FLUKE Reliability

TECHNICAL DATA

ROTALIGN® touch EX

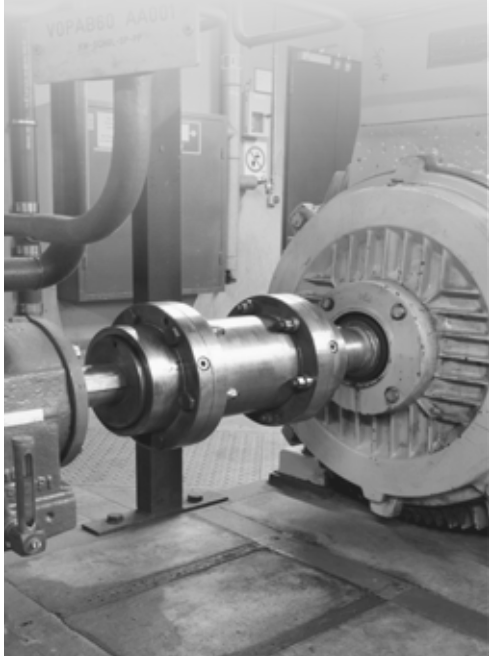
Advanced laser shaft alignment for EX/ATEX areas

PRÜFTECHNIK

ADAPTIVE ALIGNMENT
Adaptive Alignment is a combination of software and hardware evolutions, enabling maintenance and reliability teams to address the full variety of horizontal, angular, and vertical alignment challenges.

With Adaptive Alignment, work is completed faster, results are far better, and team capacity is unlocked.

As the industry-wide standard setting alignment system, ROTALIGN® touch EX offers Adaptive Alignment features to deliver new levels of accuracy, speed, and elimination of human errors, even in hazardous work zones.



Introducing ROTALIGN® touch EX
Hazardous work areas, such as oil refineries, utility gas plants, plastic plants, and more, have their share of machinery alignment challenges. Because these environments have a potential for explosion due to flammable gases, ignitable fibers, or high-voltage electrical equipment, they are highly regulated.

ROTALIGN® touch EX is an advanced, high-precision laser alignment system that is intrinsically safe. That means it is certified (by ATEX/IECEx Zone 1) for safe use in hazardous areas. It also can be used without obtaining a hot work permit.

This powerful tool adapts to the asset and alignment situation, even in extreme environments, as well as to the user's experience and skill level. And its ruggedized exterior can withstand the harshest of conditions.

Key benefits of ROTALIGN® touch EX

- **ATEX/IECEx Zone 1 certified**
  Certified for safe use in explosive atmospheres where a mixture with air or flammable substances, in the form of gas, vapors, and mists, is likely to occur during normal operation.
- **Adaptability that saves time and effort**
  Ruggedized device with a guided user interface that fully adapts to your needs. Displays colored real 3D machine models with tablet-like navigation for full control of your measurements.
- **Best measurement accuracy and repeatability**
  Single-laser technology with sensALIGN® 5 EX, offering repeatable high precision and adjusting to any situation or asset.

The ROTALIGN® touch EX is easy to use and transport.

Intrinsically safe: What does this mean?

The ROTALIGN® touch EX from PRUFTECHNIK is intrinsically safe. That means it is designed with extra protection for safe use in high-risk environments.

ROTALIGN® touch EX can also save companies time and money, since no hot working permit is required for its use. Due to its rugged but handy design, you can take it to any place to align your machines – even those outside EX/ATEX rated zones.

- No hot working permit is required
- No further tools, staff, and equipment required to deploy safety on site
- You can start working immediately in any ATEX/IECEx Zone 1 rated environment

The intuitively guided user interface supports the user from the very first beginning up to the reasonable result.

Human-machine interaction

The communication and interaction between the user and the machine being aligned is enhanced due to the cutting-edge design of the ROTALIGN® touch EX's guided user interface.

- Display realistic 3D machine graphics including different color schemes
- Display realistic 3D coupling graphics
- Change the perspective of the 3D machine-train model
- Workflow is predefined; only few default values are required
- Guided and predefined three-step alignment procedure for every application
- Live functionality displays in real time the physical simultaneous corrections in both vertical and horizontal directions

No matter the asset or environment, the ROTALIGN® touch EX always works according to the same principle: Dimensions, Measure, Result.

STEP 1 - DIMENSIONS

Enter your machine and coupling type (including tolerances, if available), then enter the requested dimensions.

STEP 2 - MEASURE

Do the measurement by rotating the shaft.

STEP 3 - RESULT

Get the result directly from the display and survey the physical alignment process in both horizontal and vertical directions in real time.

To avoid misinterpretation, you may rotate the machine view perspective in the 3D model on the display to always get the correct angle of orientation.

During the automated guided flow, the computer automatically focuses on the equivalent component to direct the user accordingly, and to enter the equivalent items such as machine dimensions.

FLUKE Reliability

Why precision alignment is so crucial:

- Decreased power consumption
- Longer machine lifecycle
- Less vibration – leading to less wear
- Lower temperatures on bearing, coupling, and lubrication
- Lower costs for spare parts storing

High-precision results across industries

ROTALIGN® touch EX has been designed for use on any machine or asset across all industries. It can be used on horizontal as well as on vertical machines. High-speed and turbo machines also can be aligned with the same device without any further add-ons or extensions.

Similarly, ROTALIGN® touch EX can be used on any kind of coupled and uncoupled applications, including long spacer shafts or even hard-to-access Cardan shafts. Aligning long machine trains with up to five couplings in a row is also possible.

Automatic error reduction

Getting precise physical measurements largely depends on the accuracy of the measurement method. But environmental circumstances or human influences (e.g., too fast or jerky shaft rotation) also can impact the results. Smart analytics on the ROTALIGN® touch EX computer (known as Quality Factor) filters these impacts, then calculates them out in real time to produce a reliable and repeatable result. Thus, accurate alignment measurements can be obtained even under the harshest conditions.

Connected to the cloud

As much of today's maintenance work is transitioning from expert-driven craftmanship to computer-supported guidance and management, ROTALIGN® touch EX (like its companion non-EX version) is in front of the curve in being WiFi compatible and cloud-ready.

Identify your machine/asset with an RFID tag and the ROTALIGN® touch EX will retrieve all data about that specific machine from the cloud. With direct communication between the ROTALIGN® touch EX device and the PRUFTECHNIK ARC 4.0 software, specialists can archive, analyze, and process alignment data to improve asset performance and reliability. Images taken by the device's integrated high-resolution camera are part of the state-of-the-art alignment report.

ROTALIGN® touch EX ruggedized tablet

General specifications	
CPU	Exynos 7 Octa, 1.6GHz Octa-Core (Cortex®-A53)
Memory	3 GB RAM, 16 GB Flash memory
Display	8" TFT, 1280 x 800 pixels
Connectivity	Wi-Fi 802.11 a/b/g/n/ac (2.4GHz+5GHz) Bluetooth 4.2 RFID
Cameras	8 MP AF + 5 MP
IP Rating	IP 68
Operating temperature	-20 ... +50 °C
Battery	Li-Ion rechargeable battery 3.8 V / 4450 mAh / 16.91 Wh up to 11 hours battery life
Dimensions, Weight	162 x 256 x 33 mm, ca. 1250 g
ATEX (Europe)	Ⓔx II 2G Ex db ia op is IIC T5 Gb Ⓔx II 2D Ex tb ia op is IIIC T100°C Db
IECEx (International)	• Ex db ia op is IIC T5 Gb • Ex tb ia op is IIIC T100°C Db

Wireless EX module

General specifications		
Type		2.4 GHz, Class 1 connectivity, transmitting power 100 mW Contains FCCID P0OWML-C40
Transmission distance		Up to 10 m [33 ft.] direct line of sight
Transmission distance		Up to 10 m [33 ft.] direct line of sight
Power supply	Batteries: Operating time:	2 x 1.5 V IEC LR6 ("AA") batteries Only use Duracell Industrial ID 1500 or Energizer E91 14 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
Temperature range	Operating time:	-10°C to 40°C (14°F to 104°F)
Environmental protection	IP 65:	Dustproof and water spray resistant, shockproof
Dimensions		Approx. 81 x 41 x 34 mm (3 1/8" x 1 11/16" x 1 5/16")
Weight		Approx. 133 g (4.7 oz.) including batteries and cable
Intrinsic safety		II 2G Ex ib IIC T4 Gb, Zone 1 Certificate number: ZELM 11 ATEX 0474 IECEx ZLM 11.0009
CE conformity		Refer to the CE compliance certificate in www.pruftechnik.com

sensALIGN® 5 EX sensor

General specifications		
Type	5-axis sensor: Measurement range: Resolution: Accuracy (avg): Measurement rate:	2 planes (4 displacement axes and angle) Unlimited, dynamically extendible 1 µm (0.04 mil) and angular 10 µRad > 98% approx. 20 Hz
Inclinometer resolution		0.1°
LED indicators		2 LEDs
Environmental protection	IP 65: Relative humidity:	dustproof and water jets resistant, shockproof 10% to 90%
Ambient light protection		Yes
Temperature range	Operation: Storage:	-10°C to 50°C (14°F to 122°F) -20°C to 60°C (-4°F to 140°F)
Dimensions		Approx. 105 x 74 x 53 mm (4 9/64" x 2 29/32" x 2 3/32")
Weight		Approx. 220 g (7.7 oz)
Intrinsic safety		II 2G Ex ib IIC T4 Gb, Zone 1 Certificate number: EPS 15 ATEX 1074X IECEx EPS 15.0067X
CE conformity		Refer to the CE compliance certificate in www.pruftechnik.com

sensALIGN® 5 EX laser

General specifications		
Type		Semiconductor laser diode
Beam power		< 1mW
Inclinometer error		0.3% full scale
Inclinometer resolution		0.1°
Beam divergence		0.3 mrad
Wavelength		630 – 680 nm (red, visible)
Laser class		Class 2 according to IEC 60825-1:2014 The laser complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.
Safety precaution		Do not look into laser beam
Power supply	Batteries: Operating time:	2 x 1.5 V IEC LR6 ("AA") Only use Duracell Industrial ID 1500 or Energizer E91 120 hours
Protection	IP 65: Relative humidity:	dustproof and water jets resistant, shockproof 10% to 90%
Temperature range	Operation: Storage:	-10 °C to 50 °C (14 °F to 122 °F) -20 °C to 60 °C (-4 °F to 140 °F)
Dimensions		Approx. 105 x 74 x 47 mm (4 9/64" x 2 29/32" x 1 27/32")
Weight		Approx. 225 g (7 15/16 oz.)
Intrinsic safety		II 2G Ex ib IIC T4 Gb, Zone 1 Certificate number: EPS 15 ATEX 1 075 IECEx EPS 15.0068 Optical output power laser (failure) < 35 mW
CE conformity		Refer to the CE compliance certificate in www.pruftechnik.com

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