

До: „АЕЦ Козлодуй“ ЕАД  
гр. Козлодуй 3321

Относно: пазарни консултации № 53562 за „Доставка на система лазерна за центроване на електропомпени агрегати“

На вниманието на:

Христо Пачев

Гл. експерт „Маркетинг

Тел.: +359 973 7 6140

E-mail: [HPatchev@npp.bg](mailto:HPatchev@npp.bg)

## ИНДИКАТИВНО ПРЕДЛОЖЕНИЕ

по проведени пазарни консултации № 53562 за „Доставка на система лазерна за центроване на електропомпени агрегати“

ОТ

### „МВ КОРПОРЕЙШЪН“ ЕООД

ЕИК: 206475290; ИН по ДДС: BG206475290, тел.: 0896976769

седалище и адрес за кореспонденция: гр. София 1612, ж.к.: Лагера“, бл.52, вх. Г, ет. 5

лице за контакт: инж. Марианна Витанова – Управител

Уважаеми г-н Пачев,

Имаме удоволствието да Ви предложим нашето индикативно предложение по гореспоменатата пазарна консултация № 53562, както следва:

№	ИД по ВААН	Наименование	Технически характеристики	М-ка	К-во	Стандарт, нормативен документ, каталожен номер и др.	Производител	Ед. цена/лв. без ДДС	Ст-ст/лв. без ДДС
1.	121299	Система лазерна за центроване на валолинии  Модел: AT-400 D	Система лазерна за центроване на валолинии, с точкови лазери и Bluetooth модули за безжична комуникация, дисплейна единица с вграден Bluetooth; Измервателна единица S с 2-осов детектор, резолюция 0,001 мм; Измервателна единица M с 2-осов детектор, резолюция 0,001 мм;	Бр.	1	2014/35/EU 2014/53/EU 2012/19/EC 2011/65/EU 2006/66/EU 2001/95/EC	Производител:  Асоет АВ - Швеция	43 630,00	43 630,00

			Bluetooth модул за безжична комуникация; Магнитен блок и магнитни V-скоби; V-образни мотажни скоби с верига; Удължителна верига; Скобите за центриране на вертикални помпи са същите като за хоризонтални, Комплектован с кабели, предпазен калъф и куфар.					
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**Търговски условия:**

1. Посочените цени са в лева без ДДС, с включени всички разходи за доставка.
2. Срок на доставка: до 90 календарни дни.
3. Условия на доставка: DDP гр. Козлодуй.
4. Гаранционен срок: 24 месеца от датата на доставка.
5. Начин на плащане: до 30 календарни дни от приемане на доставката.
6. Валидност на офертата: 30 дни.

**Списък на съпровождащите стоката документи:**

1. Декларация за съответствие.
2. Декларация за произход.
3. Инструкция за експлоатация.
4. Гаранционна карта.
5. Приемо-предавателен протокол.
6. Оригинална данъчна фактура.

Дата: 15.04.2024 г.  
гр. София

С уважение:  
инж. М. Витанова - Управител



# ACOEM AT-400

## Technical Datasheet

Innovative and groundbreaking, the 2-axis PSD shaft alignment tool redefines the standards of precision and efficiency in alignment procedures.

- Unleash productivity and efficiency with advanced sensors and precise 2-axis measurement, delivering superior results across diverse applications.
- Intuitive and user-friendly interface for simplified navigation and an enhanced user experience.



Maximize machinery performance with our 2-axis shaft alignment tool. Achieve precise alignment, minimize vibration, and extend equipment lifespan



Easily verify the presence of soft foot with the **SoftCheck™** feature to make a reliable alignment



Get better automatic guidance for a base-bound or bolt-bound situation with the **FeetLock™** function



Align machines in horizontal and vertical direction in only one move with Acoem **VertiZontal™** feature and save time



Easily manage thermal growth with **Target values**



The **Multiple Feet function** is useful for machines with more than two pairs of feet to ensure proper alignment.



The **spacer shaft function** is used when the alignment is performed on machinery using membrane coupling.



### Hot Check™

Target values obtained by measuring in cold condition and then in hot condition to determine the machine's thermal expansion.



**Offset/Cardan** provides you with shaft alignment of horizontally and vertically mounted machines with offset drive shaft.

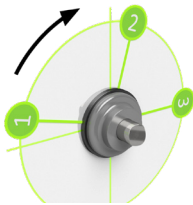


The large detector features a 20x20 mm<sup>2</sup> size and offers a high-resolution of 0.001 mm, making it ideal for precise position sensing and different measurement applications.



Introducing the market's thinnest 2-axis sensor, weighing 306 g. With a 20-meter measurement range, it revolutionizes precision applications with its compact design and exceptional accuracy.

## Measuring methods.



### Tripoint™ method

In the Tripoint method, the alignment condition can be calculated by taking three points while rotating the shaft at least 60°. In this method, all points are taken manually.



### Multipoint method

This function enables measurement initiation from any position on the rotation, allowing recording of multiple points for optimized calculations. Ideal for turbine and sliding bearing applications.



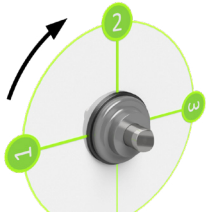
### TRIPOINT Express™ method

This method seamlessly incorporates the Tripoint approach, offering the added advantage of fully automated measurements throughout the process.



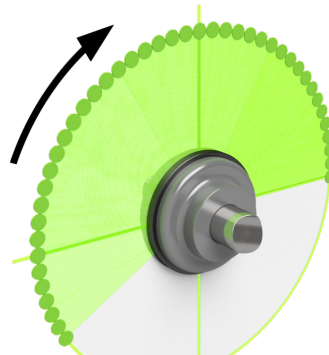
### Multipoint Express method

Our method follows the classic Multipoint method approach, but with the advantage of automated measurements for greater convenience.



### Clock™ method

In the Clock method, machinery positions are calculated by taking three points with 180° of rotation.



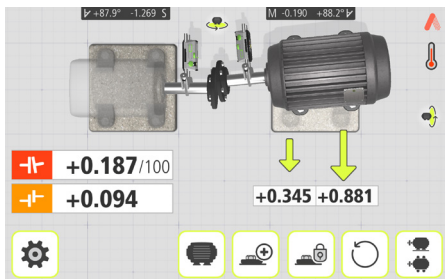
### SWEEP method

The Sweep method automates the measurement recording during a sweep of the shafts, providing a convenient way to assess alignment on coupled machines. By recording numerous points a precise result is ensured. The recording of data is stopped manually.

### SWEEP Express method

Our method is similar to the classic Sweep method, but with one key distinction: data recording halts automatically when shaft rotation ceases.

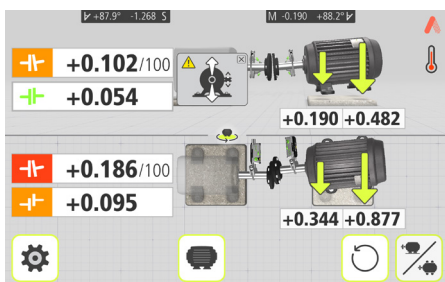
## Our ACOEM AT-400 Premium product is packed with helpful features.



Effortlessly navigate through our user-friendly interface, **GuideU™**, designed to make it a breeze to follow and understand.



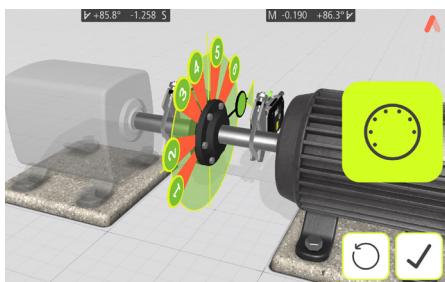
Get the position of both the shafts in real time with Acoem **True Live™** feature



**DUAL VIEW** for large machines, enabling real-time alignment visualization in both horizontal and vertical directions simultaneously.



Instantly generate an automatic **PDF report** from the field on the mobile device, and add logo



Take pictures of your machines and setup to illustrate automatically in the report

## Sensor Specifications

Hardware Type	M9 1-1216, S9 1-1217
<b>Physical</b>	
Housing Material	Anodized Aluminum frame and high impact ABS plastic.
Weight	M9: 306 g (10,8 oz) S9: 306 g (10,8 oz)
Dimensions	TD9: 100mm x 77,3mm x 43mm (3,9 in x 3,0 in x 1,7 in)
<b>Environment</b>	
Operating Temp	-10 to 50 °C (14 to 122 °F)
Storage Temp	-20 to 70 °C (-4 to 158 °F)
Long term storage Temp Room Temp	18 to 28 °C (64 to 82 °F)
Battery Charging Temp	0 to 40 °C (32 to 104 °F)
Relative humidity	10 – 90 %
Environmental protection	IP65 (Dust tight and protected against water jets)
<b>Sensing Technology</b>	
Laser	650 nm class II diode laser
Laser power	< 1 mW
Measurement distance	63 mm to 20 m
Detector	2-axis PSD
Detector size word	20 mm x 20 mm (0,79 in x 0,79 in)
Detector resolution	1 µm
Measurement accuracy	1% ± 3 µm
Signal processing	Digital signal processing with sidespot rejection, edge detection, ambient light elimination and anti-vibration mode
Ambient light protection	Optical filtering and ambient light signal rejection.
Inclinometer	Dual High Performance MEMS inclinometers
Inclinometer resolution	0,01 °
Inclinometer accuracy	±0,1 °
Gyroscope	6-Axis MEMS Inertial Motion Sensor with drift compensation and automatic field calibration
Gyroscope accuracy	±1 °
<b>Battery</b>	
Type	High performance Li Ion rechargeable battery or external power
Operating time	8 hours continuous use (measuring)
Charging	8 h
LED indicators	Unit state, laser transmission and 5 battery status indicators with instant battery check
<b>Communication</b>	
Wireless communication	Bluetooth low energy (Bluetooth 5)
Communication range	10 m (33 ft)
Connectors	1 USB Mini port (IP67)
<b>ACOEM Alignment Display</b>	
A sunlight-readable, 8-inch capacitive multi-touch display with super-hardened Gorilla Glass, plus rain and glove mode.	
IP67 ruggedness rating (including the ports) for fully waterproof and dust-tight performance.	
Wide operating temperatures of -20°C to 60°C (-4°F to 140°F).	

## Packaging & Deliverables

Each **ACOEM AT-400 D** is delivered with the following package:

- Acoem M9
- Acoem S9
- Acoem AT DU
- Rod kit
- Magnetic base ON-OFF
- Extension fixture 49mm
- Chain 8 mm 60 links (L=970 mm)
- Magnetic v-bracket 2
- Tape measure 5 m
- Acoem usb
- V-bracket complete 2
- Angled universal tool 2
- USB-cable A-mini B 2m
- Power supply 4 USB-ports 5 VDC
- Quick Guide AT



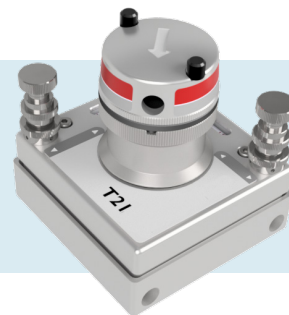
## Select Your Package

**ACOEM AT-400 D** - Acoem Alignment Display with Acoem Home included  
 ACOEM Home is an offline software on ACOEM DU, transferring data via USB, providing secure functions and apps.

**ACOEM AT-400 T** - Tablet Display included  
 Our system features a Wi-Fi enabled tablet capable of sharing reports and receiving app updates seamlessly.

**ACOEM AT-400** - Tablet Display unit not included.

**ACOEM AT-400 Ultimate**  
 ACOEM AT-400/D/T + ACOEM T21 . Add capability to measure rectangular flatness. Use the M9 sensor as receiver.



Centralize and share your reports with your team, consolidate your plant's alignment status, and assign alignment workorders to team members.



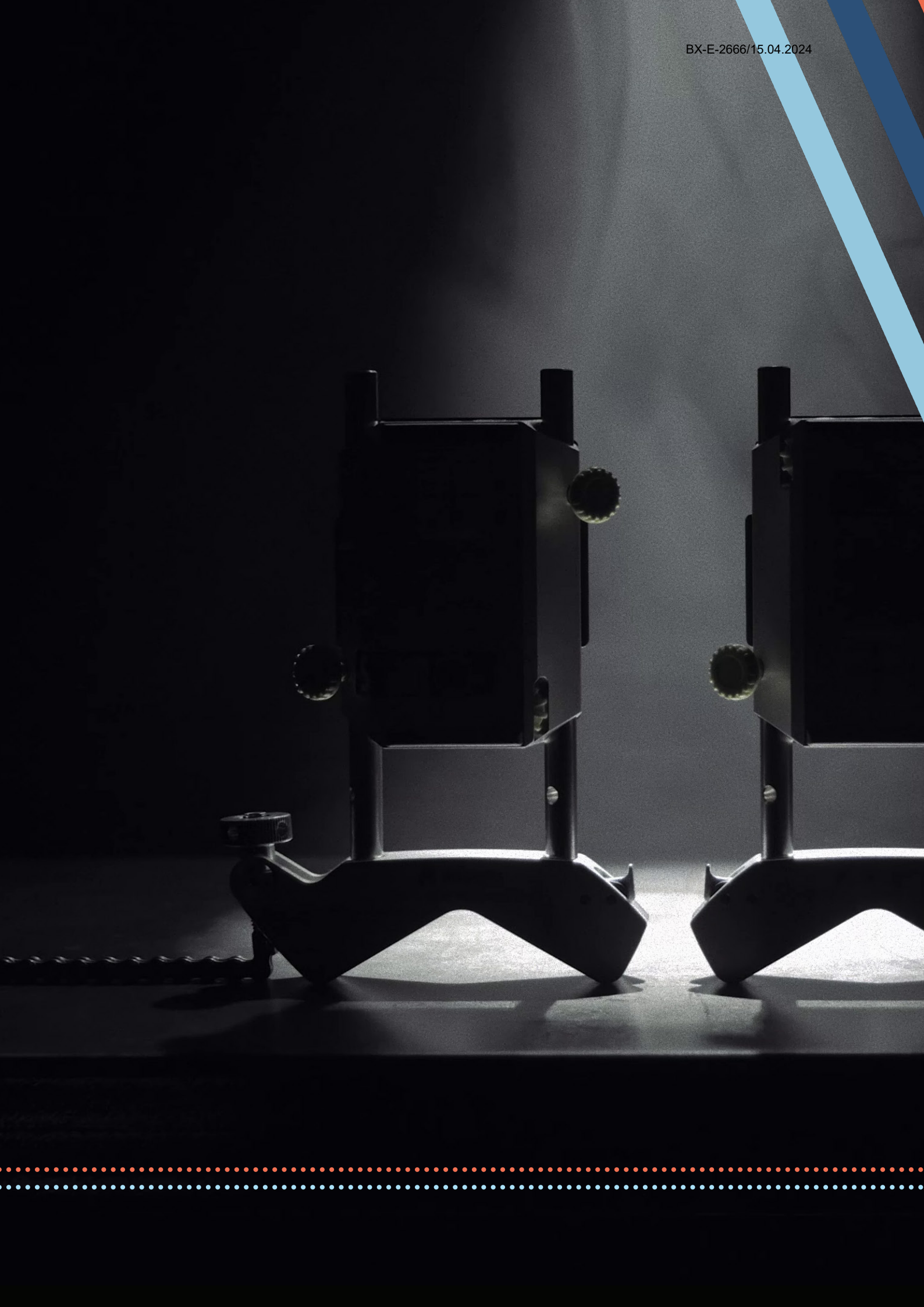


# Acoem AT-400

DUAL PRECISION AT EVERY TURN









The background of the advertisement features a dark, industrial setting with a shaft alignment tool. On the left side, there are three diagonal, glowing bars in shades of orange, blue, and light blue. The main text is positioned on the right side of the image.

## Dual precision at every turn with the new Acoem AT-400 shaft alignment solution

Acoem, a trusted name in condition monitoring and predictive maintenance, has been a pioneer in laser shaft alignment technology for decades. Combining vast expertise with exceptional customer support, we've consistently raised the bar for precision maintenance. Today, we proudly introduce our latest innovation – the Acoem AT-400 dual-axis shaft alignment solution. This cutting-edge system makes precise laser alignment easier than ever before.

What makes the AT-400 remarkable is its ability to effortlessly blend precision with simplicity. This advanced alignment solution ensures your machinery operates with unmatched accuracy and efficiency. With the AT-400, precision maintenance becomes intuitive and straightforward, thanks to the latest technology at your fingertips.

**Experience precision maintenance like never before with this dual-axis shaft alignment solution, offering dual precision at every turn. Step into the future of precision maintenance and approach virtually any shaft alignment scenario with confidence.**





## AT-400

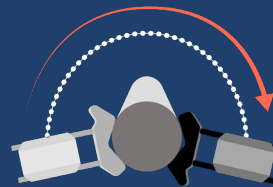
### Maximizing alignment performance

AT 400 integrates dual-axis technology seamlessly into our alignment solutions, offering unrivaled precision for large machinery. With extended sensor distances, it outperforms traditional line lasers.

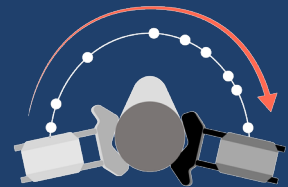
### Dual advantage

Achieve precision with the high-end dual-axis shaft alignment.

Double down on misalignment with the Acoem AT-400, featuring robust dual axis sensors and unmatched versatility for virtually any shaft alignment scenario. Discover precision like never before with our advanced measuring methods. Engineered to perfection, these techniques redefine accuracy in industrial alignment assessments.



Dual sweep

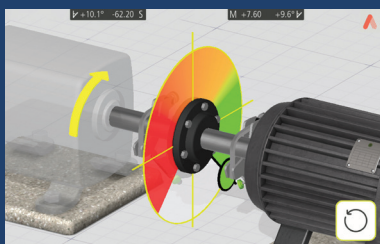


Multi point



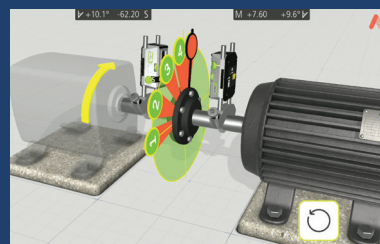
#### Dual sweep method

Automated alignment evaluation for coupled machines, ensuring precision with every sweep. Take control by stopping data recording manually



#### Dual multipoint method

Unparalleled flexibility. Start measurements from any position, ideal for uncoupled shafts and non-rotatable machinery.



#### Dual sweep express method

Effortless efficiency – data recording halts automatically when shaft rotation stops, streamlining the process.



#### Dual multipoint express method

Convenience meets accuracy. Automated measurements without compromise.



#### Clock method

Industrial wisdom in action. Three points, 180° rotation – a trusted technique for non-horizontal foundations and standalone shafts.



#### Tripoint method

Meticulous precision. Record three manual points during shaft rotation for detailed alignment insights.



#### Tripoint express method

Seamlessly automated. Experience precision alignment assessment with automated ease.

## Measurement programs



Horizontal shaft alignment & HSA 2-axis



Vertical shaft alignment



Flatness



Soft check™



Target values



Spacer shaft alignment

20 meters (65 feet) measuring distance



### More possibilities

AT-400 ensures precise measurements for extensive machinery, even with sensor-to-sensor distances exceeding 20 meters.

## Aligning with diverse applications

While the AT-400 is versatile enough to diagnose alignment issues in various machinery, its exceptional capabilities truly stand out in challenging environments.

### Critical & complex applications



Energy generation turbines



Compressors



Cooling towers



Maritime equipment



Non-rotatable shaft situations



Complex machine train setup

### Ideal for heavy machineries in industrial sectors such as



Oil & Gas



Paper processing



Mining



Aerospace



Medical device



Automotive manufacturing



Automotive manufacturing

You can depend on AT-400 for achieving precise alignment in a wide range of applications.



## DualXL PSD detectors M9 & S9 position-sensitive sensors

Discover unparalleled precision with our revolutionary DualXL PSD Detectors featuring Acoem's M9 and S9 position-sensitive sensors. Redefining accuracy and convenience, these detectors are perfect for diverse applications.

- Simultaneous horizontal and vertical measurements
- Unmatched precision with high resolution
- The thinnest 2-axis sensors at 305g, ensuring easy integration and mobility.
- Cover up to 20 meters (65 ft) without compromising accuracy.
- Equipped with sliding covers, our sensors ensure product longevity and protection during storage.
- A substantial 20x20 mm<sup>2</sup> size and 0.001mm high-resolution capability make this detector ideal for demanding measurement tasks.



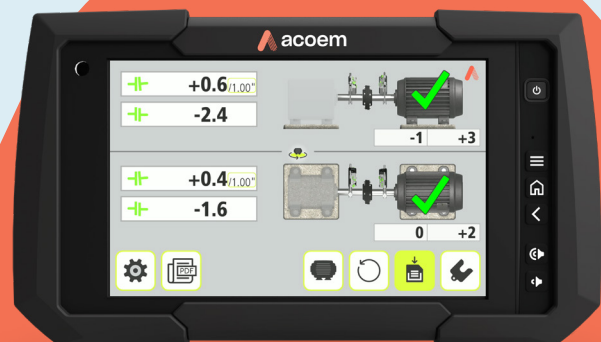
*The Acoem AT-400 comes with a lifetime warranty, giving you complete peace of mind and long-term reliability.*

## User friendly display unit

The AT-400 sensors effortlessly connect with iOS and Android tablets. In our standard package, you'll find a purpose-built 20cm (8") tablet designed to enhance fieldwork efficiency. This rugged display unit boasts an intuitive interface, built-in tools, and optional accessories.

### With the AT-400 display unit, you can

- Access data, reports, and applications in one place.
- Transfer data via USB or WiFi.
- Email results with ease.
- Manage assets through the Acoem WebPortal.
- Quickly access support resources.
- Add or remove PDF files as needed.



## GuideU™ interface revolutionizing 3D shaft alignment

Experience GuideU™ – the innovative 3D shaft alignment interface. Minimize human error and uncertainty in shaft alignment through realistic graphics and animated help screens. GuideU™ Interface represents a groundbreaking leap in 3D shaft alignment technology. Our proprietary and patented graphical user interface redefines precision, simplicity, and accuracy in the alignment process.

### Key features

- Customization
- Realistic machine graphics
- Icon-driven design
- Animated help screens
- Color-coded display



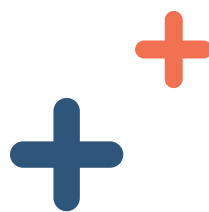
### Seamless Cloud Connectivity

The AT-400 allows users to effortlessly upload alignment reports to Acoem’s proprietary web portal, ensuring seamless data management and easy access to alignment records for analysis and comparison. With just a tap of a button, technicians can send their alignment reports directly to the portal, streamlining their process of documentation.



### + VertiZonal™ Measure once, move in two directions

Our adaptive interface displays exactly how much a misaligned machine needs to be adjusted and in which direction, by adding or removing shims to the machine’s feet. No more re-measuring between the vertical and the horizontal phases to correct the horizontal misalignment. This industry-first function saves time and ensures accuracy the first time around. It’s alignment, plus much more.



### Acoem AT-400 ultimate

Acoem AT-400/D/T + Acoem T21 . Add capability to measure rectangular flatness. Use the M9 sensor as receiver.

## About Acoem

At Acoem, we **create environments of possibility** – helping organisations find the right balance between progress and preservation – safeguarding businesses and assets, and maximising opportunities while conserving the planet's resources. We deliver unrivalled, interoperable AI-powered sensors and ecosystems that empower our customers to make enlightened decisions based on accurate information.

Together with 220 distributors, our 850+ employees work across 28 offices, 6 manufacturing facilities and 5 R&D centres in 9 countries, to provide trusted, holistic data solutions for customers worldwide.

**Acoem links possibilities with protection.**

For more information visit [acoem.com](https://acoem.com)







To: Whom it may concern  
Date: 09.04.2024

### Distributor's Authorization Letter

We, PRIMAGRA ROMANIA SRL Suceava, Romania , as reputable Distributor for Romania and Bulgaria of ACOEM AB Sweden, hereby declare that the below company has authorization to represent us and has the right to offer, deliver and service with our support the ACOEM products on the territory of the Republic of Bulgaria.

Company: MV Corporation Ltd.,  
ID: 206475290, Bulgaria, 1612 Sofia,  
Lagera District, bl. 52, entr. G, fl.5

We herewith guarantee the quality of our product.

This letter is valid until 31.12.2024.

Yours sincerely,

GENERAL MANAGER

Dipl-eng. TUDOSA COSTICA

Заличено на основание ЗЗЛД

SUCEAVA, ROMANIA

09.04.2024



**SC PRIMAGRA SRL**

Nr.Reg.Com.: J33/386/1997; C.I.F.: RO 9852650

Adresa: Str. Alexandru Grigore Ghica, nr.13, loc. Suceava, cod postal 720089; tel: +40 230 533528; +40 230 533529;  
fax: +40 230 533544; e-mail: [office@primagra.ro](mailto:office@primagra.ro); web: [www.primagra.ro](http://www.primagra.ro)

BANCA: GARANTI BANK SUC. SUCEAVA; IBAN: RO18UGBI0000332004511 RON



**SC PRIMAGRA ROMANIA SRL**  
B-dul Sofia Vicoveanca, No 1  
RO-720285, Suceava  
Romania

Möln dal 24 January, 2024

*Attn: Mr. Ioan Costache*

**TO WHOM IT MAY CONCERN**

Dear Sirs,

We hereby certify that

**SC PRIMAGRA SRL**  
B-dul Sofia Vicoveanca, No 1  
RO-720285, Suceava  
Romania

is the appointed exclusive distributor for Romania and Bulgaria in the sales promotion and service of Fixturlaser and Acoem branded range of laser alignment products.

Acoem AB will provide complete technical and engineering support to **SC PRIMAGRA ROMANIA SRL** for effective after sales support of their customers. As such, Acoem AB recommends that customers in Romania and Bulgaria buy Fixturlaser's and Acoem's range of laser alignment products from **SC PRIMAGRA ROMANIA SRL** to enjoy full support from Acoem AB.

This letter is valid until 31 December 2024.

Yours sincerely,

**Acoem AB**

Заличено на основание  
ЗЗЛД

Hans G Svensson  
CEO

**ACOEM AB**  
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Registered head office, Gothenburg

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