DNV·GL

Certificate No:
TAA00001BD

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
eSMART04, eSMART04M, eSMART07, eSMART07M, eSMART107, eSMART10

Issued to
Exor International S.p.A.
San Giovanni Lupatoto VR, Italy

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
eSMART04	A	B	A	B	B - IP66 (front) / IP20 (rear)
eSMART04M	A	B	A	B	B - IP66 (front) / IP20 (rear)
eSMART07	A	B	A	B	B - IP66 (front) / IP20 (rear)
eSMART07M	A	B	A	B	B - IP66 (front) / IP20 (rear)
eSMART107	A	B	A	B	B - IP66 (front) / IP20 (rear)
eSMART10	A	B	A	B	B - IP66 (front) / IP20 (rear)

Issued at **Hamburg** on **2017-08-10**
This Certificate is valid until **2022-08-09**.
DNV GL local station: **Venice**

Approval Engineer: **Marco Rinkel**

for **DNV GL**

Joannis Papanuskas
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.

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Product description

Model name	Description	Standard compass safe distance	Steering compass safe distance
eSMART04	4.3” TFT color display, resolution 480x272 pixel, 64K colors. Resistive touchscreen, Dimmable LED backlight ARM Cortex A8 300 MHz 1 Ethernet port 1 USB (V2.0) port 1 RS-232/RS-485/RS-422	35 cm	20 cm
eSMART04M	4.3” TFT color display, resolution 480x272 pixel, 64K colors. Resistive touchscreen, Dimmable LED backlight Cortex A8 1 GHz 1 Ethernet port 1 USB (V2.0) port 1 RS-232/RS-485/RS-422	35 cm	20 cm
eSMART07	7” TFT color display, resolution 800 x480 pixel, 64K colors. Resistive touchscreen, Dimmable LED backlight ARM Cortex A8 1 GHz 1 Ethernet port 1 USB (V2.0) port 1 RS-232/RS-485/RS-422	50 cm	40 cm
eSMART07M	7” TFT color display, resolution 800x480 pixel, 64K colors. Resistive touchscreen, Dimmable LED backlight ARM Cortex A8 1 GHz 1 Ethernet port 1 USB (V2.0) port 1 RS-232/RS-485/RS-422		
eSMART107	7” TFT color display, resolution 800x480 pixel, 64K colors. Resistive touchscreen, Dimmable LED backlight ARM Cortex-A9 dual-core 800 MHz 2 Ethernet port 2 USB (V2.0) port 2x RS-232 2x RS-422/RS-485 isolated 2 CAN 2.0b isolated	60 cm	45 cm
eSMART10	10.1” TFT color display, resolution 1024x600 pixel, 64K colors. Resistive touchscreen, Dimmable LED backlight ARM Cortex A8 1 GHz 1 Ethernet port 1 USB (V2.0) port 1 RS-232/RS-485/RS-422	35 cm	25 cm

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in

applications to be classed by DNVGL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Product certificate
If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

Clause for application software control
All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed.

Type Approval documentation

Title				Drw No	Rev
eSMART1	07	Vibration		V17089601	-
eSMART1	07	Safety		S17099201	-
eSMART1	07	Compass	60/45cm	R17107301	-
eSMART1	07	EMC		R17094801	-
eSMART1	07	Climatic		E17099801	-
eSMART	10	Vibration		V17089301	-
eSMART	10	Shock		V15123901	
eSMART	10	Safety		S17098901	-
eSMART	10	Compass	35/25cm	R17106801	-
eSMART	10	EMC		R17090801	-
eSMART	10	Climatic		E17099501	-
eSMART	07M	Vibration		V17089401	-
eSMART	07M	Safety		S17099001	-
eSMART	07M	Compass	55/35cm	R17106901	-
eSMART	07M	EMC		R17090701	-
eSMART	07M	Climatic		E17099601	-
eSMART	07	Vibration		V17096601	-
eSMART	07	Shock		V15123801	
eSMART	07	Safety		S17099401	-
eSMART	07	Compass	50/40cm	R17107001	-
eSMART	07	EMC		R17090601	-
eSMART	07	Climatic		E17100001	-
eSMART	04M	Vibration		V17089501	-
eSMART	04M	Safety		S17099101	-
eSMART	04M	Compass	35/20cm	R17107101	-
eSMART	04M	EMC		R17087901	-
eSMART	04M	Climatic		E17099701	-
eSMART	04	Vibration		V17096501	-
eSMART	04	Shock		V15123701	
eSMART	04	Safety		S17099301	-
eSMART	04	Compass	35/20cm	R17107201	-
eSMART	04	EMC		R17086801	-
eSMART	04	Climatic		E17099901	-

Title	Drw No	Rev
Component mounting plan BE15A	BE15A	-
Block diagram BE15A	BE15A	11.16
Component mounting plan ECO3A	ECO3A	-
Schematic ECO3A	-	-
Component mounting plan ECO1A	ECO1A	-
Schematic ECO1A	-	-
Component mounting plan ECO1A1	ECO1A1	-
Schematic ECO1A1	-	-
Component mounting plan ECO2A	ECO2A	-
Schematic ECO2A	-	-
Schematic ECO2A1	-	-
Component mounting plan ECO2A1	ECO2A1	-
Labels eSMARTxx	-	-
Label eSMART107	-	-
Tech-note eSMART107	-	-
Tech-note eSMART10	-	-
Tech-note eSMART07M	-	-
Tech-note eSMART04	-	-
Installation guide eSMARTxxxx	MANESMARTxxU002	-
Installation guide eSMART107	MANESMA107U001	-
eSMART10 frame	DIS4794	02
eSMART04 frame	DIS4793	02
eSMART07 frame	DIS4679	02
eSMART10 cover	DIS4805	02
eSMART04 cover	DIS4804	02
eSMART07 cover	DIS4678	02
EU RO MR TYPE APPROVAL PQA SCHEME PERIODICAL ASSESSMENT CHECKLIST	90.05a	2017-08-09

Tests carried out

Applicable tests according to Class Guidelines DNVGL-CG-0339, November 2015.
For the bridge mounted components the 'Compass safe distance' was measured according to section 11.2 of IEC 60945 4th edition (2002).

The units have been verified for compliance with
EU Mutual Recognition Technical Requirements for "Display Monitors, Video Screens, Terminals" version 0.3, dated 2016-04-01.
EU Mutual Recognition Technical Requirements for Computers and programmable logic controllers (PLC) version 0.3, dated 2016-04-01 have additionally been verified.

Marking of product

Model name and part number: As listed under Product description
Serial number: Unique for each delievered item

Places of Production

EXOR International S.p.A.
NEXCOM (Taiwan)

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with typeapproved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE