EU RO Mutual Recognition Technical Requirements

ELECTRONIC POWER UNITS FOR VALVE CONTROL	Version	0.0
	Adoption Date:	1 July 2016
	Application Date:	1 January 2017
	Tier	5
This document is subject to controlled issue and can be found here: http://www.euromr.org/technical-requirements ***** Uncontrolled if downloaded or printed *****		

1. PRODUCT DESCRIPTION

1.a General description of the product

Electronic power unit for valve control means an integrated unit that includes an electronic control module and a power module to drive the valve.

1.b Application limitations

Only applicable for systems used for non-essential services not related to essential services as defined in IACS UI SC134.

1.c Intended use

Electronic power unit for valve control is typically used for applications where remote control of the valve is preferred.

Electronic power unit for valve control may be configured to perform a wide range of functions, such as; pressure management, pressure reducing, pressure sustaining, rate of flow control, level control or valve position.

1.d System context

Refer to the item 1.c above

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2. DESIGN EVALUATION

2.a Engineering evaluation requirements

2.a i. Technical Requirements

The design of electronic power unit for valve control shall comply with the following requirements:

a) Failure of the electronic power unit for valve control shall not permit a valve to move to an unsafe condition;
b) The electric power units shall be provided with an output terminal or device for remote open/close indication;
c) Reliable operation of electronic power unit for valve control shall be ensured under the following ambient temperature conditions:
   - 0 °C to +55 °C in enclosed spaces, -25 °C to + 45 °C on open deck;
   - No damage to electrical and electronic parts shall be caused by temperatures up to +70°C.
d) Reliable operation of electronic power unit for valve control shall be ensured at relative air humidity up to 95% to 45°C;
e) Reliable operation of electrical and electronic parts shall be ensured at vibrations having a frequency of 2 to 100 Hz, namely, with shift amplitude of ± 1 mm where the vibration frequency is between 2 and 13.2 Hz, and with an acceleration of ±0.7g where the vibration frequency is between 13.2 and 100 Hz;
f) Reliable operation of electrical and electronic parts mounted upon vibration sources e.g. engines (internal combustion engines (ICE)), compressors, etc., or installed in steering flats shall be ensured at vibration frequencies of 2 to 100 Hz, namely, with a shift amplitude of ± 1.6 m where the frequency is between 2 and 25 Hz, and with an acceleration of ±4.0 g where the frequency is between 25 and 100 Hz;
g) For more severe conditions which may exist, for example on exhaust manifolds of high speed internal combustion engines (ICE), 40 Hz to 2000 Hz – acceleration ± 10.0 g at 600 °C;
h) Reliable operation electrical valve actuators shall be ensured at long-term heel up to 22,5° and at motions of 22,5° with a period of (8 ± 1) s. Reference is made to IACS UR E10 Rev.6 under item N°8;

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i) The protective enclosure of electronic power unit for valve control shall be given by the manufacturer and evidenced in accordance with IEC 60529;
j) Provision shall be made to ensure the electromagnetic compatibility of the electronic power unit for valve control is in order to comply with requirements of IACS UR E10 Rev. 6.

2.a.ii. Technical documents to be submitted

IMPORTANT: The English Language shall be used for all submitted documents;

a) Explanatory note with description of the electronic power unit for valve control;
b) List of type designation for each variant;
c) Specification with indication of the devices and appliances used and the technical characteristics thereof, including firmware and software version;
d) General view drawings, dimensional drawings, datasheets with construction details (incl. voltage, power, enclosure IP class);
e) Circuit diagram of the electrical and electronic devices incorporated with input and output signals, etc.;
f) In case of explosion-proof electronic power unit, certificates issued by recognized competent authorities in accordance with requirements of EN/IEC 60079 series shall be provided;
g) The technical documentation must make it possible to assess the product's compliance with the agreed technical requirements, as described in 2.a.i.;
h) Test program and standards.

2.b TYPE TESTING REQUIREMENTS

a) In accordance with IACS UR E10 Rev.6 and additional tests for confirmation of special features as applicable;
b) Test specimens shall be taken from the production line or from stocks†;
c) 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†. The scope of accreditation must cover the relevant applicable standards.

† 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.euromr.org/Guidance%20for%20Mutual%20Recognition).

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.euromr.org/Guidance%20for%20Mutual%20Recognition).

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 including IP grade;
e) Ex marking if any.

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.

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) Technical specifications, ratings;
b) List of approval documents;

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c) Rules / standards applied;
d) Environmental test items and test levels applied;
e) Approval conditions including limitations (if any);
f) Hardware, firmware, software name and revision, as applicable.

6. APPROVAL DATE AND REVISION NUMBER

Date	Revision	Comment
2016-07-01	0.0	Approved by EU RO MR Advisory Board

7. BACKGROUND INFORMATION / REFERENCES

a) EU RO Framework Document for the Mutual Recognition of Type Approval;
b) IACS UR E10 Revision 6 “Test specification for Type Approval”;
c) IACS UI SC134;
d) IEC 60529;
e) EN/IEC 60079.

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@euromr.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.euromr.org/Guidance%20for%20Mutual%20Recognition

- END -

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