

DMS

DYNAMIC MOTION SENSORS

Accurate motion measurement in all sea conditions.

The DMS range of motion sensors is designed specifically for the motion measurement needs of the marine industry. Whether it is achieving IHO standard survey from any size of vessel, or providing safety critical monitoring of offshore platforms, large vessels, helicopter landing decks, cranes and positioning systems, the DMS provides accurate motion measurement in all sea conditions.

Incorporating an enhanced external velocity and heading aiding algorithm for improved accuracy during dynamic manoeuvres, the solid state angular rate sensors offer reliability in the highest performing vertical reference units ever produced by TSS.

- Dynamic roll and pitch accuracy from 0.05° to 0.50° RMS
- Heave accuracy $\pm 5\text{cm}$ or 5%
- Solid state solution available in surface and subsea housings
- Survey to Class 1 IHO standard
- High dynamic accuracy during vessel turns
- High reliability
- Power and data over Ethernet (surface units)
- Independently configurable serial outputs
- Complies with IEC 60945
- 24 hour, 365 days/year technical support

Benefits

- Intuitive control software with user-configurable outputs
- Real-time digital and analogue outputs
- Compact and lightweight
- Low power, cost-effective solutions



Subsea



Surface



DMS

DYNAMIC MOTION SENSORS

The DMS range of sensors is available in surface or subsea variants - the subsea unit is rated to 3000m as standard with 6000m available on request. As with all TSS systems, the DMS is certified to meet all current and anticipated European legislation for electromagnetic compatibility and electronic emissions.

The latest DMSView software programme is an intuitive Windows™ - based programme enabling installation, set-up and integrity checking, and monitoring of the sensor. The user can select from a series of frequently used data protocols or configure a bespoke output from a selection of variables.

Product	Dynamic Accuracy	Depth Rating	Heave	Roll	Pitch
DMS-05	0.05°	✓	✓	✓	✓
DMS-505	0.05°	X	✓	✓	✓
DMS-10	0.10°	✓	✓	✓	✓
DMS-510	0.10°	X	✓	✓	✓
DMS-25	0.25°	✓	✓	✓	✓
DMS-525	0.25°	X	✓	✓	✓
DMS-550	0.50°	X	✓	✓	✓
DMS-550RP	0.50°	X	X	✓	✓
DMS-535RP	0.35°	X	X	✓	✓
DMS-525RP	0.25°	X	X	✓	✓
DMS-RP25	0.25°	✓	X	✓	✓
DMS-500H	X	X	✓	X	X

No formal restrictions for most countries although heave products are subject to Export License.



Heave, Roll, Pitch

The DMS range of motion sensors is designed specifically for the motion measurement needs of the marine industry. Whether it is achieving IHO standard survey from any size of vessel, or providing safety critical monitoring of offshore platforms, large vessels, helicopter landing decks, cranes and positioning systems, the DMS provides accurate motion measurement in all sea conditions.

Incorporating an enhanced external velocity and heading aiding algorithm for improved accuracy during dynamic manoeuvres, the solid state angular rate sensors offer reliability in the highest performing vertical reference unit ever produced by TSS.

Features

- Dynamic roll and pitch accuracy to 0.05°
- Heave ±5cm
- Survey to Class 1 IHO standard
- High dynamic accuracy during vessel turns
- Surface and depth rated options available

Benefits

- Intuitive control software with user-configurable outputs
- Real-time digital and analogue outputs
- Compact and lightweight



DMS-05 Subsea

Roll, Pitch

The DMS-RP sensors meet the requirements of the dynamic positioning industry for accurate vessel roll and pitch measurement. The units provide accurate motion measurement in all sea conditions.

Incorporating an enhanced external velocity and heading aiding algorithm for improved accuracy during dynamic manoeuvres, the solid state angular rate sensors offer reliability and a complimentary blending algorithm has proven that the DMS is the highest performance vertical reference unit ever produced by TSS.

The DMS-RP sensors are available in Subsea and Surface versions. The sensors can be supplied in various configurations for integration with towed vehicles and other bespoke applications. As with all TSS systems, the DMS is certified to meet all current and anticipated European legislation for electromagnetic compatibility and electronic emissions.

Features

- Dynamic rolls/pitch accuracy from 0.05° to 0.50° RMS
- Heave accuracy $\pm 5\text{cm}$ or 5%
- Surface and subsea options available
- Independently configurable serial outputs
- Power and data over Ethernet (surface only)
- Survey to Class 1 IHO standard
- High dynamic accuracy during vessel turns

Benefits

- DMSView intuitive control software
- User-configurable outputs
- Real-time digital outputs
- Compact and lightweight



DMS-RP25
Subsea

Heave

Whether in ports and harbours, offshore or as part of a hydrographic mapping programme, the need to measure ocean depths with the utmost accuracy is vital.

The DMS-500H heave sensor has been developed to work with a wide range of modern single beam echosounders. With their design allowing acceptance of correction data from the DMS-500H, real-time heave compensation of the sounder data is now achievable. Providing heave data in analogue and digital format, the outputs of the DMS-500H are easily configurable via a simple operator menu.

Compact, ruggedised and quick to install, the sensor is supplied with the cable connector necessary for interfacing and is accompanied by a comprehensive operation manual.

In addition to echosounder compensation, the DMS-500H is ideally suited to a wide range of offshore applications including crane and winch control, wave radar and ship motion measurement.

Covered by a comprehensive warranty, the DMS-500H also has free technical telephone support for the total life of the product.

Features

- Measurement to meet IHO standards
- Provides cost savings by increasing weather windows for survey
- Solid state accelerometers and rate sensors
- Accurate real-time heave data
- Removes vertical motion errors from survey data to eliminate the need for post-processing
- Suitable for a wide variety of vessels
- Free telephone support for life of product
- Designed to provide operators with the optimum cost benefit solution
- IP 65 Rated



DMS-500H
Surface

DMS Dynamic Motion Sensors

TECHNICAL SPECIFICATIONS

	DMS-500H	DMS-05 DMS-505	DMS-10 DMS-510	DMS-25 DMS-525	DMS-550	DMS-RP25 DMS-525RP	DMS-535RP	DMS-550RP
Dynamic Accuracy								
Heave	5cm or 5% whichever is greater					N/A		
Roll & Pitch (°RMS)	N/A	0.05	0.10	0.25	0.50	0.25	0.35	0.50
Export Compliance (ECCN)	7A003d					No Licence Required (EAR99)		
	DMS-05, DMS-10, DMS-25, DMS-RP25				DMS-500 Range			
Maximum Calibrated Range	Heave ±10m, Roll & Pitch ±30°							
Data Resolution	Heave 1cm, Roll & Pitch 0.01°							
Bandwidth	Heave 0.05 to >10Hz, Roll & Pitch 0 to >10Hz							
Data Output Rate								
Digital	Up to 100Hz							
Analogue	Up to 500Hz (with external repeater)				N/A			
Available Output Parameters	Adjustable data output packet output rate down to 1Hz. Heave, roll pitch, remote heave, angular rate (X, Y, Z); acceleration (X, Y, Z – body frame); angular rate east north up; acceleration east north up (geographical frame); IMU temperature, surge, sway, sensor status, external speed, external heading, UTC time				Adjustable data output packet output rate down to 1Hz. Heave, roll pitch, remote heave, angular rate (X, Y, Z); acceleration (X, Y, Z-body frame); sensor status			
Dimensions								
Size	99mm (dia) x 172mm (h) excluding connector				160mm x 160mm x 160mm (240mm max at base)			
Weight	2.3kg (3000m), 4.0kg (6000m)				4.0kg			
Depth Rating	3000m standard, 6000m on request				IP65			
Power Supply	12-36Vdc (2A supply)							
Power Requirement	<6.5W				<12W			
Power Over Ethernet	N/A				IEEE 802.3AF-2003			
Temperature Range	0°C to 55°C operating, -20°C to 70°C storage				-15°C to 55°C operating, -20°C to 70°C storage			
Shock (survival)	30g peak (40ms half sine)							
Vibration (operating)	IEC 60945				IEC 60945			
Input Packet Formats								
Velocity	NMEA0183 (VTG & GLL or GGA), TSIP (DMS-05, -10, -25), Doppler speed log				NMEA0183 (VTG & GLL or GGA)			
Heading	NMEA0183, SGB, Robertson; Sperry LR40/60				NMEA0183 (DMS-550)			
Output Data Formats	TSS1, TSS1 with RH, TSS3, TSS Post Heave, Simrad EM1000 and EM3000, Simrad EM1000 and EM3000 with RH, Atlas, Atlas with RH, NMEA PRDID, BMT1, Polled Output, PSXN, User Configurable				TSS1, NMEA PRDID, User Configurable			
Interface								
Digital	RS232 or RS422 (software selectable)				RS232 or RS422 (software selectable), Ethernet			
Analogue	Via remote control interface for power, communication and aiding				N/A			
Ethernet	N/A				Dual redundant interfaces. Packet output via TCP, UDP or UDP multicast			
Topside Software	DMSView for Windows™				DMS500View for Windows™			
Mean Time Between Failures	50,000 hours							
Quality	ISO9001, ISO1400							
Warranty	12 months international warranty including parts and labour.							

Due to continuous development, specifications may vary from those listed above.



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