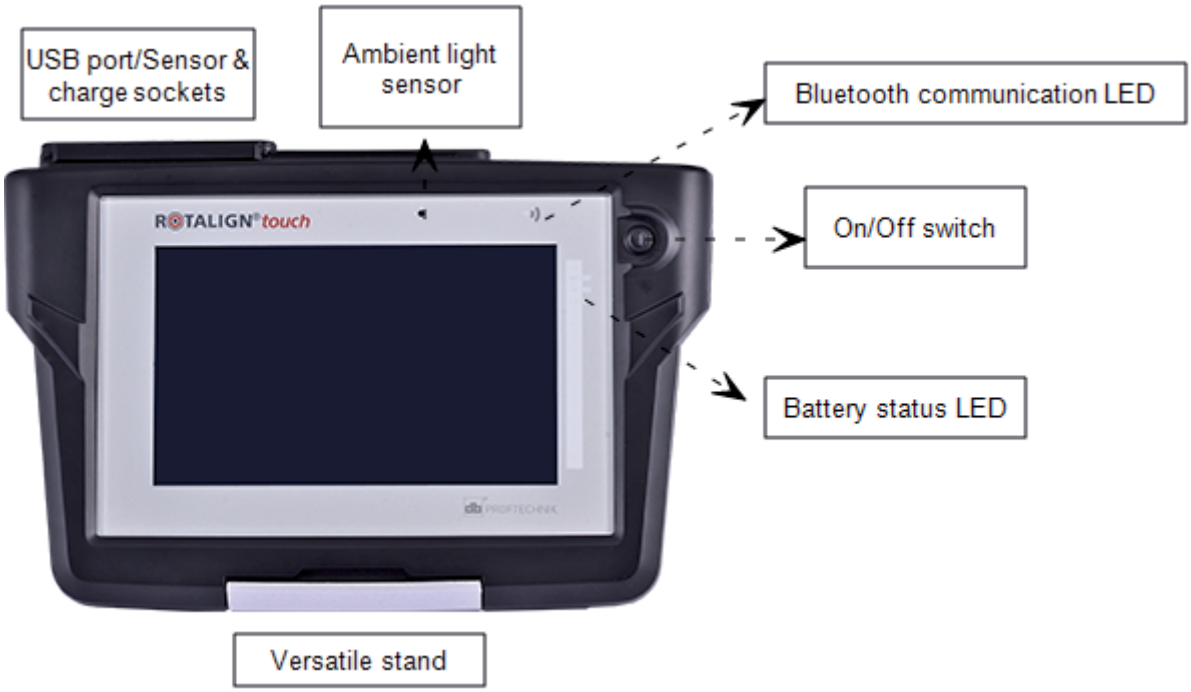
Table of Contents

ROTALIGN touch computer

ROTALIGN touch computer has a multi-touch screen and is operated by tapping and swiping. The computer is turned on by pressing and holding down the On/Off switch at the front of the computer until it beeps.

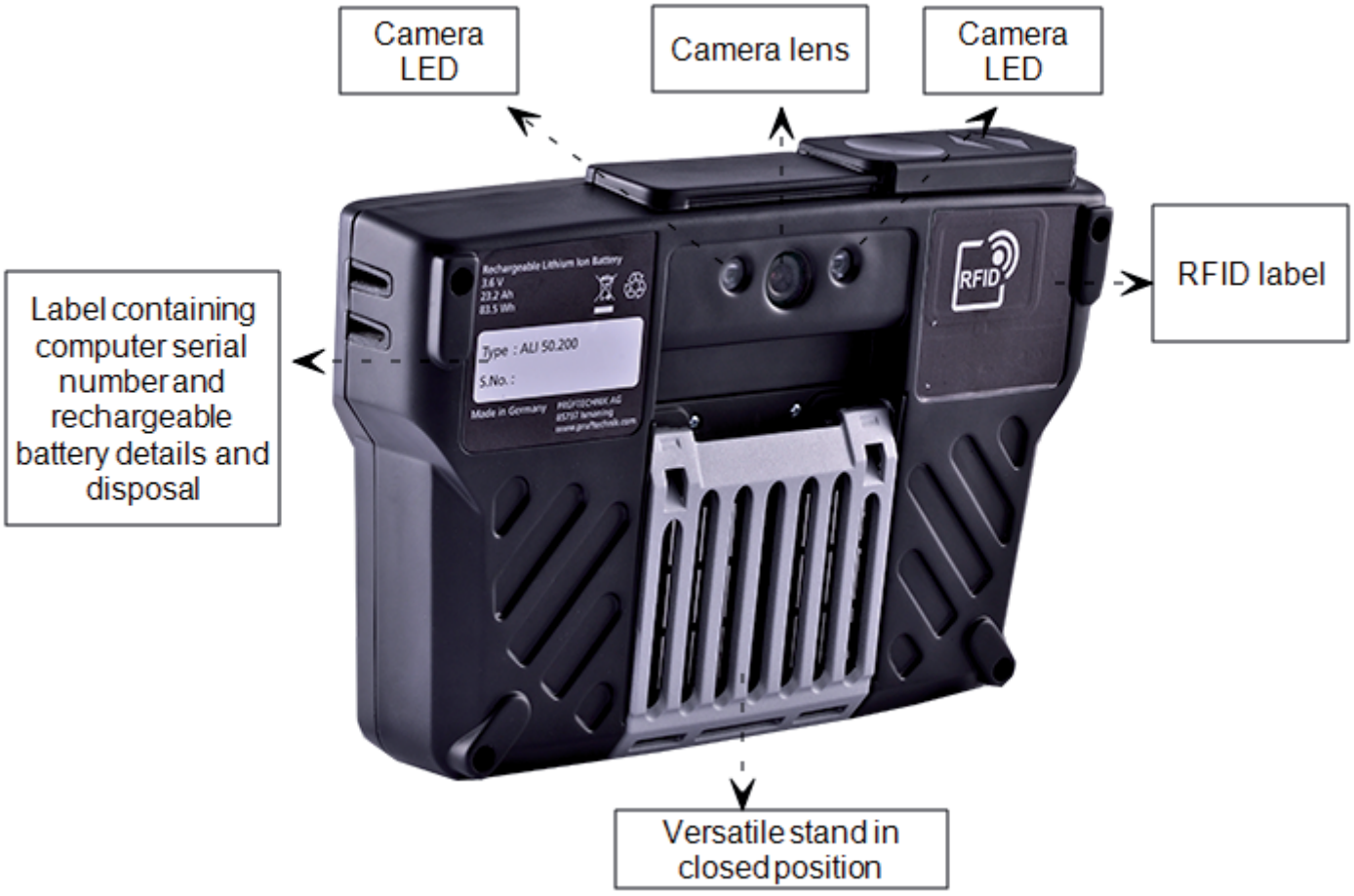


The computer is turned off by tapping the On/Off icon [ ] appearing in the home screen.

Computer interfaces, built-in camera, and labelling

ROTALIGN touch computer has three interfaces housed under the sliding dust cap located at the top of the computer.

ROTALIGN touch computer has a built-in camera at the back of the unit which may be used to capture machine images.

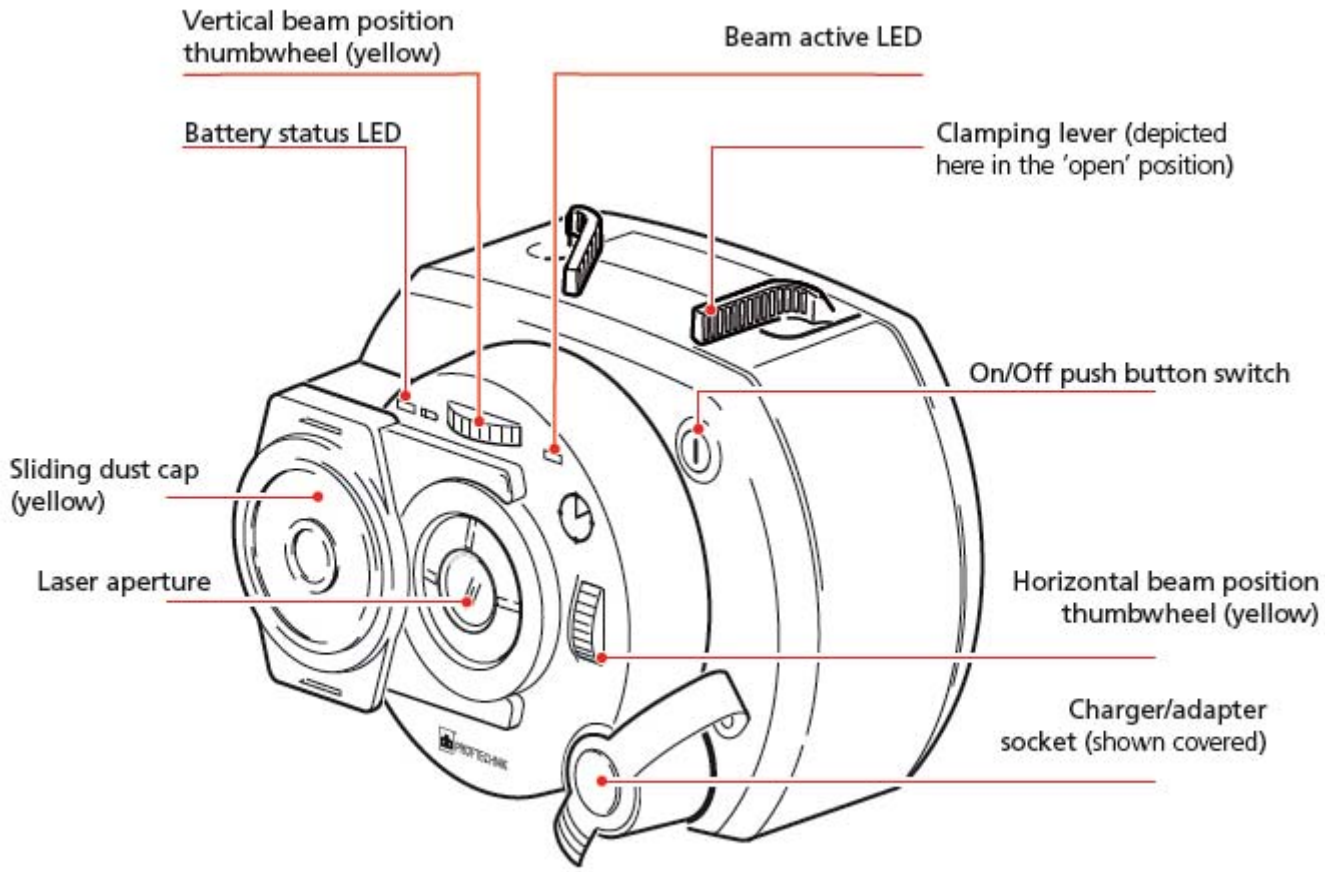


sensALIGN laser

The semiconductor laser diode emits a ray of red light (wavelength 635 nm) which is visible where it strikes a surface. The Class 2 laser beam is emitted with a diameter of approx. 5 mm (3/16”).

sensALIGN laser is turned on by pressing and holding the On/Off switch briefly. The “beam active” LED lights red.

With sensALIGN laser on, DO NOT stare into the laser beam!



The beam is adjusted during set-up by changing its vertical and horizontal angles using the position thumbwheels, so that the beam strikes the sensALIGN sensor lens perpendicular to the lens surface.

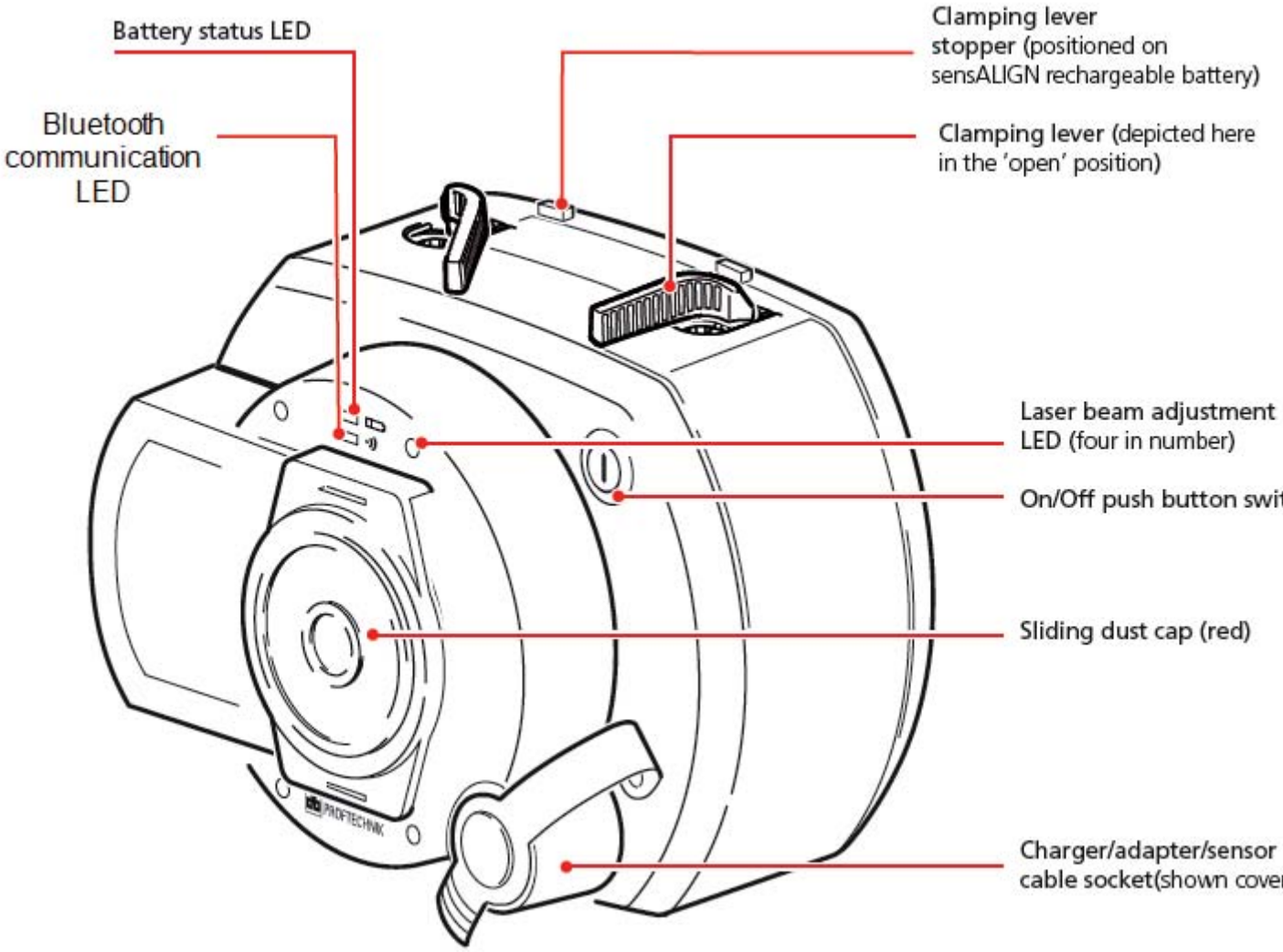
sensALIGN laser is water and dust resistant (IP 65). The internal optics and electronics are internally sealed, preventing possible contamination.

Information regarding the battery status, the rotational angle, the temperature and the serial number of the sensALIGN laser are transmitted through the laser beam into sensALIGN sensor. This information is further relayed to ROTALIGN touch computer.

sensALIGN laser is powered using sensALIGN rechargeable battery (3.7 V 1.6 Ah Lithium Polymer rechargeable battery). The rechargeable battery is attached to the laser and is to be charged only using the sensALIGN charger/adapter , and is possible only when the battery is attached to the laser.

sensALIGN sensor

sensALIGN sensor contains two position detectors, which measure the exact position and inclination of the laser beam as the shafts are rotated. Integrated in the sensor is Bluetooth technology for wireless transmission of measurement data to ROTALIGN touch computer. sensALIGN sensor also transmits sensALIGN laser data to the computer. The intelligent sensALIGN sensor technology is used to determine shaft rotational angle and machine vibration.



Positioned at the front of sensALIGN sensor are following indicator LEDs:

›› Battery status LED

›› Bluetooth communication LED

›› Four beam adjustment LEDs

Understanding the beam adjustment LEDs

The four beam adjustment LEDs provide additional help when adjusting the laser beam position on sensALIGN sensor position detectors. The LEDs indicate the angle and position at which the laser beam enters the sensor. The LEDs blink either red or green depending on the angle at which the laser beam strikes the sensor. Green indicates a small angle while red indicates a large angle that must be corrected before beginning measurement.

Activity	**Laser beam adjustment LEDs**
Switch on sensALIGN sensor	All four LEDs light up red then continue to blink every two seconds
Laser beam striking dust cap [laser off]	All four LEDs blink red every second
Laser beam entering sensor with a large angular deviation	One or more LEDs blinks red every second
Laser beam entering sensor with little or negligible angular deviation but with an offset	All four LEDs blink green twice every second
Laser beam entering sensor with neither appreciable angular deviation nor offset	All four LEDs blink green every second

Adjusting the laser beam

1. With the lens covered, let the laser beam strike the centre of the sensALIGN sensor dust cap.

2. Slide the dust cap to open the lens. Observe the four laser beam adjustment LEDs while adjusting the laser beam using the vertical and horizontal beam positioning thumbwheels. The thumbwheels are used to adjust both the horizontal and vertical laser beam angles.

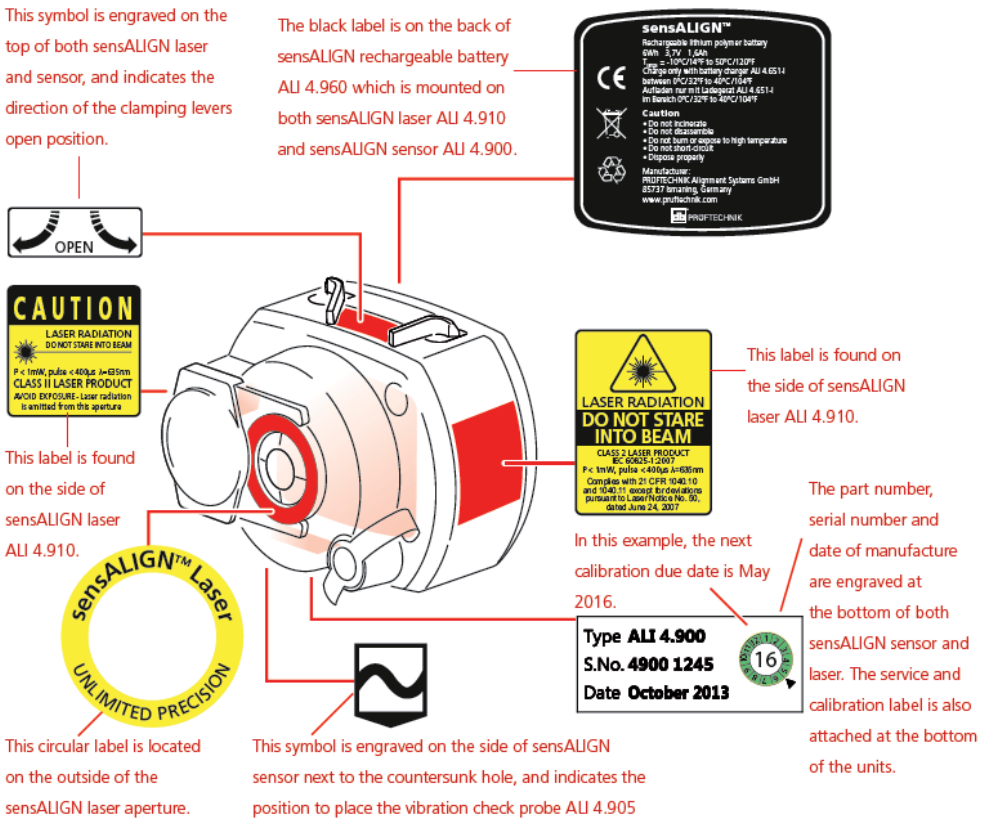
3. Carry out this adjustment until all four LEDs are blinking green once every second.

4. If the LEDs are blinking green twice every second, the angle at which the laser beam enters the sensor is correct, but an offset is present. Eliminate the offset by sliding back the sensALIGN sensor dust cap to cover the lens, then loosen the chain type bracket supporting sensALIGN sensor and move the sensor sideways. At the same time, release the sensALIGN sensor clamping levers and move the sensor upwards and downwards until the laser beam is centred on the dust cap. During this adjustment, DO NOT touch sensALIGN laser.

5. Open the lens by sliding the dust cap and check the blinking of the four LEDS. If all four are blinking green once every second, then the laser beam has been correctly centred.

sensALIGN laser and sensor labelling

The labelling diagram represents both sensALIGN sensor and sensALIGN laser. It shows the engraved symbols, markings and labels as they appear on the respective measurement head. The laser safety labels are affixed on the housing of sensALIGN laser at the positions shown in the diagram. The rechargeable battery label is located on the rear of sensALIGN rechargeable battery.

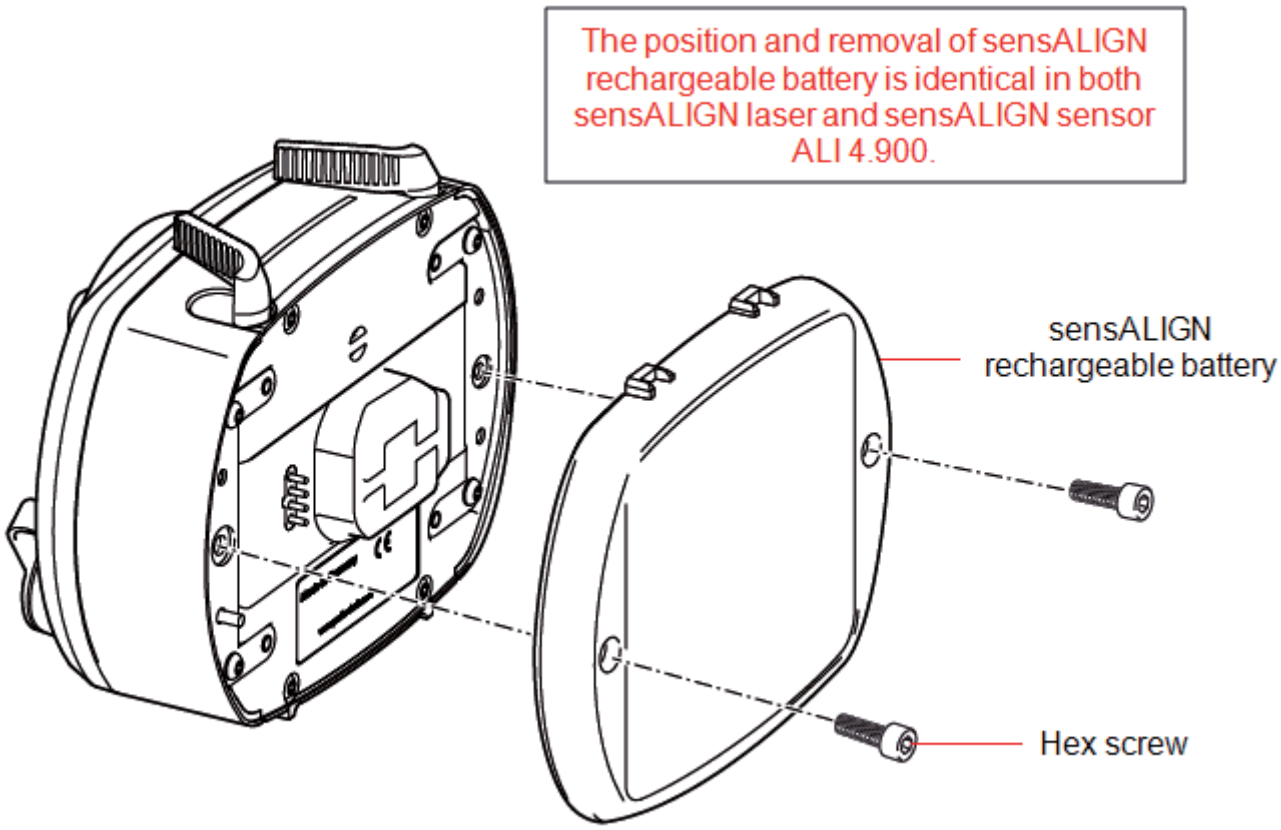


sensALIGN rechargeable battery

Both sensALIGN laser and sensALIGN sensor are powered using the sensALIGN rechargeable battery. The battery is charged via the charger/adapter socket using the sensALIGN charger/adapter. If the battery capacity is greater than 50% [acceptable capacity for measurement], the battery status LED on both sensALIGN laser and sensor lights up green for 2 seconds on switching on. During the charging process, the battery status LED blinks green. When the battery is fully charged, the LED lights steady green if the charger remains connected.

Activity	sensALIGN laser battery status LED	sensALIGN sensor battery status LED	sensALIGN laser beam active LED
Switch on	Lights up green for 3 seconds when battery run time is > 10 hrs	Lights up green for 3 seconds when battery run time is > 10 hrs	Lights steady red when in beam finder mode
	Blinks green every 3 seconds when battery run time is between 5 – 10 hrs	Blinks green every 3 seconds when battery run time is between 1 – 5 hrs	Blinks red when in measurement mode
	Blinks red every 3 seconds when battery run time is between 1 – 5 hrs	Blinks red every 3 seconds when battery run time is insufficient for longer measurements	Note that measuring can take place with both modes
	Blinks red constantly when battery run time is < 1 hr	Blinks red constantly when battery run time is < 1 hr	

	Blinks green when charging	Blinks green when charging	
Charging battery	Lights steady green when fully charged	Lights steady green when fully charged	LED off
	Lights red when a failure occurs during charging	Lights red when a failure occurs during charging	



To replace the rechargeable batteries, use the provided 2.5 mm allen key [0 0739 1055] to undo the two hex screws that affix the battery to either sensALIGN laser or sensor.

Used batteries should be disposed of in an environmentally-sound manner!

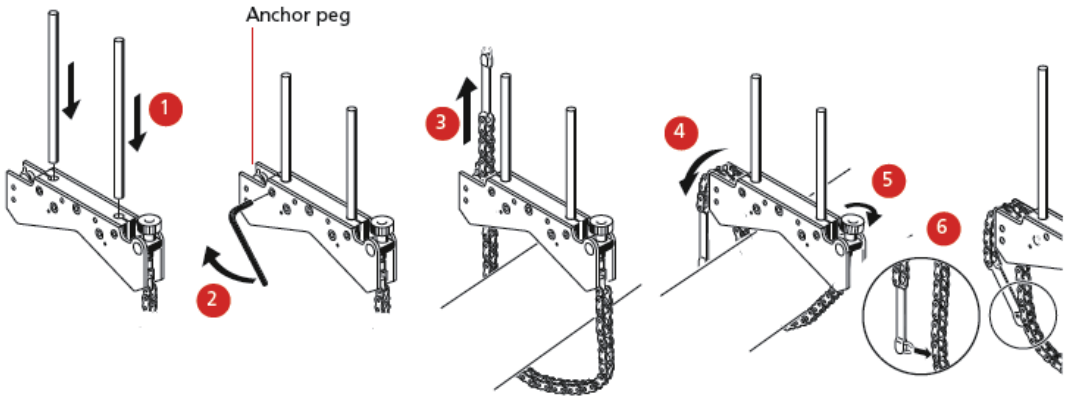
Mounting components

Mounting brackets

Mount the brackets on either side of the coupling on either the shafts or on the solid coupling hubs, and both at the same rotational position.

Please note the following in order to obtain the highest possible measurement accuracy and to avoid damage to equipment:

Ensure that the brackets fit solidly onto their mounting surfaces! Do not use self-constructed mounting brackets, or modify the original bracket configuration supplied by PRÜFTECHNIK (for example, do not use support posts longer than those supplied with the bracket).



1. Choose the shortest support posts which will still allow the laser beam to pass over or through the coupling. Insert the support posts into the bracket.

2. Fasten them in place by tightening the hex screws on the sides of the bracket frame.

3. Place the bracket on the shaft or coupling, wrap the chain around the shaft and feed it through the other side of the bracket: if the shaft is smaller than the width of the bracket frame, insert the chain from the inside of the bracket as shown in the diagram; if the shaft is larger than the bracket width, insert the chain into the frame from the outside.

4. Catch the chain loosely on the anchor peg.

5. Turn the bracket thumbscrew to tighten the assembly onto the shaft.

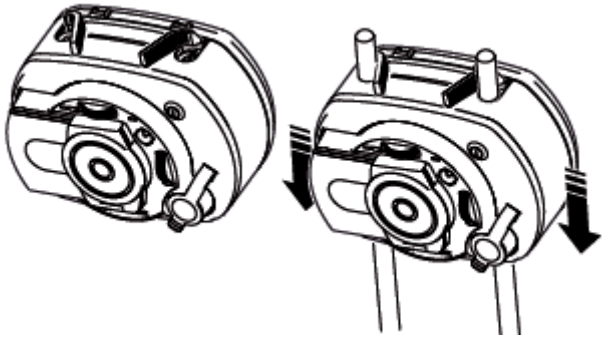
6. Clip the loose end of the chain back onto itself.

The bracket should now be tight upon the shaft. Do not push or pull on the bracket to check, since this could loosen its mounting.

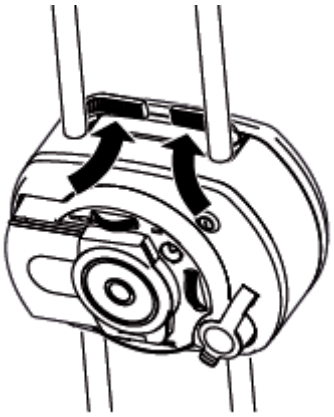
To remove the brackets, loosen the thumbscrew, then remove the chain from its anchor peg.

Mounting sensALIGN sensor and laser

Mount sensALIGN laser on the support posts of the bracket fixed on the shaft of the left machine (usually reference machine), and sensALIGN sensor on the support posts of the bracket fixed on the shaft of the right machine (usually moveable machine) – as viewed from normal working position. Before mounting both sensALIGN laser and sensor, make sure that the yellow clamping levers are in the open position by placing them to the front. This enables components to slide onto the support posts.



Fix both sensALIGN laser and sensor onto the respective support posts by locking the yellow clamping levers. Lock the levers by pushing them backwards until they rest on the stoppers.

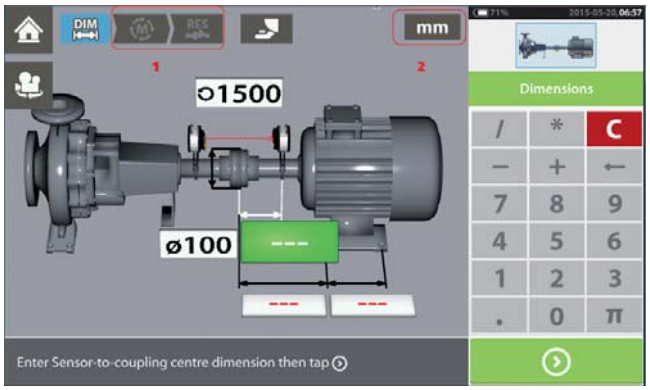


Ensure that the laser can pass over or through the coupling and is not blocked.

Both sensALIGN laser and sensor should be at the same height, as low as possible, yet just high enough for the beam to clear the coupling flange. They should also visually appear to be rotationally aligned to each other.

Make the final adjustments, loosening the brackets slightly if necessary, then rotating them and re-tightening.

Dimensions screen



1) Grayed out icons are disabled within the active screen. The 'Measure' icon is enabled after all dimensions have been entered.
2) Tap the measurement units icon mm *to set desired units.*

Tap the dimension fields and enter all required dimensions. The user may elect to tap the

'Next' button to proceed to enter next dimension. Dimensions may be entered only when the dimension field is highlighted green.

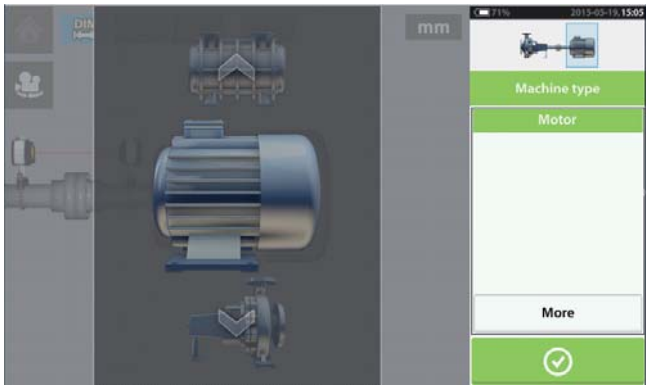
The rotate view icon is used to rotate the view of the machines and mounted components on the display.

Machine and coupling properties may be edited by tapping the respective machine or coupling.

When all required dimensions have been entered, the 'Measure' icon appears.

Tap to proceed with measurement.

Machine properties



Swipe the machine carousel up or down to select desired machine. Position desired machine at the centre of the carousel then tap to confirm selection and return to the dimensions screen.

Thermal growth[1]

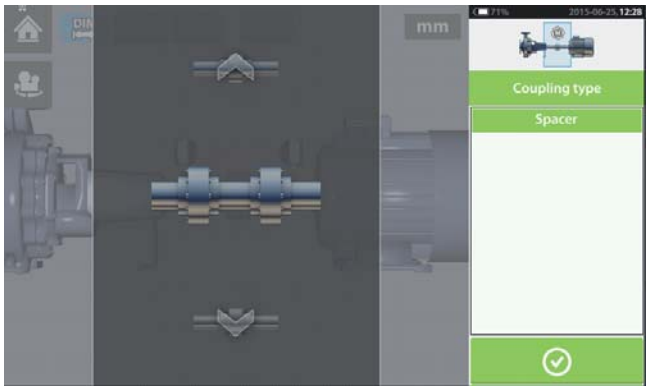
The Thermal growth screen is accessed by tapping "More".

Thermal growth values can be entered only when the type of mounting is either machine feet or bearing or V-shaped support.

To enter any specified thermal growth value at the required feet position, tap the corresponding value box then proceed to enter the thermal growth value using the onscreen keyboard. Cycle through the value boxes using  or alternatively tapping the desired feet position.

Thermal growth values are activated by tapping "**On**". When thermal growth values are enabled, the corresponding machine [1]within the inset at the top-right corner appears in orange. After thermal growth values have been entered, tap  to proceed.

Coupling properties

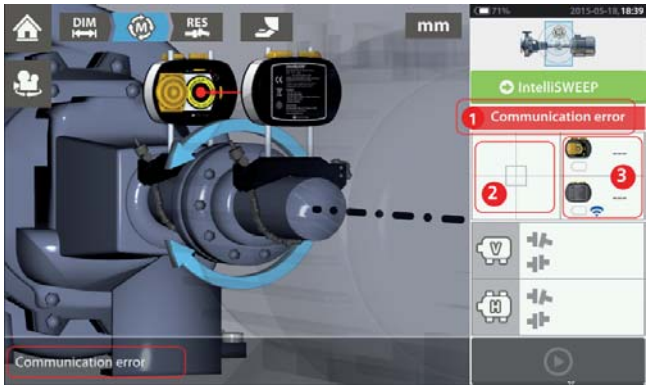


Tap either the top or bottom arrow to select desired coupling type.

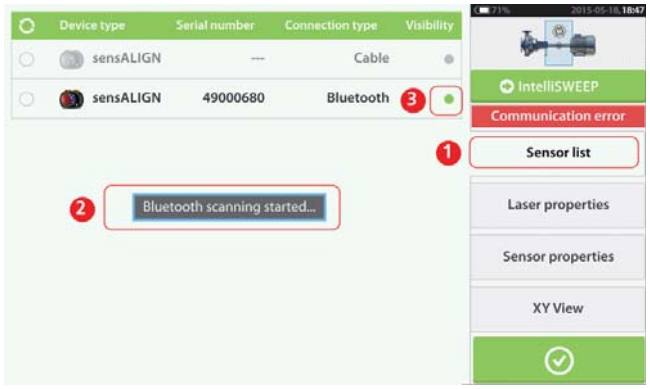
[1]Movement of shaft centerlines associated with or due to a change in machinery temperature between the idle and operating conditions.

Initializing sensor

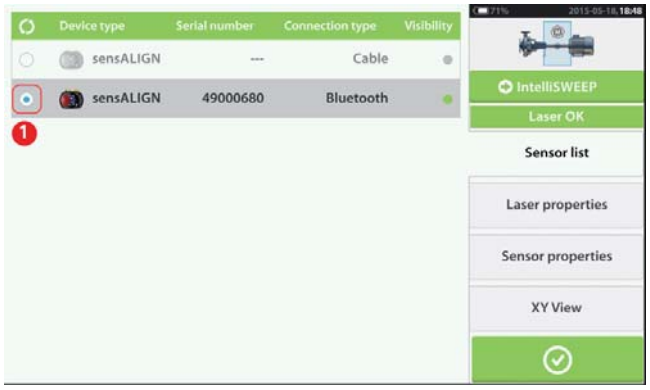
The hint "Communication error" [1] suggests that the sensor has not been initialized although the laser beam may have been correctly adjusted.



Tap either the detector area [2] or the sensor/laser area [3]to access the menu item 'Sensor list'.



Tap menu item 'Sensor list' [1] to view scanned sensors. The hint 'Bluetooth scanning started' [2] appears during the scanning process. As soon as the sensor is detected, it is listed down and a green bold dot [3] appears next to the detected sensor.



Initialize the sensor by tapping the listed sensor. A bold blue dot [1] signifes that sensor is initialized.

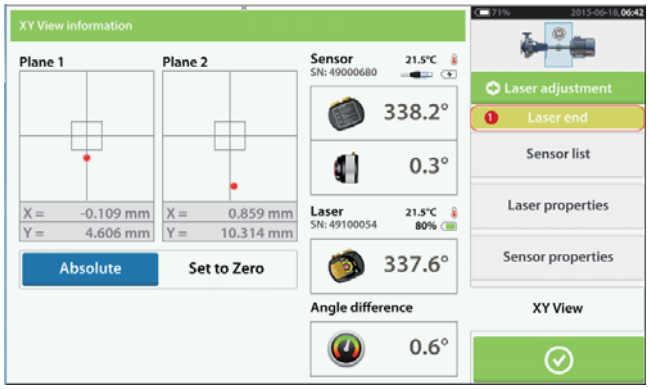
Laser beam adjustment

Here is some general text for a topic. Replace this with your own content.

XY View

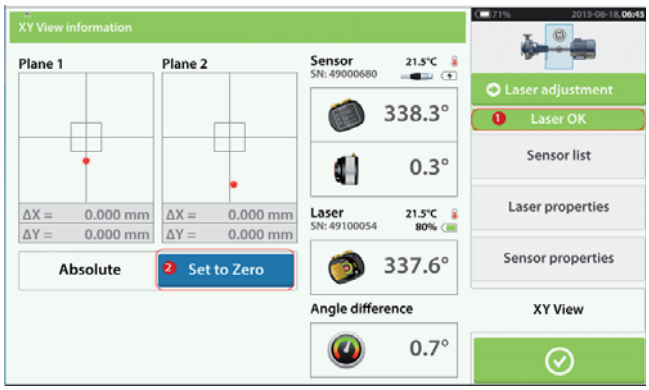
The XY View function is used to facilitate the centering of the laser beam on the two sensALIGN sensor detector planes before proceeding with measurement.

1) Tap the detector area shown to directly access the XY View screen.
2) The XY View screen may be accessed indirectly using the menu item "XY View" which appears when the "sensor/laser area is tapped.
3) The XY View screen may be accessed indirectly using the menu item "XY View" which appears when the laser is tapped.



The two sensor detector planes are displayed on the XY View screen. Center the laser beam dots in both planes using both beam position thumbwheels. In some cases it may be necessary to move sensALIGN sensor along the support posts or sideways by loosening the chain type bracket and slightly rotating it.

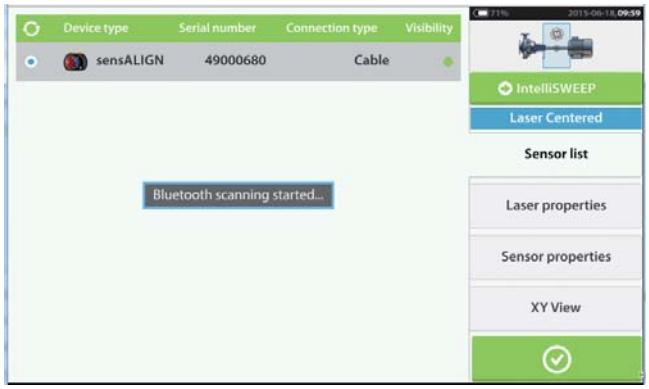
The "Set to zero" function may be used to check the effect of environmental and machinery vibration on the measurement. Note that the "Set to zero" is active only when the laser beam status [1] is "OK" or "Centered".



If the laser beam status is "OK" or "Centered" [1] tap "Set to zero" [2] to set the XY values of the two detector planes to 0,0. These values are then monitored to check the stability of the values. Tap "Absolute" to return to the absolute values.

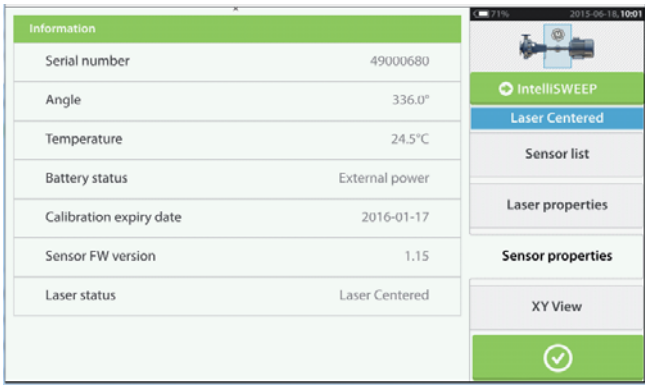
Note that the menu items on the screen may be used to display following items:

Sensor list – displays serial number of sensors detected or previously used, as well the interface used for connection



Laser properties – displays detailed information of sensALIGN laser in use

Sensor properties – displays detailed information of sensALIGN sensor in use


Information
Serial number
49000680
Angle
336.0°
Temperature
24.5°C
Battery status
External power
Calibration expiry date
2016-01-17
Sensor FW version
1.15
Laser status
Laser Centered
IntelliSWEEP
Laser Centered
Sensor list
Laser properties
Sensor properties
XY View

Measurement modes

The following measurement modes are available for horizontal machine configurations:

IntelliSWEEP – This is the measurement mode used to measure standard coupled machines. It detects error influences such as coupling play, rough rotation and environmental vibration, and automatically eliminates the induced errors.

Multipoint – This is the mode used to measure nonrotatable shafts, sleeve bearings [journal (radial) bearings], white metal bearings , shafts that are hard to turn, shafts with herky-jerky rotation, situations with long spans or severe misalignment that will readily cause the beam to fall out of range

Static – This mode is used to measure uncoupled shafts.

The desired measurement mode is selected while in the measurement screen.

Tap the measurement mode header [1] to access the measurement mode carousel.

Tap either the top or bottom arrow to select desired measurement mode.

In the above example, Multipoint measurement has been selected. The quality of the measurement may be displayed either as a measurement **standard deviation**[1] (SD) or **measurement quality**[2] factor. The averaging is set by tapping the 'Averaging' button.

Averaging

In certain industrial conditions, it may be necessary to increase the number of measurements (recorded laser pulses) to be averaged when taking readings to attain the desired accuracy. Particular cases include environments with increased machinery vibration. An increased averaging also improves the accuracy when measuring sleeve bearings, white metal bearings and journal bearings.

Averaging is possible in ‘point’ measurements such as ‘Multipoint’ and ‘Static mode’.

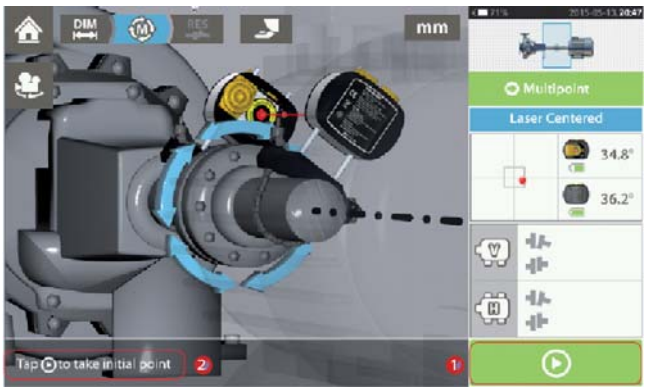
Set the averaging by tapping the 'Averaging' button [1]. A scale [2] used to set the averaging value appears on the screen. Tap desired averaging value which then appears in the 'Averaging' button [1].

[1]Standard deviation describes how closely a group of datra points are clustered around the average of those data points. The smaller the standard deviation, the better the quality of the data collected.
[2]displays quality of measurement based on following measurement and environmental factors: rotataion angle, ellipse standard deviation, environmental vibration, rotation evenness, angle rotation inertia, rotation direction, rotational speed and filter output

Multipoint measurement

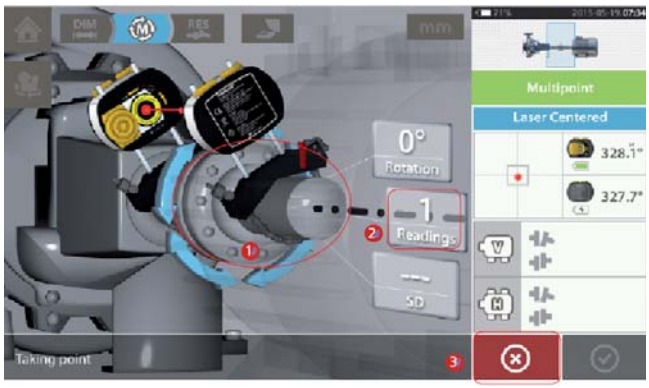
This mode is used to measure shafts which are either difficult to turn continuously or allow measurement only in certain rotational positions. The method can also be used to measure uncoupled shafts, nonrotatable shafts, sleeve bearings, white metal bearings and journal (radial) bearings, shafts that are difficult to turn, shafts with herky-jerky rotation, situations with long spans or severe misalignment that will readily cause the beam to fall out of range.

If not yet completed, enter machine dimensions, then center laser beam.



1) 'Next' icon – tap to take initial measurement point
2) Hint to tap 'Next' icon

Tap the 'Next' icon to take the initial measurement point then rotate the shafts in their normal direction of operation, to the next measurement position.



1) Coupling area to be tapped to take measurement
2) Number of points already taken
3) 'Cancel' icon – used to cancel current measurement and start new measurement

Tap the coupling area [1] to take the measurement point. Rotate shafts further, taking measurement points by tapping the coupling area [1]. Take as many measurement points through as wide a rotational angle as possible.

1) Rotational arc showing points taken and rotational angle covered by the shafts. The arc changes colour from red [<60°] -> yellow -> green [>70°]
2) Rotational angle completed by the shafts for current measurement
3) Number of measurement points taken for current measurement
4) Standard deviation attained in current measurement
5) 'Proceed' icon – tap to continue to view measurement results

The ‘Proceed’ icon (whose colour changes with the rotational arc) becomes active after three measurement points have been taken.

The horizontal and vertical coupling results are displayed when the shafts are rotated at least over 60° and a minimum of three measurement positions are recorded.

Tap the ‘Proceed’ icon to continue to view results or to re-measure.

If required, Live Move may be accessed via the 'Results' screen.

Live Move screen

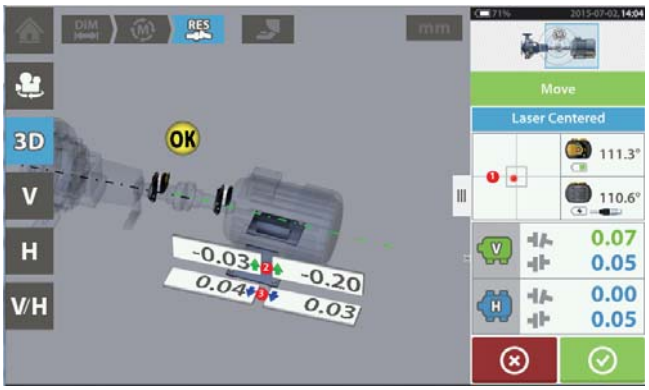
Live Move is monitored in both horizontal (H) and vertical (V) planes simultaneously.

1) Tap the 'V' icon to follow the vertical foot corrections.
2) Tap the 'H' icon to follow the horizontal foot corrections
3) Tap the 'V/H' icon to follow both vertical and horizontal foot correction in 2-D simultaneously.
4) Arrows indicate direction and magnitude to move machine feet.
5) Tolerance coded gap and offset coupling values.
6) Tapping  *the 'Undo' icon allows user to remeasure or start Live Move afresh.*
7) Tapping  *the 'Proceed' icon allows user to remeasure or start Live Move afresh.*

Once Live Move has been detected, the 'Cancel' icon  replaces the 'Undo' icon.

1) Tapping  *the 'Cancel' icon prompts the 'Cancel Move' hint.*
2) Tapping  *the 'Proceed' icon allows Live Move to be started afresh or the machines be remeasured.*

If the laser beam is centered, tapping  starts Live Move automatically.

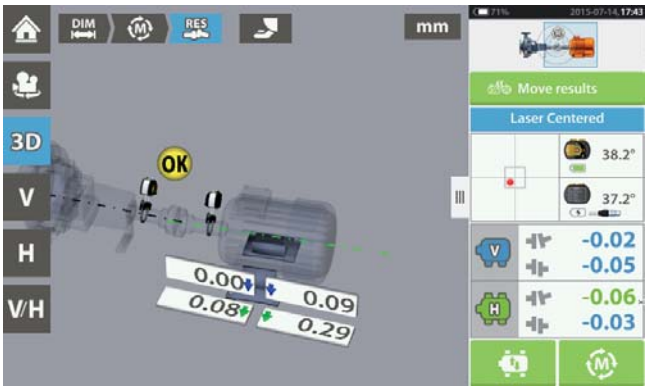


If the laser beam is not centered, tap the detector area on the screen [1] to access the XY View.

Correct the alignment condition by shimming and moving the machines laterally following the bold vertical [2] and horizontal [3] arrows. Machines should be moved to within acceptable tolerances indicated by a happy smiley [ ] or an OK icon [ ] while observing shaft alignment best practices.

The system monitors both horizontal and vertical Live Move concurrently. If the vertical view (V) is selected when the function Live Move function is started, only the vertical condition will be displayed (although both planes are being monitored simultaneously). Likewise, if the horizontal view (H) is selected, then only the horizontal condition will be displayed (but both planes monitored simultaneously).

After moving machines to within tolerance, tighten the foot bolts then tap .

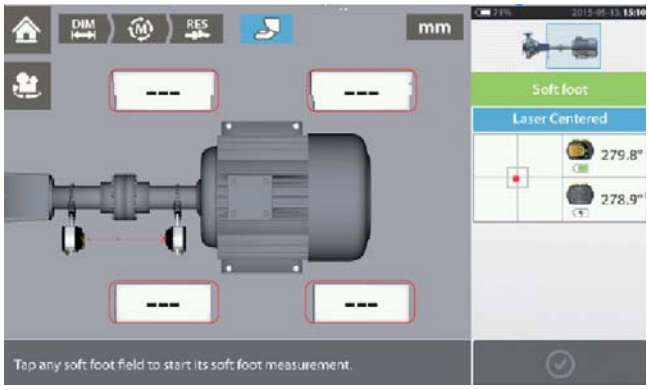


Tap to remeasure and verify the Live Move results, and determine exact alignment condition.

Soft foot

Soft foot measurement can be started from any screen where the 'Soft foot' icon [] is active.

Tap  to start soft foot measurement. The laser beam must be centered. Refer to Laser beam adjustment.



Tap any one of the four pulsating value fields to start soft foot measurement at the respective machine foot.

Loosen the corresponding foot bolt (see hint 2). The recorded soft foot value is displayed [1]. When the soft foot value stabilizes, tap  the 'Proceed' icon, then tighten the bolt (see hint 2). If desired, the soft foot measurement at the corresponding foot is canceled by tapping  the 'Cancel' icon.

The above soft foot measurement procedure is repeated for all four feet positions.

Glossary

B

Batch target

A special target that lets you build and/or publish multiple other targets in a single group (or "batch"). You can schedule batches to run at any time.

Block snippet

A snippet that is created out of one or more paragraphs.

C

Condition tag

A marker that you can apply to different areas of your content so that some sections show up in some of your outputs but not in others.

Cross-reference

A navigation link that lets you connect text in one topic to another topic (or a bookmark within a topic). Cross-references let you create "automated" links that are based on commands you provide. This allows you to keep links consistent and change them in just one place by using the "xref" style.

D

Drop-down text

A feature that lets you "scrunch up" content in your topic. The content is expanded (and therefore displayed) when the end user clicks a link.

F

Footnote

A comment that is used to explain a specific area of the text. Both the area in the text and the comment contain a number or symbol that ties the two together. A footnote (or endnote) comment can be placed at the end of a page, document, chapter, section, or book.

M

measurement quality

displays quality of measurement based on following measurement and environmental factors: rotataion angle, ellipse standard deviation, environmental vibration, rotation evenness, angle rotation inertia, rotation direction, rotational speed and filter output

S

Single-Sourcing

"Single-Sourcing" is a fancy term that means something very simple—to produce multiple outputs from one source.

Snippet

A pre-set chunk of content that you can use in your project over and over. Snippets are similar to variables, but snippets are used for longer chunks of content that you can format just as you would any other content in your topic. In snippets, you can also insert tables, pictures, and whatever else can be included in a normal topic.

Span

A tag that is used to group inline elements to format them with styles. A span tag doesn't perform any specific action; it simply holds the attributes (e.g., font size, color, font family) that you apply to inline content.

standard deviation

Standard deviation describes how closely a group of datra points are clustered around the average of those data points. The smaller the standard deviation, the better the quality of the data collected.

Style

An element that contain pre-set formatting properties. You can apply style classes to your content to change the way it looks. Using style classes instead of direct (or "inline") formatting helps you work faster, more efficiently, and with more consistency in your topics. If you need to make changes to the formatting in the future, you do not need to change the formatting in each topic (as you would with direct formatting). Instead, you only need to change the formatting properties for that style in the appropriate stylesheet.

T

Table

A group of intersecting columns and rows that you can add to a topic for various purposes, such as comparing one thing with another or giving field descriptions for a software dialog.

Target

One "instance" of an output type. When you build your final output, you are essentially building one or more of the targets in your project.

Text snippet

A snippet that is created out of a portion of one paragraph.

Thermal growth

Movement of shaft centerlines associated with or due to a change in machinery temperature between the idle and operating conditions.

Topic

A chunk of information about a particular subject. Topics are the most important part of a project. Everything else is contained within topics (e.g., hyperlinks, text, pictures) or points toward topics (e.g., table of contents, index, browse sequences). The very reason end users open a Help system is to find information, a little direction. They find that help within individual topics.

V

Variable

A pre-set term or content that you can use in your project over and over. Variables are similar to snippets, but variables are used for brief, non-formatted pieces of content (such as the name of your company's product or your company's phone number). There are different kinds of variables: (1) those you create, (2) system variables, (3) Heading variables, or (4) Running HF variables for page headers and footers in printed output.

X

XML Editor

The window in the Flare interface where you can add content and formatting to elements such as topics and snippets.

Empty page