

# 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.



*Subsea*



*Surface*

#### PRODUCT FEATURES AND BENEFITS

- Dynamic roll and pitch accuracy from 0.03° to 0.50° RMS
- Heave accuracy ±5cm or 5%
- Solid state solution available in surface or 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 per year technical support
- Intuitive control software with user-configurable outputs
- Real-time digital and analogue outputs
- Compact and lightweight
- Low power, cost-effective solutions



**TELEDYNE TSS**  
Everywhereyoulook™

# 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-10	0.10°	✓	✓	✓	✓
DMS-25	0.25°	✓	✓	✓	✓
DMS-RP25	0.25°	✓	x	✓	✓
DMS-RP30	0.30°	x	x	✓	✓
DMS-H	x	x	✓	x	x
DMS-525	0.25°	x	✓	✓	✓
DMS-525RP	0.25°	x	x	✓	✓
DMS-535RP	0.35°	x	x	✓	✓
DMS-550	0.50°	x	✓	✓	✓
DMS-550RP	0.50°	x	x	✓	✓
DMS-500H	x	x	✓	x	x

\*Dynamic Accuracy at +/- 30°

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



## 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.



DMS-05 Subsea

### PRODUCT FEATURES AND BENEFITS

- Dynamic roll and pitch accuracy to 0.03° (+/- 5°)
- Heave ±5cm
- Survey to Class 1 IHO standard
- High dynamic accuracy during vessel turns
- Surface and depth rated options available
- Real-time digital and analogue
- Compact and lightweight

## 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 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 sensor can be supplied in various configurations for integration with towed vehicles and other bespoke applications.



DMS-RP25  
Subsea

## Heave

Whether in ports or 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 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.



DMS-500H  
Surface

### PRODUCT FEATURES AND BENEFITS

- Dynamic roll and pitch accuracy from 0.25° to 0.50° RMS
- 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
- DMSView intuitive control software
- User-configurable outputs
- Real-time digital outputs
- Compact and lightweight

### PRODUCT FEATURES AND BENEFITS

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

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## Dynamic Motion Sensors

### TECHNICAL SPECIFICATIONS

DMS-05 DMS-10 DMS-25 DMS-RP25 DMS-RP30 DMS-H DMS-525 DMS-525RP DMS-535RP DMS-550 DMS-550RP DMS-500H

#### PERFORMANCE

Roll & Pitch °RMS													
+/- 5° Dynamic	0.03	0.06	0.15	0.25	0.30	N/A	0.05	0.25	0.35	0.10	0.50	N/A	
+/- 30° Dynamic	0.05	0.10	0.25	0.25	0.30	N/A	0.25	0.25	0.35	0.50	0.50	N/A	
Heave	5 cm or 5%	5 cm or 5%	5 cm or 5%	N/A	N/A	5 cm or 5%	5 cm or 5%	N/A	N/A	5 cm or 5%	N/A	5 cm or 5%	
Maximum Calibrated Range	Heave ±10m, Roll & Pitch ±30°						Heave ±10m, Roll & Pitch ±30°						
Data Resolution	Heave 1cm, Roll & Pitch 0.01°						Heave 1cm, Roll & Pitch 0.01°						

#### DATA OUTPUT RATE

Digital	Up to 100Hz	Up to 100Hz
Analogue	Up to 500Hz (with optional DMS repeater)	N/A

#### PHYSICAL CHARACTERISTICS

Dimensions	99mm (d) x 172mm (h) (excluding connector)	160mm x 160mm x 160mm (240mm max at base)
Weight in Air	2.3kg (3000m), 4.0kg (6000m)	4.0kg
Weight in Water	1.0kg (3000m), 2.7kg (6000m)	N/A
Depth Rating	3000m standard, 6000m on request	N/A
Power Supply	12 - 36Vdc (2A supply)	12 - 36Vdc (2A supply)
Power Requirement	<6.5W	<12W
Power Over Ethernet	N/A	IEEE 802.3AF-2003
Temperature Range	-15°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)	30g peak (40ms half sine)
Vibration (operating)	IEC 60945	IEC 60945

#### INTERFACE FORMATS

Sensor Aiding Velocity	NMEA0183 (VTG & GLL or GGA)	NMEA0183 (VTG & GLL or GGA)
Sensor Aiding Heading	NMEA0183, SGB, Robertson; Sperry LR40/60	NMEA0183 (DMS-550)
Output Data Formats	Industry Standard formats	Industry Standard formats

#### INTERFACE

Digital	RS232 or RS422 (software selectable)	RS232 or RS422 (software selectable), Ethernet
Analogue	Via optional DMS repeater	Via optional DMS repeater
Ethernet	N/A	Dual redundant frequencies. Packet output via TCP, UDP or UDP multicast
Application Software	DMSView for Windows™	DMS500View for Windows™

#### SYSTEM

MTBF	50,000 hours
Warranty	24 months international warranty including parts and labour
Export Compliance (ECCN)	7A103.a.2 for DMS-05, DMS-10, DMS-25, DMS-H

COMPANY WITH  
MANAGEMENT SYSTEMS  
CERTIFIED BY DNV  
= ISO 9001 =  
= ISO 14001 =  
= OHSAS 18001 =



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