

# NXA Ultimate

GEOMETRY MEASUREMENTS



**acoem**  
CREATING ENVIRONMENTS OF POSSIBILITY

## Welcome to our world.

Since the very beginning in 1984, ACOEM AB has helped industries throughout the world to achieve more profitable and sustainable production. We have reached where we are today by having the courage to think beyond the norm and follow slightly unconventional paths. We have had the courage to make mistakes and find new directions. Through our resolve, ambition and knowledge we have become a global player and a leader in innovative, user-friendly shaft alignment.

## Fixturlaser NXA Ultimate

### The Name Says it All

With the Fixturlaser NXA Ultimate you have covered any kind of angle that needs to be covered of your machinery. It includes shaft alignment applications as well as geometric applications, hence, as the name says, it is an ultimate measurement tool.

### Latest Technology for Fast and Intuitive Handling

The Fixturlaser NXA Ultimate utilizes the latest technology in both the display unit and in the sensor units. We have implemented new technology by using CCD, digital signal processing, a 3D animated and adaptive graphical user interface, as well as other innovations, to provide the users with an even faster and intuitive measurement and alignment process.

### Ultimate Measurement Tool for Optimal Operation Conditions

With a mix of shaft alignment and geometry applications, you are safeguarding your machinery's operation condition. Regular maintenance checks or installations of new machinery, you have what you need in the Fixturlaser NXA Ultimate. Machine foundations need to be checked for any flatness faults, before the machine is actually installed, hence the flatness application. And once installed, the machine's alignment status must be measured. With everything verified to be perfectly aligned, you can also ensure the machinery's optimal operation conditions.

### Green Benefits

The benefits of precision shaft alignment (reduced vibration levels, less wear on bearings and mechanical seals, and lower power consumption) and correctly installed machinery will result in lower operating costs, not to mention fewer unplanned stoppages.

By minimizing wear, production stoppages and costs, you will also contribute to a more sustainable environment!



### TRUE POSITION SENSING

- Live Values during Adjustment
- VertiZontal Moves = Measure Once, Move in Two Directions
- Both Shaft Positions Monitored Simultaneously



### GRAPHIC WORK FLOW

- Icon Based – Adaptive User Interface
- Color Touch Screen
- Screen Flip



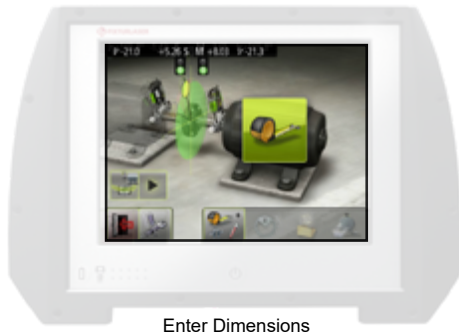
### ALIGNMENT INTELLIGENCE

- 2nd Generation Digital Sensor
- All Digital System
- Unparalleled Signal Control



# Adaptive User Interface Fixturlaser NXA Ultimate will guide you throughout the measurement, step by step.

## Shaft Alignment



Enter Dimensions



Measure



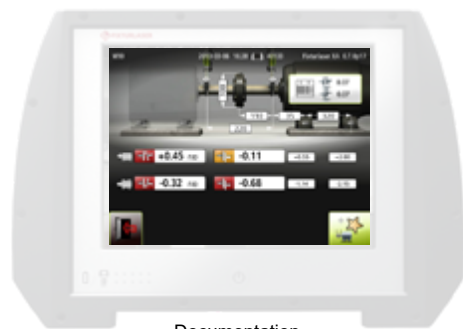
Evaluate Results



Correcting Vertically

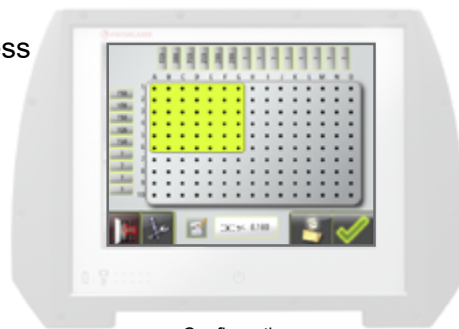


Correcting Horizontally



Documentation

## Rectangular Flatness



Configuration



Measure



Adjustment

## Shaft Alignment

The Fixturlaser NXA Ultimate comes with technology enabling functions and capabilities, which in many cases are industry firsts, for example:

- CCD detectors with ultra high definition resolution.
- New sensor units with Bluetooth incorporated are the industry's most compact, yet they feature a 30 mm detector surface and line lasers.
- The OmniView feature keeps track of the position of both the user and the machine to show the screen display from the user's perspective, thanks to the built-in gyroscope (6-axis MEMS Inertial Motion Sensor) in the display unit.
- Ability to keep track of the position of the sensors in both the vertical and horizontal orientation, and any inclination inbetween, when performing a shaft alignment, thanks to the built-in gyroscope in the sensor units. Hence, you are then able to perform a shaft alignment on vertically mounted machines where it is not possible to do a 180° shaft rotation.
- Excellent power management – 10 hours on one charge.



### Fixturlaser NXA Ultimate Display Unit

The Fixturlaser NXA Ultimate's display unit is IP65 sealed and rugged. It has a rubber coated housing and a brushed aluminum frame. With a video game realistic and adaptive graphic user interface, you are guided throughout the measurement and adjustment process. Last but not the least, the display unit is one of a kind in the market as it is fitted out with the largest color touch screen, a whole 6,4" in size.



### Fixturlaser NXA Ultimate Sensor Units

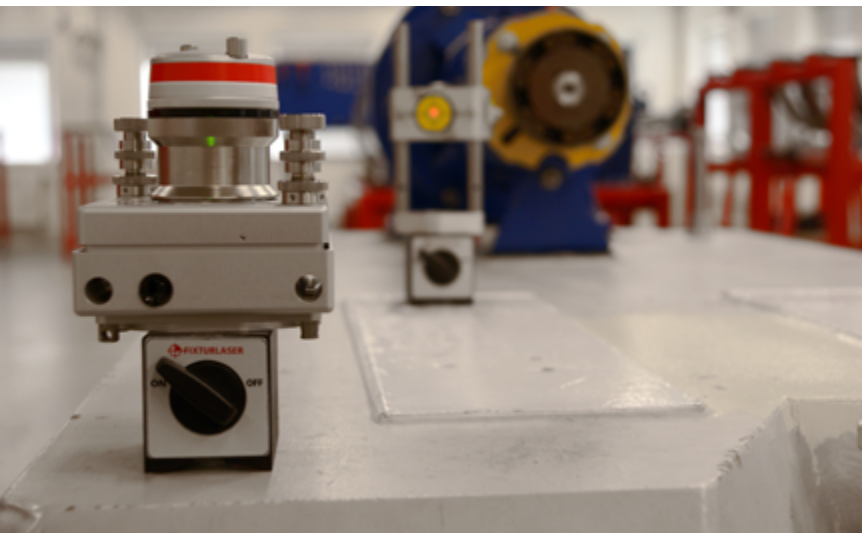
Our very compact sensor units, 33,5 mm in width, have sensors utilizing CCD technology in order to achieve high precision alignment. With dual high precision inclinometers, and a gyroscope in each sensor unit, you have the most accurate and precise sensor of its kind on the market. To increase the mobility around your work site, the Fixturlaser NXA Ultimate's sensor units are equipped with Bluetooth units, i.e. wireless connection.



# Geometric Measurements

Fixturlaser's laser based geometry system is characterized by its user friendliness and versatility, such as:

- Flatness measurements on foundations and machine beds to obtain optimal prerequisites for machine installations. Measurements can be done on foundation with both rectangular and circular configurations.
- Straightness measurements on machine beds, guideways, or support structures, are also available with the Fixturlaser NXA Ultimate.
- The graphic user interface is intuitive and 3D animated, with icons and color coded symbols to guide you throughout the measurement and alignment process.
- Live values during measurement and simultaneous live adjustment, in both vertical and horizontal orientation (X and Y values), during the adjustment process.
- Measurement results in micron resolution.
- Post-measurement evaluation means that you can process saved measurement results in order to choose the best reference. This will result in as few corrections as possible.



Some features relating to the geometry applications are:



### Best Fit:

You have the option to allow the system to calculate a reference line or plane, which illustrates the best fit, i.e. the least deviation for each measurement point in relation to the reference line or plane that has the least deviation of the measurement points.



### Express Navigation:

When you select which points to measure, you will find that the highlighted measurement point is surrounded by its neighbor points enabling you to choose them without exiting the measurement screen.



### The Touch and Release:

The system gives you full freedom to record your measurements in any order you want. The touch and release function makes it easy to select the point to measure. Touch the screen, slide your finger across the display and release the finger at the point you want to measure. Together with the color screen and the graphical interface, you can very quickly manoeuvre in your configuration even if many measuring points have to be registered.



### Use of Reference Sensor:

With an additional sensor, you can use it as a reference sensor and zero it at the start of the measurement process. You are then able to control, without exiting the measurement screen, that the transmitter has not been moved during the actual measurement, which would cause incorrect measurement values.

# Features Fixturlaser NXA Ultimate

## OmniView

The OmniView function shows the machine from the same side as the user is positioned. Thanks to the built-in gyroscope the Fixturlaser NXA Pro is capable of keeping track of both you and the machine!



## VertiZontal Moves

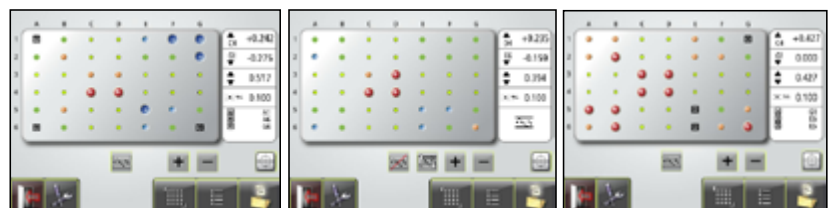
If the machine is misaligned, you will be recommended to go to a shims result view. The Fixturlaser NXA Pro calculates how much you need to remove or add shims in order to correct the machine vertically. When moving on to horizontal correction, the system goes live and will deliver real time values during the adjustment phase. No remeasurements in between adjustments are necessary, as you are never in doubt of the machine's true position.



## Fast Evaluation of Measuring Results

The Best Fit function is used to evaluate if the results are within tolerance or not. There are three alternatives for setting the reference plane:

- Pick the lowest points as reference and set the others as high points. Useful if machining is required.
- Pick the highest points as reference and set the others as low points. Useful when shimming. You can pick any three points as reference and present all other points in relation to the selected reference plane.



## Fixturlaser NXA Ultimate Application



### Horizontal Shaft Alignment

Determine and correct the relative position of two horizontally mounted machines that are connected, such as a motor and a pump, so that the rotational centers of the shafts are collinear.



### Vertical Shaft Alignment

Determine and correct the relative position of two vertically/flange mounted machines that are connected, such as a motor and a pump, so that the rotational centers of the shafts are collinear.



### Machine Train™ Alignment

Align a set-up of more than two rotating machines that are connected to each other.



### Softcheck™

Softcheck™ checks if there is a soft foot condition, i.e. when the motor is not resting firmly on all its feet.



### Target Values

Pre-set target values before starting your alignment work when you have determined the machines thermal expansion.



### Machine Defined Data

Information such as entered distances, measurement method, target values and tolerances are saved in a template.



### Feetlock™

Solution to solve base-bound and/or bolt-bound machines.



### Memory Manager

Measurements can be organized in folders and subfolders. Single measurements and/or complete data structures can be copied to USB stick.



### Hot Check™

Performing a measurement just after the machine has been shut off, and another measurement when the machine is cold. The Hot Check application is then used to compare these two measurements. The difference between the two measurements can be used as target values when shaft alignment is performed.



### Circular Flatness

A laser plane is used as reference in the circular flatness application. The deviation in distance between the laser plane and the measurement object is measured in one or more positions with the use of the receiver.



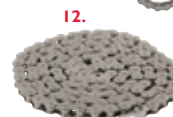
### Rectangular Flatness

The rectangular flatness measurement program uses a laser plane as reference. The deviation in distance between the laser plane and the measurement object is measured in one or more positions with the use of the receiver.



### Straightness

With the straightness application, straightness can be measured in two axes. The laser beam is used as reference and the deviation in distance between the laser beam and the measurement object is measured in two or more positions, with the use of the receiver.



1. Display unit 2. Fixturlaser M3 Transmitter/Sensor Unit 3. Fixturlaser S3 Transmitter/Sensor Unit 4. V-bracket 5. Ext. power cable 6. USB cable A-mini 7. Power supply 8. USB stick 9. 2 pcs Angled universal tool 10. 2 pcs Magnetic v-bracket 11. Magnetic base 12. Chain 8 mm 60 links L=970 mm 13. Rod kit 14. Extension fixture 15. Tape measure 5 m 16. T21 Holder plate 17. T21 Holder plate 18. XA RM Sensor Unit 19. BT2 Wireless Unit 20. Magnet base, detector holder

<b>Fixturlaser NXA Ultimate System</b>	
Weight including all standard parts:	14,4 kg (31,75 lb)
Dimension:	510 mm x 417 mm x 214 mm (20 in x 16,4 in x 8,4 in)
<b>Display Unit</b>	
Weight:	1,2 kg (2,6 lbs) with battery
Dimensions:	124 mm x 158 mm x 49 mm (4,9 in x 6,2 in x 1,9 in)
Environmental protection:	IP 65 (Dust tight and protected against water jets)
Display size:	6,5" (165 mm) diagonal (133 x 100 mm)
Gyroscope:	6-Axis MEMS Inertial Motion Sensor with drift compensation and automatic field calibration.
Operating time	10 hours continuous use (with 50% LCD backlight)
Battery charging time (system off, room temperature):	5 hours (1 hour charge – 6 hours operating time)
<b>S3/M3 Transmitter/Sensor Units</b>	
Weight:	192 g (6,8 oz) with battery
Dimensions:	92 mm x 77 mm x 33 mm (3,6 in x 3,0 in x 1,3 in)
Environmental protection:	IP 65 (Dust tight and protected against water jets)
Measurement distance:	Up to 10 m
Detector:	Ultra HD CCD
Detector length:	30 mm (1,2 in)
Detector resolution:	1 µm
Measurement accuracy:	0,3% ± 7 µm
Gyroscope:	6-Axis MEMS Inertial Motion Sensor with drift compensation and automatic field calibration
Operating time:	17 hours continuous use (measuring)

Battery charging time (system off, room temperature):	8 hours
<b>Shaft Brackets</b>	
Shaft diameter:	Ø 20-450 mm (3/4"-18")
Rods:	4 pcs 85 mm and 4 pcs 160 mm (extendable to 245 mm)
<b>XA RM Sensor Unit</b>	
Weight:	116 g (4,1oz)
Dimensions:	57 x 50 x 40 mm (2.2 x 2.0 x 1.6 in)
Detector size:	20 mm x 20 mm (0.8 in x 0.8 in )
Measurement accuracy:	1% ± 3 µm

<b>T21 Transmitter</b>	
Housing Material:	Anodized aluminium
Operating Temp:	0 to 50°C (32 to 122°F)
Storage Temp:	-20 to 70°C (-4 to 158°F)
Weight:	1150 g
Laser class:	Class 2
Dimensions:	100 x 103 x 109 mm (3.9 x 4.1 x 4.3 in)
Measuring distance:	Up to 20 meters (66 feet)
Laser sweep flatness:	±0,02 mm/m
Angular prism accuracy:	±0,02 mm/m
Power supply:	2 batteries type LR6
Operating time:	15 hours continuously
<b>BT2 Wireless Unit</b>	
Weight:	190 g (6.7 oz) with batteries
Dimensions:	82 mm x 50 mm x 40 mm (3.2 in x 2.0 in x 1.6 in)
Wireless communication:	Class II Bluetooth transmitter
Communication range:	10 m (33 ft)
Power supply:	3 AA (LR6) batteries
Operating time:	10 hours continuously



## About acoem

Creating environments of possibility

In today's fast-moving world, the environment is increasingly impacted. The Acoem Group is committed to sustainable development and help companies and public authorities limit their environmental impact by offering products and services that:

- Prevent and control air, noise and vibration pollution;
- Increase the productivity and reliability of industrial machinery;
- Contribute to the development of effective, robust & noiseless products;
- Protect soldiers, sites and vehicles in military theaters of operation.

The Acoem Group is based in Limonest, France, and has 17 subsidiaries and offices around the world. The Group generates an annual turnover over €100 million and currently employs 750+ people globally.

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OFICJALNY DYSTRYBUTOR  
VIMS Sp. z o.o.

Os. II Pułku Lotniczego 1H/71, 31-867 Kraków, POLSKA  
Tel: +48 12 446 40 50, E-mail: [info@vims.pl](mailto:info@vims.pl)  
[www.vims.pl](http://www.vims.pl)