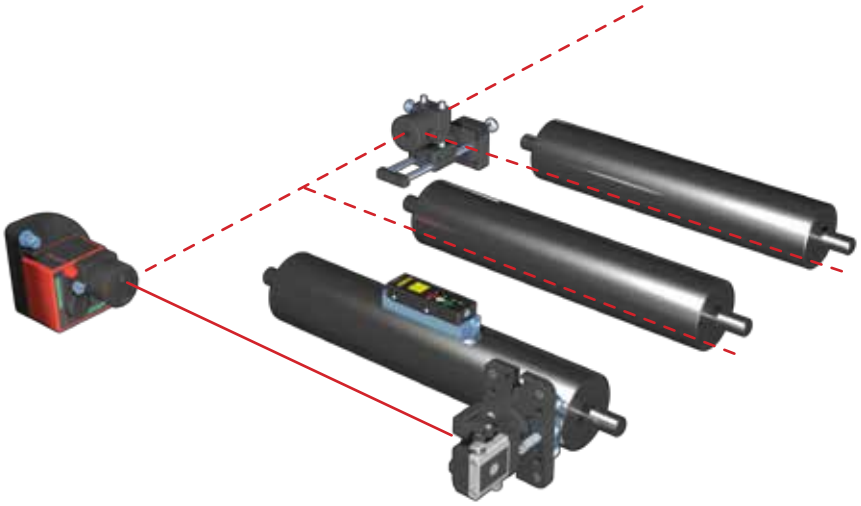
# ROLL ALIGNMENT E970

Examples of parallelism measurement include parallelism between rolls and other surfaces in papermaking machines, printing presses, rolling mills, etc. Other examples include overhead tracks, rails, press machine tables.

The E970 system is especially suitable when many objects are to be measured and aligned, and when the distances are long. This system use the traditional method where the laser beam (reference) is pointed alongside the machine, and then deflected 90° (by a penta prism) towards the detector mounted on the object that is to be measured. Measurement values for the horizontal position are registered in both ends of the object. The included precision level is used for the vertical position. Any chosen object or the baseline can be used as a reference. For rolls with diameter 40 mm [1.6”] and larger. Maximum measurement distance with a standard system is 80 metres [260 feet] (40 metres in each direction from the transmitter). It is also possible to move the laser transmitter (and use overlapping points) then there is no limit how long the distance can be!

## Reference line or reference roll

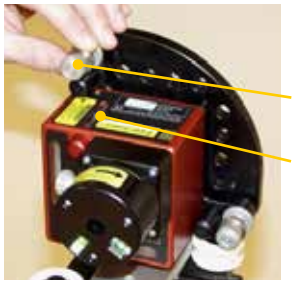
The reference line is often a line alongside the machine, but can also be a fixed object in the machine (reference roll). It is very important to be accurate when you establish the reference line or roll. A high precision when setting this up will assure a higher accuracy and repeatability when you start to measure.

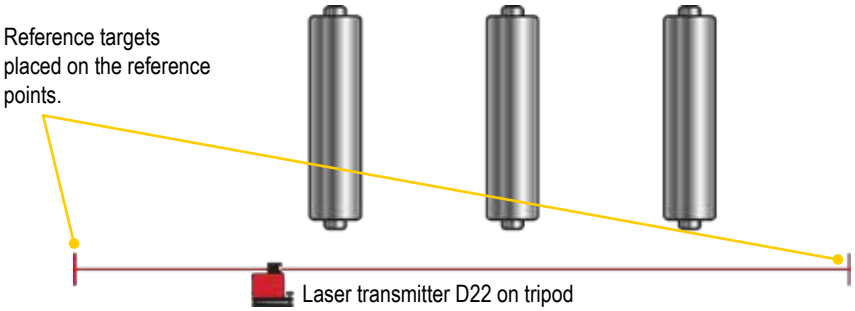


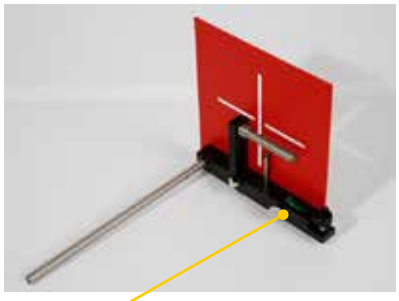
# Reference line alongside machine

## Level the laser transmitter

1. Locate your reference points. (Normally metal marks on the floor.)
2. Place the targets at your reference points. Make sure that the targets are stable and use the spirit levels to level them.
3. Mount the D22 laser transmitter on a tripod.
4. Place the tripod with D22 on the reference line, close to the first roll, approx. 30 cm [12”]. Place it on the same height as a roll you want to measure, preferably on a good working height.
5. Level the D22 according to the spirit level. Use the tilting screw. *See “Tilting screws” on page 22.*

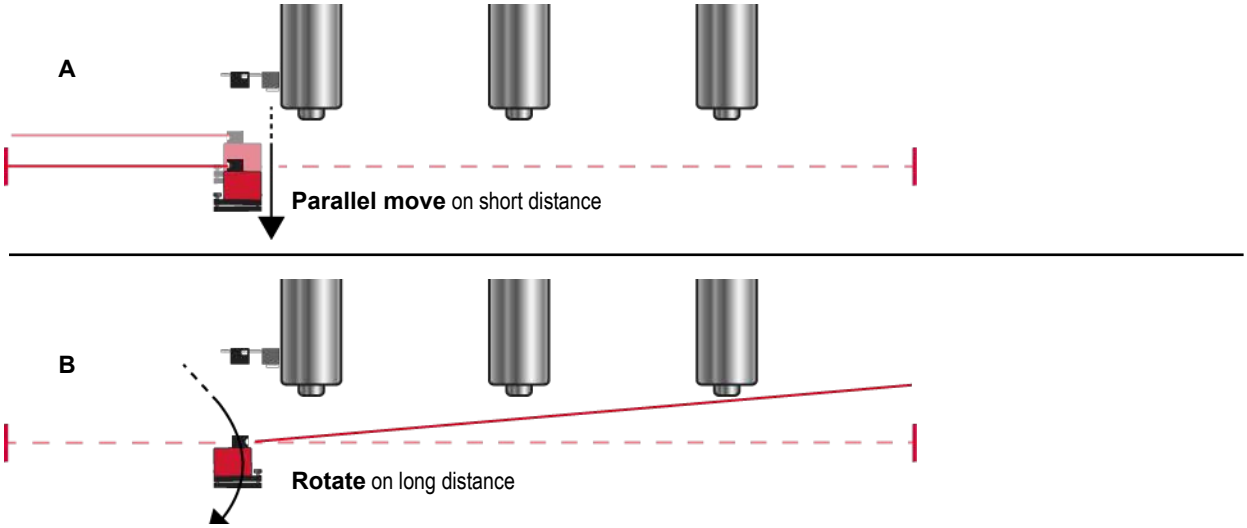



## Align laser sweep to reference line

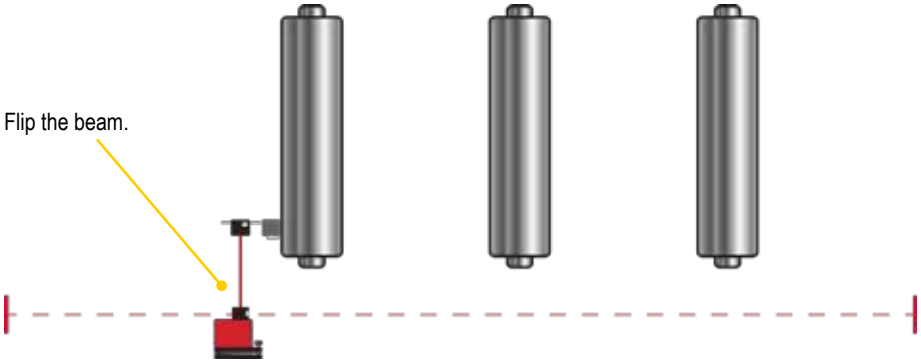
1. Align the laser beam to the reference targets. Adjust large angular errors by rotating the top of the tripod, smaller by the tilting screws on the D22.
2. Adjust beam to the centre of the closest target by a parallel offset movement of the D22. See image **A**.
3. Adjust to the centre of the second target by rotating the D22. See image **B**.
4. Repeat step 2 and 3.
5. Check the spirit level on the D22 again.



## Align laser to detector

1. Select 

to start the program Values.
2. Place the detector in the middle of the rods and mount it on the side of the roll, close to the laser transmitter. Make sure it is placed in a 90º angle. See *"Detector angle" on page 13*.
3. Flip the laser beam towards the detector.
4. Adjust the detector on the rods until the laser hits the detector.

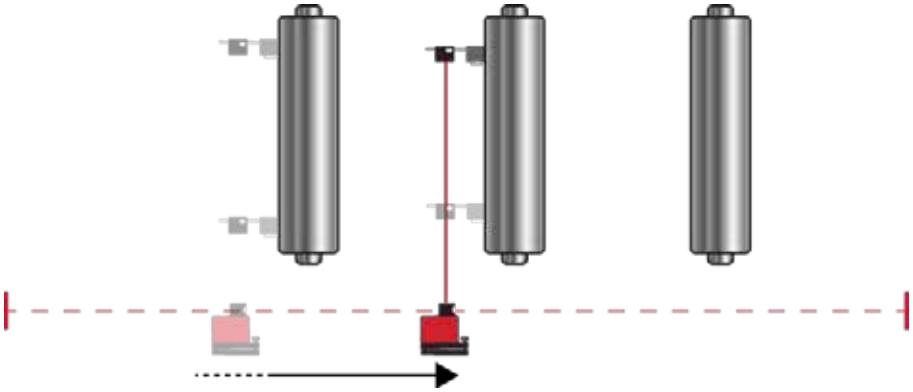



## Measure

When the reference line is established, it is now possible to measure the rolls according to it.

Select  to start the program, see *"PARALLELISM A" on page 7*.

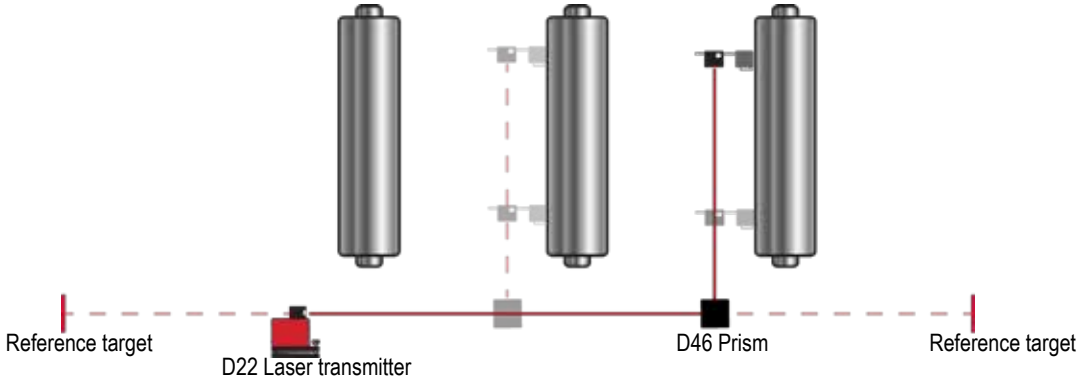
1. Move the tripod with the D22 and the detectors to the roll you want to measure.
2. Align the D22 to the reference line and flip the beam to hit the detector.



## Measure using the prism

To ensure an even higher accuracy, use the prism instead of moving the laser.

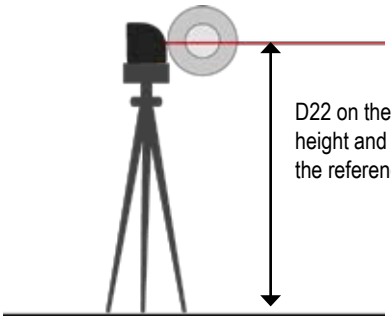
1. Place the D46 prism at the same height as the D22 by the first roll.
2. Adjust the prism to centre the beam. See *"Align the D46 prism" on page 8*.

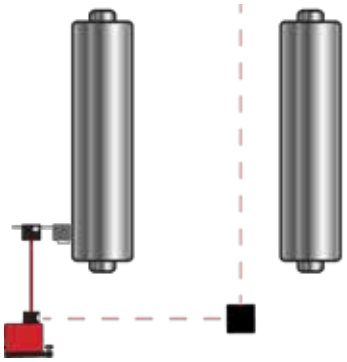


# Reference roll

## Level the laser transmitter

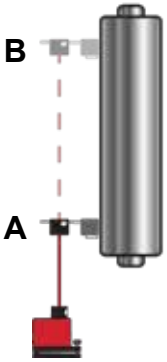
1. Locate your reference roll.
2. Mount the D22 on a tripod.
3. Adjust the tripod until the laser beam is on the same height and parallel to the reference roll.
4. Make sure that the laser beam can hit the D46 Prism.
5. Level the D22 according to the spirit level. Use the tilting screw.


## Align laser to reference roll

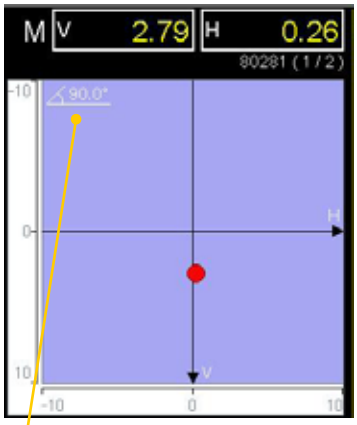
1. Start the program Values.
2. Mount the detector on the reference roll on **position A** (close to the laser). Keep the target on the detector. (Try to keep the detector in a 90° angle during the whole measurement.)
3. Adjust the laser beam to the centre of target. Use the knobs on the tripod or rotate the top of the tripod if needed. Make sure that you keep the beam parallel to the roll.
4. Move the detector to **position B**, place it in a 90° angle.
5. Adjust the laser beam to the centre of the target using the tilting screws on the D22 tilting table.
6. Move the detector back to position A. Is the laser still in the centre of the target?
   If not, repeat procedure.




Continue until the laser beam is in the centre of the target on both positions.

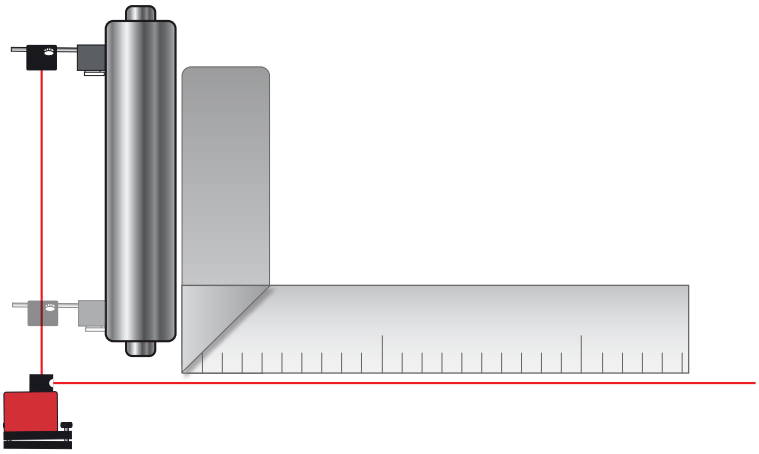
## Zero set

1. Place the detector on position **A**.
2. Remove the target and check on the Display unit that the detector is in a 90° angle.
3. Select 0 to zero set position **A**.
4. Move the detector to position **B** and adjust the laser beam to zero using the adjustment screws on the tilt table. *See "Tilting screws" on page 22.*
5. Repeat step 3 and 4 until you have reached vertical value of 0.00 on both positions.
6. Angle the laser beam 90° and make marks on the floor.



Detector in a 90° angle

When you have zero on both positions, the preparations are done. You can imagine the laser as a set square.

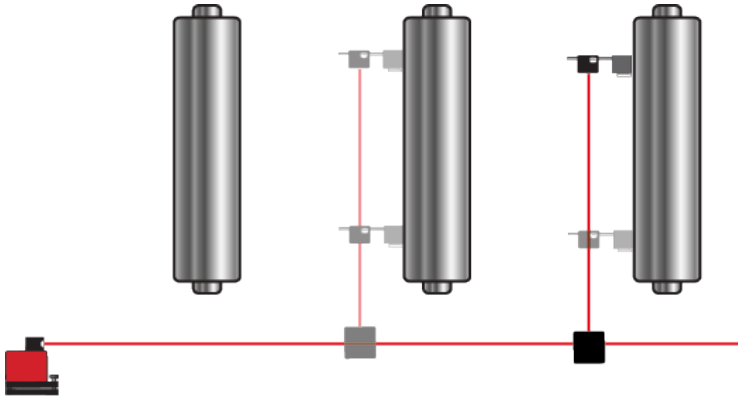


Now, make sure not to move the laser transmitter!

If the detector will differ from the 90° angle during measurement, make sure to keep the same angle on both positions.

# PARALLELISM A

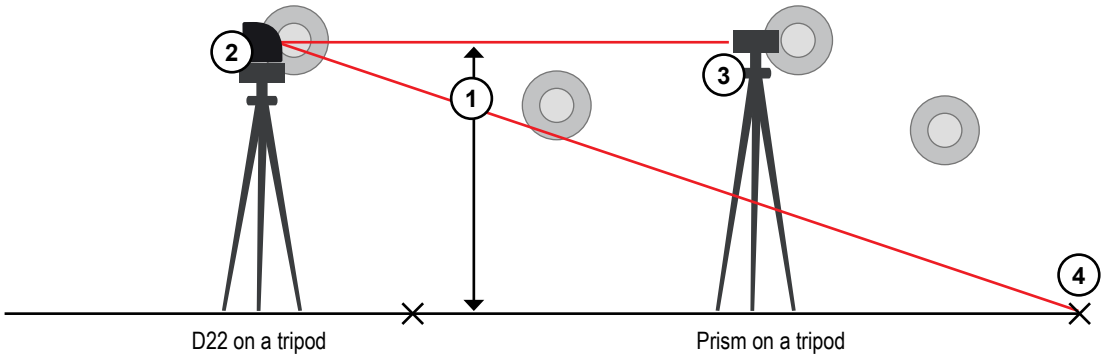
Examples of parallelism measurement include parallelism between rolls and other surfaces in papermaking machines, printing presses, rolling mills, etc. Other examples include overhead tracks, rails, press machine tables.



## Laser setup

To establish a good reference line, it is important to set up the laser correctly. The reference line is often a line alongside the machine, but can also be a fixed object in the machine.

1. Mount the laser on the same height as the prism.
2. Level the laser according to the spirit level.
3. Adjust the prism so that the laser beam hits the centre of the target. See *"Prism set up" on page 8.*
4. Direct the laser beam along the machine, and perpendicular to the measurement object. Use targets, or mount detectors to set up the reference line.



# Align the D46 prism

The penta prism in the D46 deflects the laserbeam 90°. To keep the accuracy of the prism when measuring, the prism should be aligned to the center of and parallel to the laser beam.

### Mount the equipment

1. Mount the D22 on a tripod.
2. Mount the angular prism on a sliding table and then on a tripod.

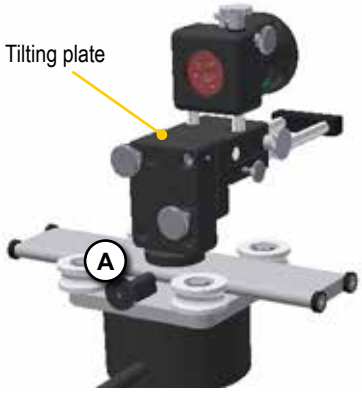



Image showing the prism close to the tilting plate.

### Rough align

Keep the yellow cover on the prism.

3. Adjust the tripod until the prism is on the same height as the laser transmitter.
4. Slide the prism **close** to the tilting plate. Adjust sideways using (A).
5. Slide the prism **away** from the tilting plate. Adjust the height and angle using the tripod functions.

Repeat step 4 and 5 until the laser beam hit the centre of the cover in both positions.

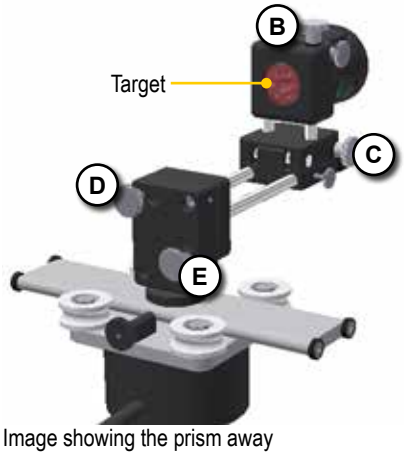
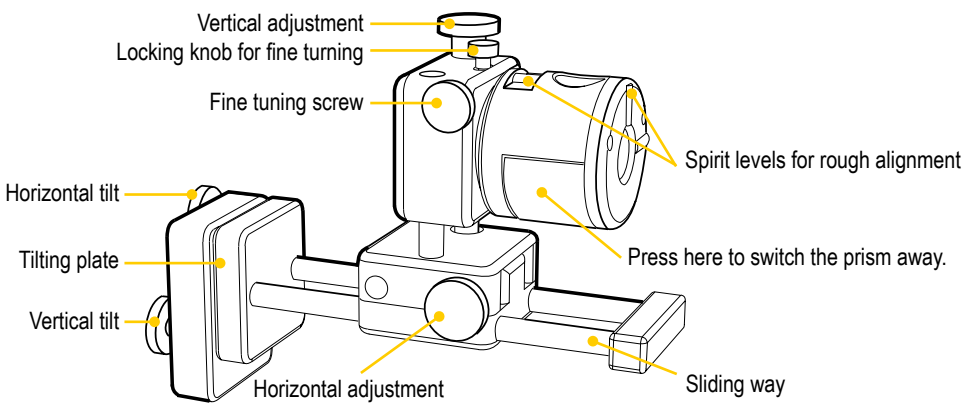



Image showing the prism away from the tilting plate.

### Fine adjustment

6. Switch the prism to let the laser beam hit the target on the back.
7. Slide the prism **close** to the tilting plate. Adjust the offset using (B) and (C).
8. Slide the prism **away** from the tilting plate. Adjust the angle using (D) and (E).
9. Repeat step 7 and 8 until the laser hit the centre of the target in both positions.

Now the angular prism can be moved along the sliding way to aim the laser beam to the detector.

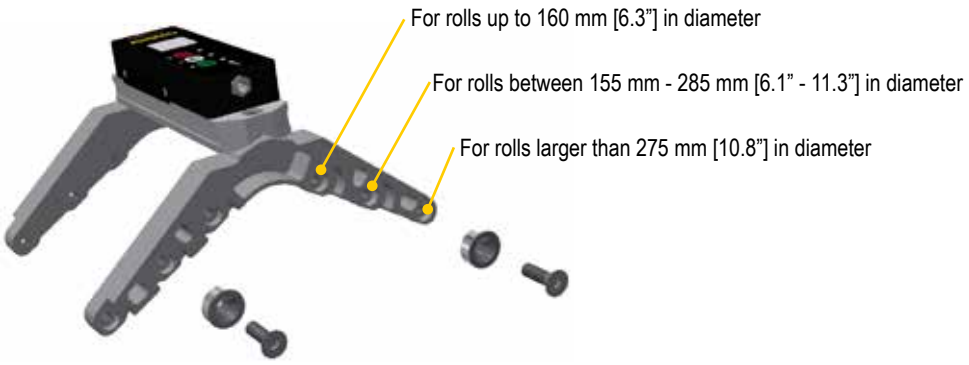


# Precision level

The precision level is used to measure the vertical value. It is possible to skip the Precision level for all or single rolls. See also *"Precision level E290" on page 223*.

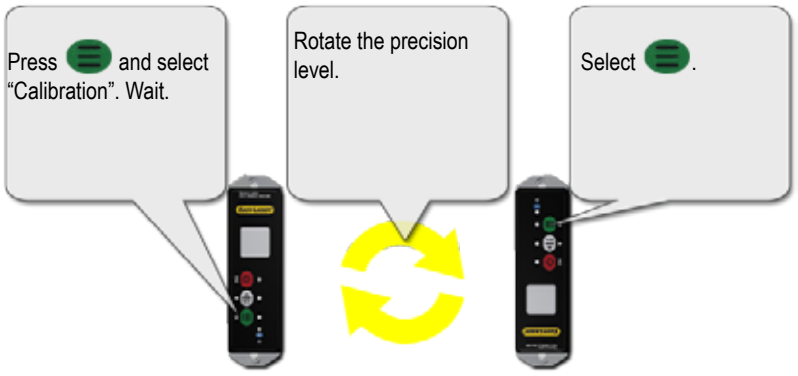
## Bracket for different roll sizes

Use the bracket to ensure that the Precision level lands firmly on the roll. Mount the wheels in the appropriate position and then calibrate the Precision level. If you change position of the wheels, you need to calibrate the Precision level again.




## Calibrate the precision level

1. Place the Precision level on the reference roll. Make a mark on the roll to ensure that you place it in the same position.
2. Press and select "Calibration".
3. Wait approx 15 seconds, until the value has stabilized. Press .
4. Rotate the Precision level 180º.
5. Wait approx 15 seconds, until the value has stabilized. Press . The Precision level has been calibrated. The calibration is saved even when the Precision level is switched off.




***Note!***

*When you use the Precision level, it has to be switched on during the whole measurement.*

## Set up Bluetooth®

Make sure that the Precision level is connected to the Display unit via Bluetooth®.

1. Select and to open the Control panel.
2. Select to open the Bluetooth® view.
3. Select to search for Bluetooth® units.

See also *"Bluetooth® set up" on page 21*.

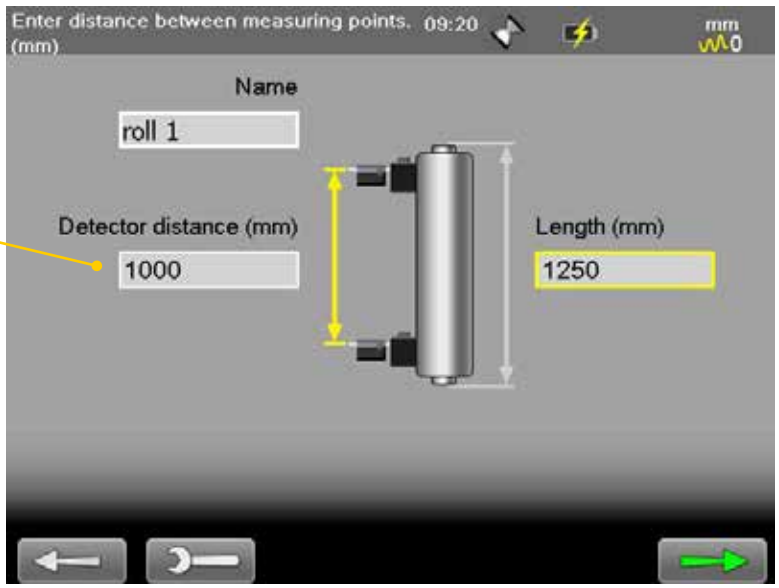
# Measure

## Enter distances

1. Enter a name or keep the default name. Press .
2. Enter the distance between the detectors. Measure between the rods.
3. Press to continue to Measure view, or use navigation button to enter the distance between the adjustment points.

The distance between adjustment points is not mandatory. If you leave the space empty, it will be filled in with the same length as the detector distance.

Make this distance as far as possible.
This will give an even more accurate measurement.



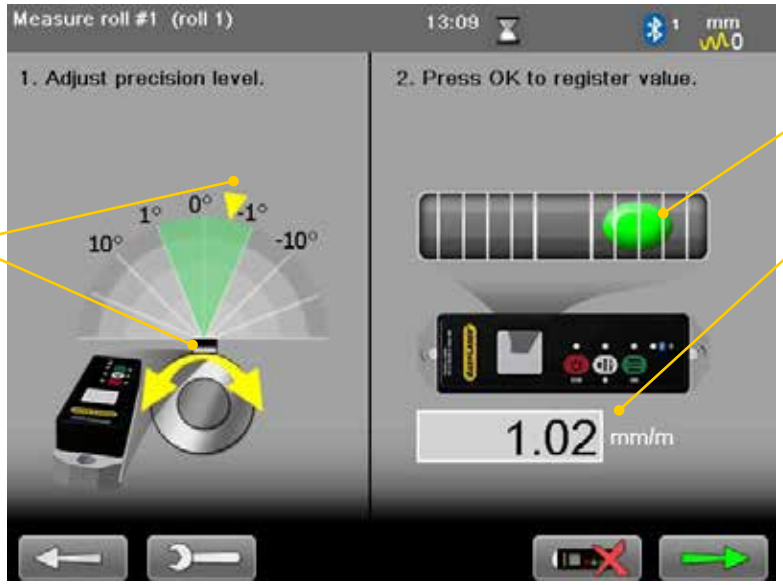
# Measure vertical position

The vertical position of the object is measured with the Precision level. For a correct measurement result, it is very important that you place the Precision level in the same direction on all rolls.

1. Adjust the Precision level until the yellow arrow is within the green area.
2. Wait until the value has stabilized (approx. 15 sec.)
3. Press to register measurement value.

Place the Precision level in the same direction on all rolls!

The value is shown as mm/m or inch/foot. When it is not possible to register a value, the bubble turns red and the value is shown in degrees. To change unit, see *"Unit and resolution" on page 16.*




Adjust to within green area

Bubble turns green when it is possible to register a value.

Value can be displayed as mm/m or inch/foot

## Function buttons

| | |
|---|---|
| | Back to Distance view. |
| | *See "Control panel" on page 15.* |
| | Skip measuring with the Precision level for **all rolls**. It is possible to turn it back on again from the result view. |
| | Continue. Skip measuring with the Precision level for **this roll**. |

## Skip Precision level

It is possible to skip measuring with the Precision level. When you do, you will not have a vertical value in the result view.

***Note!***

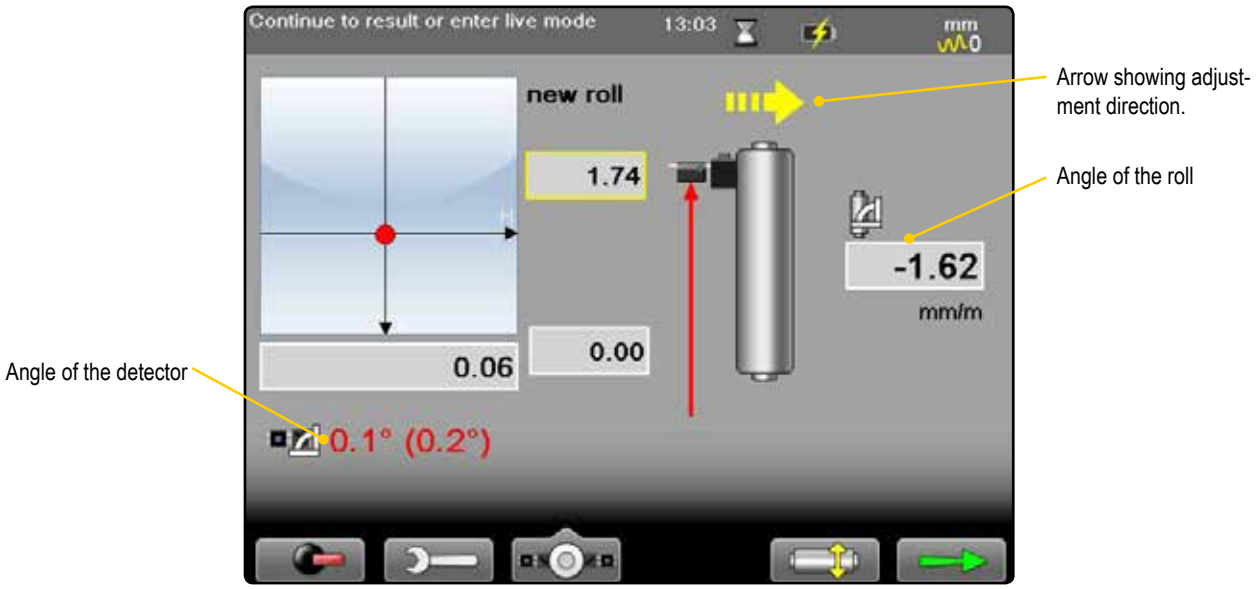
*If you use cables to your detectors, remove the cable from the Display unit before measuring using the Precision level.*

## Measure horizontal position

The horizontal position of the object is measured with the detector.

1. Place the detector on the roll. The Display unit will recognize how the detector is placed. If you want to change it, use  .
2. Use the navigation buttons to change the active measurement position.
3. Angle the laser beam along with the roll. See *"Align the D46 prism" on page 8*.
4. Adjust the laser beam via the prism until you hit the centre of the target.
5. Press  to register the first position.
6. Move the detector to the second position.
7. Press  to register the second position. The angle of the roll is displayed.
8. Press  to go to Result view. Or select  to adjust the roll.

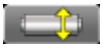
From the result view, select  and  to add a new roll.

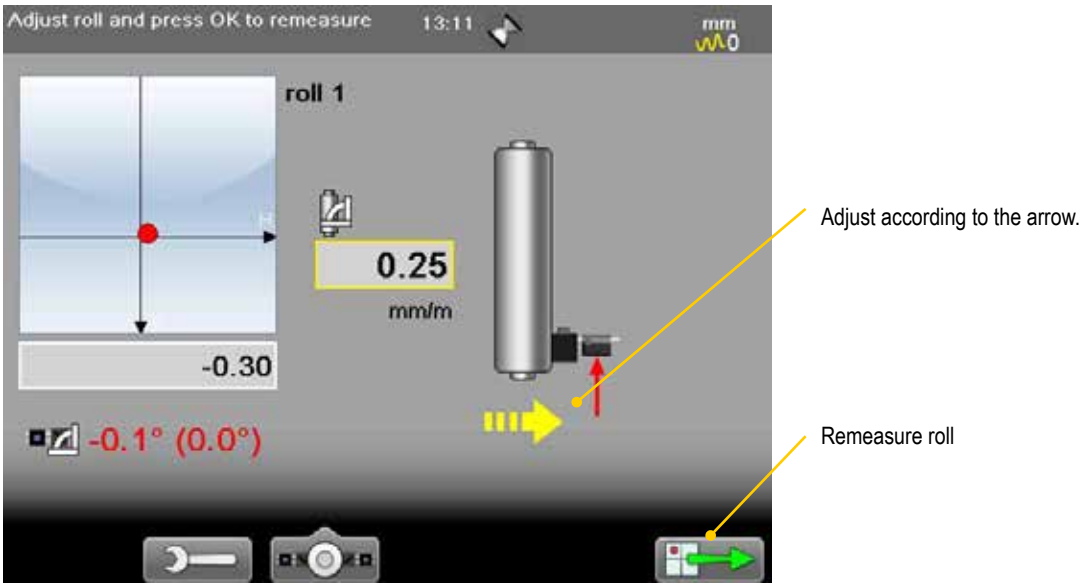



### Function buttons

| | |
|---|---|
|  | Remove latest registered measurement point. |
|  | *See "Control panel" on page 15.* |
|  |  Automatic recognition, the Display unit recognizes how the detector is placed.<br>  The detector is placed on the right side.<br>  The detector is placed on the left side. |
|  | Go to live adjustment view. See *"Adjust roll live" on page 13.* |
|  | Forward to Result view. |
|  | Forward from Adjust view. When you have adjusted a roll, you need to remeasure the roll. |

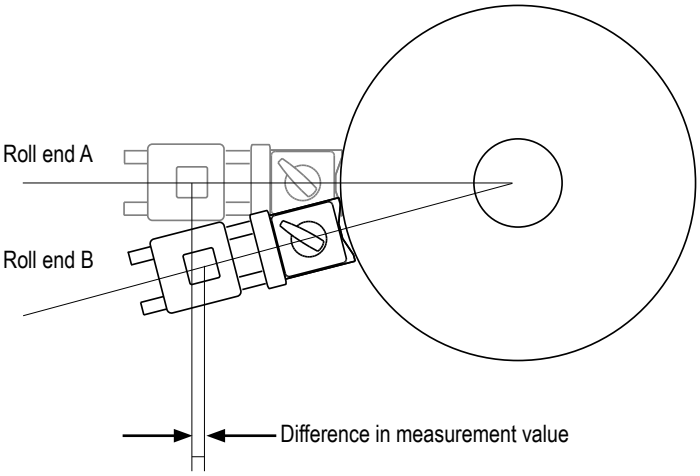
## Adjust roll live

1. From the Measure view, select  to adjust the roll live.
2. Adjust the roll according to the arrow.
3. Press  or  to continue. The Measuring view is displayed and you are prompted to remeasure the adjusted roll before you can continue.




## Detector angle

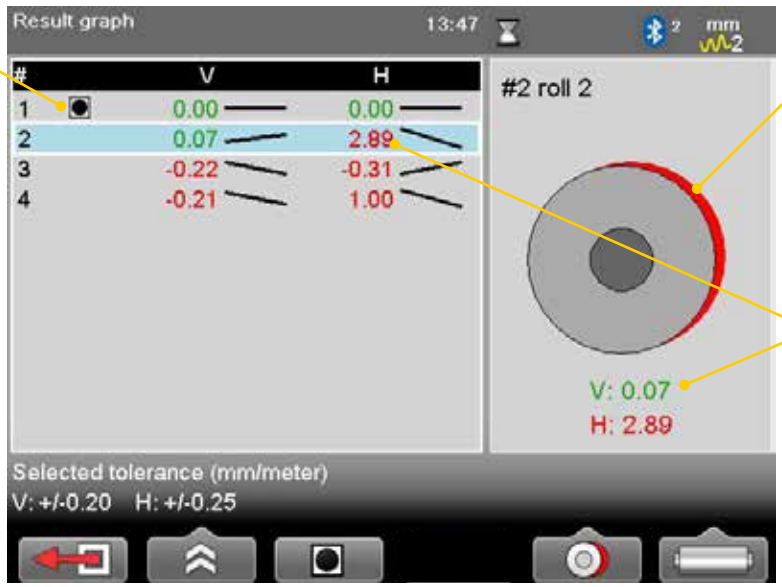
The position of the detector affects the measurement value when measuring parallelism. Therefore it is important to place the detector at the same angle at measurement position 1 and 2. At a 500 mm radius an angular deviation of 1° will cause a 0.1 mm difference in the measurement value.



# Result

## Table view

By default, the table view is displayed.



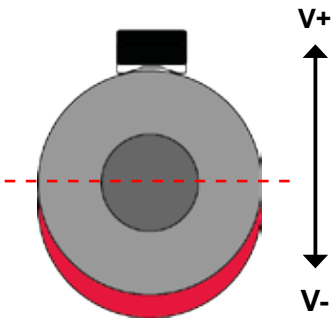

Roll set as reference

Red area indicates misalignment both in vertical and horizontal direction

Green = within tolerance
Red = not within tolerance
Black = no tolerance set

### Vertical

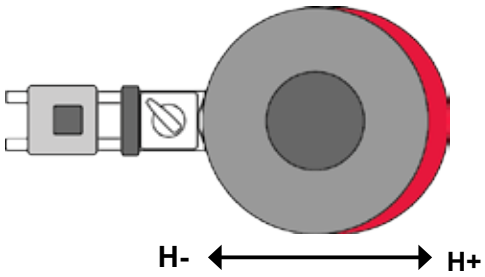
The vertical position is measured with the Precision level.




In this example, the roll has a negative vertical value.

### Horizontal

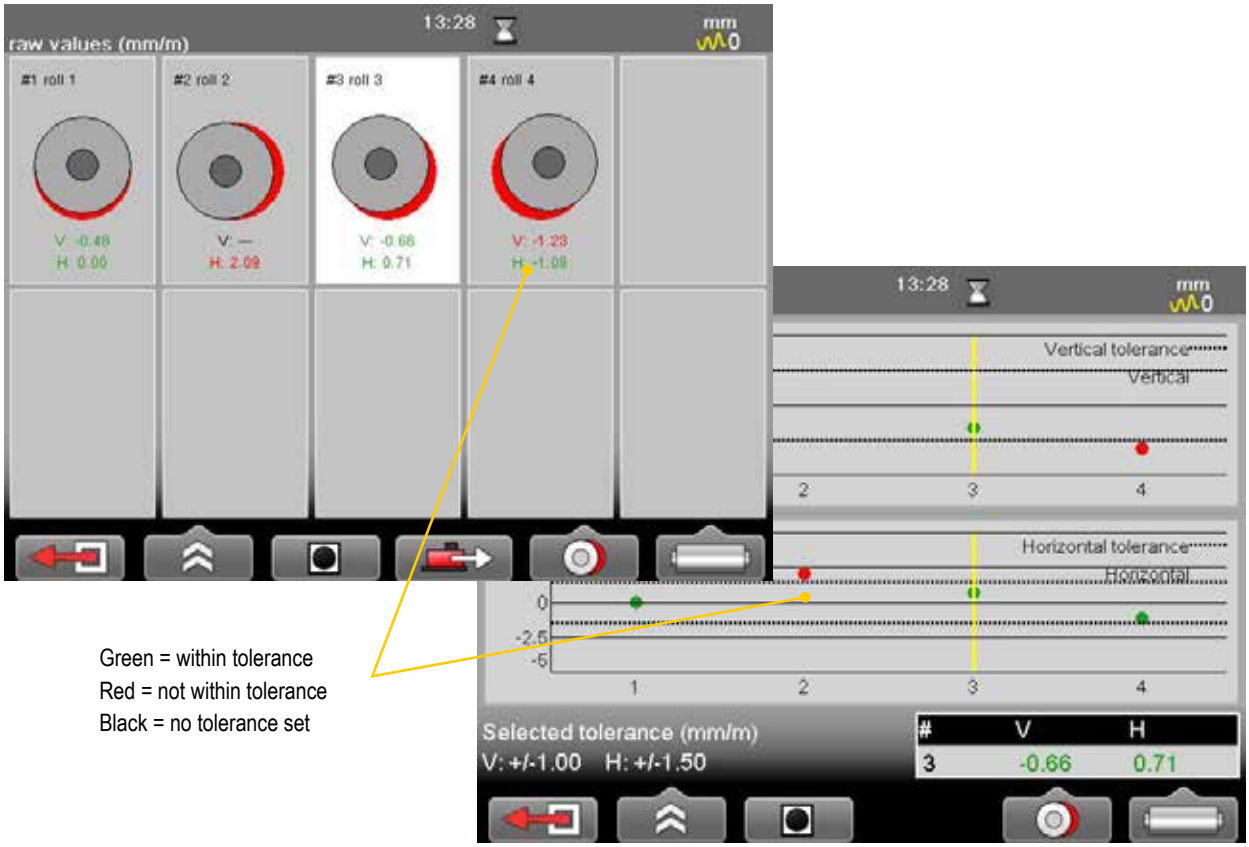
The horizontal position is measured with the Detector. When reading the horizontal value, face the laser transmitter from the roll. Then the value correspond to the measurement program.



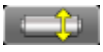

In this example, the roll has a positive horizontal value.

## Side and Graph view

The Side view and Graph view are great when you want to get an overview of all rolls.



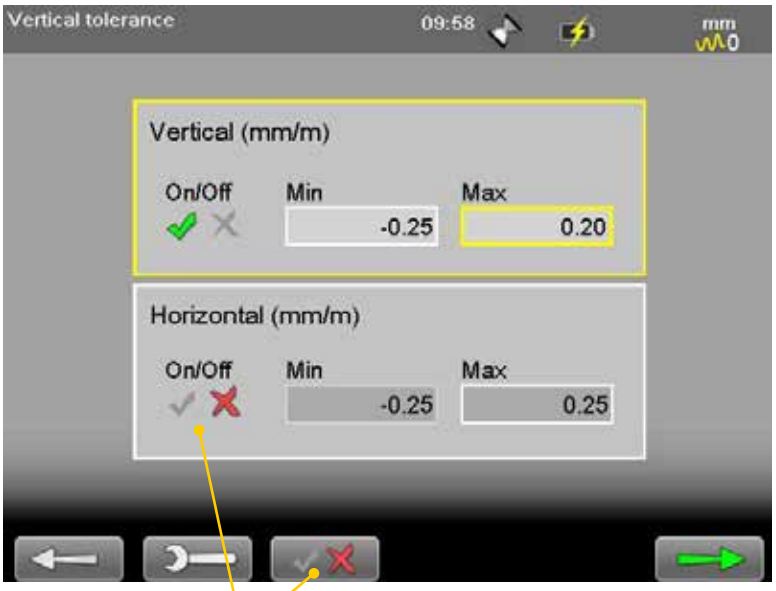

### Function buttons

| | |
|---|---|
|  | **Leave program**. |
|  |  *See "Control panel" on page 15.*<br>  *See "Measurement file handling" on page 11.*<br>  *See "Tolerance" on page 16.*<br>  Alter distance and/or name on roll.<br>  Turn the Precision level on/off. |
|  | Toggle button. Set selected roll as reference. Or press  . |
|  |  Show Result table view.<br>  Show Result side view.<br>  Show Result graph view. |
|  |  Add a new roll and measure it.<br>  Adjust and/or remeasure selected roll. |

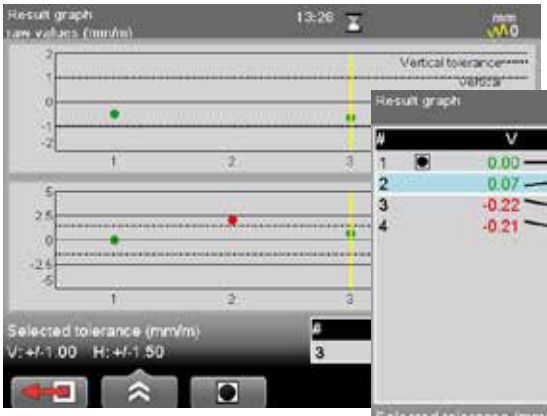
# Tolerance

Select  and  to set tolerance.

- The maximum value has to be greater than the minimum value.
- When you use Metric (mm) two decimals is possible
- When you use Imperial (inch/foot), four decimals is possible




It is possible to set tolerance and then deactivate it.
A deactivated tolerance is not used in the measurement.




Tolerance in graph view


Tolerance in table view

# TECHNICAL DATA

## System Easy-Laser® E970

*Part no. 12-0853*

For parallelism measurement of rolls and other objects in numerous applications. The E970 is especially suitable when many objects are to be measured and aligned, and when the distances are long. Any chosen object or the baseline can be used as a reference. For rolls with diameter 40 mm [1.6”] and larger. Maximum measurement distance with a standard system is 80 metres [260 feet].

| A complete E970 contains | |
|---|---|
| 1 | Display unit |
| 1 | Laser transmitter D22 incl. tilt table |
| 1 | Detector E7 |
| 1 | Bluetooth® unit for E7 |
| 1 | Cable 2 m |
| 1 | Cable 5 m, extension |
| 1 | Angular prism D46 |
| 1 | Parallelity kit |
| 2 | Tripods |
| 1 | Set of Rods 4x240 mm |
| 1 | Set of Rods 4x60 mm |
| 1 | Safety strap for laser transmitter |
| 1 | Manual |
| 1 | Measuring tape 5 m |
| 1 | USB memory stick |
| 1 | Battery charger (100–240 V AC) |
| 1 | Hexagon wrench set |
| 1 | Shoulder strap for display unit |
| 1 | Cleaning cloth for optics |
| 1 | Carrying case |

| System | |
|---|---|
| Relative humidity | 10–95% |
| Weight (complete system) | |
| Carrying case | Drop tested. Water and dust tight.<br>WxHxD: 620x490x220 mm [24.4x19.3x8.7”] |

# Display unit E51

*Part. no 12-0418*

In the Display unit you are guided through the measurement procedure and can save and analyze the results.

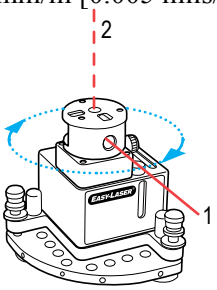

A Connection for charger
B USB A
C USB B
D Easy-Laser® measurement equipment

| **Display unit** | |
|---|---|
| Type of display/size | VGA 5.7” colour |
| Displayed resolution | 0.001 mm / 0.05 thou |
| Power management | Endurio™ system for unbroken power supply |
| Internal battery (stationary) | Li Ion, Not restricted PI967, 3.7 volt, 43Wh, 11600 mAh |
| Battery compartment | For 4 pcs R 14 (C) |
| Operating time | Appro. 30 hours (Normal operating cycle) |
| Connections | USB A, USB B, External, Easy-Laser® units, Network |
| Storage memory | >100,000 measurements |
| Help functions | Calculator, Converter |
| Environmental protection | IP Class 65 |
| Housing material | PC/ABS + TPE |
| Dimensions | WxHxD: 250x175x63 mm [9.8x6.9x2.5”] |
| Weight (without batteries) | 1030 g [2.3 lbs] |
| **Cables** | |
| Type | With Push/Pull connectors |
| System cable | Length 2 m [78.7”] |
| Extension system cable | Length 5 m [196.8”] |
| USB cable | Length 1.8 m [70.8”] |
| **EasyLink™ data base software for PC** | |
| Minimum requirements | Windows® XP, Vista, 7. For the export functions, Excel 2003 or newer must be installed on the PC. |

# Laser transmitter D22

*Part no. 12-0022*

Laser transmitter D22 can be used to measure flatness, straightness, squareness and parallelism. The laser beam can sweep 360° with a measurement distance of up to 40 metres [130´] in radius. The laser beam can be angled 90° to the sweep, within 0.005 mm/m [0.005 mils/INCH].




Option 1: the laser beam is used for a 360° sweep.
Option 2: the laser beam is angled at 90° to the sweep.


The release lever has to be removed before the D22 can be mounted on a tripod.

***Note!***

*The tilting screws on the levelling table of the D22 and D23 transmitter have to be operated carefully and according to instructions. See "Tilting screws".*

| **Laser transmitter D22** | |
|---|---|
| Type of laser | Diode laser |
| Laser wavelength | 635–670 nm, visible red light |
| Laser safety class | Class 2 |
| Output | < 1 mW |
| Beam diameter | 6 mm [1/4"] at aperture |
| Working area, range | 40-metre radius [130´] |
| Type of battery | 1 x R14 (C) |
| Operating temperature | 0–50° C |
| Operating time/battery | appro. 24 hours |
| Levelling range | ± 30 mm/m [± 1.7°] |
| 3 x spirit vials' scaling | 0.02 mm/m |
| Squareness between laser beams | 0.005 mm/m [1 arc sec.] |
| Flatness of sweep | 0.02 mm/m |
| Fine turning | 0.1 mm/m [20 arc sec.] |
| 2 x spirit vials for rotation | 5 mm/m |
| Housing material | Aluminium |
| Dimensions | WxHxD: 139x169x139 mm [5.47"x6.64"x5.47"] |
| Weight | 2650 g [5.8 lbs] |

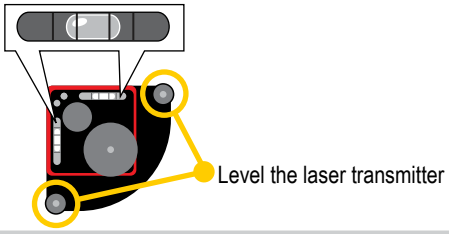
## Mount D22 in a spindle

With the laser transmitter mounted in the spindle, you will have a stable laser beam position. You can mount the D22 in two different directions, see images.

1. Block the spindle.
2. Adjust the laser beam using the adjustment screws on the tilt table.

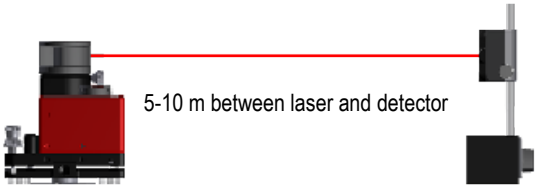
# Calibrate spirit levels on D22

You can calibrate the spirit levels on the D22 laser transmitter. This is done at factory, but should be redone prior to a job. The spirit levels are scaled to 0.02 mm/m [4 arc sec.]. By calibrating the spirit levels and then use them to level the laser transmitter, you can achieve an absolute levelling of the laser plane of approximately 0.005 mm/m \[1 arc sec.].



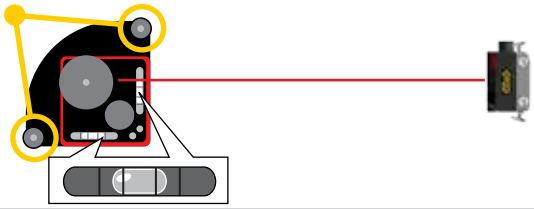

**Level**

1. Place the D22 laser transmitter on a flat and stable surface.
2. Level the laser transmitter according to the spirit levels. Use the tilting screws.



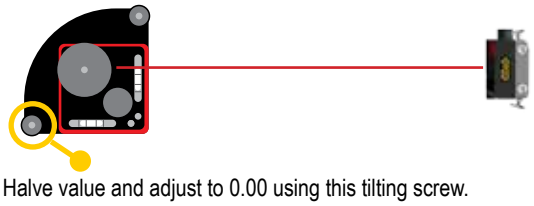

**Zero set**

3. Place the detector at a distance of 5-10 metres. Make sure that the laser beam hit the detector target.
4. Select V 0.00 H 0.00 to open the program Values.
5. Select 0 to zero set.



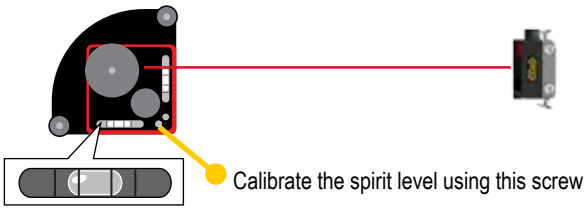

**Index and level**

6. Rotate the D22 180° and turn the laser beam to the detector.
7. Level the laser transmitter according to the spirit levels. Use the tilting screws.



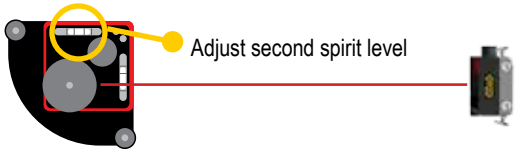

**Adjust value**

8. Select ½ to halve the value.
9. Adjust the V-value to 0.00 using the tilting screw.




**Calibrate spirit level**

10. Calibrate the spirit level using a hex key.
11. Repeat step 6–9 to control.

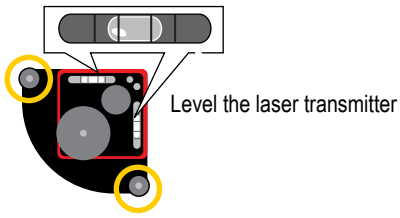



**Calibrate second spirit level**

12. Rotate the D22 90° and turn the laser beam to the detector.
13. Repeat step 4–12.

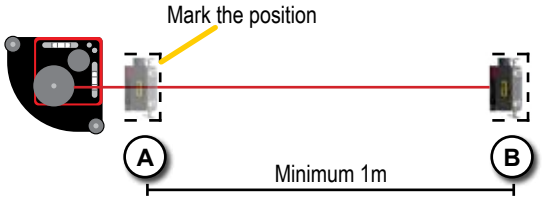
# Calibrate the vertical spirit levels on D22

Before you calibrate the vertical spirit level, you need to calibrate both horizontal spirit levels.



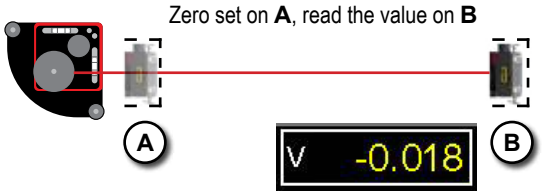

**Level horizontally**

1. Place the D22 laser transmitter on a flat, clean and stable surface.
2. Level the laser transmitter according to the spirit level. Use the tilting screws.



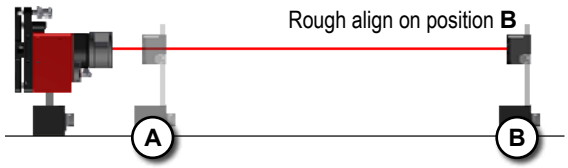

**Rough align**

3. Select V 0.00 H 0.00 to open the program Values.
4. Place the detector on position **A** and move the detector until the laser beam hits the centre.
5. Mark the position of the detector.
6. Move the detector to position **B** and move the detector until the laser beam hits the centre.
7. Mark the position of the detector.



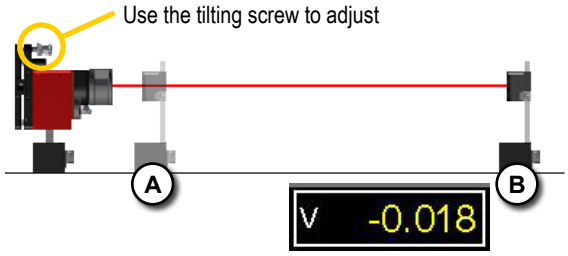

**Zero set and read value**

8. Move the detector back to position **A**.
9. Select 0 to zero set.
10. Move the detector to position **B**. Read and note the **vertical** value. In this example -0.018.




**Mount the D22 vertically**

11. Mount the D22 vertically using the pin (01-0139) or a plate (01-0874).
12. Rough align the detector on position **B** (± 0.1mm).




**Zero set and adjust**

13. Move the detector back to position **A**.
    Select 0 to zero set.
    Move the detector to position **B**.
    Adjust until you have the same value as in step 10. Use the tilting screws.
17. Repeat steps 13–16 until you have 0 on position **A** and the right value on position **B**.


**Calibrate spirit level**

18. Calibrate the spirit level using a hex key.

## Tilting screws

The tilting screws on the levelling table of the laser transmitter have to be operated carefully and according to instructions.

### Visual rough alignment to (detector) target

Check the position of the fine adjustment screw. It should be in its nominal position appro. 2.5 mm.

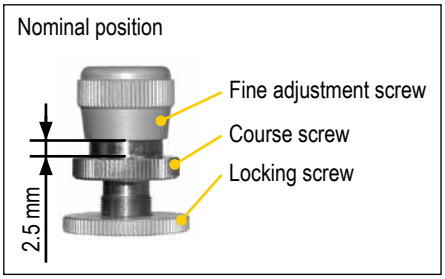
1. Loosen the locking screw.
2. Adjust with the course screw to wanted position.
3. Tighten the locking screw.

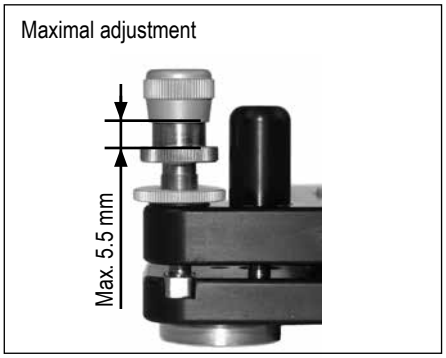
### Digital fine adjustment to detector and read values

1. Check so that the locking screw is tightened.
2. Adjust with the fine adjustment screw to wanted value.

***Note!***

*The fine adjustment screw must not exceed its maximum position. That might damage the threads of the screw.*



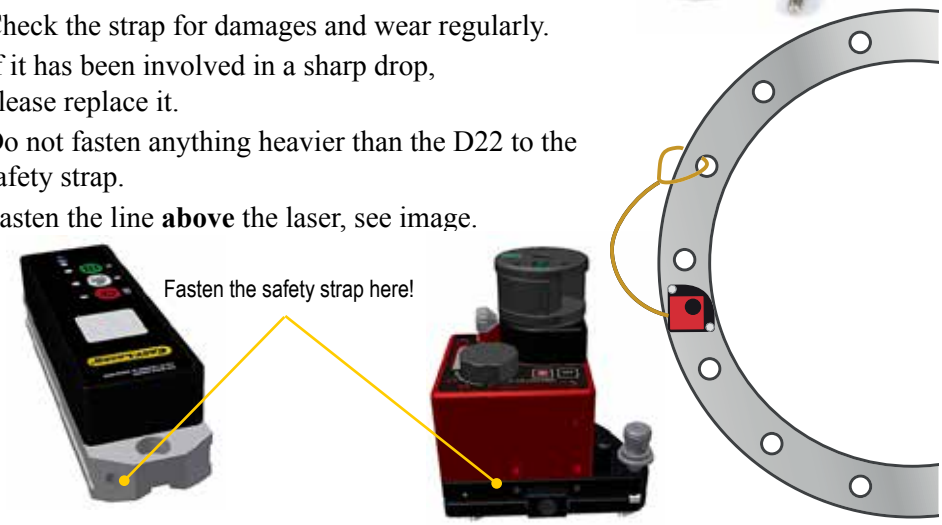

## Safety strap

*Part. no 12-0915*

Use the safety strap to prevent equipment from falling and causing injuries. Used together with laser transmitter D22, D23 and the Digital Precision Level E290.

***Note!***

- Check the strap for damages and wear regularly.
- If it has been involved in a sharp drop, please replace it.
- Do not fasten anything heavier than the D22 to the safety strap.
- Fasten the line **above** the laser, see image.



# Detector E7

*Part no. 12-0752*

Built-in 360° electronic inclinometer. Two connectors for making it possible to connect two detectors or more in series. Normally mounted on rods, but has many additional mounting possibilities thanks to threads on two sides.

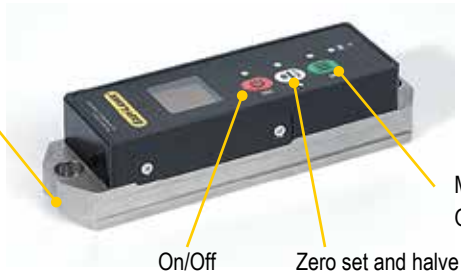
| **Detector E7** | |
|---|---|
| Type of detector | 2 axis PSD 20x20 mm [0.78” sq] |
| Resolution | 0.001 mm [0.05 mils] |
| Measurement error | <1% +1 digit |
| Inclinometers | 0.1° resolution |
| Thermal sensors | ± 1° C accuracy |
| Environmental protection | IP Class 66 and 67 |
| Operating temperature | -10–50 °C |
| Internal battery | Li Po |
| Protection | No influence from ambient light |
| Housing material | Anodized aluminium |
| Dimensions | WxHxD: 60x60x42 mm [2.36x2.36x1.65”] |
| Weight | 186 g [6.6 oz] |

# Precision level E290

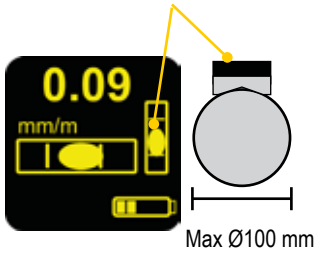
*Part no. 12-0846*

**Note!**
Machined surface. Keep clean and dry. Grease surface when not in use.

**Note!**
To reach full accuracy, make sure that the temperature of E290 has stabilized in the measurement environment.




Use the small indicator **only as a guide** to ensure that the Precision level is placed correctly on top of the measurement object.




When measuring a shaft using the Precision level, we recommend that the shaft is no larger than 100 mm in diameter.

## Change unit

Press and select “Unit”. Choose from the following units: mm/m, inch/foot, degrees or arc sec. Use to move in the menu.

## Calibration

The Precision level is calibrated on the factory. To calibrated on site:

1. Place the Precision level on a roll (or the object you are going to measure). Make a mark to ensure that you place the Precision level in the same position.
2. Press and select “Calibration”.
3. Wait until the value has stabilized. Press .
4. Rotate the Precision level 180º. Wait until the value has stabilized.
5. Press . The Precision level has been calibrated. The calibration is saved even when the Precision level is switched off.

## Factory recall

Press and select “Fac. recall” to return to factory settings.

## Visible

By default the precision level is set to visible. This means it will be shown when searching for Bluetooth units. To save energy, the precision level is set to not visible once a Bluetooth connection is established.

## Connect to Display unit

Connect the Precision level to the Display unit via Bluetooth®.

## Safety strap

Use the safety strap to prevent equipment from falling and causing injuries.


| Precision level E290 | |
|---|---|
| Resolution | 0.01 mm/m (0.0001°) |
| Range | ± 2 mm/m |
| Measurement error | Range ±1mm/m: accuracy within ±0.02mm/m of displayed value.<br>Range ±2mm/m: accuracy within ±0.04mm/m of displayed value. |
| Type of display | OLED |
| Wireless communication | Class I Bluetooth® wireless technology |
| Environmental protection | IP Class 67 |
| Operating temperature | -10–50 °C |
| Internal battery | Li Po, 3.7 V, 2.5 Wh, 680 mAh |
| Material | Hardened, polished and corrosion resistance steel, ABS plastics |
| Dimensions | WxHxD: 149x40x35 mm [5.9x1.6x1.4”] |
| Weight | 530 g [18.7oz] |