Brochure

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Fanbeam® 5 DP position reference system

Make quicker decisions

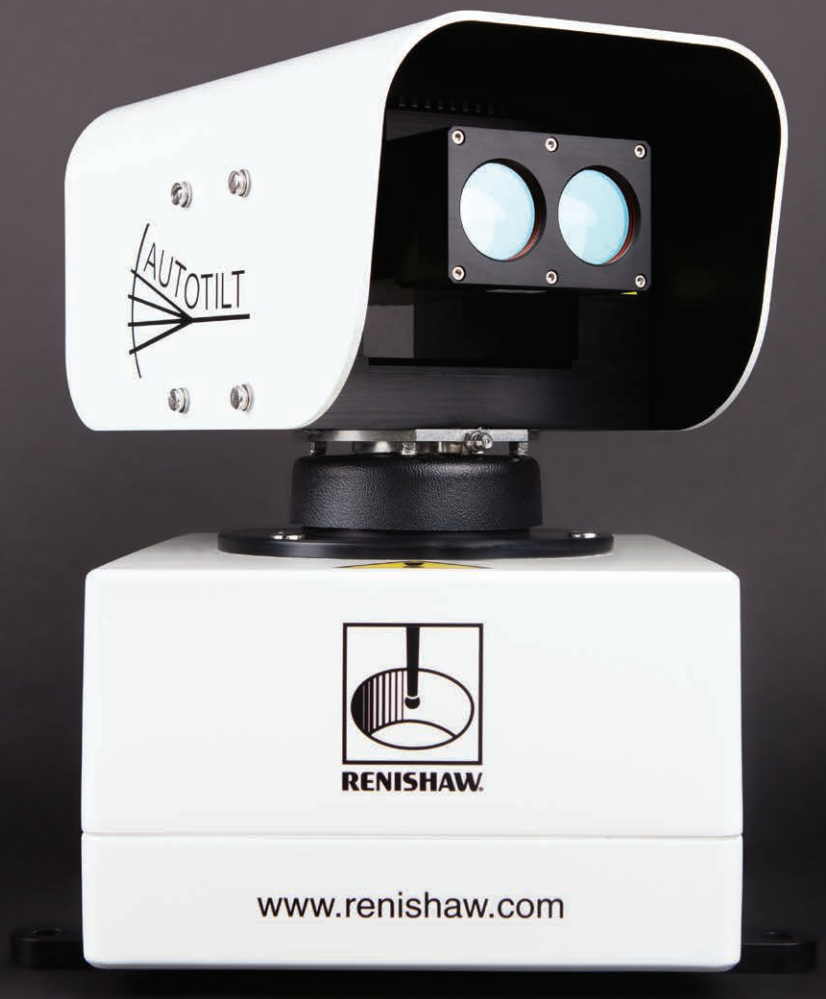
Intelligent systems make finding and locking onto the correct target simpler than ever, for speed and reliability of operation.

Improve operational safety

Intuitive software offers live confidence indicators, alarms, flexible filters and clear displays to support operators in the field.

Reduce downtime

Vast, experienced and expert global servicing network with product-on-shelf back up and rapid response.



Next-generation control and responsiveness

How Fanbeam works

The Fanbeam 5 position reference system (PRS) uses accurate time-of-flight laser technology to determine vessel position relative to custom reflectors, which can be fixed to offshore rigs, installations or other vessels. Fanbeam data is communicated to the vessel's dynamic positioning (DP) system, which controls the thrusters that are used to maintain vessel position during operations.

The design of the Fanbeam 5 laser unit, our custom reflectors and the Fanbeam Controller 4.0 control software make Fanbeam the laser-based PRS of choice. Our range of data outputs, and the ease with which Fanbeam can be combined with other sensors and DP systems, make it ideal for holding a vessel in station, or for moving a vessel with great precision.

Two key principles

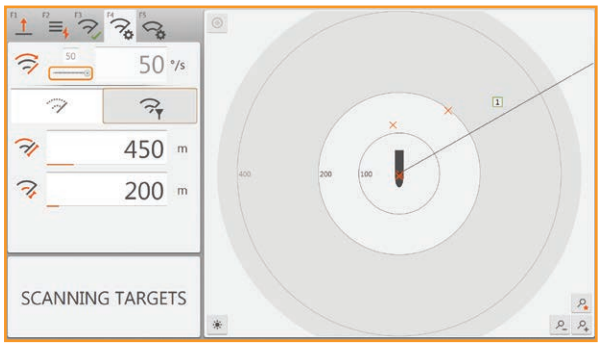
Fanbeam 5 is engineered to support DPOs based on:

Control – DPOs should be supported by clear, intelligent, quick-to-operate, pre-configurable software, which offers the peace of mind of automation, alerts and performance indicators.

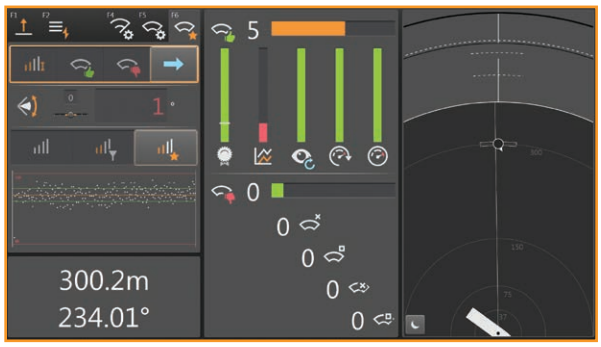
Responsiveness – Since conditions at sea are unpredictable, and no two operations are the same, DPOs must have the ability to quickly and simply control laser tilt, target acquisition, filters and all other aspects of sensor control.

Fanbeam® Controller 4.0

Designed to enhance usability, functionality and performance, the next-generation Fanbeam Controller 4.0 software supports safer and faster DP operations by providing you with the right information when you need it. During challenging conditions, operators may wish to monitor all performance indicators at once using the detailed performance information dashboard in the centre of the screen. During less complicated operations, you have the option to clear the dashboard in exchange for a large bird's-eye view graphical pane, which makes it easy to understand vessel position from a distance.



A clear and intuitive user interface, with simple graphical displays makes tracking confidence and threats from false observations easier.



A comprehensive performance information dashboard will display data with additional details when difficult conditions demand it.

Usability

- Clear, uncomplicated graphical displays and input/output icons
- Fewer controls, larger buttons, and simple function keys

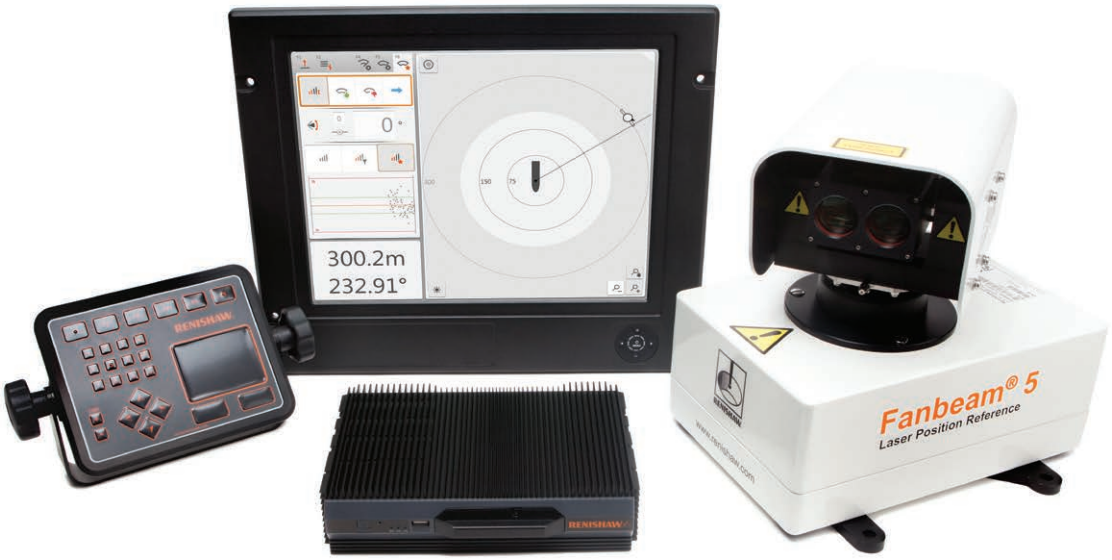
Functionality

- Basic bird's-eye view mode for operating in good conditions
- Advanced modes for operation in challenging conditions

Performance

- Full DPO control over filtering
- Reliable, intelligent automation

Safer, faster and more accurate DP operations

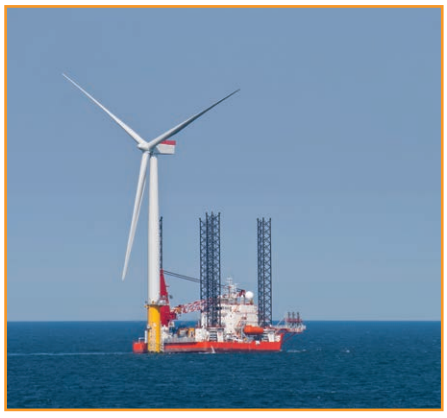


Better target identification

The Fanbeam 5 unit is mounted over the working end of a vessel. The sensor emits invisible laser pulses, which bounce off custom reflectors mounted on rigs or other installations. These pulses are received back into the Fanbeam sensor.

- Personnel on deck and reflective surfaces are no problem for Fanbeam 5, as the Fanbeam Controller 4.0 software identifies and rejects false observations.
- Operators can pre-program range cut-offs for observations, so that anything out of range is filtered.
- On-screen indicators warn of potentially false observations.
- Our custom reflectors provide accuracy in a variety of conditions: tube reflectors offer low-cost 360° coverage for short-range operations, while prism clusters provide reliable positioning at longer ranges, up to 2000 m.
- Auto-level filtering means settings adjust automatically, to allow for changing conditions.
- Operators can tilt the laser during operations, allowing for fine tuning at any time.

Decades of development has enabled us to deliver our most intelligent and reliable system yet.



Fanbeam provides reliability and accuracy for a range of applications and environmental conditions.

Applications in extreme environments

Fanbeam's accuracy, reliability and ease of use make it ideal for a wide range of offshore projects, from bridge construction and windfarm installation through to platform supply. The following vessel types have adopted Fanbeam as their primary or secondary PRS:

- Construction and multi-purpose support vessels
- Anchor-handling tug supply vessels
- Dredging and rock-dumping vessels
- Heavy-lift construction semi-subs and dive support vessels
- Windfarm construction vessels
- Emergency towing vessels
- Well-stimulation vessels
- Platform supply vessels and crew supply vessels
- Accommodation floatels
- Shuttle tankers and FPSO

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The assurance of manufacturing excellence

Why Fanbeam 5 is the laser position reference sensor of choice

- Complementary to differential global positioning systems (DGPS), which can degrade when close to larger structures
- Easy to install and quick to mobilise
- Provides independent redundancy against other position reference systems
- Fastest positional update rate on the market (typically, at least two readings per second)
- Cost effective, using inexpensive passive reflectors
- Minimum of 150 pulses per degree of horizontal rotation provides superior signal return from reflectors
- Easy to operate, with thousands of DPOs already familiar with the system
- Recognised by classification bodies and international standards

Renishaw, manufacturing excellence

Renishaw's Fanbeam® DP position reference system pioneered the use of laser technology for dynamic positioning over 20 years ago. The subsequent lengthy development programme behind Fanbeam has enabled us to deliver our most intelligent Fanbeam system ever, which provides reliability and accuracy for a range of offshore applications.

Today, due to its durability, high performance in tough conditions, and ease of use, Fanbeam 5 continues to help offshore support vessel (OSV) operators perform safer, faster and more accurate DP operations.

Your global partner

Renishaw has decades of experience working closely with OSV operators to understand the requirements of DP operations, and the challenges of working within the demanding environments found offshore.

Forward-thinking fleet managers understand the importance of working with companies, like us, with the scale, resources and experience to deliver reliable sensors for DP systems and provide unparalleled back up in the field.

The Fanbeam® Controller 4.0 control system and software interface is the result of extensive user research that led Renishaw's in-house software development and usability teams to make this highly functional software and control system as easy to use as possible.

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Global access to approved service, support and repair centres

Keep your fleets working

Our clients in the offshore marine industry trust the long-established Fanbeam 5 sensor to ensure the safety of DP operations. We understand that customers depend not only on Fanbeam's reliability, but also on accessible, expert support from centres stocked with spare parts and replacement units on the shelf.

In addition to our in-house support, our Fanbeam service model brings together Renishaw-approved specialist partners from around the world who share our commitment to quick, cost-effective solutions and expert engineering.

All of our authorised service partners have passed a rigorous selection process to merit their 'Renishaw-approved' status. Staff training programmes and technical audits also ensure that these partners are equipped to provide Renishaw-standard service and support for your Fanbeams.

For a full and up-to-date list of Renishaw's authorised service centres around the world, please visit www.renishaw.com/fanbeamservicecentres

Service centre features

- Expert Fanbeam technicians
- Full range of spare parts to keep you operational
- Complete backup systems, ready to go when required
- Full training programmes for all staff
- Regular technical audits guarantee the service you expect

With worldwide access to Renishaw's service, support and repair centres, you can eliminate the potential for vessel downtime.

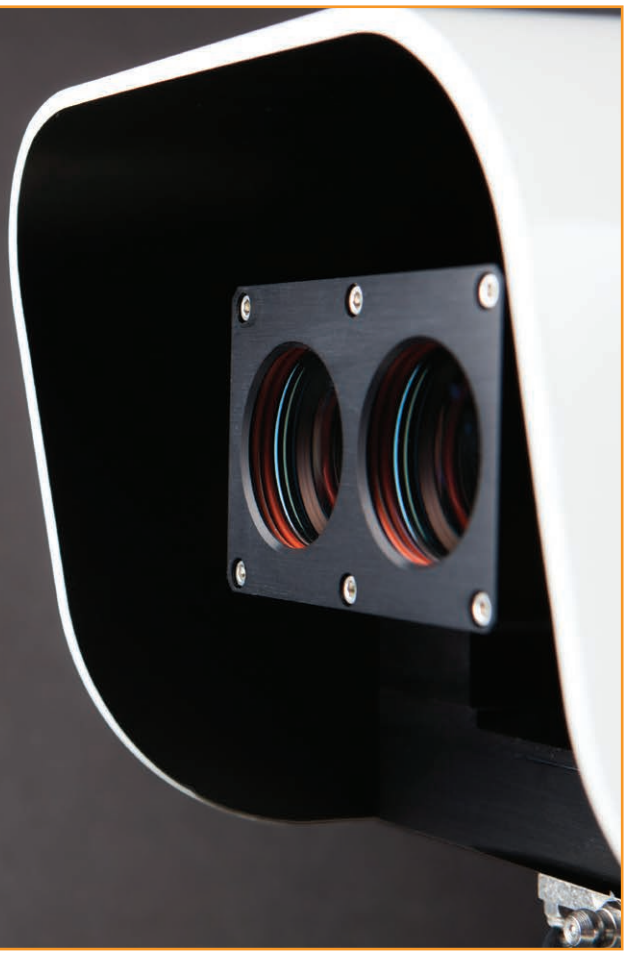
Repair by Exchange

'Repair by Exchange' is Renishaw's innovative, cost-effective service option, which ensures that our service is of the high standard that our customers expect.

Repair by Exchange offers clients the ability to keep their fleets working, with a minimum of downtime and handling.

Fanbeam units are kept at key service centres located globally, and in the event of damage, a replacement unit can be sent to your vessel in exchange for faulty equipment:

- **No waiting for repair work**
- **No waiting for spare parts**
- **Deal with a convenient service centre**
- **Minimise the risk of downgrading of DP class and potential loss of vessel day-rate**



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About Renishaw

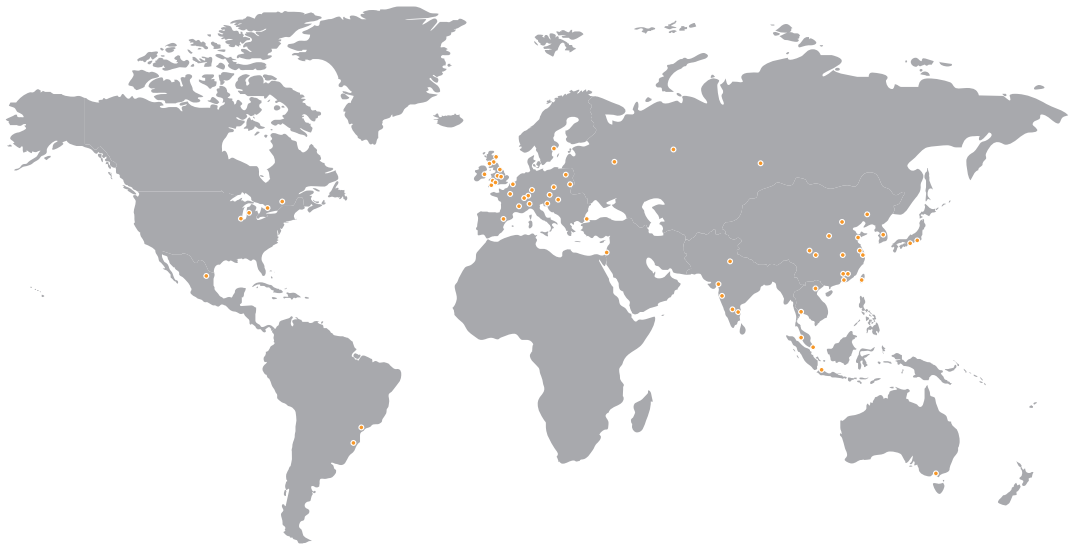
Renishaw is an established world leader in engineering technologies, with a strong history of innovation in product development and manufacturing. Since its formation in 1973, the company has supplied leading-edge products that increase process productivity, improve product quality and deliver cost-effective automation solutions.

A worldwide network of subsidiary companies and distributors provides exceptional service and support for its customers.

Products include:

- Additive manufacturing and vacuum casting technologies for design, prototyping, and production applications
- Dental CAD/CAM scanning systems and supply of dental structures
- Encoder systems for high-accuracy linear, angle and rotary position feedback
- Fixturing for CMMs (co-ordinate measuring machines) and gauging systems
- Gauging systems for comparative measurement of machined parts
- High-speed laser measurement and surveying systems for use in extreme environments
- Laser and ballbar systems for performance measurement and calibration of machines
- Medical devices for neurosurgical applications
- Probe systems and software for job set-up, tool setting and inspection on CNC machine tools
- Raman spectroscopy systems for non-destructive material analysis
- Sensor systems and software for measurement on CMMs
- Styli for CMM and machine tool probe applications

For worldwide contact details, visit www.renishaw.com/contact



L-6008-8001-02-A

Part no.: L-6008-8001-02-A
Issued: 06.2017