MDL

WORLD LEADERS IN LASER MEASUREMENT TECHNOLOGY

TECHNICAL SPECIFICATION

LASER		
Type		Semiconductor Laser Diode 7.5 KHz Rep Rate
Wavelength		905nm
Beam Divergence	*Vertical*	20°
	Horizontal	1 milli radian
Eye Safe		Class 1 CENELEC EN60825-1
Maximum Range		2,000m
Accuracy		20cm (10cm Possible Depending on Target and Scan Rate)
Angular Resolution		0.01º
MOTORISED YOKE		
Scan Speed		Up to 50º per sec
Optical Encoder	*Horizontal*	0º to 360°
COMMUNICATION		
Current Loop		20mA Digital
Baud Rate		9600
POWER SUPPLY		
Output		28 V DC 3.5 amp
Universal Input		85V - 264V AC / 47 - 440Hz
	Dimensions (WxLxH)	160x260x140mm
	Weight	6kgs
ENVIRONMENTAL		
Operating Temperature		-10°C to +40°C
Water and Dust Resistant		IP66
PHYSICAL		
Construction		Machined Aluminium
Dimensions (WxLxH)	*Standard*	200x300x290mm
	With Motion Sensor	200 x 410 x 290mm
Weight	*Standard*	13.4kgs
	With Motion Sensor	16kg
OPTIONAL TILT MECHANISM		
Gear Box		Servo Driven Worm and Wheel
Range		-15° to +15º (5º Increments)
OPTIONAL MOTION SENSOR	**Heave**	**Pitch and Roll for ±30º Vessel Motion**
Accuracy	±5cm or 5% Whichever is greater	0.15°
Range	±10m	±30º
Resolution	1cm	Digital –0/01°, Analogue –12bit
Bandwidth	0.05 to >10Hz	0 to >10Hz
Update Rate	Digital –Up to 200Hz	Analogue –Up to 500Hz
Yaw Immunity	10º per Second with 30º Roll and Pitch	
CONTROL UNIT	**UCU**	**TOUCH SCREEN OR INDUSTRIAL RACK-MOUNT PC**
Specification	266MHz, 32Mb RAM,	Supplied to specification.
	Windows NT4.0, Backlit Keypad,	
	Integrated Positional Device,	
	800x600x250 VGA Output,	
	Integrated Speaker	
Size (WxLxH)	240x160x66mm	
Weight	2.4kg	

CLASS 1 LASER PRODUCT

Certification No. Q 50061

DEALERS STAMP

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FANBEAM® 4

LASER RADAR PRECISION POSITIONING & TRACKING SYSTEM

- Class 1 Eye Safe Laser System
- Range to 2,000m with ±10cm Accuracy
- Rugged Design Ideal for the Offshore Marine Environment
- Excellent Primary or Backup System
- Integral Motion Sensor Option
- Autotilt Mechanism Compensates for Large Differences in Elevation
- Utilises Inexpensive Intrinsically Safe Retro Reflectors
- Competitively Priced
- Easy to Install

7.5KHZ / GAs 905nm FANBEAM® 4 LASER

MAIN CONTROL PROCESSOR & POWER BOARD

AUTOTILT ± 15° YOKE MECHANISM

GEARBOX / ENCODER

HEAVE · PITCH · ROLL · YAW MOTION SENSOR MODULE

MDL's Fanbeam® is a laser range and bearing system designed for repetitive, high accuracy positioning and tracking of marine vessels, and static and semi-static anchored structures.

The system is primarily used to control or assist automatic dynamic positioning (DP) of a vessel next to the platform, jetty or other vessel. Fanbeam® can be employed as either a standalone collision avoidance monitoring system or as a local backup system for position control and ship/barge docking and manoeuvring. The system is also widely used to position seismic vessels gun array floats during geophysical survey operations.

THE SYSTEM

The basic system consists of a laser-scanning unit mounted on a motorised yoke that can rotate 360° at up to 50° per second. The Fanbeam® laser can measure to a range of 2,000m to within an accuracy of ±10cm using a vertical 20° fan of pulsed light produced by a multiple array of semiconductor laser diodes in combination with special optics.

Pulses reflected from a retro-reflector mounted on a rig or a vessels gun array, for example, is timed and multiplied by the speed of light to give distance. At the time of the received return the electro optical encoder is read to give bearing.

AUTOTILT MECHANISM OPTION

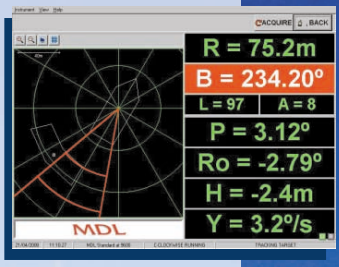
An autotilt mechanism incorporated into the yoke of the Fanbeam® allows the laser-scanning head to be adjusted by ±15° giving a total beam range of -25° to +25°. This valuable option removes the need for the laser-scanning head to be manually adjusted during critical operations where large variations in height occur between a vessel and a rig or two vessels in different states of ballast. A rugged universal control unit (UCU) which features a backlit keypad for night operations controls the Fanbeam® with the autotilt option.

MOTION SENSOR TECHNOLOGY OPTION

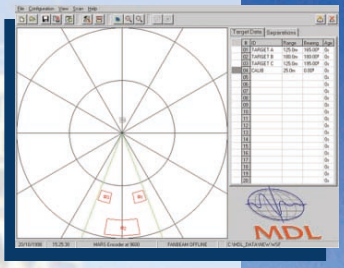
MDL can now incorporate motion sensor technology into the Fanbeam® unit as an additional option. In this particular configuration, the system must be controlled via a PC that constantly updates and displays range, bearing and also heave, yaw, pitch and roll data in real-time. The errors that consistently occur between two independent systems, traditionally employed onboard a vessel, are automatically compensated for in MDL's software. This valuable option removes the need for two separate installations and complicated calibration surveys.

SOFTWARE OPTION

Fanbeam® is supplied with MDL's Single Target DP PC software as standard. In addition to a large range of configurable data output formats, MDL's Single Target DP software can be defined by the user to optimise the systems performance according to the vessels current environment. The basic software displays range and bearing information. Systems incorporating MDL's optional motion sensor technology display heave, yaw, pitch and roll as well as range and bearing information.



Alternatively, MDL can supply you with its Seismic software, which has many valuable features and procedures. The software has been designed to enable Fanbeam® to track up to twenty targets, add and modify target windows on-line and calculate the separations between any pair of targets in real-time. Improved graphics all packaged within user-friendly Windows environment makes MDL's Seismic software a valuable tool for tracking targets such as gun arrays or dyad tows.



APPLICATIONS

- Dynamic Positioning
- Collision Avoidance
- Dredging Control
- Hydrographic Survey
- Construction Barge Positioning
- Traffic Control
- Anchor Control
- Jacket Installation
- Pipe Tow Out Positioning
- Tanker Mooring
- Docking Control
- Replenishment at Sea
- FPSO Shuttle Tanker Positioning
- Mine Counter Measures
- Walk Way Monitoring

The Fanbeam® is now in regular use on board FPSO's, drill rigs and ships, survey vessels, shuttle tankers, pipe and cablelay barges, repair vessels, stone dumpers and dredgers.

ADVANTAGES

MDL's Fanbeam® system has many advantages. Our customers tell us that the Fanbeam® is straightforward to set up, performs excellently during short range operations, high accuracy is achieved consistently, the system utilises intrinsically safe targets, requires very little maintenance and is low cost compared to other systems. This versatile laser system can be employed as a primary or backup system and is considered a valuable alternative or complementary system to DGPS and other navigational aids

- Performs Excellently During Short-range Operations
- Achieves High Accuracies Consistently
- Utilises Inexpensive Intrinsically Safe Targets
- Rugged Design
- State-of-the-art Technology
- Long Product Life
- Meets Needs of a Diverse Range of Applications
- All Weather Operation
- Valuable Alternative or Complementary to DGPS
- Excellent Standalone or Backup System