



EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRA000001A
Revision No:
4

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to

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

for
Monitors, Terminals

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

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Display Monitors, Video Screens, Terminals
EU RO Mutual Recognition Technical Requirements for Computers and Programmable Logic Controllers

Intended service
Displays for control, monitoring, alarm, and safety functions subject to classification requirements.

System context
Application of the control, monitoring, alarm, and safety systems are subject for approval of the individual RO classing the vessel.

Temperature [°C]: 0°C and 50°C
Vibration: ±1mm / 0,7g
EMC: All locations including bridge and open deck
IP Code: IP22 standalone, IP66 when sealed to console (IP ratings according to IEC 60529)

This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2027-08-08**.

Issued at **Hamburg** on **2022-09-06**

DNV local station: **Venice**

for **DNV**

Approval Engineer: **Holger Jansen**

.....
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.



Form code: MRTA 201

Revision: 2021-03

www.dnv.com

Page 1 of 5

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

Manufactured by
 EXOR International S.p.A.

Application/Limitation

The Type Approval covers all hardware listed under Product description. The displays are intended for use in alarm and monitoring systems subject to classification.
 All monitors are available with touch screen functionality, which is beyond the scope of this approval. The touch screen hardware has been verified according to the DNV Class Programme for EU-RO-MR, but any use of touch functionality in classed applications needs to be verified through functional testing. The dimming function is programmable and needs to be verified through functional testing when used in a system subject to classification.

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 35/20c	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	-
eSMART	107	EMC	R21172901	-

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	2022-05-06

Marking of product

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

Other Conditions

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.

Environmental test parameters

Temperature: 0°C and 50°C

Vibration: ±1mm / 0,7g

EMC: All locations including bridge and open deck

Enclosure: IP22 standalone, IP66 when sealed to console (IP ratings according to IEC 60529)

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 type approved 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 annually and at renewal of this certificate.

END OF CERTIFICATE