

EU Mutual Recognition Technical Requirements

Electrical/Electronic Relays	Version	0.0
	Date	2013-04-30

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1. PRODUCT DESCRIPTION

1.a General description of the product

Relays means:

- (a) devices designed to produce sudden, predetermined changes in one or more electrical output circuits when certain conditions are fulfilled in the electrical input circuit controlling the device;
- (b) thermal electrical relays which protect equipment from electrical thermal damage by the measurement of current flowing in the protection equipment;
- (c) measuring relays (including time relays) and protection equipment including any combination of devices for power system protection such as control, monitoring and process interface equipment.

1.b Application limitations

- (a) Restricted to LV relays according to IEC 60947-1 and IEC 60255 installed onboard ships with exceptions as per SOLAS Ch. I, Reg. 3;
- (b) Installation on board ships within locations with climatic, biological, chemically active, mechanically active and mechanical environmental conditions not exceeding those for which performance has been proved according to IEC 60721-3-6 (1993) + A2 (1997);
- (c) The requirements are not applicable for relays to be installed in areas where explosive gases or vapor atmospheres may occur.

1.c Intended use

- (a) Power supply system characteristics as per IEC 60092-101; 2.8;
- (b) Environment category 6K4, 6B2, 6C2, 6S2 and 6M3 according to IEC

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60721-3-6 or conditions specified in IEC 60947-1 Annex Q.

1.d System context

See 1.c

2. DESIGN EVALUATION

2.a Engineering evaluation requirements

2.a.i. Technical Requirements

Type, ratings and characteristics of relays for intended applications shall be evaluated.

In general, IEC 60947 and IEC 60255 series shall be observed.

2.a.ii. Technical documents to be submitted

For all documentation, the English language shall be used.

- (a) Type test reports, product descriptions, operation manuals, assembly drawings, dimension drawings, etc. to be submitted in English.

Prior to tests:

- (b) Proposed test program and test schedule;
- (c) Description of test specimens and explanation of the selected test sample(s) providing evidence that the selected sample meets the most rigorous and demanding requirements;
- (d) Product descriptions, manuals, data sheets, assembly drawings, dimension drawings, etc. clearly identifying the product;
- (e) Complete accreditation certificate of the Test laboratory;
- (f) Details of production sites;
- (g) Product specification;
- (h) Application, working area;
- (i) Instructions on fitting, assembly and operation;
- (j) QM-certificate according to ISO 9001 or equivalent by an accredited certifying body.

On completion of tests, a report shall be issued, identified by number and date, which accurately, clearly and unambiguously presents the test results and all other relevant information.

Test report(s) shall include the following information:

- (k) Type of product, with type number / serial number(s) and quantity tested.
- (l) Test specification for the product identified by number, revision and date.
- (m) Details of test equipment and measuring instruments stating serial numbers and calibration certificates.
- (n) Names of the test engineer and the engineer approving the report.
- (o) Ambient environmental conditions during the test.

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- (p) The test results with a description of any failures encountered.
- (q) Conclusion.

Test report(s) shall be signed by the test personnel and verified by a RO or the agreed independent representative witnessing the tests.

The complete product test report(s) shall be submitted to the Type Approval Centre.

2.b Type testing requirements

The following tests specified in IACS UR E10 or IEC 60947-1 shall be performed:

- (a) Visual Inspection
- (b) Performance test (acc. to IEC 60947-1 or IEC 60255 and IEC 60947-6-2 for thermal relays)
- (c) External power supply failure
- (d) Power supply variations
- (e) Dry heat
- (f) Damp heat
- (g) Vibration
- (h) Inclination
- (i) Insulation resistance
- (j) High Voltage
- (k) Cold
- (l) Flammability
- (m) Salt mist for relays installed on weather exposed areas. EMC tests are required in case of digital relays.

Test laboratory shall be authorized to conduct type tests according to the relevant IEC standards;

Type test reports, product descriptions, manuals, etc. shall be in English.

3. PRODUCTION REQUIREMENTS

3.a General requirements

Refer to "EU RO Product Quality Assurance"

3.b Special requirements

Routine test according to relevant IEC 60947 series or IEC 60255 series.

- (a) Production certification according to ISO 9001 or equivalent by an accredited certifying body;
- (b) QM/QS audit (annual) to be submitted to R.O. for review (similar to MED);
- (c) Production of the equipment shall be limited to the facilities listed on R.O. certificate;
- (d) Production and environmental requirements according to EU directives (for the consideration of the technical steering group);
- (a) Changes to the product will invalidate the R.O. certification;
- (e) R.O. shall be granted access to all manufacturing and testing facilities, and provided with all the information necessary to perform its duties;
- (f) General terms and conditions of R.O. shall be observed.

4. MARKING REQUIREMENTS

According IEC 60947 item 5.2 or IEC 60255-1 item 6.1

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5. TYPE APPROVAL CERTIFICATE CONTENT

- (a) Validity of certificate / expiry date,
- (b) Number of the Certificate and date of issuance,
- (c) Type designations and dimensions of enclosures/boxes,
- (d) Manufacturer's name and address, place of production,
- (e) Technical data, including ratings / technical specifications (if applicable),
- (f) Basis of approval - Documents (reports from type tests with identification No. and date, manufacturer's documentation drawings Nos.), Survey Report No. and date of issuance, etc.,
- (g) Additional conditions and remarks, limitations,
- (h) Product description,
- (i) Environmental category (including additional tests where applicable),
- (j) Range of application,
- (k) Test standards with the date and/or No. of edition,
- (l) Place of issuance, Signature and Stamp of RO,
- (m) Rules / standards applied.

6. APPROVAL DATE AND REVISION NUMBER

Date	Revision	Comment
2013-04-30	0.0	Accepted by Advisory Board

7. BACKGROUND INFORMATION / REFERENCES

- (a) IEC 60947-1 Low-voltage switchgear and control gear - Part 1: General rules;
- (b) IEC 60255 series Measuring relays and protection equipment;
- (c) IACS UR E10 - "Test specification for Type Approval".