

EU RO Mutual Recognition Technical Requirements

TOUCH SCREEN I.E. A DISPLAY MONITOR OR A VIDEO SCREEN THAT IS ALSO AN INPUT DEVICE	Version	0.3
	Adoption Date:	1 January 2022
	Application Date:	1 July 2022
	Tier	6
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1. PRODUCT DESCRIPTION	1
2. DESIGN EVALUATION	2
3. PRODUCTION REQUIREMENTS.....	4
4. MARKING REQUIREMENTS	4
5. TYPE APPROVAL CERTIFICATE CONTENT	4
6. APPROVAL DATE AND REVISION NUMBER.....	5
7. BACKGROUND INFORMATION / REFERENCES	5
8. MAINTENANCE / CLARIFICATION OF TECHNICAL REQUIREMENTS	6

1. PRODUCT DESCRIPTION

1.a General description of the product

Touch screen i.e. a display monitor or a video screen that is also an input device. The touch screens allow monitoring of and input to systems controlling machinery and equipment.

For touch screens that include CPU, where the CPU performs control, monitoring or alarm functions of vessel equipment or systems, the TR for “Computers and Programmable Logic Controllers (PLCs)” is applied.

1.b Application limitations†

These technical requirements are applicable for touch screens for installation on board ships as defined by SOLAS Ch. I, with the following exceptions:

- Touch screens installed on ships as per SOLAS Ch. I Reg.3;
- Touch screens used for radio- or navigation equipment.
- Touch screens used in systems for required safety functions;
- Touch screens used for applications other than listed in 1.a.

† The EU MR type approved product is generally not used as a stand-alone product, but integrated as component in a sub-system or system. When a product is presented with an EU RO MR Type Approval Certificate for given application, its acceptability with regards to conditions defined in 1b, 1c and 1d of this Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.

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1.c Intended use

In control, monitoring, and alarm systems subject to classification requirements.

1.d System context

The touch screen is type approved as a component, covering hardware and firmware for the touch sensing functionality.

Configuration of soft keys are not covered by the type approval.

2. DESIGN EVALUATION

2.a Engineering evaluation requirements

2.a i. Technical Requirements

- a) The EU RO MR Technical Requirements (TR) for Display Monitors, Video Screens, Terminals are applicable;
- b) The touch functionality shall be designed for proper operation under the ambient conditions given by the TR for Display Monitors, Video Screens, Terminals and IACS UR E10, including, but not limited to, temperature, humidity, and vibration;
- c) Touch screens, or the installation of touch screens, shall be provided with a degree of protection appropriate to the location, as a minimum the requirements of IEC Publication 60092-504. Touch screens shall have a minimum degree of protection equivalent to IP20, regardless of location or installation.
- d) For touch screens with on screen soft keys or virtual keypads/keyboards included in the firmware, the soft keys are to be of a sufficient size for operation in areas where vibration occurs or gloves likely to be worn.

2.a.ii. Technical documents to be submitted

- a) See EU RO MR Technical Requirements for Display Monitors, Video Screens, Terminals (Tier 1) paragraph 2.a.ii. The items below are additional for touch screens;
- b) Brief description of touch screen technology and functionality;

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- c) Overview of touch screen hardware and software (firmware) including name(s) and version number(s).
- d) For products where the function of the product is based on software the quality management system of the manufacturer has to maintain procedures for the life cycle activities and the version control.

2.b Type testing requirements

- a) Tests shall be carried out in the presence of the EU RO Surveyor. In cases where the tests are conducted at Nationally Accredited Laboratories, the presence of the EU RO surveyor may be omitted; †
- b) See EU RO MR Technical Requirements for Display Monitors, Video Screens, Terminals (Tier 1) paragraph 2.b. The type testing requirement below are additional for touch screens;
- c) The functional test during the environmental and EMC-test must also verify the touch functionality;
- d) The touch screen must be tested with an application allowing detection and display of touch input so that it is possible to identify any false touch input that may occur during the EMC-/environmental tests. Alternatively, an external logging application may be used for identification of touch input. No false touch inputs will be accepted during the EMC-/environmental tests, including also transient phenomena tests assessed against Performance Criterion B;
- e) Any interface that may be used in applications shall be tested with active traffic, which is monitored/verified. Service ports may be excluded from testing;
- f) The version of each type of installed software at the time of testing is to be identified;
- g) Test specimens shall be selected from the production line or 'at random' from stock; †

† For further clarification of witnessing of tests and sampling the test specimen(s), refer to paragraphs 6, 7 and 8 of the EU RO "Design Evaluation Scheme" procedure (Appendix V of EU RO Framework Document for the Mutual Recognition of Type Approval found on <http://www.euomr.org/Guidance%20for%20Mutual%20Recognition>)

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2.c Type testing requirement for certificate renewal

- a) The manufacturer is to notify the RO of any modification or changes to the manufacturing specifications that may affect the MR TA to be renewed.
- b) The Software history to be provided for review.

3. PRODUCTION REQUIREMENTS

Refer to EU RO "Product Quality Assurance (PQA)" procedure (Appendix VI of EU RO Framework Document for the Mutual Recognition of Type Approval found on <http://www.euomr.org/Guidance%20for%20Mutual%20Recognition>)

Changes to the embedded software (firmware/ system software), if software changes of relevance will void the EU RO certification. The EU RO shall be kept informed of all new version numbers including a description and impacts of change.

4. MARKING REQUIREMENTS

Manufacturers of the approved equipment are, in principle, to mark the product before shipment for identification of approved equipment as per referenced standard. In addition, and as a minimum, the following items to be marked at the suitable place:

- a) Manufacturer's name or equivalent;
- b) Type No. or symbol;
- c) Serial No. and date of manufacture;
- d) Particulars or ratings.

5. TYPE APPROVAL CERTIFICATE CONTENT

The EU RO MR Type Approval Certificate shall contain the minimum information as defined in the EU RO Framework Document for the Mutual Recognition of Type Approval - see Appendix I of EU RO MR Type Approval Certificate Information.

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The following information is specifically applicable to products relevant to this technical requirement and shall be included on the EU RO MR Type Approval Certificate:

- a) Software name and version;
- b) IP rating
- c) Firmware/ Operational System Software Version: [major version. minor version].

6. APPROVAL DATE AND REVISION NUMBER

Date	Revision	Comment
2018-01-01	0.0	Approved by EU RO MR Steering Committee
July 2019	0.1	CRF042 – Revision to para 1.b.d
Jan 2020	0.2	CRF050 – Revision to para 1.a and 1.b
28 December 2021	0.3	Software update (ref 18042g)

7. BACKGROUND INFORMATION / REFERENCES

- a) EU RO Framework Document for the Mutual Recognition of Type Approval;
- b) EU RO MR Technical Requirements for Display Monitors, Video Screens, Terminals;
- c) IACS Unified Requirements E10;
- d) IEC 60092-504 “Electrical installations in ships – Special features, Control and instrumentation”;
- e) IEC 60945 “Maritime Navigation and Radio Communication Equipment and Systems – General Requirements”;
- f) IEC 60533 “Electrical and electronic installations in ships – Electromagnetic compatibility”.
- g) IEC 62908-13-10 Touch and interactive displays - Part 13-10: Reliability test methods of touch displays - Environmental durability test methods - Edition 1.0.

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8. MAINTENANCE & CLARIFICATION OF TECHNICAL REQUIREMENTS

Anyone wishing to propose changes to this document or request clarification of technical issues should contact the EU RO MR Group Secretariat in the first instance:
Secretariat@euomr.org.

Review and approval of change requests shall follow the EU RO MR Maintenance Process detailed in the EU RO Framework Document for the Mutual Recognition of Type Approval: <http://www.euomr.org/Guidance%20for%20Mutual%20Recognition>

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