

# TOGS

## Subsea AHRS & Navigation Systems

The Teledyne TSS north seeking TOGS subsea navigation system range has been expanded. We are pleased to announce the addition of the TOGS 05, our highest specification and performance model to date, ideal for carrying out high precision navigation, construction & positioning work.

Built on our reliable and robust IMU (Inertial Measurement Unit), utilising our TSS FOG (Fibre Optic gyro) technology and enhanced with our own proven north seeking Algorithms. Available in either 4000m or 6000m depth rated housings, the TOGS AHRS is offered in four standard heading accuracy variants: 0.05°, 0.1°, 0.3° & 0.5°, along with a number of additional accessories including external IPS, brackets, adapter plates and extension cables, designed to replace older TOGS models and suit every customer need.

All TOGS models are easily managed with our user-friendly embedded web server, accessible via web browser.

The systems fast 10-minute alignment time enables a rapid vehicle launch from power up.

The TOGS AHRS subsea gyrocompass becomes an even more powerful navigation tool when integrated to other external sensors such as a DVL and or a USBL/ LBL.



TOGS 3  
TOGS 5

TOGS 05  
TOGS 1

## PRODUCT FEATURES & BENEFITS

- Ideal for ROV, trencher & tractor subsea navigation, construction & positioning tasks
- Heading, pitch, roll and heave data output
- Each system can additionally output 2 independent (lever arms) channels of data simultaneously
- Broad range of INS & AHRS options to suit all your fleets needs
- Fast 10 minute alignment time for rapid vehicle launch
- Low cost ownership due to a Maintenance free IMU with no in-life calibration
- No specialist training required due to easy to use common browser
- Ease of export and ownership due to Dual Use export classification



**TELEDYNE MARINE**  
TSS  
Everywhereyoulook™

# TOGS Subsea Navigation Systems



## TECHNICAL SPECIFICATIONS

		TOGS 05	TOGS 1	TOGS 3	TOGS 5
<b>Performance</b>	Heading accuracy	0.05° secant latitude RMS	0.1° secant latitude RMS	0.3° secant latitude RMS	0.5° secant latitude RMS
	Roll & pitch accuracy	0.01° RMS		0.05° RMS	
	Heave accuracy	5 cm or 5%		5cm or 5% (delayed)	
	Alignment time	10 minutes			
	Angular rate	≥250°/s	≥300°/s	≥500°/s	
	Operating latitude	± 80°			
<b>Power</b>	Power supply	18 - 36Vdc			
	Power consumption	16W		14W	
<b>Interface</b>	Serial (bi-directional)	4 x configurable RS-232 / RS-422			
	Serial (transmit only)	4 x configurable RS-232 / RS-422		n/a	
	Ethernet	10 / 100 MB			
	Data formats	NMEA 0183 / IEC 61162, TSS proprietary and industry standard			
	Aiding inputs	GNSS, EM Log, DVL, USBL/LBL, Depth sensor			
<b>Physical Characteristics</b>	Dimensions	4000m	n/a	182mm (Ø) x 306mm (h)	157mm (Ø) x 280.5mm (h)
		6000m	182mm (Ø) x 309mm (h)		157mm (Ø) x 283.5mm (h)
	Weight in air	4000m	n/a	14.5kg	10.2kg
		6000m	16.0kg		11.5kg
	Weight in water	4000m	n/a	7.2kg	5.4kg
		6000m	8.5kg		6.5kg
	Material	4000m	n/a	Titanium	
		6000m	Titanium		
MTBF	100,000 hours				
<b>Environmental and EMC</b>	Operating temperature	-20°C to +55°C			
	Storage temperature	-30°C to +70°C			
	Environmental	Meets or exceeds IEC 60945			
	EMC	Meets or exceeds IEC 60945			
<b>Compliance</b>	Standards	Approved to IMO A424(XI), IMO A821 (19), IMO A694(17), MSC 191(79), ISO 8728, ISO 16328, IEC 60945, IEC 62288, IEC 61162, US Coast Guard MRA, MCA 2016 SI 2016\1025			
	Export	The TOGS 05 is listed on the EU dual-use control list as 7A003.c.1, while TOGS 1, 3 and 5 are listed on the EU dual-use control list as 7A103.a.1, ref. Appendix 1 of the EU-regulation 2021/821			
<b>Warranty</b>	24 months international warranty including parts and labour				

### SCOPE OF SUPPLY

- TOGS 05, TOGS 1, TOGS 3 & TOGS 5
- Power in/data cable 1.5m
- Subsea Ethernet cable 1.5m
- Ethernet config. cable 2m

### OPTIONAL

- Power in/data cable 5m
- Power out/data cables\*1.5m or 5m (Not available for TOGS 3 & TOGS 5)
- Connector options: Standard TOGS connectors are Impulse, some models are offered with alternatives, please enquire
- Extended warranty: Up to 7 years available

\*Optional cable(s) required for Power out/Data 2, Power out/Data 3 and Power out/Data 4 connections with power pass through



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