EXPRESS ALIGNMENT BY FIXTURLASER

Fixturlaser XA

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Elos Fixturlaser AB is one of the world´s leading manufacturers of laser based alignment systems. We develop, manufacture and market laser based measurement instruments for alignment and positioning of rotating machinery. Our systems are user friendly tools that minimize the number of operations involved in the alignment process, thus speeding up the process - "Express Alignment by Fixturlaser".

EXPRESS SERVICE WORLD WIDE

Elos Fixturlaser AB has distributors all around the world.
We also have at least one service center on each continent. Our distributors can help you with the upgrades that you need and they can also provide alignment training sessions for your staff, as well as calibration and repair of alignment systems.

WE ARE CERTIFIED

Elos Fixturlaser AB holds certificates for ISO 9001 and ISO 14001. Elos Fixturlaser AB is also a certified supplier of EX-classified alignment systems.

P-0222-GB Fixturlaser XA © Fixturlaser AB, September 2008.

EXPRESS ALIGNMENT by Fixturlaser

ELOS FIXTURLASER AB

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The express alignment systems from Fixturlaser consist of a wide range of technical features as standard, such as CCD technology, line laser, large detector surfaces (30 mm), and pre-mounted fixtures. These features combined with those specific for the Fixturlaser XA system, give you one of the most high performance and express alignment systems on the market. And who else is more qualified to say so than existing Fixturlaser XA users!

Fixturlaser XA features
comments from the field

FIXTURLASER XA FEATURES

3-D COLOR ANIMATIONS GIVE EXPRESS RESULTS

The whole alignment process is shown on the screen, using 3-D Macromedia® Flash™ animations that are simple to comprehend and will give you an alignment jump-start when using Fixturlaser XA. Figures and arrows show the measurement results and any requirement for alignment. Color coded values simplify and speed up the interpretation of the results. No expertise in alignment is required in order to use the Fixturlaser XA system.

WIRELESS DATA TRANSFER

Wireless transmitters allow the elimination of wires connecting the transmitters-detectors to the display unit. They also increase your mobility to move around with the display box in your work place, which comes in handy when you measure the machine couplings at one place and make alignment adjustments at another.

EXPRESS MODE

When you turn the shaft, the system registers the three measurement points automatically — the Express Mode. It takes you through the measurement and alignment process faster compared to the traditional methods, such as the Tripoint Method and the Clock Method.

COMMENTS FROM THE FIELD

JACOB NØRGAARD ANDERSEN, HEAD OF SECTOR SERVICE TECHNOLOGY, SIEMENS WIND POWER A/S, DENMARK

"Siemens Wind Power A/S sees Fixturlaser AB as a serious and competent business partner, who has an understanding for the demands we have regarding equipment for alignment.
When we have had questions regarding Fixturlaser systems, we have always experienced a quick response to our questions and they have helped us with the education for users. We have many people using the Fixturlaser XA system and therefore it is very important for us, that it is easy to use and that the risk of faulty use is low. The menus are very user friendly and easy to command. It is possible to type in your own tolerances and make programs that fit your own products.
We have been able to minimize the time spent on alignment by our fitters after the introduction of the laser alignment of our generators. At the same time the accuracy has improved, and there is not much depending on the specific experience and knowledge of the fitter. Fixturlaser XA alignment equipment has become one of our standard tools."

MR. CHAI JONG-WOO, ASSISTANT MANAGER IN FCC MAINTENANCE TEAM, SK ENERGY, KOREA

"SK has been using the Fixturlaser XA well for a new plant and I think the Fixturlaser XA is the most excellent laser alignment system I've ever experienced.
I use the Fixturlaser XA today to align our new machine, circulation pump and gear box for cooling tower. It's easy and fast, so we are going to introduce the Fixturlaser XA to other construction companies and factories."

THOMAS JENSEN, NAVAL CHIEF ENGINEER, ATS TURBO MACAU ENGINEERING SERVICE LTD., MACAU

"We are so happy for the Fixturlaser XA system. It's in the field all the time. The engineers are fighting over it. They don't want to use our other systems anymore. So I think we have to buy one more set or two."

BILL WALKER, VIBRATION ANALYST, WINDSOR ALUMINUM PLANT, CANADA

"I've been doing some alignments and the Fixturlaser XA is working great. I can cut, copy, paste, transfer, flip, flop, roll over and on a clear day recycle. Too bad it can't cook and paint walls. I'll look under help. Maybe my computer "aura" is fading."

ERLAND JENSEN, SUPERVISOR, MAINTENANCE CENTER, HYDRO PRODUCTION PARTNER, NORWAY

"We have been using the Fixturlaser XA for a while now, and it has been a very positive experience for us. It is fast and accurate to use. By using the Fixturlaser XA, we achieve a very high efficiency which clearly meets our customers' demands. Documentation of results is simple and functional."

SVEN KARLSSON, SENIOR ENGINEER, MECHANICAL MAINTENANCE/PUMPS, RINGHALS AB, SWEDEN

"Fixturlaser XA and OL2R^{XA} has simplified the alignment process and improved the accuracy of the measuring results. The software for machine trains, Machine Train^{XA}, is a considerable improvement of the alignment process, by showing the whole machine configuration. The OL2R^{XA} facilitates the process of finding a basic value on machinery which is exposed to thermal variations. The systems are simple to mount and use. Documentation is fast and complies with Microsoft Windows."

With Fixturlaser XA and its graphic interface, you perform alignments in a completely new way. The system is equipped with a large back-lit color touch screen. High resolution 3-D Macromedia® Flash™ animations guide you safely through the process. During the actual adjustment, arrows on the 3-D illustrations show in which direction the machine needs to be adjusted.

On-screen guidance
step-by-step

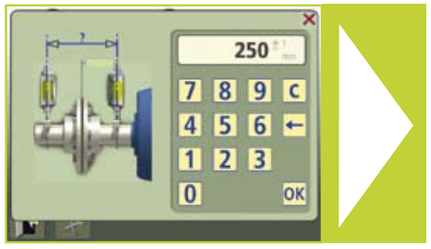
1. USER-SPECIFIED TOLERANCE TABLE VALUES

We advise that you align in accordance with the machine manufacturer's tolerances. If these are not available, there is a standard tolerance table in the system. If required, you can also enter your own tolerance values.

2. GREEN LIGHT MEANS GO

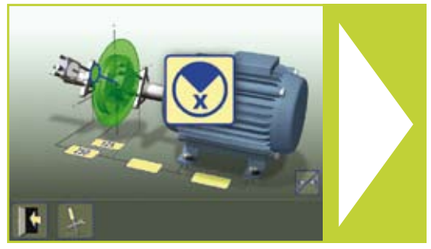
The green light indicates that the laser beam has hit the detector and that you can start your measurements. Clear step-by-step prompts show what to do in order to complete the measurement process.

3. POP-UP WINDOWS FOR DATA ENTRY



Only the information you need is shown on the screen. For example, when you need to enter a distance, a pop-up keyboard appears.

4. EXPRESS MODE™



In the Express Mode method, the alignment condition can be calculated by recording three points while rotating the shafts at least 60 degrees.

5. REGISTRATION OF MEASUREMENT POINTS

After recording the first point, the other points are taken automatically when shafts are rotated to a new green position and are kept in its position for more than two seconds.

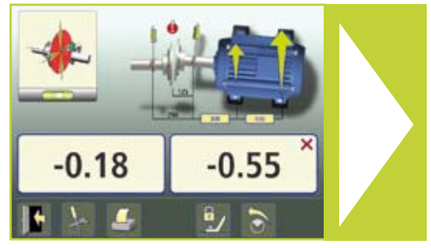
6. COLOR CODED RESULTS

The results from the entire measurement are shown directly on the display. The color codes indicate if there is a need for alignment. Green indicates within tolerance, orange near tolerance and red out of tolerance.

7. 3-D ANIMATIONS PROMPT YOU THROUGH THE ALIGNMENT

The display shows how you should adjust the machine to arrive within the selected tolerances. Adjust until the icons show green, which means the alignment has arrived within the tolerances. The arrows at the feet of the machine guide you continuously by showing the direction of machine adjustment.

8. EXTRA DISTINCT WITH ENLARGED RESULT FIGURES



The result figures can be shown in an extra large and distinct format for better visibility during the alignment process. This applies to both coupling errors and foot values.

9. MEMORY MANAGER

The full alignment result – both the horizontal and vertical values of the angular error and the parallel error as well as the foot values – is shown on the same screen. When you are finished, you can name your alignment and save it in the memory manager.

10. NO EXTERNAL SOFTWARE NEEDED

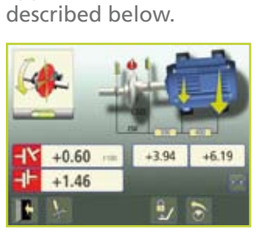
The documentation can be transferred to a PC or other storage media via the USB ports. When you want to document the alignment and your comments, or produce a measurement report, just export the result as a JPG file and/or a text file by using a USB stick.

Application programs for horizontal and vertical shaft alignment, large touch screen display, built-in target values and Soft Check™ are all standard features in the Fixturlaser XA. We also provide several expansion kits with which you easily can upgrade your Fixturlaser XA. Expansion kits are available for aligning machine trains and offset mounted machines, and for measuring dynamic movements. All additional applications use the same graphic interface which makes it possible to perform the alignment faster than ever before.

Express Alignment applications

HORIZONTAL EXPRESS ALIGNMENT

Fixturlaser XA measures the need for horizontal alignment. The standard express functions and applications for the horizontal shaft alignment are all described below.



The green arrows show in which direction the machine should be moved.


Take the next, third, measurement point within the green area.

SOFT CHECK FUNCTION

- Control for soft foot conditions.
- It is possible to go directly from Soft Check to shaft alignment.

FEET LOCK FUNCTION

- For extended adjustment capabilities in base or bolt bound situations.
- Automatic change of view, both horizontal and vertical.

TARGET VALUES

- Compensate for pre-determined alignment targets.
- Possible to go directly from Target Value to shaft alignment.

HOT CHECK APPLICATION

The Hot Check Application allows you to retrieve two saved measurements, one in the machine's cold condition and one in its hot condition, and to calculate the difference between the two measurements. This will give you an indication of the machine's true alignment condition.

SPACER SHAFT

Spacer Shaft is a function for measuring misalignment between diaphragm couplings, i.e. checking for misalignment in two coupling planes. As shown to the right, the measurement results are displayed as two angular errors in the horizontal and vertical view. If you wish, you can then proceed directly to the alignment process.

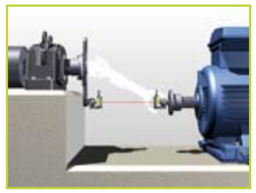
VERTICAL EXPRESS ALIGNMENT

Fixturlaser XA also offers an application for express alignment of flange mounted machinery.


The Clock method is used for vertical alignment.

Measurement result from a vertical measurement.

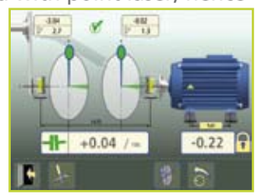
EXPRESS ALIGNMENT OF OFFSET DRIVES – FIXTURLASER OFFSET^{XA}



By using the Fixturlaser Offset^{XA} for offset mounted drives, measured results will be more accurate than those obtained from conventional methods. Tests run by the paper industry have shown that offset drives are sensitive to angular errors more often than previously known. The Fixturlaser Offset^{XA} will effectively help you minimize the detrimental factors on your machines.

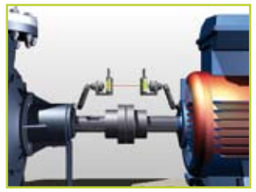
FIXTURLASER OFFSET^{XA} EXPANSION KIT

- Allows for a fast and accurate alignment of offset mounted drives
- The fixtures are equipped with point laser; hence no need to use the alignment system during the set up of fixtures
- Inclinometers in each laser unit will locate the right position of the lasers



The Fixturlaser Offset^{XA} software guides the user throughout the measurement.

EXPRESS MEASUREMENTS OF DYNAMIC MOVEMENTS – FIXTURLASER OL2R^{XA} (Patents: U.S. Pat. No. 7,312,871, SE 524 366, and other patents pending)

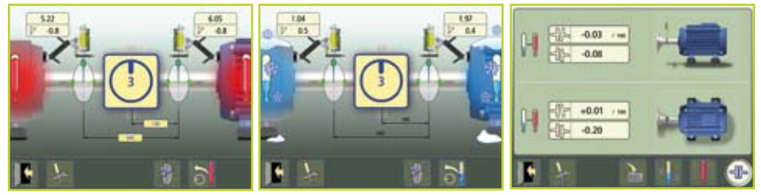


The patented Fixturlaser OL2R^{XA} (Off-Line-to-Running) is the perfect tool for measuring movements due to e.g. thermal growth and process forces. The Fixturlaser XA is the only system on the market that includes this application.

If your process operates within large temperature differences or other conditions that affect the machines, you may need to measure the dynamic movements. This is indicated by a high level of vibrations, persisting even after having performed alignment in cold condition. After measuring the dynamic movements in cold as well as in hot condition, calculations are made and target values, unique for the machine in question, are obtained.

FIXTURLASER OL2R^{XA} EXPANSION KIT

- Faster set-up thanks to built-in point lasers
- Allows for measuring of several machines/fixtures with just one Fixturlaser XA system
- Allows for the "cold" measurement results to be paired with the "hot" ones at a later occasion

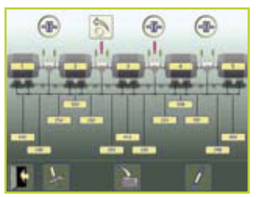
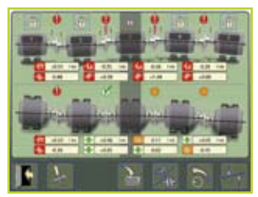

The Fixturlaser OL2R^{XA} software guides the user throughout the measurement, in both hot and cold condition. The result is machine unique target values that are used in order to accomplish the precision shaft alignment.

EXPRESS ALIGNMENT OF MACHINE TRAINS – FIXTURLASER MACHINE TRAIN^{XA}

A machine train consists of several units with rotating shafts connected to one another. Aligning machine trains can be difficult but with the Fixturlaser Machine Train^{XA} Expansion Kit you will be surprised how convenient it can be.

FIXTURLASER MACHINE TRAIN^{XA} EXPANSION KIT

- Includes 3-D Macromedia® Flash™ animations which will guide you through the alignment process
- Has a large color display which gives you a clear overview of the whole machine configuration
- Shows both the horizontal and vertical view
- Has a unique "minimal moves" function, which automatically helps you to determine the best reference machine in order to make as few and small changes as possible

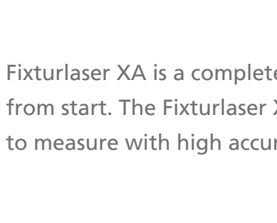


The Fixturlaser Machine Train^{XA} software guides the user throughout the measurement. After the alignment, the result screen showing the whole machine configuration can be transferred to external units via a USB stick.

Fixturlaser XA is a complete shaft alignment system with several useful functions included from start. The Fixturlaser XA system also offers a wide range of optional accessories in order to measure with high accuracy under difficult or special conditions, such as limited space.

Express Alignment
optional accessories

FIXTURLASER XA ACCESSORIES

1-0767* Extension Fixture[XA]
For mounting the measurement units in limited spaces.



1-0775* Thin Chain Fixture[XA]
For mounting the measurement units in limited spaces.

5-0657 Fixturlaser XA Cable
Extension cable, 10 m.

1-0083* Magnetic Base[XA]
For faster mounting on large diameter shafts. Here used with an extension fixture.

1-0776 Fixture for Non-Rotating Shafts[XA]
For machines with non or limited shaft rotation.

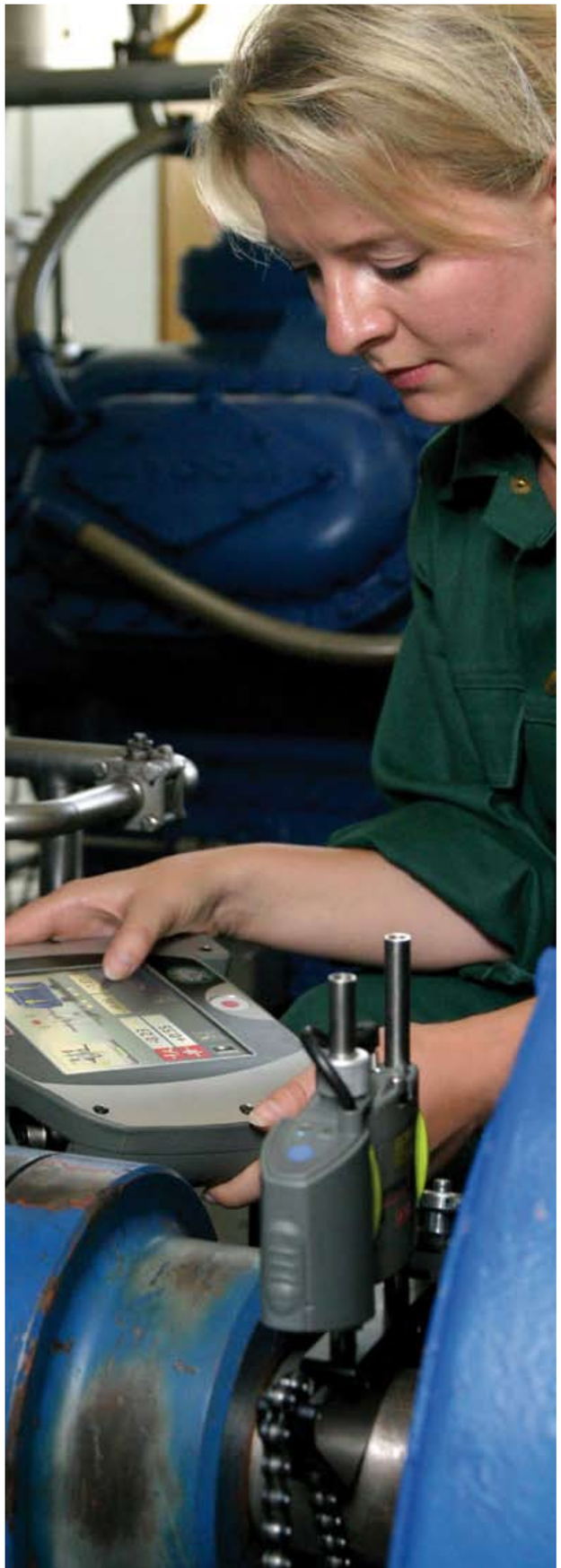
1-0758 Fixturlaser XA Carrying Strap for Case
For convenient and express carrying of case.

1-0811* Magnetic Brackets[XA]
For limited space, where V-brackets with chains cannot be used.

1-0673 Fixturlaser XA Rod Kit
Extra long rods in titanium, 2 x 250 mm and 2 x 500 mm.

1-0765 Fixturlaser XA Back Pack Solution
For convenient and express carrying of case.

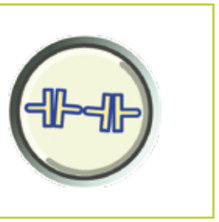
* Note! Measurement units and rods are not included.



FIXTURLASER XA SOFTWARE

MV-0102 Fixturlaser OL2R[XA] Software
Software for measurement of dynamic movements.

MV-0104 Fixturlaser Offset[XA] Software
Software for measurement of offset mounted machines.

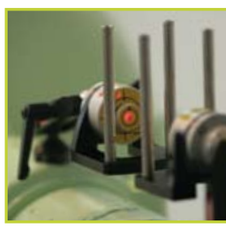


MV-0105 Fixturlaser Machine Train[XA] Software
Software for alignment of machine trains.

MV-0141 The Fixturlaser XA Software Package
Includes all software programs for the Fixturlaser XA system.

FIXTURLASER XA EXPANSION KITS

1-0790 Fixturlaser Offset[XA]
Expansion kit with hardware and software for express alignment of offset mounted machines.



1-0788 Fixturlaser OL2R[XA]
(Patents: U.S. Pat. No. 7,312,871, SE 524 366, and other patents pending)
Expansion kit with hardware and software for express measurement of dynamic movements.

The Fixturlaser XA uses CCD-technology and line laser for maximum speed and highest quality of measurement results. The new technology always provides an exact measurement result, regardless of where the laser beam strikes the detector.

Fixturlaser XA
alignment technology

FIXTURLASER XA - COMPLETE SYSTEM*

Weight (incl. all standard parts): 7,9 kg (17,42 lbs)	
Storage Temperature:	-20 to 70°C (-4 to 158°F)

CASE

Material:	High Impact ABS Plastic
Sealing:	Dust, water (5m/16 feet), and air tight with air pressure compensation valve
Drop Test:	3 m (10 feet) onto concrete floor
Dimensions:	460 mm x 365 mm x 185 mm (18,1 in x 14,4 in x x 7,3 in)

DISPLAY UNIT

Housing Material:	Anodized aluminum and high impact ABS plastic over molded with TPE rubber
Operating Temp:	0 to 40°C (32 to 104°F)
Relative Humidity:	10 – 90%
Weight:	1,5 kg (3,31 lbs) with batteries
Dimensions:	244 mm x 188 mm x 55 mm (9,6 in x 7,4 in x x 2,1 in)
Environmental Protection:	IP 65
Processor:	Intel X-Scale, 400 MHz
RAM:	64 Mb
Flash Storage Memory:	128 Mb
Display:	Color TFT-LCD backlit with wide angle viewing technology
Display Size:	6,4" diagonal (131 x 98 mm)
Display Resolution:	Full VGA 640x480 pixels
Color Depth:	262 000 colors
Interface:	6,4" polyester laminated touch screen with enhanced transmission
External Interface:	2 RS-485
	1 USB host port, 1.5 / 12 Mbps, OHCI v1.0 compliant
	1 USB slave port, 12 Mbps
	1 Ethernet 10/100BaseT RJ45
	Class I Bluetooth transmitter with multi-drop capability
Power Supply:	Dual high performance rechargeable Li-Ion batteries and external power supply
Operating Time:	20 hours typical use
LED Indicators:	Unit status and battery status indicators

MEASURING UNITS

Housing Material:	Anodized aluminum and high impact ABS plastic over molded with TPE rubber
Operating Temp:	0 to 50°C (32 to 122°F)
Relative Humidity:	10 – 90%
Weight:	186 g (6,6 oz)
Dimensions:	79 mm x 77 mm x 33 mm (3,1 in x 3,0 in x 1,3 in)
Environmental Protection:	IP 65
Laser:	650 nm class II diode laser
Laser Line Fan Angle:	6°
Laser Power:	< 1 mW
Measurement Distance:	Up to 10 m (33 feet)
Detector:	CCD
Detector Length:	30 mm (1,2 in)
Detector Resolution:	1 µm (0,04 mils)
Measurement Accuracy:	0,3% ± 7 µm (0,3% ± 0,27 mils)
Ambient Light Protection:	Optical filtering and sunlight signal suppression
Inclinometer Resolution:	0,1°
Inclinometer Accuracy:	±0,5°
LED Indicators:	Laser transmission and status indicators
Laser Safety:	See yellow label below

V-BRACKETS

Fixture:	V-fixture for chain, width 20 mm (0,79 in)
Material:	Anodized aluminum
Shaft Diameter:	Ø 20-450 mm (3/4 in -18 in)
Rods:	4 pcs 85 mm (3,4 in) and 4 pcs 160 mm (6,3 in) extendable to 245 mm (9,6 in)

CABLES

Length:	2 pcs 3 m (10 feet)

WIRELESS PACKAGE- OPTIONAL EQUIPMENT

Housing Material:	PC/ABS plastic
Operating Temp:	0 to 50°C (32 to 122°F)
Weight:	60 g (2,1 oz) without batteries
Dimensions:	97 mm x 47 mm x 36 mm (3,8 in x 1,85 in x x 1,4 in)
Wireless Communication:	Class II Bluetooth transmitter
Power Supply:	3 AA (LR6) batteries
Operating Time:	10 hours continuously
LED Indicators:	Transmitter and battery status indicators

* NOTE! Specifications may change without prior notice.

EXPRESS ALIGNMENT BY FIXTURLASER

Article	Qty.	Art. no.
Complete system with cables		1-0759
Complete wireless system		1-0797
a. Case	1	1-0804
b. Display unit	1	1-0753
c. Measurement unit TDM	1	1-0754
d. Measurement unit TDS	1	1-0755
e. Rod kit (4pcs), 100 mm	1	2-0761
f. Extension chain, 970 mm	2	2-0811
g. Shaft brackets, incl rods (4), 150 mm and chain, 470 mm.	2	2-0808
h. AC adapter	1	5-0650
i. Cable, 3 m	2	1-0757
j. Measuring tape	1	2-0320
k. Tool	2	3-0843
l. USB memory stick XA	1	5-0706
m. Fixturlaser XA Manual	1	P-0210-GB
n. CD Manual with several language versions	1	P-0210-CDR
o. Wireless package incl batteries (Optional for 1-0759)	1	1-0756