

## TECHNICAL DATA

# Fluke 830 Laser Shaft Alignment Tool



## FEATURES AND BENEFITS

- **Single-laser measurement technology** means reduced errors from backlash, resulting in better data accuracy
- **Intuitive guided user interface** quickly and easily completes machine alignments
- **Compass measurement mode** enables flexible, reliable, and repeatable measurements using an activated electronic inclinometer
- **Dynamic machine tolerance check** provides continuous evaluation of alignment adjustments, so you know when your machine is in acceptable range
- **Unique extend mode** handles gross misalignment by virtually increasing laser detector size
- **Data protection** ensures your data is there when you need it, with auto save and resume capability

## Connected reliability system

It's a known fact—all rotating machinery is susceptible to misalignment. Machines that are well aligned at the commissioning stage and regularly maintained will have reduced wear in couplings, bearings, and seals, all of which means reduced plant operating and maintenance costs.

Accurate shaft alignment contributes to energy savings and a cleaner environment. It protects assets, extends machine availability, and increases product quality, reducing vibration to a minimal level.

Are you still using dial indicators and straightedges to ensure your shaft-driven machines are correctly aligned? If so, you could be losing thousands of dollars per year in replacement bearing and coupling costs, hours of unnecessary repair time, and crippling unplanned downtime, not to mention taking years off your machine's useful life.

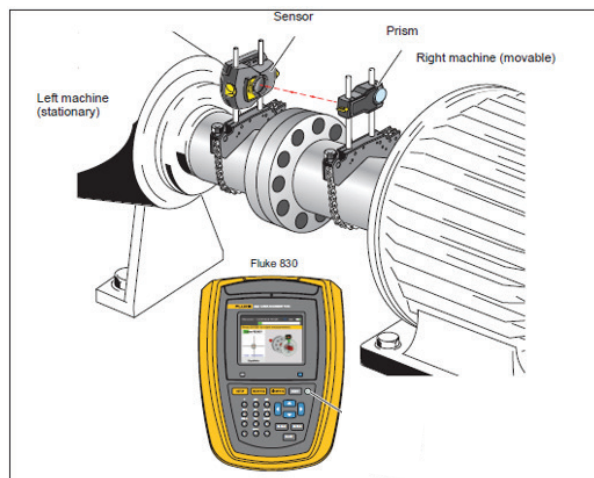
## When uptime matters, picking the right tool is critical

The Fluke 830 Laser Shaft Alignment tool is easy to use and provides you with fast, accurate, and actionable answers to keep your plant up and running. With laser shaft alignment, data is helpful, but insights are even better.

Unlike using the straightedge method or dial indicators, the Fluke 830 performs complicated alignment calculations for you, meaning you'll have the answers you need to align your machine and get your plant humming again quickly. An enhanced user interface provides easy-to-understand results that don't require extensive alignment knowledge. It also offers a unique "All-in-One" result screen that shows you both coupling results and feet corrections (vertical and horizontal) in real terms, making it easy to take corrective action.

Since machine downtime is costly, test repeatability is critical. The Fluke 830 uses a proven single-laser precision alignment system that provides accurate and repeatable measurement results so you can be confident you're addressing misalignment problems properly.

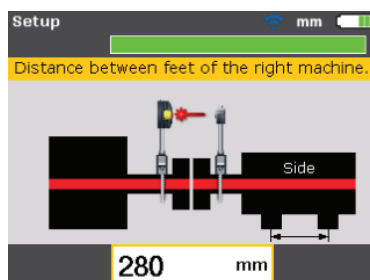
High-quality brackets make certain the sensor and prism don't slip as the shaft rotates.



## Align coupled shafts in four simple steps:

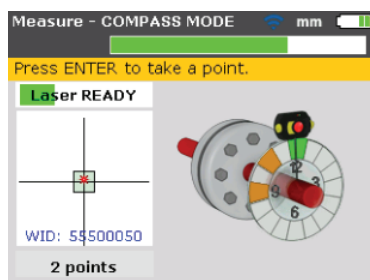
### 1. Setup

Step-by-step input of the machine dimensions.



### 2. Measure

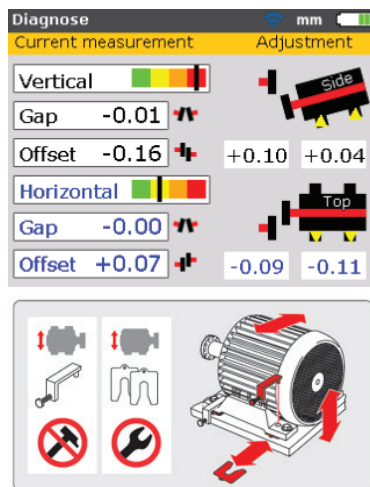
Rotate the shaft and receive instant measurement verification.



### 3. Diagnose/correct

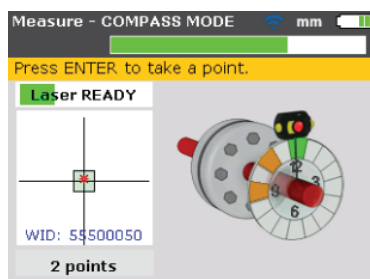
Actual correction numbers are given, along with a 4-level color severity scale indicating whether your machine is misaligned.

“Live” mode provides immediate dynamic feedback while you make adjustments – eliminating the need to perform additional diagnostics.



### 4. Re-measure

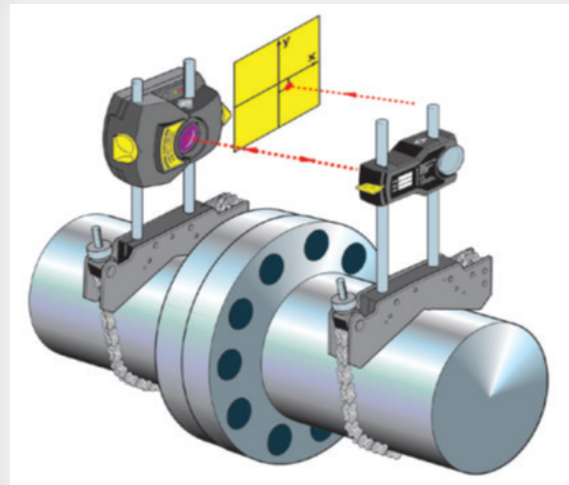
Confirm alignment results. Then print a report, As Found & As Left, to document the job.



## Quick, easy, precise alignments to cover more of your machines:



### Handling gross misalignment:



When machines are well outside of accepted tolerances, it can be difficult to get accurate alignment readings. For these gross misalignment problems, the Fluke 830 uses a unique “Extend” mode that enables better measurement accuracy by automatically increasing the effective sensor measurement area. Increasing the sensor measurement area virtually allows the Fluke 830 to address gross misalignment quickly without the need to perform an initial rough alignment.

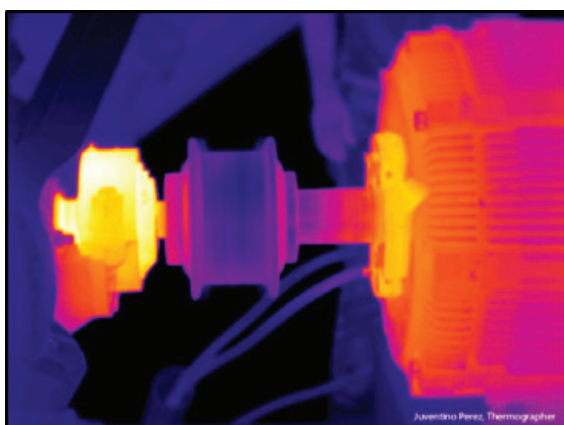
### Additional features and benefits:

1. **Clock mode** for vertical and flanged machines.
2. **Machine Flip** turns over the image of a machine on screen for alignment jobs with obstructions.
3. **Resume mode** to save your work and return at the same step (anytime you need).

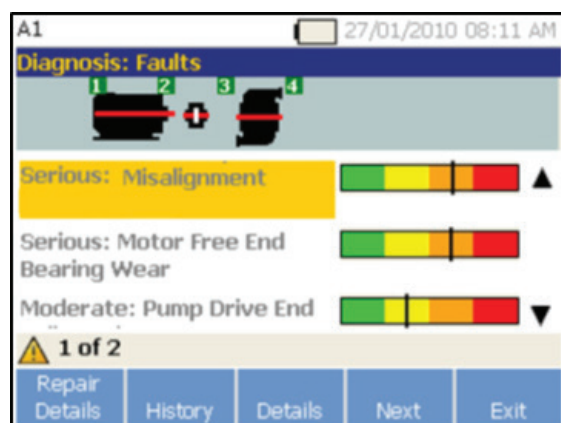
## Fluke predictive maintenance tools help keep your plant up and running:

Fluke offers a complete line of predictive maintenance tools designed to maximize plant uptime. Whether you're using a Fluke vibration tester to diagnose fault and severity, or a Fluke infrared camera to evaluate machine health, our predictive maintenance tools provide the answers you need to reduce unplanned downtime and decrease repair costs. The Fluke 830 Laser Shaft Alignment Tool uses a similar measurement process as the Fluke 810 Vibration Tester, making laser shaft alignment as easy as 1-2-3-4. Just set up the unit, perform the test, evaluate the diagnosis, and check the results.

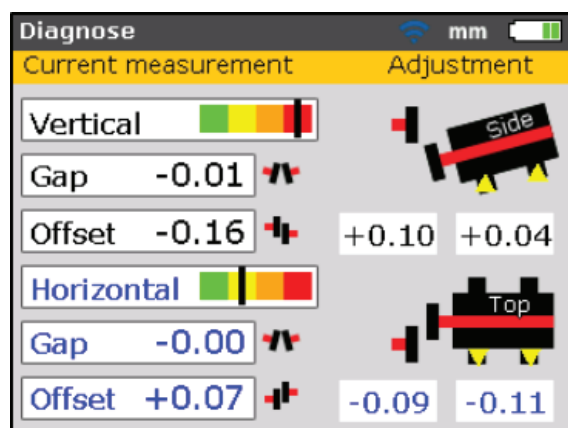
A Fluke infrared camera helps you quickly identify possible machine health problems, and a Fluke vibration tester will further diagnose the problem and determine whether or not misalignment is present. With the Fluke 830 Laser Shaft Alignment tool, you can correct any misalignment, then verify your results with your Fluke infrared camera or vibration tester to check the machine health.



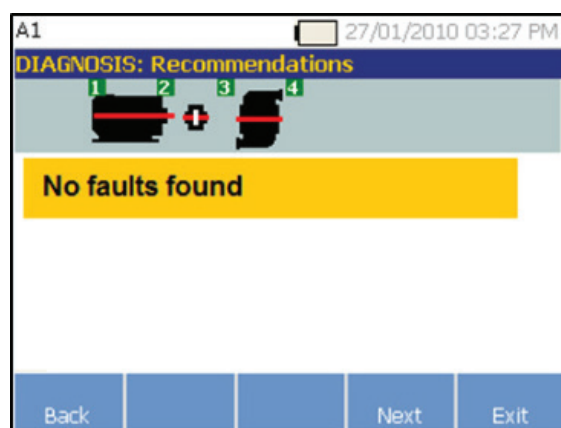
- 1** Identify a potential problem using a Fluke infrared camera.



- 2** Diagnosis and repair recommendation using the Fluke vibration tool.



- 3** Corrective action using the Fluke 830 Laser Shaft Alignment tool.



- 4** Result verification using the Fluke vibration tool.

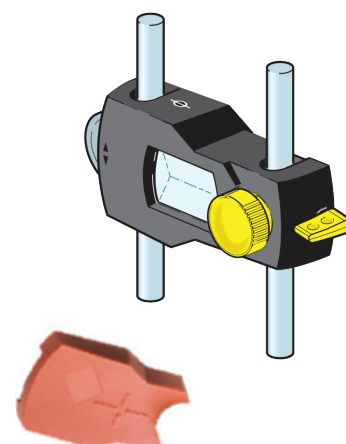
# Technical specifications

| Computer                 |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU                      | Processor: Intel XScale PXA270 running at 312 MHz<br>Memory: 64 MB RAM, 64 MB flash                                                                                                                                                                                                                                                                                                                                                       |
| Display                  | Type: TFT, transmissive (sunlight-readable), 65,535 colors, backlit LED Integrated light sensor for automated adjustment of the brightness to the display according to the lighting conditions - extends battery life<br>Resolution: 320 x 240 pixel; Dimensions: 89 mm (3.5 in) diagonal<br>Keyboard elements: Setup, measure, diagnose, menu, clear, enter, back keys, navigation cursor cross, alphanumeric keyboard and on/off button |
| LED indicators           | Multicolor LED for laser status and alignment condition<br>Multicolor LED for battery status                                                                                                                                                                                                                                                                                                                                              |
| External interface       | USB host and USB device (slave)<br>Integrated wireless communication, Class 1, transmitting power 100 mW<br>AC adapter/charger socket                                                                                                                                                                                                                                                                                                     |
| Environmental protection | IP 65 (dustproof and water spray resistant), shockproof<br>Relative humidity 10 % to 90 %                                                                                                                                                                                                                                                                                                                                                 |
| Temperature range        | Operation: -10 °C to 50 °C (14 °F to 122 °F)<br>Storage: -20 °C to 60 °C (-4 °F to 140 °F)                                                                                                                                                                                                                                                                                                                                                |
| Battery                  | Type: Li-Ion polymer rechargeable battery 7.4 V / 2.6 Ah (optimal);<br>Operating time: Up to 17 hours (33% measurement, 33% computation, 33% sleep mode)                                                                                                                                                                                                                                                                                  |
| Dimensions               | Approx. 220 x 165 x 45 mm (8.7" x 6.5" x 1.8")                                                                                                                                                                                                                                                                                                                                                                                            |
| Weight                   | Approx. 742 g (1.64 lbs.)                                                                                                                                                                                                                                                                                                                                                                                                                 |



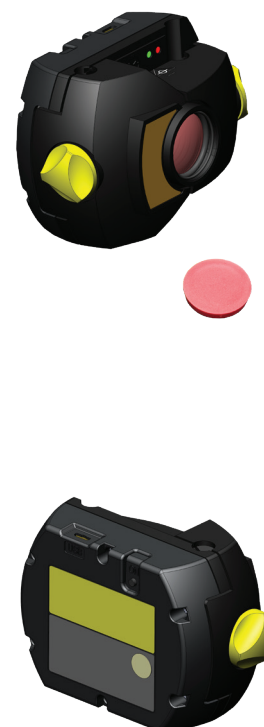
| Carrying case |                                                   |
|---------------|---------------------------------------------------|
| Dimensions    | Approx. 565 x 343 x 127 mm (22.25" x 13.5" x 5")  |
| Weight        | Approx. 5.6kg (12.3 lbs.) with all standard parts |

| Reflector (prism)        |                                                                                    |
|--------------------------|------------------------------------------------------------------------------------|
| Type                     | 90° roof prism; Accuracy (avg): > 99%                                              |
| Environmental protection | IP 67 (submersible, dustproof)                                                     |
| Temperature range        | Operation: -20°C to 60°C (-4°F to 140°F)<br>Storage: -20°C to 80°C (-4°F to 176°F) |
| Dimensions               | Approx. 100 x 41 x 35 mm (4" x 1 5/8" x 1 3/8")                                    |
| Weight                   | Approx. 65 g (2.3 oz)                                                              |



# Technical specifications continued...

| <b>sensALIGN 3 sensor</b> |                                                                                                                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement principle     | Coaxial, reflected laser beam                                                                                                                                                         |
| LED indicators            | 1 LED for laser beam status and battery status                                                                                                                                        |
|                           | 1 LED for Wireless communication                                                                                                                                                      |
| Power supply              | Battery: Lithium-Ion rechargeable battery 3.7 V / 5 Wh;                                                                                                                               |
|                           | Operating time: 10 hours (continuous use);                                                                                                                                            |
|                           | Charging time:<br>Using charger – 2.5 h for up to 90%; 3.5 h for up to 100%<br>Using USB port – 3 h for up to 90%; 4 h for up to 100%                                                 |
| Environmental protection  | IP 65 (dustproof and water spray resistant), shockproof                                                                                                                               |
|                           | Relative humidity 10 % to 90 % (non-condensing)                                                                                                                                       |
| Ambient light protection  | Yes                                                                                                                                                                                   |
| Temperature range         | Operation: -10 °C to 50 °C (14 °F to 122 °F)                                                                                                                                          |
|                           | Charging: 0°C to 40°C (32°F to 104°F)                                                                                                                                                 |
|                           | Storage: -20 °C to 60 °C (-4 °F to 140 °F)                                                                                                                                            |
| Dimensions                | Approx. 105 x 69 x 55 mm (4 9/64" x 2 23/32" x 2 11/64")                                                                                                                              |
| Weight                    | Approx. 210 g (7.4 oz) with dust cap                                                                                                                                                  |
| Detector                  | Measurement range: Unlimited, dynamically extendible                                                                                                                                  |
|                           | Resolution: 1 µm (0.04 mil) and angular 10 µRad                                                                                                                                       |
|                           | Accuracy (avg): > 98%                                                                                                                                                                 |
| Inclinometer              | Measurement range: 0° to 360°;                                                                                                                                                        |
|                           | Resolution: 0.1°                                                                                                                                                                      |
|                           | Inclinometer error (Ta = 22°C): +0.3 % read out                                                                                                                                       |
| Laser                     | Type: Semiconductor laser diode;                                                                                                                                                      |
|                           | Wavelength: 630 – 680 nm (red, visible)                                                                                                                                               |
|                           | Safety class: Class 2 according to IEC 60825-1:2014<br>The laser complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. |
|                           | Beam power: < 1 mW; Beam divergence: 0.3 mRad                                                                                                                                         |
| External interface        | Wireless communication                                                                                                                                                                |
| Transmission distance     | Up to 30 m (98 ft) direct line of sight                                                                                                                                               |



## Order Information

### Fluke 830 Laser Shaft Alignment Tool includes:

Fluke 830 rugged device, sensALIGN 3 sensor with cover, reflector prism with cover, ballistic carrying case, chain-type mounting bracket with 150 mm support posts (2X), 300 mm support posts (4X), tape measure, lens cleaning cloth, device power cable and adapter, PC cable, sensor micro power cable and adapter, USB drive, USB drive cable, safety information sheet and Quick Reference Guide

Visit [www.fluke.com](http://www.fluke.com) to get complete details on these products or ask your local Fluke sales representative.

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