

ROTALIGN[®] Ultra iS Live Trend – Getting started



Live Trend – Getting started

Dear Customer,

Thank you for acquiring Live Trend, an additional application within the ROTALIGN Ultra Shaft Expert platform. The Shaft Expert platform has been developed for experts by experts in the field of laser alignment. This guide is intended for users of both **ROTALIGN Ultra is** and **ROTALIGN Ultra** when using the Live Trend application. It is to be used in conjunction with the respective operating handbook.

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Safety notes

ROTALIGN Ultra iS is to be used in industrial environments. Care must be taken to ensure that the instrument is not subjected to mechanical knocks. ROTALIGN Ultra iS must be operated only by properly trained personnel. No liability will be assumed when components or operating procedures as described in this guide are altered without permission of PRÜFTECHNIK Alignment Systems.

Safety symbols

The following symbols are used in this guide in order to draw the reader's attention to especially important text, such as that regarding possible sources of danger or useful operating tips.

This symbol denotes general information and tips regarding operation of ROTALIGN Ultra iS.

This symbol denotes information which must be followed in order to avoid damage to equipment.

This symbol denotes information which must be followed in order to avoid personal injury.

Numbers in red circles indicate the corresponding operating step described in these instructions and must be performed exactly.

Laser safety

- Do not look directly into the laser beam at any time.
- Do not insert any optical devices into the beam path.
- The red LED on the front of the laser illuminates whenever the laser beam is emitted.

ROTALIGN Ultra iS Live Trend application and its hardware components ARE NOT to be used in explosive atmospheres.





 The safety notes apply for also ROTALIGN Ultra







Notes regarding data storage

- As with any data processing software, data may be lost or altered under certain circumstances. PRÜFTECHNIK Alignment Systems strongly recommends that you keep a backup or printed record of all important data.
- PRÜFTECHNIK Alignment Systems assumes no liability for data lost or altered as a result of improper use, repairs, defects, battery replacement/failures or any other cause.
- PRÜFTECHNIK Alignment Systems assumes no responsibility, directly or indirectly, for financial losses or claims from third parties resulting from the use of this product and any of its functions, such as loss or alteration of stored data.

General information

- Contents subject to change without further notice, particularly in the interest of further technical development.
- The calibration accuracy of the system should be checked every two years as indicated by the coloured date wheel label on the sensor. In the example to the right margin, the calibration due date is November 2016.

Introducing the Live Trend application

This quick guide assumes that the user is fully conversant with the operation of ROTALIGN Ultra / ROTALIGN Ultra iS computer. It is highly recommended to refer to the respective operating handbook if and when necessary.

What is Live Trend?

ROTALIGN Ultra / ROTALIGN Ultra iS Live Trend is an additional application running on the ROTALIGN Ultra Shaft Expert platform. It is used for live monitoring of machine movements arising from thermal growth, machine foundation movement and changes in operating load. Live Trend can additionally be used to track machine drift as raw sensor data in the X,Y coordinates.







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What constitutes ROTALIGN Ultra / ROTALIGN Ultra iS Live Trend?

The Live Trend application will only run with the Shaft Alignment firmware version 2.10 and above. In addition to the actual firmware version, the ROTALIGN Ultra Shaft Expert module must be licenced and activated. Either of these two add-on modules is required in this case.

- > ALI 4.005/2-10 Live Trend ROTALIGN Ultra Shaft Expert add-on module with magnetic brackets
- > ALI 4.005/2-20 Live Trend ROTALIGN Ultra Shaft Expert add-on module with PERMAFIX brackets

Updating the ROTALIGN Ultra firmware version

The latest ROTALIGN Ultra Shaft firmware version is stored in the USB memory stick ALI 4.451 which is delivered with both Shaft Expert add-on modules. Detailed instructions on how to update the firmware are to be found in the respective operating handbooks. The latest Shaft firmware version may also be downloaded from the official PRÜFTECHNIK website – **www.pruftechnik.com**.

Upgrading to Shaft Expert

To be able to use Live Trend, ROTALIGN Ultra Shaft firmware must be licenced to the Expert version. This is done by filling out and returning the ROTALIGN Ultra Shaft Expert firmware voucher ALI 4.743, which is part of both Shaft Expert add-on modules, to PRÜFTECHNIK Alignment Systems or your local representative who will then send you the ROTALIGN Ultra Shaft Expert registration certificate ALI 4.740. The certificate contains the licence code to activate the Shaft Expert alignment platform.

An important prerequisite for the activation of Shaft Expert is a prior registration of the ROTALIGN Ultra Advanced Shaft firmware whose registration is described in the respective operating handbook.

Note that the Live Trend application will run only on ROTALIGN Ultra / ROTALIGN Ultra iS computers ALI 4.202 with a serial number greater than 43213000.



Live Trend packages

Live Trend ROTALIGN Ultra Shaft Expert add-on module with magnetic brackets ALI 4.005/2-10

ALI 14.310	Live Trend magnetic bracket for mounting laser and
	sensor including 115 mm support posts [Note that
	this package contains 2 no. ALI 14.310]
ALI 14.320	Magnetic bracket for Bluetooth module
	[for ROTALIGN sensor]
ALI 2.191	Anti-torsion bridge
	[Note that this package contains 2 no. ALI 2.192]
ALI 2.193	Live Trend case for magnetic brackets
ALI 4.743	ROTALIGN Ultra Shaft Expert firmware voucher
ALI 4.451	USB memory stick for ROTALIGN Ultra
	firmware update
DOC 04.100.en	Live Trend Getting started (this handbook)
0 0739 1055	Allen key [2.5 mm]





ALI 14.320



ALI 2.193

0 0739 1055

ALI 4.451



DOC 04.100.en



Live Trend ROTALIGN Ultra Shaft Expert add-on module with PERMAFIX brackets ALI 4.005/2-20

ALI 2.190	PERMAFIX mounting bracket for laser and sensor
	[Note that this package contains 2 no. ALI 2.190]
ALI 2.194	Striking cone
ALI 2.191	Anti-torsion bridge
	[Note that this package contains 2 no. ALI 2.191]
ALI 2.192	Live Trend case for PERMAFIX brackets
ALI 4.743	ROTALIGN Ultra Shaft Expert firmware voucher
ALI 4.451	USB memory stick for ROTALIGN Ultra
	firmware update
DOC 04.100.en	Live Trend Getting started (this handbook)







ALI 2.192

ALI 4.451



DOC 04.100.en

Getting started

Starting and licencing the application

Press and hold (a) the 'On/Off/Enter' key briefly. The opening screen below appears.



Use the navigation keys and highlight the 'Live Trend' icon. If the 'Live Trend' icon is not visible within the "Program Manager" screen, then select 'Configuration' -> 'Application options' to unhide the icon. See screen below right.

With the 'Live Trend' icon highlighted, press ${\text{Finter} \atop 0}$ to start the application. If the application has not yet been licenced, a hint appears as shown in the left figure below.

"Application options" screen [refer to screen below right], use ▼ / △ and highlight the option 'Live Trend' then press ^(Mern). With the context menu displayed, use

While in the

highlight 'Show' then press or to confirm selection.



Application name	Dev	lice information	1
Bore Alignment Flatness Hydropower		Show 2 Menu 0	
Live Trend	NO	NOL registered	_
Program Manager Right Angle Check Shaft Alignment Straightness Tolerance Editor	Always Yes Always Always Yes	Yes Not registered	
User Accounts	Yes	No	

Use arrows to navigate the chart.

When the hint above appears, select 'Configuration' -> 'Licence Manager' and proceed to enter the registration key (licence code) contained in the ROTALIGN Ultra Shaft Expert registration certificate ALI 4.740. After successful registration, the suffix 'Expert' appears next to the Shaft application version number and the 'Live Trend' application may now be started.

습License Manager - Serial	ID: 43213107		
Application name XAC device activation Graduate Series Application and the series Series Application and the series Application and the s	Version 2.30 Standard 3.03 Expert 3.02 3.03 3.02 3.03 Expert 3.02	Registration No KWGKLIDK FFJSLRBK LKPKOJJK NRESKJGP SQJGJNHE	– Shaft feature level
Press Enter to input registra	tion code		

Mounting the brackets

- All prevailing site safety regulations must be adhered to at all times.
- Mount the brackets as close as possible to the rotational axes of the machines.
- The brackets should be affixed to enable the sensor be mounted upright. If this is not physically possible, the sensor may be placed at any angular position. The result will not be affected as the inclinometer is active before measurement begins and therefore the initial angular position is taken into consideration when computing results.
- Before commencing with mounting the respective laser and sensor, ensure that the ROTALIGN Ultra rechargeable battery is charged to full capacity, and both sensALIGN rechargeable batteries [in both sensALIGN laser and sensor] are also charged to full capacity. If using ROTALIGN laser and sensor, replace the 9V laser block battery and the two "AA" Bluetooth module batteries with new good quality batteries.



Mounting the magnetic brackets

Mounting of the brackets depends on the package purchased. If using the package with the magnetic brackets ALI 4.005/2-10, simply mount the brackets (ALI 14.310) on the appropriate surfaces of the machines. The powerful magnets and the supplied anti-torsion bridges help minimize twisting, enhancing accuracy.

DO NOT use a maximum torgue exceeding 1 Nm when tightening the supports posts on the magnetic base.

Due to the powerful magnets, the magnetic brackets mount rigidly and

It must be ensured that both locations where the brackets are mounted are consistent with obtaining optimum line-of-sight between the sensor and the laser.





In the above mounting example, both the ROTALIGN sensor and laser have been mounted using the magnetic bracket ALI 14.310 while the Bluetooth module has been mounted on the magnetic bracket ALI 14.320. The laser is held firmly between the rubber cushioned anti-torsion bridges.



If using ROTALIGN laser ALI 3.610, the anti-torsion bridge rubber cushions prevent movement of the laser adjustment thumbwheels in case of excessive machine vibration.



If using sensALIGN laser ALI 4.910, it is recommended to mount both anti-torsion bridges on the upper and lower sections of the laser so as to enhance measurement stability. The sensALIGN laser clamping levers must be in the 'lock' position.







Mounting the PERMAFIX brackets

If using the PERMAFIX brackets package ALI 4.005/2-20 proceed to mount the brackets as described below.

 After identifying the locations on the machinery to mount the PERMAFIX brackets, mark the bracket bolt locations using a centre punch, making sure the punch mark is visible.

Make sure both locations are consistent with obtaining optimum lineof-sight between the components.

Before commencing the drilling works, confirm the machine wall thickness and obtain permission to drill and tap the machines.

- 2. Use a 4.2 mm diameter drill bit to bore a 9 mm deep pilot hole at the centre-punched location.
- 3. Tap an M5 thread in each pilot hole.
- 4. Use the provided allen key to fasten the mounting bases to their respective mounting locations.



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5. Place the striking cone over the ball of the mounting base and hammer it to drive the base into the machine casing deeper, then retighten the M5 allen screw and repeat this sequence until the mounting base is firmly embedded in the machine housing. The sharp edges of the mounting base should be completely "buried" into the machine housing.



- 6. Place the frame bars over the ball of the mounting base, then tighten the entire assembly into place using the clamping levers. The bracket should be folded together as far as possible so that the centre of gravity is as close as possible to the machine housing; avoid extending the bracket further than necessary to hold bending moments to a minimum. Check that the clamping levers are firmly tightened. The entire assembly should now be rigid.
- Now proceed to mount respective laser and sensor then establish communication between the respective sensor and ROTALIGN Ultra / ROTALIGN Ultra iS computer [refer to the respective operating handbook for details on establishing communication].



The illustration below shows how ROTALIGN laser ALI 3.610 is attached to the PERMAFIX bracket.



The illustration below shows how sensALIGN

laser ALI 4.910 is

PERMAFIX bracket.

attached to the



This page intentionally left blank

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Set up machine

After starting the Live Trend application, the screen below appears. Use the navigation keys to highlight action to be carried out. To create a new file, select 'New'.

Welcome to	Live Trend		mm 💷
File name: <new></new>			
			K
Resume (<unnam< td=""><td>Open file</td><td>Open template</td><td>New</td></unnam<>	Open file	Open template	New
L	The second		
Import Shaft file	XY tracking		

The Live Trend opening screen provides the user with the additional option of using a template or importing an existing shaft alignment file. Any included coupling target values are also imported.

Note: The functionality to toggle or rotate machines during set-up is not available within the Live Trend application. If machines require "toggling" the measurement files should first be created within the Shaft application then imported into the Live Trend application.

Press Enter to create new setup.

to confirm selection, then enter machine dimensions in the Press respective screen.



ROTALIGN laser and sensor



Edit the distance from coupling centre to right machine front foot.

After entering all necessary dimensions, press "Measurement set-up" screen.

(m) to access the 15

Measurement se	tup *	mm 💷
File name: <new></new>		
		Measurement not started.
	Interval:	1 mins 🔸
	Duration:	100 mins 🔹
	Type:	Cold to hot
	Free storage s	pace nan 3 days of measurement.
		Proceed

Press Enter to proceed to Measurement screer

In this example, the sampling interval [time that elapses between taking readings] has been set at 1 minute. The duration for the entire measurement is set at 100 minutes, and the running condition set as cold to hot

In this screen proceed to edit the measurement parameters [interval between measurements and duration of measurement], and to specify the machine running condition. Note that the indicated free storage space is based on the computer file storage capacity and not the current battery operating capacity.

After setting the parameters, use \bigtriangledown / \bigtriangleup to highlight 'Proceed' then press (Enter).

If a Live Trend measurement had previously been carried out in a given measurement file, then the "Measurement set-up" screen [shown previously] is accessed via the "Measurement screen" context menu item 'Measurement set-up'.

Press Menu to access the context menu items related to that particular screen.



Measurement

If the laser beam is centred, press $\begin{pmatrix} enter \\ o \end{pmatrix}$ to start measurement. If not, you may use the "Measurement screen" context menu item 'XY view' to centre the laser beam

Measurement may also be started using the "Measurement screen" context menu item 'Start'

After taking of measurements has been started, neither the laser may be touched nor the laser beam adjusted.





ROTALIGN laser and sensor



Use Menu button to check screen options

Once measurement is started, the "Measurement screen" displays the time measurement commenced, the scheduled duration, time when measurement will end, the sampling interval and number measurements taken.

Note that progressive measurements are taken automatically.



Measurement options

During measurement, the "Measurement screen" context menu items may be used to review actual measurement progress.

	sensALIGN	laser	and	sensor
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ROTALIGN laser and sensor



'Log'

Highlighting the context menu item 'Log' and confirming selection by pressing ${{\left({{{_{\odot}}}{{_{\odot}}}} \right)}}$ reveals a detailed recording of all measurements already taken plus relevant sensor information. This information may be exported as a CSV file for further analysis.

Image: Sensor initial angle: 358°						
			Vertical		Horizonta	
		Time	4Gap	+ Offset	∜ Gap	
1		00:15:21:10	0.00	0.00	0.00	
2	-	00:15:22:10	-0.00	0.00	0.00	
3	-	00:15:23:10	0.02	0.01	0.02	
4	-	00:15:24:10	0.02	0.01	0.02	
5	-	00:15:25:10	0.01	0.01	0.02	
6	-	00:15:26:10	0.01	0.01	0.02	
7	-	00:15:27:10	0.01	0.01	0.02	
8	•	00:15:28:10	0.01	0.01	0.02	

Press Enter to include/exclude measurement from replay.

'Measurement set-up'

Highlighting the context menu item 'Measurement set-up' and confirming selection

The measurement log comprises following information relating to the measurement: time, vertical and horizontal gap and offset values, sensor serial number and temperature, the averaging, and raw X1/X2 and Y1/Y2 values. If using sensALIGN laser and sensor, the log includes the laser temperature and vibration as velocity RMS.

The coupling values displayed depend on the coupling type and display format selected in the shaft alignment file.

by pressing (^{finter}) opens the "Measurement set-up" screen shown previously in the section 'Set up machine'. The screen may be used to edit the sampling interval, the measurement duration and if required, the running condition. The context menu item 'Live' is used to display current results in the three analysis formats – as feet and coupling results, as graph plots and in a video sequence.

'Live'

Highlighting 'Live' and confirming selection by pressing ${}^{(\text{Enter})}_{\textcircled{0}}$ opens the "Live results" screen.



Use arrow keys to navigate through supports

To view the current Live results plot or replay the current measurement video sequence, use In this example, the context menu item 'Live' has been selected with 73% of the measurement duration completed. While viewing these results, measurements continue to be taken. Press to return to the "Measurement screen".

the Live results context menu item 'Results'. Access the context menu by pressing $\stackrel{\text{\tiny{Menu}}}{=}$ while in the previous "Live results" screen.

While in the Live results screen, the two results options [graph plots and video sequence] are accessed via the screen context menu.

Results - live *	mm 💷	
File name: <new></new>		
	🔛 论 🚺	
0.01 14 mm		
Results - plot	Results	
🗎 Results - replay	🖬 Save 👌	
	Report '	
2	😪 Set marker 🕺	
0.02	🍠 🛛 Set to zero	
te mm	🔛 View '	
n	🚟 Scale 📩	
	🗐 Options '	2
3	Menu	e E
witches to Results - plot scree	n	

Press while in "Results-Live" screen then use the navigation keys and highlight 'Results'-> 'Results-plot' to plot the graphs or highlight 'Results'-> 'Results-replay' to replay the Live trend video sequence.

ROTALIGN laser and sensor

Live continuous measurement results can also be viewed at any time during measurement by pressing (RES). However, an elaborate evaluation should only be made after measurement has finished.

When the measurement duration elapses, the green measurement status bar turns blue.



sensALIGN laser and sensor

Measurement status bar

Evaluating results

Feet and coupling results

After measurement has finished, press (RES). The screen below appears. View and analyse machinery movement while it was running.

Results - live *	mm 💷
File name: <new></new>	
	Measurement finished.
	0.01 μ ^μ mm Δ Δ
, 4	-0.02 -0.06
0.02 H	0.01 # mm
	<u> </u>
3	-0.04 -0.11

Use arrow keys to navigate through supports.

In addition to the feet and coupling results shown in the "Results" screen above, two other important Live Trend analysis tools include the results graph plots and the measurement video sequence.

Graph plots

To plot the required machinery Live Trend curves, press (Mere) to reveal the context menu.

Results

Save Report

Set marker

Set to zero

View

Scale Options Menu



Switches to Results - plot screen.

With the context menu displayed, use the navigation keys and highlight 'Results' -> 'Results-plot'. Confirm selection by pressing (internet). The "Results – Plot options" screen opens.

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Evaluating results

Data that can be

configured include:

Results - Plot options *	mm 💷
File name: <new></new>	
Options set: 1	
🖌 Plot 1 Coupling 1 🔹 V Gap 💽	•
🖌 Plot 2 Coupling 1 🔹 H Gap 💽	
V Plot 3 Coupling 1 🔹 V Offset	
V Plot 4 Coupling 1 🔸 H Offset	•
Proce	ed
Press Enter to proceed to Plot screen.	

The "Results – Plot options" screen is used create plots using the required data. Four plots can be created at any one time with the parameters varying as desired Plots can be created for the coupling or individual machines.

Note

The above "Results -plot options" screen appears in this sequence only with new measurement files. If a measurement file is being reused, and there is need to redefine the plotted curves, then the "Results-plot options" screen may be accessed via the "Results-plot" screen context menu item 'Options'.

The "Results - Plot options" screen allows the user to define the type of graph to be used for the results analysis. The 'Options set' drop down menu allows the selection of up to 10 predefined plots which include the three default plots which are also accessible via the "Results - Plot options" screen context menu.

Results - Plot options *	mm 💷
File name: <new></new>	
Options set: 1	
🗸 Plot 1 Coupling 1 🔸	🗹 ОК '
🖉 Plot 2 Coupling 1 🔸	Coupling results set
V Plot 3 Coupling 1	Corrections set
	Raw values set 🦵
🖉 Plot 4 Coupling 1 🔸	Plots 🕴 🧧
	📹 Menu 🥍
	Proceed
🔛 Goes to dimensions scree	n.

The following are the three default predefined option sets:

- Coupling results set plots the vertical and horizontal gap and offset values
- ▶ Feet corrections set plots the X and Y values for the two machine feet pair
- Raw value set plots raw XY values on both position detectors

vertical and horizontal gap; vertical and horizontal offset: temperature: raw X,Y values and other machine related data which are selected using the drop down menus. The colour drop down menus are used to modify the colour of the curves.

After defining the curves to be displayed, use the navigation keys to highlight the button 'Proceed', then press for to continue. Curves belonging to the selected plot option will be displayed.

Results plot *		mm 💷
File name: <new></new>		
	Measurement	finished.
0.07 .		
	/	
-0.04-2014-10-06 15:39:49	2014-10-06 15:45:23	2014-10-06
Vgap (Cpl. 1) [mm]	0.00 Voffset (Cpl. 1) [mm]	0.00
Hgap (Cpl. 1) [mm]	0.00 Hoffset (Cpl. 1) [mm]	0.00
Use arrows to navigate the	e chart.	

Using the "Results plot" screen context menu, an extended definition of the graph may be carried out. Open the context menu by pressing while in the "Results plot" screen.



The "Results plot" screen context menu has the following useful items:

'Log' – this menu displays a measurement table with all the relevant parameters for every single measurement. To scroll the table from left to right press b/(a) repeatedly. Use v/(a) to scroll the table from top to bottom.

The "Log" screen context menu may also be used to define markers.

- 'Results' this context menu item reveals two submenu items:
 - 'Results live' during measurement, shows the current position of the machinery and the final position when measurement is finished. If this option is selected, the resulting context menu will reveal the item 'Results-plot'.
 - > 'Results replay' shows a video sequence of the measurement
- Browse' the menu item reveals two submenu items:
 - 'Browse markers' with this submenu item, only defined measurements are browsed
 - 'Browse all' with this submenu item, the cursor browses all measurements taken
- 'Report' this menu item is used to print the measurement file or save it as PDF (refer to the respective operating handbook for details on printing and saving files as PDF)
- 'Set marker' this menu item reveals five markers that may be set. These are often significant points within the measurement:
 - 'Hot' used to indicate the running condition or when machinery has warmed up
 - 'Cold' used to indicate the initial running phase from being stationary
 - > 'Custom' a customer-specified marker
 - > 'Start' used to indicate point where the machines are started
 - > 'Stop' used to indicate the point where machines are shut off
 - > 'Remove' is used to delete unwanted markers
- 'Set to zero' this context menu item is used to set the curve values where the cursor is presently located to the value zero.
- 'Set absolute' this menu item reverses the setting of zero and is only available when a measurement value has been set to zero.
- > 'Zoom' this menu item reveals three submenu items:
 - 'In' is used to zoom in the graph, increasing the magnification of the curves
 - 'Out' zooms out the graph, reducing the magnification of the curves
 - > 'Show all' is used to display the entire curves
- 'Scale' this context menu item reveals two submenu items:
 - Set scale' used to set the maximum and minimum values of the graph
 - > 'Auto scale' is used to magnify the curves so as to fit the display

- 'Options' this menu item returns the user to the "Results Plot options" screen where the plots may be defined as desired.
- 'Menu' used to access the global menu

Video sequence

The video sequence of the measurement is another important Live Trend analysis tool. The measurement video sequence is replayed via the "Results" screen context menu item 'Results'.



With the submenu item 'Results-replay' highlighted, press $\overset{\text{fnter}}{\tiny(\textcircled{0})}$ to view the video sequence of the measurement.



It is possible rewind, pause, discontinue or fast forward the video sequence. Use $\mathbb{P}/(\mathbb{P})$ and select the desired action [\mathbb{P} the desired action [\mathbb{P} to confirm selection.



Exporting measurement files as a CSV file

Measurement data appearing in the 'Log' may be exported as a CSV file and saved directly onto a memory stick.

After connecting the 'short' USB/peripheral devices cable ALI 12.503 to either ROTALIGN Ultra / ROTALIGN Ultra iS computer USB port, attach an approved PRÜFTECHNIK Alignment Systems memory stick into the 'short' USB cable.

Before connecting the memory stick to the ROTALIGN Ultra iS computer, make certain that the folder named 'Ultra' on the memory stick is empty, to prevent inadvertently launching a firmware upgrade of the device.





Press (Merror) twice to open the global menu, then use the navigation keys and highlight the item 'CSV export'.



Results - replay * File name: Line 2D 🖬 🚮 1. Resume 1. File 🕽 🕘 2. New 2. Configuration 🗟 3. Machine properties 🕨 🖪 3. Open 🛎 4. Coupling properties 🖬 4. Save 5. Measurement 🔸 🙀 6. Delete 🗮 6. Results 🖌 🛃 7. Save As Template 🖪 7. Help 🖌 🛵 8. CSV export 🗇 8. Quit Exports current file to CSV file.

Press $\overset{\text{[fnter]}}{\odot}$ to confirm selection. The editing box opens.

Results - replay *	🛱 🛲 💷)
File name: Line 2D	
	Measurement finished.
-0.06	0.04 + mm
2 (1-1-1)	0.15 0.43
0.07 4 mm	-0.05
	<u> </u>
Press longer numerical pad k	-0.17 -0.49 ey ./* to change layout.
Press longer numerical pad k	-0.17 -0.49 ey ./* to change layout.

Enter the CSV file name then press $\binom{\text{Enter}}{0}$. The CSV file will now be saved to the attached memory stick, which can then be analyzed on a PC.

Alternatively, measurement data may also be exported as CSV files for saving to a memory stick via the "Log" screen. After accessing the "Log" screen, press to reveal the context menu.

Note: The "Log" screen may be accessed via the context menu for "Results plot" screen (see page 22).



Use ∇ \wedge and highlight the item 'CSV'. With 'CSV' highlighted, press $\overline{}^{\text{inter}}_{\odot}$ to save the exported CSV file on to the attached memory stick.

Displaying the CSV file as a spreadsheet

The exported CSV file displays Live Trend data bundled together in single cells. To be able to use the data effectively, it is necessary to display the data in correct tabular format. Follow the following steps to reformat the exported CSV file data to a columnar format.

 Live Trend measurement data is exported as a CSV file then saved on a memory stick as described in the 'Live Trend Getting started' guide. After saving the file on a memory stick, transfer it to a PC. Now navigate to the drive you saved the CSV file.



 You will notice the icon for the file looks like an Excel file. Double click on the icon to open this file in Excel. You will notice that the data take up one column and several rows and separated through semicolons only. Click on the column header to select the entire column, in this case column A [as shown next].

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Getting started with ROTALIGN Ultra iS Live Trend

I → · · · · · · · · · · · · · · · · · ·	GE LAYOUT FOR	RMULAS	Line 2D 2014 DATA R	-10-07 163 EVIEW	4.csv - Excel VIEW AC	ROBAT	Д¥ q			? 🖿	
A1 ▼ : × ✓	<i>f</i> _∗ Live Trend [∉]	Report									
A B C	D E	F	G	н	I	J	К	L	м	N	0
Live Trend® Report											
Date: 2014-10-07											
DEVICE OWNER INFORMATION											
Owner na me: PRÜFTECHNIK AG											
Address: Oskar-Messter-Str. 19-	-21										
D-85737 Ismaning											
Germany											
FILE INFORMATION											
FileName Line 2D.6id											
File created by: Administrator											
Created:											
Last modified: 7-10-2014, 14:53:	42										
5 Last measured: 7-10-2014, 14:08	:29										
6											
7 COUPLING RESULTS											
в											
Unit: Millimeters											
Coupling ::											
Initial angle value: 359											
2 Initial angle set manually: 0											
Results of Move measurement											
4											
Num.;Replayed;Marker;Set to z	ero;Time;V Gap [n	nm];V Offse	et [mm];H G	ap [mm];	H Offset [mn	n];Status;	Serial;Avg	secs.];X1	[mm];X2 [I	mm];Temp	. [ºC];Las
1;Yes;Colc;Yes;00:14:08:38;0,00;	0,00;0,00;0,00;Ok;	49000213;3;	0,00;0,00;0;	0;0,00;0,0	0;0;0,0						
2;Yes;None;No;00:14:08:44;-0,00	0;0,00;-0,00;0,00;O	k;49000213	;3;0,00;0,00;	0;0;0,00;-	0,01;0;0,2						
3;Yes;None;No;00:14:08:55;-0,00	0;0,00;-0,00;-0,00;0	0k;49000213	3;3;-0,00;0,0	0;0;0;-0,0	0;-0,00;0;0,4						
4;Yes;None;No;00:14:09:05;0,00	;0,00;-0,00;0,00;0}	;49000213;	3;0,00;0,01;1	L;0;-0,00;C	,00;0;0,6						
5;Yes;Nore;No;00:14:09:15;0,00	;-0,00;-0,00;0,01;O	k;49000213	;3;0,01;0,01;	0;0;-0,00;	0,01;0;0,4						
6;Yes;None;No;00:14:09:25;-0,0	0;0,00;-0,00;0,01;O	k;49000213	;3;0,01;0,01;	1;0;-0,00;	-0,00;0;0,5						
Line 2D 2014-10-0	7 1634	k:/0000312	2. 0.00.0.01	1.0.0.00	0.00.0.1.0	4					
LINE 2D 2014-10-0	• • •										

3. With column A highlighted, click the menu bar item 'Data' followed by 'Text to columns'.

X	1 🗄 🔊	- @-	Ŧ				Line	2D 2014-	10-07 1634.csv - Exce		ő Xo	XA	
F	FILE H	IOME IN	ISERT PA	AGE LAYO	OUT FOR	MULAS	DAT	A RE	NEW VIEW	ACROBAT			19-V
Get	External Re Data *	efresh All -	onnections operties dit Links	2↓ ZA Z↓ So	Filter	Tear Clear Person Advance	/ ed	Text to Columns	Flash Fill	I+■ Co ates III W - Re Re	onsolidate hat-If Analysis * elationships	Coup Coup Coup Coup Coup Coup Coup Coup	o • +3 oup • -3 tal
A	A1 * : X / fr Uve Trend® Report							Text to Split a s multipl For exa columr first and	o Columns ingle column of text e columns. mple, you can separa o of full names into s d last name columns	into ite a eparate		Gui	
	Α	В	С	D	E	F		You car fixed wi	n choose how to spli idth or split at each c	t it up: omma,	К	L	м
1	Live Tren	d [®] Report						period,	or other character.				
2	Date: 201	4-10-07						🕜 Tel	I me more				
4	DEVICE O	VNER INF	ORMATION										
5	Owner na	a me: PRÜF	TECHNIK AG	;									
6	Address:	Øskar-Mes	ster-Str. 19	-21									
7	D-857371	smaning											
8	Germany												
V 9													

- 4. On clicking 'Text to columns', the 'Text to Columns' wizard opens.
- 5. In the wizard, choose 'Delimited' [see next screen].



- 6. Confirm selection by clicking the 'Next' button.
- In the second step of the wizard, choose under the 'Delimiters' frame the option 'Semicolon [as this is how the data is separated in the Live Trend CSV file], then click the 'Next' button to proceed.

Convert Text to Columns Wizard - Step 2 of 3	<u> </u>
This screen lets you set the delimiters your data contains. You can see how your te in the preview below. Delimiters Tab Sognation Sognation Comma Space Data greview	xt is affected
Live Trend® Report Date: 2014-10-07 BEVICE OMBER INFORMATION DVMer name: PROFISCINIK AG	•
Cancel < <u>B</u> ack <u>N</u> ext >	<u>F</u> inish

8 In the final window, you may preview the table, but leave the 'Column data format' set to 'General' which is the default.

Convert Text to Columns Wizard - S	Step 3 of 3
This screen lets you select each colu Column data format © General © Iext © Date: DMY © Do not import column (skip)	Imn and set the Data Format. "General" converts numeric values to numbers, date values to dates, and all remaining values to text. <u>Advanced</u>
Destination: SAS1	
Data greview	
General Live Trend® Report Date: 2014-10-07	<u>^</u>
DEVICE OWNER INFORMATION Owner name: PRÜFTECHNIK 3	- 21
	Cancel < <u>B</u> ack Next > <u>Finish</u>

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9. Now click the 'Finish' button to exit the wizard and get your neatly arranged spreadsheet.

x	185	• @• ;								Line 2D 2	014-10-07 163	4.csv - Excel			
F	ILE H	OME IN	SERT P	AGE LAYOUT	FORM	ULAS D	ATA R	EVIEW \	/IEW A	CROBAT					
U	38	• : :	× ✓	fx											
-				-											
	A	В	С	D	E	F	G	н	I	J.	K	L	M	N	0
1	Live Tren	d® Report													
2	Date: 201	4-10-07													
3															
4	DEVICE O	WNER INFO	ORMATION	4											
5	Owner na	me: PRUF1	ECHNIK A	G											
6	Address:	Oskar-Mes	ster-Str. 1	9-21											
7	D-857371	smaning													
8	Germany														
9															
10	FILE INFO	RMATION													
11	FileName	: Line 2D.6	Id												
12	File creat	ed by: Adm	inistrator												
13	Created:	/-10-2014, .	14:00:47												
14	Last modi	ned: 7-10	2014, 14:5:	5:4Z											
15	Last meas	ured: 7-10	2014, 14:0	8:29											
10	COUDURY														
1/	COOPLING	3 RESULTS													
10	Charles Maille														
20	Courseling	meters													
20	Coupling Initial and	1; de velver 3	50												
21	Initial ang	le cet man	uellus 0												
22	Results of	Move me	suremen												
24	mesures of	moreme	bouremen												
25	Num	Renlaved	Marker	Set to zer	Time	V Gan [mr	V Offcet [H Gan [m	H Offcet [Statuc	Sorial	Avalsees	¥1 [mm]	¥2 [mm]	Temp [90
26	1	Yes	Cold	Yes	00:14:08:3	0000	0	0	0	Ok	49000213	3	0	A	10mp. (-0
27	2	Yes	None	No	00:14:08:4	0	0	0	0	Ok	49000213	3	0	0	0
28	3	Yes	None	No	00:14:08:5	0	0	0	0	Ok	49000213	3	0	0	0
29	4	Yes	None	No	00:14:09:0	0	0	0	0	Ok	49000213	3	0	0.01	1
30	5	Yes	None	No	00:14:09:1	0	0	0	0.01	Ok	49000213	3	0.01	0.01	0
31	6	Yes	None	No	00:14:09:2	0	0	0	0,01	Ok	49000213	3	0.01	0.01	1
32	7	Yes	None	No	00:14:09:3	0	0	0	0	Ok	49000213	3	0	0,01	1
33	8	Yes	None	No	00:14:09:4	-0,06	-0,08	0,11	0,21	Ok	49000213	3	0,33	-0,02	1
	< >	Line 2	D 2014-10-	07 1634	+									∢	
RE/	ADY .														

Saving report as PDF

File measurement reports may be saved directly from the system as a PDF copy. For more information saving files as PDF please refer to the respective operating handbook.

Note that with Live Trend there is the added option of exporting measurement files to CSV file via the overview screen.



12Overview					(mm (
File name: Line 2D							
	l		DIM +-+	1	4.		
Setup	💮 Measu		\triangleleft		\triangleright	×	
	A			File		,	
	CSV			Repor	t	5	
	Peport			Setting	ļs	8	
Ľ	Report	♠	Prog	ram Ma	anage	r	
		٧		About	-		
		Θ		Turn o	ff		2
User:		F		Menu		0	e e
Last measurement:			7-	10-2014	l, 14:0	8:25	,
Last modification:			7-	10-2014	l, 16:3	9:25	5
Exports current fi	le to CSV file						

Select 'Report' -> 'Report' then proceed to save report as PDF (refer to the respective operating handbook). Selecting 'Report' -> 'CSV' exports measurement file to a CSV file.

Saving measurement files

Measurement files are saved as described in the respective operating handbook.

XY Tracking

What is XY Tracking?

XY Tracking is the monitoring of machinery movement on the dual position detectors of the sensor. This measurement displays the raw horizontal (X) and vertical (Y) detector values.

In XY Tracking, the user has the ability to determine type of movement to be measured. This could either be relative or absolute movement.

Carrying out XY Tracking

After mounting the laser and sensor as required [refer to the section 'Mounting brackets' starting on page 9], proceed to turn on ROTALIGN Ultra / ROTALIGN Ultra iS computer and start the Live Trend application. After starting the application, use the navigation keys to highlight on the 'XY Tracking' icon.

Welcome to	Live Trend		
File name: <new></new>			
Resume (Line 2D)	Open file	Open template	New
Import Shaft file	XY tracking		

Press Enter to start XY tracking mode.

With the 'XY Tracking' icon highlighted, press (enternation) to access the "Measurement set-up" screen.





In the "Measurement set-up" screen edit the sampling interval and the measurement span. Notice that the running condition is grayed out and therefore not required for XY Tracking.

Press Enter to proceed to Measurement screen

Having edited the measurement parameters, use the navigation keys to highlight the 'Proceed' button then press $\begin{pmatrix} Enter \\ 0 \end{pmatrix}$.

Before the measurement screen opens, a hint indicating change in the averaging appears.



1949 mm (11)

2 hours

0

every 15 seconds

ment not started.

6.4s

tart

- Measurement screen * Measurement screen * mm dill File name: <new> File name: <new> nt not started er center Plane 2 Averaging: Plane 2 Plane 1 Plane 1 2 hours rval: every 30 seconds X: -1.134 mm X: 0.301 mm sensALIGN 49000213 0 RF 04102694 Y: -1.150 mm Y: -0.145 mm -1.108 mm -0.309 mm X: X: 4 3580 Averaging: 10 s 3590 Y: 0.584 mm Y: 1.380 mm Set to zero T: 26 °C T: 25 °C Laser centred. Use Menu's option to begin measurement. Laser centred. Use Menu's option to begin measurement.
- sensALIGN laser and sensor



The above screens appears if the laser beam is centred and communication between ROTALIGN Ultra / ROTALIGN Ultra iS computer and the respective sensor is established

The averaging may be edited in the above screens if required.

To start the XY Tracking, press Menu while in the "Measurement screen" then use ∇ / \triangle and highlight the context menu item 'Start'

Measurement screen * 🛗 🛲 💷 File name: <new> Laser cent Plane 2 *5 Start Plane 1 Log 1 Measurement setup 0 Sensor selection Ø Averaging 4 Trace on X Set to zero sensALIGN 49000213 Y -Sensor version check X: -0.307 mm 4 Laser version check 1.379 mm Y: Menu 25 °C T: 🏷 Starts measurement.

Start measurement by pressing $\begin{pmatrix} Enter \\ \infty \end{pmatrix}$.

- 22 mm 💷 Measurement screen * 👥 📖 💷 Measurement screen * File name: <new> File name: <new> 11% measurement finished. 11% measurement finished. Plane 2 Plane 2 Averaging: Laser center 15:28:09 6.4s + Plane 1 Plane 1 tart tin 2 hours 09:55:22 Duration: every 30 seconds 2 hours -0.964 mm X: 0.286 mm X sensALIGN 49000213 27 RF 04102694 Y: 1.050 mm Y: -0.159 mm every 15 seconds -0.236 mm X: X: -0.989 mm 3590 3580 4 Y: 1.432 mm Y: 0.652 mm Set to zero T: 25 °C 53 T: 27 °C Use Menu button to check screen options. Use Menu button to check screen options.
- sensALIGN laser and sensor ь

sensALIGN laser and sensor

ROTALIGN laser and sensor Þ

ROTALIGN laser and sensor





When measurement is finished, the measurement status bar turns blue.

sensALIGN laser and sensor

Measurement screen *		Measurement screen	*	
File name: <new></new>		File name: <new></new>		
M	easurement finished.		Measu	urement finished.
Laser centered Plane 2	Start time:	Laser centered Plan	e 2	Averaging:
Plane 1	15:28:09	Plane 1		6.4s 🔸
	Duration: 2 hours			Start time: 09:55:22
	Interval: every 30 seconds		Ť	Duration:
Seps&I IGN 49000213	n Count:	X:	-0.965 mm	Interval:
X: -0.234 mm X: 1 420 mm X: 1 420 mm	• Averaging: 10 s	X: -0.988 mm	-1.053 mm 358•	every 15 seconds
T: 24 °C	Set to zero	T: 27 °C		80
Laser centred. Use Menu's option to cou	tinue measurement	Least control line Manula	antion to contin	

ROTALIGN laser and sensor

ROTALIGN laser and sensor

Viewing results

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After measurement has come to an end, press (RES) to view results. From the "Results - Plot options" screen that appears, proceed to define the curves to be plotted, then highlight the 'Proceed' button and confirm selection by pressing (Definition).

💁 Results - Plot	t options *		🕘 🛲 💷 🔵	💁 Results - Plo	t options *		mm	, 💷
File name: <new></new>				File name: <new></new>				
Options set:	1 +	X1 X2		Options set:	1 🔹			
🛩 Plot 1	+	Y1 Y2		🗸 Plot 1	+ X1	+		¥
🛛 🖉 Plot 2	+	Temperature		🛛 🖉 Plot 2	+ Y1	+		+
🖉 Plot 3	+	Laser Temperature Velocity RMS		Plot 3	 ➡ X2 	+		÷
🛛 🖉 Plot 4 🖅	+	Temperature 🔸		🛛 🖉 Plot 4	+ Y2	+		+
					X1 X2 Y1 Y2			
		Pro	ceed		Temperature	Proc	:eec	:
Press Enter to cel	ect option o	r CLP to get previous one		Press Enter to sel	ect option or CLP to get pre	vious one		

sensALIGN laser and sensor

The parameters that may be selected in the plot drop down menus are the raw X,Y data on the two position detectors, and the sensor temperature. If using sensALIGN laser and sensor for measurement additional parameters that may be plotted include laser temperature and vibration measurement as velocity RMS.

Alternatively use the context menu to select the option to display collected raw data.

💁 Results - Plot options * 🛛 🖉 🛲 💷						
File name: <new< td=""><td>'></td><td></td><td></td><td></td><td></td><td></td></new<>	'>					
Options set	: 1 +)		<u></u>	4	
🛛 🖉 Plot 1 📴	- (+	X1		ОК	1	
🗹 Plot 2 📴	- +	Y1		Raw values	s set 🕴	-
🖌 Plot 3	- (+	X2		Plots	0	Jent
🖉 Plot 4 🗔	- +	Tem	nperatu	ire		E
				P	roceed	
Sets a prede	efined set of ont	tions to	display i	aw sensor va	dues	

The context menu item 'Raw values set' is the standard XY Tracking results option and displays the X,Y values in both position detectors.

Highlighting 'proceed' and confirming selection by pressing ${}^{(inter)}_{@}$ reveals the defined graphs.

Results plot *		📰 📖 💷
File name: <new></new>		
	Measureme	nt finished.
1.50		
		<u> </u>
0014 40 00	0011 10 00	0011 10 00
-1.00 15:28:21	16:00:23	16:32:25
X1value [mm]	-0.30 X2value [mm]	0.30
Y1value [mm]	1.39 Y2value [mm]	-0.15
Use arrows to navigate	the chart.	

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Live Trend technical data

The following technical data is restricted to the Live Trend application only. For a detailed ROTALIGN Ultra iS [or ROTALIGN Ultra] system technical data please refer to the corresponding system brochure and the respective operating handbook.

Also note that the respective system computer, sensor and laser are not included in the Live Trend ROTALIGN Ultra Shaft Expert add-on modules.

System computer					
Power supply	Lithium-lon rechargeable battery: 7.2 V / 6.0 Ah Operating time: approx. 10 hours continuous measurement with fully charged battery External power supply				
sensALIGN laser					
Power supply	Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah 6 Wh Operating time: approx. 70 hours continuous use with fully charged battery External power supply				
sensALIGN sensor					
Power supply	Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah 6 Wh Operating time: approx. 12 hours continuous use with fully charged battery				
ROTALIGN laser					
Power supply	9V block battery (IEC 6LR61, alkali or lithium) Operating time: approx. 80 hours with a new good quality block battery				
ROTALIGN sensor					
Power supply	Powered via system computer or Bluetooth module (optional)				
Bluetooth module for wireless communication with ROTALIGN sensor (optional)					
Power supply	ies 2 x 1.5 V IEC LR6 ("AA") iting time: approx. 7 hours continuous use with new good quality ies				

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