



Certificate number: 09807/C0 EC

File number: NAV 02/24647/01

Annex A1 Item number: A.1/4.3

USCG Module B number:
165.103 / EC0062

This certificate is not valid when presented without the full attached schedule composed of 7 sections

www.veristar.com

Notified Body 0062 - MARINE EQUIPMENT DIRECTIVE 96/98/EC

EC TYPE EXAMINATION CERTIFICATE

*as per Module B of European Union Council Directive 96/98/EC on marine equipment
as amended by Commission Directive 2009/26/EC*

This certificate is issued to

IXSEA
MARLY LE ROI - FRANCE

for the type of product

GYRO COMPASS
OCTANS III and OCTANS IV
Fiber-Optic Gyrocompass with Integral Motion Sensor

Requirements:

SOLAS 74 Convention as amended, Regulations V/18 and V/19,
IMO Resolution A.424(11), IMO Resolution A.694(17), IMO Resolution MSC.191(79),
ISO 8728 (1997),
IEC 60945 (2002), IEC 61162 series, IEC 62288 Ed.1.0 (2008).

This certificate is issued under the French Maritime Authority to attest that BUREAU VERITAS did undertake the relevant type-examination procedures for the product identified above which was found to comply with the relevant requirements of the Council Directive 96/98/EC of 20 December 1996 as amended.


This certificate will expire on: 24 Feb 2016

For BUREAU VERITAS Notified Body 0062,

At BV NANTES, on 24 Feb 2011,

Joel Gaurin



This certificate does not allow to issue the Declaration of Conformity and to affix the mark of conformity (wheelmark ) to the products corresponding to this type. To this end, the production-control phase module (D, E or F) of Annex B of the Directive is to be complied with and controlled by a written inspection agreement with a notified body.

This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. BUREAU VERITAS is designated by the French Maritime Authority as a "notified body" under the terms of the French Regulations Division 140 Chapter 140-2. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

OCTANS III and OCTANS IV are Fiber-Optic Gyrocompass with Integral Motion Sensor

Specifications:

1. PERFORMANCES

| | OCTANS III | OCTANS IV |
|--|---------------------------------|---------------------------------|
| Heading | | |
| Accuracy (whatever sea-state)(1)(2): | 0.1° Secant latitude | 0.1° Secant latitude |
| Full accuracy settling time : | 5 mn | 5 mn |
| Resolution: | 0.001° | 0.001° |
| Heave, surge and sway accuracy: | 5 cm or 5%, whichever is higher | 5 cm or 5%, whichever is higher |
| Roll, Pitch | | |
| Dynamic Accuracy(2): | 0.01° | 0.01° |
| Range (Roll/Pitch): | ± 90° / ± 180° | ± 90° / ± 180° |
| Resolution: | 0.001° | 0.001° |

(1) RMS values. 68% of the data is within this value of confidence

(2) Secant latitude = $1 / \cosine \text{ latitude}$

2. ENVIRONMENT

| | OCTANS III | OCTANS IV |
|--------------------------------|---------------------------------|---------------------------------|
| Operating/storage temperature: | -20°C to +55°C / -40°C to +80°C | -20°C to +55°C / -40°C to +80°C |
| Vibrations(3): | Sinus 0.5 g max. (5 to 40 Hz) | Sinus 0.5 g max. (5 to 40 Hz) |
| Follow-up speed: | up to 750°/s | up to 750°/s |
| MTBF (computed/observed): | 40000 h / 80000h | 40000 h / 80000 h |

(3) IMO specification and criteria

3. INTERFACE

| | OCTANS III | OCTANS IV |
|----------------------------|------------------------------------|------------------------------------|
| Output protocols: | NMEA 0183, ASCII, BINARY | NMEA 0183, ASCII, BINARY |
| Serial RS232 or RS422: | 2 input, 3 output, 1 repeater port | 2 input, 3 output, 1 repeater port |
| Analog ports: | 4 outputs | N/A |
| Ethernet | N/A | UDP / TCP client / TCP server |
| Pulse | 2 inputs/ 2 outputs | 4 inputs/2 outputs |
| Baud rates | 600 bauds to 115.2 Kbauds | 600 bauds to 115.2 Kbauds |
| Output frequency | Up to 100 Hz | Up to 200 Hz |
| Power supply / consumption | 24 VDC (20 to 30 V) / 12 W | 24 VDC (20 to 32 V) / 15 W |

4. HOUSING

| Dimensions & Material | OCTANS III | OCTANS IV |
|------------------------|--------------------------------------|--------------------------------------|
| Dimensions (l x w x h) | 276 mm x 136 mm x 149 mm | 275 mm x 136 mm 150 mm |
| Weight | 4.8 kg | 4.5 kg |
| Material | Aluminium | Aluminium |
| Mounting | 3 diam. 6.5 holes | 3 diam. 6.5 holes |
| Connectors | Amphenol 451 series (military grade) | Amphenol 451 series (military grade) |
| Water proof | IP66 | IP66 |

5. SOFTWARE

| | OCTANS III | OCTANS IV |
|---------------|-------------|---------------------|
| Loader DSP | 2.0 | 2.3 |
| Firmware DSP | 10.89.36.97 | 2.8 |
| Loader CINT | N/A | 3.11 |
| Firmware CINT | N/A | 3.26 |
| IHM Web | N/A | Web OCTANS 2.13-153 |
| iXRepeater | IMO V 3.5 | IMO V4.0 |

2. DOCUMENTS AND DRAWINGS:

2.1 - In accordance with the manufacturer's drawings and documents:

- 2.1.1 - Octans III specifications ref: OCTA0503/2005
- 2.1.2 - MU/OCTIII/001/H: General Introduction
- 2.1.3 - MU/OCTIII/002/F: Part1 - Introduction
- 2.1.4 - MU/OCTIII/003/H: Part 2 - Octans Surface
- 2.1.5 - MU/OCTIII/010/C: Part 3 - iXRepeater
- 2.1.6 - MU/OCTIII/005/L: Part 4 - library
- 2.1.7 - MU/OCTIII/006/C: Part 5 - Advanced Configuration
- 2.1.8 - MU/OCTIII/004/D: Addendum - IMO Repeater
- 2.1.9 - Octans IV technical description ref.: G/ST/TSH/011 B
- 2.1.10 - MU/OCT IV/013/D: General Introduction
- 2.1.11 - MU/OCT IV/002/D: Part 1 - Introduction
- 2.1.12 - MU/OCT IV/003/G: Part 2 – OCTANS surface
- 2.1.13 - MU/OCT IV/011/C: Part 3 – Web-based user-interface guide
- 2.1.14 - MU/OCT IV/005/G: Part 4 – Library interface
- 2.1.15 - MU/OCT IV/006/D: Part 5 – Advanced configuration
- 2.1.16 - MU/OCT IV/007/D: Part 5 –Addendum - IMO Repeater
- 2.1.17 - Bill of materials dated 05/02/2009 for Octans III, 30/07/2010 for Octans IV
- 2.1.18 - Software follow-up ref.: DC-OCT3-000-A Suivi des softwares OCTANS III for OCTANS III. M-DC-POP-001-A Suivi des softs CINT, M-DC-POP-002-A Suivi des softs DSP4, M-DC-003-A Suivi des softs IXREPEATER for OCTANS IV. Issued on 27/09/2010.

3. TEST REPORTS:

- 3.1 - Test report N° 51048/00/NAV/CI ed. 1, issued on 27/07/00 by DGA-DCE- LRBA
- 3.2 - Test report N° LV29994/2 issued by SOPEMEA on 28/08/2000.
- 3.3 - Test report N° 00.5081 issued by ALSTOM on 06/07/2000.
- 3.4 - Test report N° RC-03-40439/PC/SG issued by EMITECH on 01/08/03.
- 3.5 - Test report N° RC-05-40702-1 issued by EMITECH On 09/11/05.
- 3.6 - Test report N° RC-06-45273-1 issued by EMITECH On 02/06/06.
- 3.7 - Test report N° RQ-06-60936-1 issued by EMITECH On 10/08/06.
- 3.8 - Test report N° M/RT/OCT4/001-A issued by IXSEA on 15/09/06. Certificate of recognition of a test laboratory N° SMS.L.I.CE/24647/A.0.
- 3.9- Test report N° EKL 13577-1 issued by SOPEMEA on 15/06/09.

4. APPLICATION / LIMITATION:

- 4.1 - IBM PC compatible computer used as "Repeater Software" according to BV Rules for the Classification of Steel Ships and IEC 60945.
- 4.2 - In order to comply with SOLAS Regulations V/19 intended for Ships of 1600 gross tonnage and upwards, the Gyro-compass OCTANS should be fitted with Gyro interface and Bearing repeater type approved by the Society.
- 4.3 - Only Hardware and Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - For information concerning the production phase modules, IXSEA has declared that the product may be manufactured at the following manufacturing place:

**IXSEA
55 AVENUE AUGUSTE RENOIR
78160 MARLY LE ROI
FRANCE**

- 5.2 - This certificate does not allow the applicant to issue the Declaration of Conformity and to affix the mark of conformity (wheelmark) to the products corresponding to this type. To this end, the production-control phase module D "Production Quality Assurance" or E "Product Quality Assurance" or F "Product Verification" of Annex B of the Directive is to be complied with and controlled by a written inspection agreement with a Notified Body.

6. MARKING OF PRODUCT:

6.1 - Maker's name or trademark,

6.2 - Serial number of the units,

6.3 - Equipment type number or model identification under which it was type-tested,

6.4 - Minimum safe distance at which the equipment may be mounted from a standard and a steering magnetic compass,

6.5 - Markings as per MED 96/98/EC:

☒ YYYY/XX where YYYY is the number of the Notified Body undertaking surveillance module (when BV, 0062) and where XX are the last two digits of year mark affixed.

6.6 - The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.

6.7 - When the marking and the title and version of the software are displayed only on the display, such information shall also be included in the equipment manual.

6.8 - In pursuance of the EU/US MRA+, and in accordance with the Council Decision 2004/425/EC of 21 April 2004, the product(s) marked as per MED 96/98/EC may be marked with the USCG conformity marking as authorized by the Notified Body undertaking surveillance module.

7. OTHERS:

7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the **OCTANS III and OCTANS IV** at any time, and that **IXSEA, Marly-le-Roi - FRANCE**, will accept the responsibility for informing shipbuilders or their sub-contractors of the proper methods of use and general maintenance of **OCTANS III and OCTANS IV** and the conditions of this approval.

7.2 - This certificate supersedes EC Type Examination Certificate N° 09807/B1 EC issued on 29 Nov 2006 by the Society.

*** END OF CERTIFICATE ***