Quadrans

IMO grade gyrocompass & attitude reference system

Quadrans, is a fully strapdown gyrocompass and attitude reference system. IMO and IMO-HSC certified, it provides all the necessary data for demanding navigation and control applications. High customizability and Ethernet/Serial connectivity provides a very easy integration on any platform. Based on a state-of-the-art interferometric Fiber-Optic Gyroscope technology (iFOG*), Quadrans does not require any maintenance during its unlimited service life. Quadrans is the ideal replacement for any mechanical gyro for whom is focused on total cost of ownership and maximizing availability and safety of their ships.

BENEFITS

- Fast settling time
- Maintenance-free
- Easy integration
- Stabilization and pointing capability
- Automatic speed and latitude correction
- Works in high sea state
- Allows restart at sea

FEATURES

- Compact and plug & play system
- AHRS: All in one gyrocompass & MRU
- Unique strap-down technology, interferometric FOG (iFOG*)
- Embedded Man Machine Interface (no proprietary CDU)
- IMO certification
- Heave, surge, sway measurement

Sea proven technology

Quadrans is based on a unique iFOG design* which has been in use in the harshest environment for 15 years. From land application to space environment through all main European navies first ranks platforms. Quadrans has been in use for years in many navies (French, Chile, UK, Portugal,...) and multiple DP operators. In addition, Quadrans has also been the obvious choice for most competitors in the America's cup and the Vendée Globe, proving its performances in any sea state and its reliability.

Reliability and through life cost

The return of experience on Exail iFOG technology shows a MTBF of more than 150,000h, without any kind of maintenance (neither on board nor with factory return), and a life expectation that has already proven to be superior to 15 years. All this combined makes Quadrans a true install and forget equipment with an unbeaten low cost through the life of your ship. As a token of our confidence, Quadrans comes with a 5 years warranty.

An opened architecture

The Quadrans solution, as every Exail product, is an opened architecture, ready to interface with any other component. It includes, in addition to standard NMEA, a large library of open source protocols, to give autonomy to the user in the integration of the Quadrans in the life of the ship.

2023-04 | V001

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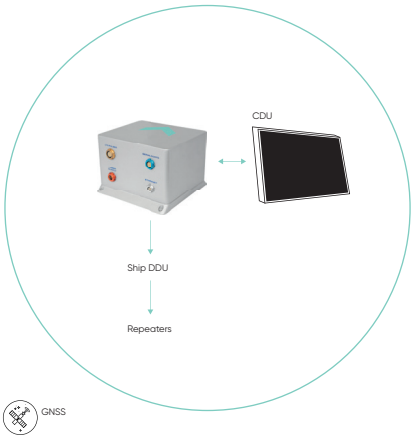
TYPICAL CONFIGURATIONS

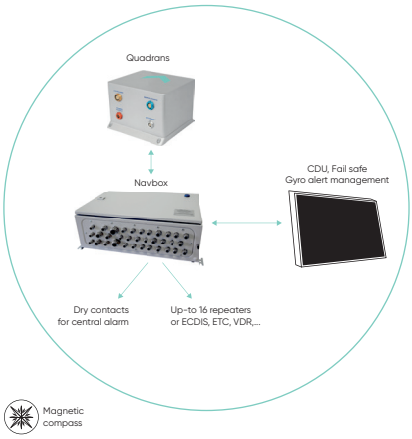
Quadrans standalone configuration



GNSS

Speed log

Gyro (with TMC or not) IMO approved configuration

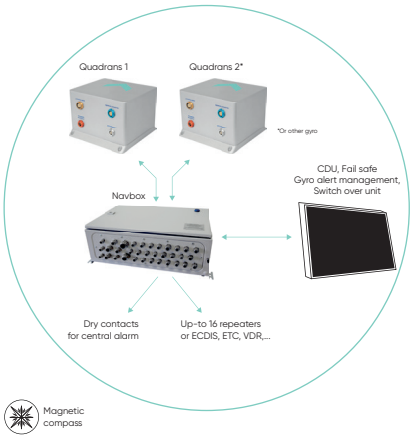


Magnetic compass

GNSS

Speed log

Dual Gyro with TMC IMO approved configuration



Magnetic compass

GNSS

Speed log

REPEATERS

Digital Compass

Tape Compass

Steering

Pelorus Bearing

Rate of turn indicator

Other brands and models are available.

TYPE APPROVAL

	Quadrans	Navbox
	Quadrans has been approved by Bureau Veritas in accordance with the Marine Equipment Directive (MED) and fulfills the following:	Quadrans + Navbox + Repeaters various configurations have a type approval certificate emitted by Bureau Veritas for the following:
MED	2014/90/EU	
IMO	A.424 (XI) - A.821 (19) - A.694 (17)	
ISO	ISO 8728 - ISO 16328	
MSC	MSC.36(63) - MSC.97(73) - MSC.191(79)	
IEC	IEC 60945 - IEC 61162-1 & -2	IEC 60945 - IEC 61162-1 & -2

(1) Secant latitude = 1/cosine latitude
(2) RMS values
(3) All input/output serial ports can be duplicated on Ethernet ports
(4) Typical value @24 V and ambient temperature

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TECHNICAL SPECIFICATIONS

Performance	Quadrans	Navbox
Heading accuracy	0.15 deg secant latitude RMS (*)	
Roll/Pitch accuracy	0.01 deg RMS	
Settling time	< 30mn (all conditions) , 0.7° in 15mn	
ROT	0.01 deg / sec	
Heave	10 cm / 10% whichever is higher	

Operating range/Environment		
Heading/Roll/Pitch	0 to +360 deg/±180 deg/±90 deg	
Latitude	+/- 85°	
Max Rate	250°/s	
Operating/Storage temperature	-20°C to 55°C/-40°C to 80°C	-20°C to 55°C/-40°C to 80°C
Humidity	IP66	IP66

Physical Characteristics		
Weight	2.8 kg	19 kg
Dimensions (L x W x H)	160 x 160 x 113 mm	600 x 417 x 235 mm
Connections	Fisher connectors	Cable glands

Interfaces		
Inputs (**)	2 inputs serial or Ethernet 1 configuration port	2 gyro input / 1 magnetic compass / 3 aiding devices (GNSS, speed log,...)
Outputs (**)	2 ouputs serial and/or 5 on Ethernet	16 outputs serial / 8 outputs Ethernet
Pulse port	4 inputs and 2 outputs, 5V (TTL Level)	
Alerts		5 dry contacts
Input/Output formats	Industry standards: NMEA 0183, ASCII, BINARY	
Data output rate	0,1 Hz to 200 Hz	
Power supply	24 VDC (15 to 32VDC)	24 VDC (15 to 32VDC)
Power consumption (4)	15 W	42 W

Support		
MTBF	150,000 hours	40,000 hours
Warranty	5 years	1 year
Calibration interval	None required	None required

(*) Applicable for Quadrans with a manufacturing date after the 1st of December 2020 (included)
(**) All input/output serial ports are available and can be duplicated on Ethernet ports

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