

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Miscellaneous**

with type designation(s)

OSI ECPINS (WECDIS), OSI RADAR HMI (RADAR), OSI INTS (INS), ECPINS TCS (TCS), SAAB R5 Supreme AIS with MKD ECPINS

Issued to

**OSI Maritime Systems Ltd.
Burnaby, BC, Canada**

is found to comply with

**IMO Res. A.694(17) General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids
MSC.191(79) Performance standards for presentation of navigation-related information on shipborne navigational displays
IMO Resolution MSC.302(87) Performance standards for Bridge Alert Management****Application :****This type approval certificate is only valid as part of the EU type examination certificates MEDB00003HN, MEDB00003HS, MEDB00003HJ, MEDB00003HT and MEDB00006XG .****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**Issued at **Hamburg** on **2021-03-10**This Certificate is valid until **2025-08-13**.for **DNV GL**DNV GL local station: **Vancouver**Approval Engineer: **Harald Bluhm**

**Arne Schaarmann
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

See appendix for details of the OSI Integrated Navigation & Tactical System (INTS) platform

Application/Limitation

- Installation is to be performed according to the manufacturer's documentation.
- This certificate only identifies hardware used in OSI Integrated Navigation & Tactical System (INTS) platform and is intended to be read in conjunction with the individual certificates covering the various systems.
- For details on compliance to system requirements, please see individual certificates where reference is made to this certificate.

Type Approval documentation

DNVGL No.	Document ID	Revision	Description
1	1000424-RPRT	A	List of test reports and type approvals for OSI Integrated Navigation & Tactical (INTS) platform

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Presentation testing: IEC 62288 (2014)

Marking of product

Marking is to be in accordance with requirements in Marine Equipment Directive (MED) 2014/90/EU. See individual MED-B certificates for details.

Certificate Retention Survey

Periodical assessment is granted by the annual MED module-D audits.

APPENDIX

Designation	Type Designation	
Radar Equipment	1000068-00	Radar, SharpEye, Military, S-Band, Low Profile 3.9m Antenna
	1000069-xx	Radar, SharpEye, Military, S-Band, Upmast Transceiver
	1000070-00	Radar, SharpEye, Military, X-Band, Low Profile 2.5m Antenna
	1000071-xx	Radar, SharpEye, Military, X-Band, Upmast Transceiver
	1000072-00	Radar, SharpEye, Military, Power Control Unit
	1002044-00	Radar, SharpEye, Military, Man Aloft Switch
	1005835-00	Radar, SharpEye, Military, X-Band, Low Profile 2.5m Antenna, Winterized
	1005837-00	Radar, SharpEye, Military, X-Band, Upmast Transceiver, Winterized
	1005844-00	Radar, SharpEye, Military, S-Band, Low Profile 3.9m Antenna, RAL 7001, Winterized
	1005845-00	Radar, SharpEye, Military, S-Band, Upmast Transceiver, Winterized
	P-607801	Radar, SharpEye, Military, S-Band, Low Profile 3.9m Antenna
	P-607802	Radar, SharpEye, Military, S-Band, Upmast Transceiver
	P-607803	Radar, SharpEye, Military, Radar Distribution Unit with Man Aloft Key
	P-607805	Radar, SharpEye, Military, Man Aloft Switch LTE Version
	P-607807	Radar, SharpEye, Military, S-Band Power Control Unit
	P-607811	Radar, SharpEye, Military, X-Band, Low Profile 2.5m Antenna
	P-610001	Antenna, RADAR, X-Band, 8 ft Furuno XN24CF
	P-610004	Performance Monitor, RADAR, X-Band, High power Furuno PM-32A

Job Id: **262.1-034219-1**
Certificate No: **TAA00002US**

Designation	Type Designation	
	P-610005	Power Supply, X-Band RADAR Furuno PSU-014
	P-610007	Keyboard, Control Unit, RADAR Furuno RCU-025
	P-610103	Processor, RADAR, S-Band, Black Box Furuno EC-3000
	P-610202	Transceiver, RADAR, X-Band, 25 kW, DownMast Furuno RTR-108
	P-610211	Gear Box, RADAR, X-Band Antenna, 24/42 RPM Furuno RSB-130
	P-610003	Processor, RADAR, X-Band, Black Box Furuno EC-3000
	P-610101	Antenna, RADAR, S-Band, 12 ft Furuno SN36CF
	P-610105	Power Supply, S-Band RADAR Furuno, PSU-016
	P-610108	Performance Monitor, RADAR, S-Band, Low power Furuno PM-52B
	P-610112	Scanner Unit, RADAR, S-Band, with UpMast Transceiver Solid State, 250 W, RTR-111
	P-610151	Junction Box, Upmast cable For Furuno RADARs RJB-001
	P-610152	Converter, LAN, UTP - RG58 For Furuno SSD RADARs HMC-200CE-A
	P-610009	Trackball, Control Unit, RADAR Furuno RCU-026
	P-610012	Scanner Unit, RADAR, X-Band, with UpMast Transceiver 25 kW, RTR-106
AIS Equipment	1002856-00	PTE, R4 AIS Transponder;
	P-300122	UAIS Display Unit, 6" Display 24 VDC
	P-300123	UAIS Transponder Unit, 12 Ch GPS 3TX/1RX VHF Radio, 24VDC
	P-603002	AIS, Saab R5 Supreme, Transponder
	P-300199	Antenna, GPS , AIS Transponder
	P-603003	Display with Gimbal Mount, Saab R5, AIS
	P-603004	Junction AIS, Saab R5, Junction Box
	P-603005	AIS, Saab R5 Supreme WS, Transponder Secure Version
	P-603011	AIS, Saab R5 GPS Antenna, MA700
	P-603012	AIS, Saab R5 VHF Antenna, BA1012
Processing Unit	1004098-00	Transponder, Secure L W-AIS, Saab R5, AIS
	1007384-xx	Marine Processors
	A-116xxx	Computer (PC), 4U - P4/Radar, RM Drive Frame IEC-60945 , 1GB DDR, CDRW/DVD, FD Upgrade
	A-120xxx	ECPINS Processor Unit, 3U - Core 2 Duo 2 GB, 250GB Fixed Drive, Buzzer, IEC 60945
	A-122xxx	ECPINS Processor, Unit, 3U - Core i7 8GB, 1TByte Drive, Buzzer
	A-123xxx	ECPINS Processor, Core i3 with 8 NMEA ports 24 Vdc powered
	A-124xxx	ECPINS Processor, Core 2 Duo 2.26 GHz 24 Vdc powered
	A-126xxx	ECPINS Workstation Processor Unit, Core i7, 3U 16 GB, 1TB Disk, Buzzer, Dual Port Video Card, 4 GB LAN
	A-127xxx	Processor, i7 3555LE , 4 Gigabit LAN, 6 USB Ports, 4 Serial Windows 7 Embedded Pro, 18 to 30 Vdc power
	A-128xxx	Processor, Core i7 with 8 NMEA ports Windows 7 Embedded Pro, 64-bit, 24 Vdc powered
Displays CAT 1x/2x/3x	A-129xxx	Marine Processors
	A-130xxx	Marine Processors
	1002698-00	Panel PC/Display, 8.0" Touch Screen
	1003492-00	Panel PC/Display, 19.0"
	1006436-00	Panel PC/Display, 19"
	1003506-00	Panel PC/Display CAT 1x CAT 2x, 26.0"
	1006318-00	Panel PC/Display CAT 1x CAT 2x, 24.0"
	1006383-00	Panel PC/Display CAT 1x CAT 2x, 27.0"
	1000715-00	Monitor, 24"
	1002658-00	Monitor, 24"
	1003032-00	Monitor, 42.5"
	P-300339	Monitor, 23 inch, TFT, Panel Mount, 4:5 Ratio
	P-300535	Monitor, 23 inch, TFT, Panel Mount, 4:3 Ratio With incorporated

Job Id: **262.1-034219-1**
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Designation	Type Designation
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	P-300423 Monitor, 26 inch, 16:10, Slim Form Factor 115 / 230 Vac and 24 Vdc
	P-300442 Monitor, 26 inch, 16:10, Slim Form Factor, Touch Screen 115 / 230 Vac and 24 Vdc
	P-300438 Monitor, Marine, TFT, 26", WS LED 110/220 VAC ECDIS Approved
	P-300524 Monitor, Marine, 46" LCD, HD, LED, 100-240 VAC, 18-36 VDC ECDIS compliant
	P-300623 Monitor, 32"
Displays CAT 2x/3x	P-300425 Monitor, 24 inch, LED Backlight, Multi power, 16:9 Multiple video inputs, Optical Bounding
	P-300413 Monitor, 22" TFT, Panel Mount, 16:10 Ratio Device Not Approved for ECDIS , Touch Screen
	P-300379 Monitor, 19 inch, LED backlight, multi power Marine Grade
	P-300437 Monitor, Marine, TFT, 24", WS 110/220 VAC
	P-300439 Monitor, Marine, TFT, 27", WS 110/220 VAC ECDIS Approved
Operating Unit	A-200050 OCP, Desktop, Keyboard / Trackball, LSZH cable PS/2 Interface, red back-light
	P-300109 Keyboard/Trackball, Panel Mount, PS/2 IEC 60945, with red back-light
	P-300111 Keyboard/Trackball, Desktop, PS/2 IEC60945, with red back-light
	P-300211 Keyboard/Trackball, Danish Desktop, PS/2 IEC60945, with red back-light
	1000103-00 Keyboard/Trackball, Panel Mount, PS/2 IEC 60945, with red back-light
	1000590-00 Keyboard / Trackball, Desktop, PS/2, IEC 60945
	1000592-00 Keyboard / Trackball, Desk Top, USB, Military Spec , RoHS
	1000596-00 Trackball, FlushMount, USB Rugged, Horizontal/Vertical Position
	1005645-00 Keyboard/Trackball, USB Interface, Flush Mount, IEC 60945, zh-TW keycap
	1005646-00 Keyboard/Trackball, USB Interface, Sliderail Mount, IEC 60945, zh-TW keycap
	1005648-00 Keyboard/Trackball, USB Interface, Surface Mount, IEC 60945, zh-TW keycap
	A-200055 OCP, Flush Mount, Keyboard / Trackball, LSZH cable PS/2 Interface, red back-light
	P-300137 Keyboard/Trackball, Panel Mount, PS/2 Military Spec OCP
	P-300378 Keyboard/Trackball, Desk Top, USB Military Spec OCP, RoHS
	P-300420 Keyboard/Trackball, Panel Mount, USB, MIL Spec RoHS compliant
	P-300488 Keyboard/Trackball, Slide Rail Mount, USB, MIL Spec ECPINS custom Keys
	P-300536 Keyboard/Trackball, Panel Mount, USB Swedish key layout, Mil Spec OCP, RoHS compliant
	P-300537 Keyboard/Trackball, Desktop, USB Swedish key layout, Mil Spec OCP, RoHS compliant
	P-300576 Keyboard, Panel Mount, USB Swedish key layout, Mil Spec OCP, RoHS compliant
	P-300609 Keyboard/Trackball, Panel Mount, USB, MIL, Numeric Keypad
	P-300610 Keyboard/Trackball, Desk Top, USB, MIL, Numeric Keypad
	P-300640 Keyboard/Trackball, Panel Mount, USB (non-hub), with red back-light, ROHS, IEC 60945
	P-300665 Keyboard / Trackball, Danish, Panel Mount, USB, IEC60945, with red back-light
	P-300356 Keyboard/Trackball, Panel Mount, USB IEC 60945, with red back-light
	P-300395 Trackball, FlushMount, USB Rugged, Horizontal/Vertical Position

Designation	Type Designation	
	P-300387	Keyboard / Trackball, Membrane, Panel Mount
	P-300388	Keyboard / Trackball, Membrane, Desk Top, 60945 Compliant, by NSI
Interface Equipment	A-300093	Serial Expansion Unit, 8-Port, Opto-Isolated 1U, RS232/422
	A-300162	Serial Expansion Unit, 24VDC, 8-Port, Opto-Isolated 1U, RS232/422
	A-300245	Serial Expansion Unit, 8-Port, Opto-Isolated 1U, RS232/422, Win 7 Compatible
Networking	1006519-00	Network Switch, 8-port 10/100/1000 Base-T, 4 SFP Gigabit ports
	P-300347	Network Switch, Gigabit, 9 Port IEC 60945 DIN Mount
	P-300493	Network switch, 48x 1 Gb ports, 8x SFPP ports SFPP upgradable to 10 Gb fiber
	P-300517	Network Switch, 24 port , 10/100/1000
	P-300577	Switch, Network, 24 PoE, GBit, IEC 60945 Dual Power, AC/DC
Optional Equipment	1000893-00	Power Bar, 19" Rackmount
	1004811-00	Adapter, USB to PS/2
	1001721-00	Adapter, DP to VGA
	A-300029	Bridgemaster E Demultiplexer 10-36VDC input
	A-300038	Primary Backup Switch, 16 port Serial/2in-4out Video 1U, Universal Power
	A-300088	RIBNET, Standalone Unit, UAC Input IEC 60945 Certified
	A-300094	UPS, Shielded power cable, 1500VA NEMA 5-15 connector for power input
	A-300105	KVM Extender, 1 Local, 1 Power Supply 1U Shelf, 60945
	A-300101	KVM Remote, IEC 60945 Approved
	A-300102	KVM Local, IEC 60945 Approved
	A-300103	Power Supply, 25W, AC In: 90-264V; DC Out: +5 +/-12V Aluminum Case
	A-300141	Radar Server, Multi Client RIO Server 1 Rack Unit
	A-300196	Filtered Power Distribution Panel, Dual With Protection Diodes (TVSS)
	A-300197	Transfer Switch, 120 Vac, D38999M input connectors
	A-300199	Transfer Switch, 230 Vac, D38999M connectors
	A-300095	Filtered Power Distribution Panel
	P-300087	Monitor, Marine, LCD TFT, 20.1", 110/220 VAC ECDIS Approved
	P-300415	Monitor, 8", Touch Screen, 24 Vdc
	P-100221	Power Bar, 19" Rackmount
	P-300645	Monitor, 23"
	P-604201	Auto Pilot, Operator Unit NP 5400
	P-604202	Auto Pilot, Interface Unit NP 5400
	1003938-xx	Time Server, Masterclock , Multi-function Reference Generator GMR5000
	P-609900	Time Server, Masterclock , Multi-function Reference Generator GMR5000
	P-609911	Timer Server, Masterclock, GMR5000, GPS Option, Rubidium Oscillator, PTP, NA Plug

Notes:

- 1 xxx Denotes different processor configuration options
2 -xx Denotes different part configuration options

Software

Designation	Type Designation	INS MEDB000003HJ	ECDIS MEDB000003HN	Radar MEDB000003HS	Track Control MEDB000003HT	AIS MKD MEDB000006XG
Operating System	MS Windows 7 Embedded, or MS Windows 10 Pro, or MS Windows 10 IoT, or MS Windows Enterprise LTSB / LTSC Windows 10 builds 1507, 1607, 1803, 1809, 1903, 1909, 2004, or 20H2	•	•	•	•	•
ECPINS	6.2.x	•	•	x	•	•
OSI Radar HMI	6.2.x	•	x	•		
NavTac DDU	2.x	•	x	x	x	x
OSI CAM	1.x	•	x	x	x	x
SysMon	3.x	•	x	x	x	x
Remote Conning Display	1.x	•				
Graphical Display Controller	1.x	•				
KH MantaDigital Core Software	ZM-2144 version 2.10.5	•	x	x		
KH SharpEye Core Software (X-Band)	ZM-2762 version 1.81	•	x	x		
KH SharpEye Core Software (S-Band)	ZM-2808 version 1.21	•	x	x		
Furuno EC-3000	0359266-xx.xx	•	x	x		
Furuno Transceiver Solid state	0359286-xx.xx	•	x	x		
Furuno Transceiver magnetron	0359281-xx.xx	•	x	x		
HCS Operator Unit	102-890 P0001 E03.xx	•			•	
Autopilot Interface Unit	102-891 P0001 E01.xx	•			•	
SAAB R5 Supreme AIS Transponder	R5 1.1.x	•	x	x		•

Notes:

¹ x Denotes optional software

Acceptance or use of the product as ECDIS system (if ECDIS is included)

Chart data formats:

The system supports the display and use of digital chart data in the following formats:

- S-52 Ed. 6.1 and Pres. Lib. 4.0.1 (IHO)
- S-57 Ed.3.1.2 (IHO)
- S-61 Ed 1.0 (IHO)
- S-63 Ed.1.2 (IHO)
- S-64 Ed. 3.0 (IHO)
- AML Version 2.0, 2.1, 3.0
- ARCS (UKHO)
- AusRNC (Australia)

- BSB (NOAA/NZMariner/CHS)
- DNC (NGA)
- TOD (NGA)

System interfaces (undisturbed operation):

1.Data exchange with sensors

1.1 Devices and external data receiver via at least one Sensor interface connection unit or NavTac DDU, sensor distribution unit serial to ethernet converter for reception and transfer of data from connected sensors according to IEC 61162-1 (Edition 5.0, 2016).

For reception of sensor data at least delivered by the following sources:

1.1.1 From at least 1 (one) radio navigation receiver assessed as conform with requirements of Marine Equipment Directive(MED) 2014/90/EC and marked as defined there which transmits the following information:

- geographic position, status of geographic position, time and date, course and speed over ground

1.1.2. From at least 1 (one) gyro compass assessed as conform with requirements of Marine Equipment Directive (MED) 2014/90/EC and marked as defined there which transmits the following information,

- gyro compass heading

1.1.3. From at least 1 (one) speed and distance measurement device assessed as conform with the requirements of Marine Equipment Directive (MED) 2014/90/EC and marked as defined there which transmits the following information:

- speed over ground, and/or speed through the water

1.2 Exclusive LAN based data exchange with sensors without serial/LAN converter.

Direct sensor communication for all sensors, according to IEC61162-450

2. Data exchange between ECDIS/RADAR/INS

Local system area network connection (Ethernet LAN) e.g. for route data.

A OSI INTS Integrated Navigation System (INS) consists of at least 3 multifunctional workstations.

Backup arrangements (ECDIS):

In order to continue ships navigation in the case of a primary system failure the following back up arrangements are allowed:

Installation of a secondary system Type: ECPINS (ECPINS-Warship, ECPINS-Submarine, ECPINS-W, ECPINS-W Sub, ECPINS 5000, ECPINS 6.0, WECDIS)

END OF CERTIFICATE