



SATURN INS

Surface Inertial Navigation Systems

When Performance & Reliability Matters

The Teledyne TSS world leading north-seeking SATURN INS inertial navigation system range has just got bigger. We are pleased to announce the addition of the SATURN 05INS, our highest specification and performance model to date. Not only does this new system offer enhanced high-accuracy navigation, it is fully compliant with MIL-STD-810H & MIL-STD-167A for shock and vibration, and MIL-STD-461G for EMC.

Built on our reliable and robust IMU (Inertial Measurement Unit), utilising our TSS FOG (Fibre Optic Gyro) technology and enhanced with our own proven and trusted INS algorithms. The SATURN INS is offered in four standard heading accuracy variants: 0.05°, 0.1°, 0.3° & 0.5° to suit virtually every customer need.

All SATURN models are easily managed either with our user-friendly embedded web server, accessible via any web browser, or via our optional, BAM compliant CDU (Configurable Display Unit).



SATURN 05INS
SATURN 10INS

SATURN 30INS
SATURN 50INS



The system has a very fast 10-minute alignment time from initial switch on. To further improve accuracy the system accepts external inputs from GNSS or EM log which gives the best INS accuracy performance from the system.

All SATURN INS models are certified to IMO & Wheelmark Marine Equipment Directive (including IEC-62923-14/2 BAM compliance) & MCA Red Ensign.

PRODUCT FEATURES & BENEFITS

- Perfectly suited to navigation, survey, platform stabilisation, construction and scientific tasks
- Broad range of INS & AHRS options to suit all the needs of your fleet
- Operationally ready within 10 minutes of start up
- Rugged & robust construction with proven performance
- Proven attitude and inertial navigation performance
- Maintenance free TSS FOG IMU with high MTBF
- Easily configured with any standard browser or optional Configurable Display Unit
- Great connectivity & flexibility with a large range of serial & Ethernet connections
- Ease of export and ownership due to dual-use export classification



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TECHNICAL SPECIFICATIONS

		SATURN 05INS	SATURN 10INS	SATURN 30INS	SATURN 50INS
Performance	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	0.01° RMS	0.05° RMS	0.05° RMS
	Heave accuracy	5cm or 5%	5cm or 5%	5cm or 5% (delayed)	5cm or 5% (delayed)
	Alignment time	10 minutes			
	Angular rate	≥250°/s	≥300°/s	≥500°/s	≥500°/s
	Operating latitude	± 80°			
Position	GNSS aiding*	factor of 3 improvement			
	No aiding (CEP50)	0.5m after 1min, 1.8m after 2min, 7m after 4min	0.6m after 1min, 2.5m after 2min, 10m after 4min	5m after 1min, 20m after 2min, n/a after 4min	Not specified
Power	Power supply	18 - 36Vdc			
	Power consumption	16W	16W	14W	14W
Interface	Bi-directional	4 x configurable RS-232 / RS-422			
	Transmit only	4 x configurable RS-232 / RS-422			
	Ethernet	1 x Ethernet			
		Status / Alarm relay contacts			
	Data formats	NMEA 0183 / IEC 61162, TSS proprietary and industry standard			
	Aiding inputs	GNSS, EM Log, DVL			
Physical characteristics	Dimensions	179.5mm (h) x 165mm (w) x 366mm (d)			
	Weight	8.4kg	8.2kg	7.1kg	7.1kg
	Rating	IP66	IP66	IP31	IP31
	MTBF	250,000 hours			
Environmental and EMC	Operating temperature	-20°C to +55°C			
	Storage temperature	-30°C to +70°C			
	Environmental	Meets or exceeds IEC 60945 MIL-STD-167A MIL-STD-810H (516.8)			
	EMC	Meets or exceeds IEC 60945 MIL-STD-461G			
		MIL-STD-461G			
Compliance	Standards	Approved to IMO A424(XI), IMO A821 (19), IMO A694(17), MSC 191(79), MSC 302(87), ISO 8728, ISO 16328, IEC 60945, IEC 62288, IEC 61162, IEC 62923-1/2, US Coast Guard MRA, MCA 2016 SI 2016\1025			
	Export	The SATURN 05 (INS) is listed on the EU dual-use control list as 7A003.b, while SATURN (INS) 10, 30 and 50 are listed on the EU dual-use control list as 7A103.a.1, ref. Appendix 1 of the EU-regulation 2021/821			
Warranty		24 months' international warranty including parts and labour			

SCOPE OF SUPPLY

- SATURN 05INS, SATURN 10INS, SATURN 30INS & SATURN 50INS
- Power in/data cable (5m) for SATURN 05INS, SATURN 10INS
- Power cable (3m) for SATURN 30INS, SATURN 50INS
- RJ45 Ethernet cable (3m)

OPTIONAL

- Power in/data cable up to 20m
- Power out/data cables up to 20m**
- Mounting plate
- SATURN CDU and various other repeaters & ancillaries
- Extended warranty

*dependent on GPS specification

**Optional cable(s) required for Power out/Data 2 and Power out/Data 3 with fused power pass through (0.5a)



TELEDYNE MARINE

TSS

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