Shaft Alignment

Entry level measurement and alignment system for rotating machines

E420

ENTRY LEVEL REDEFINED!

SETTING A NEW STANDARD

Easy-Laser® E420 sets a new standard in entry level laser systems for shaft alignment. The system includes wireless measuring units, a large 5.7" color display, and an IP65-rated design that can withstands harsh environments. These are the features you would normally only find in more expensive systems!
Simply put, Easy-Laser® E420 has everything an entry level system should have, and more. Take the next step into wireless freedom!

HORIZONTAL MACHINES

Horizontally mounted machines often consist of a pump and a motor, but can also include other types of machines such as gearboxes and compressors. Regardless of the machine type, it is easy to measure and align with Easy-Laser® E420.

VERTICAL/FLANGE-MOUNTED MACHINES

This program is used for alignment of vertical and flange-mounted machines, e.g. pumps, motors, gear boxes. Shows center offset, angular error and shim value at each bolt.

VALUES – DIGITAL DIAL INDICATOR

V 0.00
H 0.00

The Values program can be used e.g. when one wants to measure as with dial gauges and to check bearing play. With the standard equipment and completely normal set up on the machine!

Easy-Laser® is used to align pumps and motors for all types of installations in a variety of industries. Correctly set-up and aligned machines are necessary to reduce energy consumption and achieve optimum service life.

Easy-Laser® is used to align generators and gearboxes in wind turbines of a number of sizes and makes. Special brackets are available for alignment with locked rotors to increases the safety of the operator.

EASY-LASER® E420 HIGHLIGHTS

- *Easy to learn and to use.*
- *Compact measuring units for use on most machine designs.*
- *All wireless units (Built-in wireless technology and integrated rechargeable battery).*
- *Large, easy to read 5.7" color display.*
- *Programs with both symbols and text = easy to understand.*
- *TruePSD technology with unlimited resolution.*
- *Dual PSD, dual laser beams and dual inclinometers for superior control and accuracy.*
- *3 year warranty gives assurance.*
- *Fast service and support.*
- *Low overall costs during the entire lifecycle of the product, for example calibration, accessories, etc.*

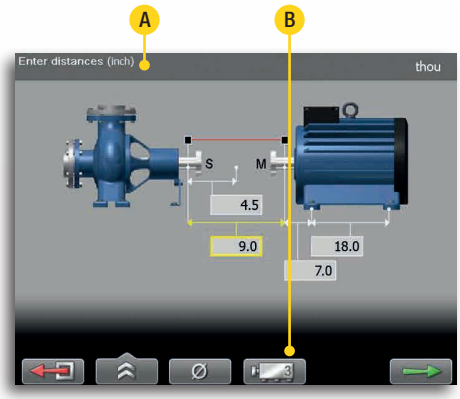
THIS IS HOW IT WORKS

EASY TO USE

Alignment should be easy! That is the fundamental philosophy behind our measurement systems. The simple mounting system and straightforward user interface make the Easy-Laser® E420 easy to learn, easy to understand and easy to use! To the right you can see the procedure for measurement of a horizontal machine.

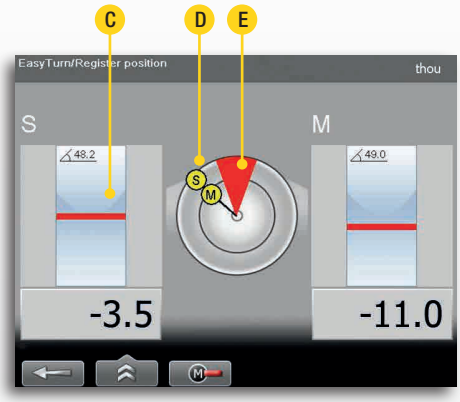
EASY TO USE = FAST RESULTS

- *Mount the equipment quickly with the pre-mounted units.*
- *Start measurement anywhere on the revolution, without the need for an exact position, then turn a minimum 20° to the next position.*
- *Adjust the machine in live mode in both Horizontal and Vertical directions.*



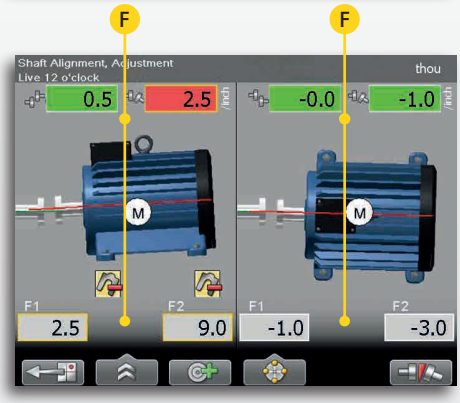
1. Enter the distances between measuring units and the machine feet. If you enter the coupling diameter you can also get the result as gap/sag.

A. Information field. States what you must do at each stage of the measurement.
B. You can also measure machines with 3 feet pair.



2. Take the measurement values in three positions with as little as 20° between.

C. The detector surface is shown on the screen and functions as an electronic target for the laser beams.
D. The measuring unit's position is shown.
E. 20° marking.



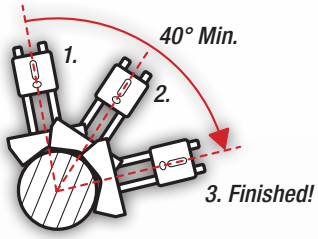
3. The live values reflect the adjustments made to the machine. For clarity, the adjustment is displayed both graphically and numerically. Horizontal and Vertical directions are shown at the same time.

F. Shims values and horizontal adjustment values. Offset and angular values are color coded in order to determine the result more quickly: red=outside tolerance, green=inside tolerance.

4. Document the measurement result. See next page for more information.

SMART FUNCTIONS

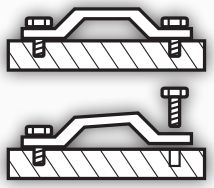
Start measurement at any position!



EASYTURN™

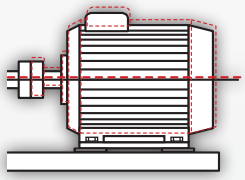
The EasyTurn™ function allows you to begin the measurement process from anywhere on the turn. You can turn the shaft to any three positions with as little as 20° between each position to register the measurement values. Voila! Measurement is complete!

SOFT FOOT CHECK



Alignment work begins with a soft foot check. The soft foot check ensures that the machine is resting evenly on all its feet by indicating which foot/feet should be adjusted. This is an important part of securing a reliable alignment.

THERMAL GROWTH COMPENSATION



Oftentimes, machines expand considerably when moving from a cold to hot operating temperature. The Thermal Growth Compensation function allows the measurement system to calculate the appropriate shims and values needed to make adjustments in such cases.

TOLERANCE CHECK

Measurement results can be checked against pre-defined tolerance tables or values you determine yourself. This allows you to immediately see if the alignment is within the approved parameters, thereby considerably reducing the amount of time spent on alignment.

MEASUREMENT VALUE FILTER

An advanced electronic filter function can be used to achieve reliable results even under poor measuring conditions. Air turbulence and vibrations from adjacent machines are no match for the Easy-Laser® E420 advanced filter function!

LIVE-ANY-ANGLE 360°

This function allows you to adjust machines in real time with the measuring units positioned anywhere on the shaft. It is ideal for situations in which outside objects interfere with normal positioning.

MULTIPLE SETS OF FEET

The software can adjust to machine designs of most types such as those with two pairs of feet, three pairs of feet, and feet in front of the coupling, etc.

DOCUMENTATION

SAVE IN BUILT-IN MEMORY

Save all measurements in the Display unit's internal memory.

SAVE TO USB MEMORY

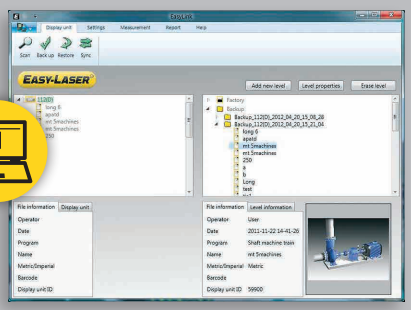
Save desired measurements on your USB memory. This enables you to take it to your computer to print reports whilst leaving the measurement system in place.

MAKE A PRINTOUT

Quickly print all measurement data locally with a thermal printer (accessory).

EASYLINK™

With the EasyLink™ database program for PC you can save and organize all your measurements in one place, produce reports with both data and images and export to your maintenance systems.



SYSTEM PARTS

DISPLAY UNIT

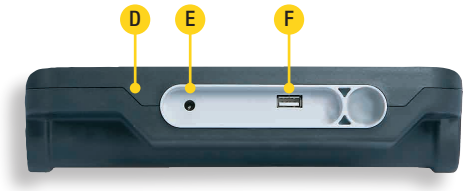
The display unit has a thin, easy-to-grip rubber coated exterior for secure handling. The large well-spaced panel buttons correspond to clear graphics that guide you through the measurement process with ease.
Water and dust proof to class IP65.

LANGUAGE SELECTION
Choose the language that you want to appear on screen. English, Spanish, German, French, Portuguese, Swedish, Finnish, Russian, Dutch, Polish, Korean and Chinese are available. More languages to follow.

FEATURES

- *Robust, rubber coated design, IP65*
- *Large 5.7" color display*
- *Language selection and symbols*
- *Guiding software*
- *Large internal memory*
- *User profiles with your personal settings*
- *Integrated calculator*
- *Conversion tool for length units*
- *USB interface*

A. Battery status check. Possible without starting up the system.
B. Large, easy to read 5.7" color display.
C. Escape button.



D. Robust, rubber coated design
E. Connection for charger
F. USB A
Note: Dust and splash guard for connectors removed on picture.

MEASURING UNITS

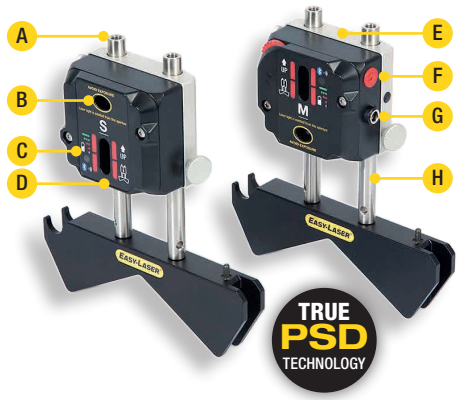
The measuring units have large detectors (TruePSD) that allow you to measure from distances up to 10 feet (3 meters). The substantial design made of aluminum and stainless steel guarantees precise measurement and reliable alignment in even the toughest environments. The measuring units are water and dust proof to class IP65.

ALWAYS WIRELESS CONNECTION
The measuring units are connected to the Display unit wirelessly, which gives you full freedom to move around your machines with the Display unit!

CHARGING
For charging, connect the two measuring units to the Display unit with the supplied splitter cable. This way you can also supply the measuring units with power during measurement, if needed.

FEATURES

- *Compact units with built-in wireless technology as standard. Integrated rechargeable battery.*
- *TruePSD technology with unlimited resolution for greatest accuracy.*
- *Large 0.78" detectors [20 mm].*
- *Dual laser beams and PSDs.*
- *With electronic inclinometers in both measuring units, the system knows exactly how they are positioned making it easier to align uncoupled shafts.*
- *Pre-mounted units for quicker mounting.*
- *Digital targets, i.e., onscreen position of the laser beams.*
- *Sturdy aluminum body. IP65 design.*
- *Compact units, easy to mount on the machine also when space is limited*
- *Battery status indicator on the unit.*



A. The rods have a height of 2.4–7.1". If necessary they can be extended "infinitely" with additional rods. Made of stainless steel.
B. Laser aperture (line laser)
C. LED indicator
D. PSD (0.78"/20 mm)
E. Sturdy aluminum body
F. On/Off button
G. Connector for charger cable
H. Pre-mounted units/brackets

System	
Relative humidity	10–95%
Weight (complete system)	13.9 lbs [6.3 kg]
Carrying case	WxHxD: 19.7"x16.3"x6.7" [500x415x170 mm]

Measuring units ELM20 / ELS20	
Type of detector	True PSD 0.78" [20 mm]
Communication	BT wireless technology
Operating time	>4 hr
Resolution	0.5 mils [0.01 mm]
Measurement accuracy	± 5 µm ± 1%
Measurement range	Up to 10 feet [3 m]
Type of laser	Diode laser
Laser wavelength	630–680 nm
Laser class	Safety class 2
Laser output	<1 mW
Electronic inclinometer	0.1° resolution
Thermal sensors	-20–60 °C
Environmental protection	IP class 65
Operating temperature	-10–50 °C
Housing material	Anodized aluminum / ABS plastics
Dimensions	WxHxD: 2.72"x2.42"x1.63" [69.0x61.5x41.5 mm]
Weight	6.2 oz [176 g]

Display unit	
Type of display/size	VGA 5.7" color screen, backlit LED
Displayed resolution	0.5 thou / 0.01 mm
Internal battery (fixed)	Heavy duty Li Ion chargeable
Operating time	Approx. 30 hours (at typical user cycle)
Operating temperature	-10–50 °C
Connections	USB A, Charger
Communication	BT wireless technology
Internal memory	>2000 measurements can be saved
Help functions	Calculator, Unit converter
Environmental protection	IP class 65
Housing material	PC/ABS + TPE
Dimensions	WxHxD: 9.8"x6.9"x2.5" [250x175x63 mm]
Weight	2.0 lbs [910 g]

Cable	
Charging cable (splitter cable)	Length 39.4" [1 m]

Brackets etc.	
Shaft brackets	Type: V-fixture for chain, width 0.7" [18 mm].
	Shaft diameters: 0.8"–17.7" [20–450 mm]
	Material: anodized aluminum
Rods	Length: 4.72", 2.36" [120 mm, 60 mm] (extendable)
	Material: Stainless steel

EasyLink™ Data base software	
System requirements	Windows® XP, Vista, 7, 8 10. For the export functions, Excel 2003 or newer must be installed on the PC.

A complete system contains	
1	Measuring unit M
1	Measuring unit S
1	Display unit
2	Shaft brackets with chains
2	Extension chains
4	Rods 4.72" [120 mm]
4	Rods 2.36" [60 mm]
1	Measuring tape 9.8' [3 m]
1	Charger (100–240 V AC)
1	DC split cable for charging
1	DC to USB adapter, for charging
1	Quick reference manual
1	USB memory with manuals and EasyLink™ PC software
1	Carrying case

System Easy-Laser® E420 Shaft, Part No. 12-0745

A. Magnet base, Part No. 12-0013
B. Magnetic bracket, Part No. 12-1147
C. Thin shaft bracket, Part No. 12-1012
D. Sliding bracket, Part No. 12-1010
E. Offset bracket, Part No. 01-1165
F. Extension chain, Part No. 12-0128

G. Extension rods
Length 1.18" [30 mm], (1 x) Part No. 01-0938
Length 2.36" [60 mm], (4 x) Part No. 12-0059
Length 4.72" [120 mm], (8 x) Part No. 12-0324
Length 9.44" [240 mm], (4 x) Part No. 12-0060

OPTIONAL BRACKETS ETC.

A

B

C

D

E

F

G

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This product complies with: EN60825-1, 21 CFR 1040.10 and 1040.11. Contains FCC ID: PVH0946, IC: 5325A-0946.
Documentation ID: 05-0651 Rev5

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT

CE

ISO 9001 CERTIFIED

3 YEAR WARRANTY

GLOBAL SUPPORT

LUDECA
Keep it running.

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