

# Orion INS

INERTIAL NAVIGATION SYSTEM

## Providing outstanding performance in all sea conditions.

Orion INS has been specifically designed for the demanding hydrographic survey, offshore construction and ROV operations markets.

Orion incorporates three single axis ring laser elements and three highly accurate accelerometers. These specific components, widely used in many of the world's commercial aircraft, were chosen for Orion because of availability, accuracy and their very high meantime between failures. These core elements enabled the TSS research and development team to design this high specification Inertial Navigation System which is configured and controlled by the latest easy-to-use interface – OrionView.

Orion utilises the latest version of the TSS inertial algorithm which has over 30 years of pedigree providing outstanding performance in all sea conditions. Orion is offered as an IP65-rated surface unit or 3000m-rated subsea unit (6000m optional).

Teledyne TSS offers comprehensive sales and service capabilities through its own personnel in the UK, USA and Asia-Pacific. Its products are further supported by a worldwide network of sales representatives.



- 0.1° heading with single GPS antenna aiding
- Heave, 5cm or 5% of range whichever is greater
- 0.01° roll, pitch
- Speed and position outputs
- Latitude and speed corrected
- IMU raw data outputs
- RLG MTBF of 300,000 hours
- Three configurable I/O Channels
- Easy set-up using OrionView software
- Surface and subsea (aluminium or titanium) options



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### TECHNICAL SPECIFICATIONS

<b>Heading</b>	Dynamic Accuracy - GPS Aided	0.1° sec/lat RMS
	Dynamic Accuracy - Unaided	0.15° sec/lat RMS
	Resolution	0.01° (or as dictated by the O/P packet format)
	Settling time	15 minutes or less
	Heading Data Latency	< 3 ms
<b>Roll and Pitch</b>	Range	± 90°
	Accuracy	0.01°
	Resolution	0.01°
	Limits	None
	Axis alignment	< 0.005°
	Data Latency	< 3 ms
<b>Heave</b>	Accuracy	5cm or 5% whichever is greater
	Bandwidth	0.05-10 Hz
	Range	± 99 m
	Resolution	1 cm
<b>Position</b>	Free Inertial	< 5 nautical miles/hour
<b>Data Parameters</b>	Serial Outputs	3 configurable I/O Channels
	Data Protocols	RS232 and RS422
	Data output rate	Up to 200 Hz
	Baud Rate	1200 – 38,400
	Data Bits	7 or 8
	Stop Bits	1 or 2
	Parity	None, even or odd
	Data output formats	TSS1, TSS HHRP, TSS1 + NMEA HDT, TSS1 with remote heave, TSS3, Simrad EM1000, Simrad EM1000 with remote heave, Simrad EM3000, Simrad EM3000 with Remote Heave, Atlas, NMEA PRDID, BMT1, Polled, GGA, VTG, User Configurable.
	<b>Raw Data Output</b>	Rates & Accelerations
<b>Aiding</b>	GPS	NMEA 0183 GGA and VTG
<b>Environmental</b>	Ambient operating temperature	-10°C to +55°C operational, -20°C to +70°C storage
	Shock (survival)	22g
	Housing: Surface Subsea 3000m Subsea 3000m	IP65 rated Cast Aluminium Aluminium Titanium
<b>Physical</b>	Dimensions: Surface Subsea 3000m (aluminium) Subsea 3000m (titanium)	380 mm (l) x 240 mm (w) x 180 mm (h) including connectors 242mm (d) x 390mm (h) (including connector) 229mm (d) x 366.5mm (including handles)
	Weight: Surface 3000m Subsea 3000m (aluminium) Subsea 3000m (titanium)	13 kg 20 Kg in air; 6.5 Kg in water 26 Kg in air; 12.8 Kg in water
<b>Electrical</b>	Power requirement	18-36V DC
<b>Regulatory Approval</b>	CE	
<b>MTBF:</b>	System	>30,000 hours
	RLGs and Accelerometers	>300,000 hours
<b>Warranty</b>	12 months international warranty including parts and labour	

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

WORLD LEADERS IN MARINE NAVIGATION



**TELEDYNE TSS**  
A Teledyne Technologies Company



Certificate Number: 160263  
BS EN ISO 9001 : 2000

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