Generic Specification: Electromechanical all-or-nothing relays -- Part 3: Test and measurement procedures

Generic Specification: Electromechanical all-ornothing relays -- Part 3: Test and measurement procedures



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 116000-3:2005 sisaldab Euroopa standardi EN 116000-3:1996 ingliskeelset teksti.

Käesolev dokument on jõustatud 28.10.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 116000-3:2005 consists of the English text of the European standard EN 116000-3:1996.

This document is endorsed on 28.10.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

Käsitlusala:		Scope:
	10	
	0.	
		0.
		4
		(0-
		<u> </u>
ICS 29.120.70		6
		YX
Võtmesõnad:		
		6.
		7
		Q_{β}

EUROPEAN STANDARD NORME EUROPÉENNE FUROPÄISCHE NORM

EN 116000-3

February 1996

ICS 29.120.70

Descriptors: Electromechanical all-or-nothing relays, test and measurement procedures

English version

Generic specification: Electromechanical all-or-nothing relays
Part 3: Test and measurement procedures

Spécification générique: Relais électromécaniques de tout-ou-rien Partie 3: Méthodes d'essai et de mesure Fachgrundspezifikation: Elektromechanische Schaltrelais Teil 3: Prüf- und Meßverfahren

This European Standard was approved by CENELEC on 1995-11-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization Comité Européen de Normalisation Electrotechnique Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

^{© 1996} Copyright reserved to CENELEC members

FOREWORD

This European Standard was prepared by the Technical Committee CENELEC TC/CECC SC 94, Relays.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 116000-3 on 1995-11-28.

The following dates were fixed:

 latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement

(dop) 1996-12-01

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 1996-12-01

In order to make it obvious that the technical contents of this Generic Specification for electromechanical all-or-nothing relays can be used not only within the CECC quality assessment system, but also for any other appropriate purpose, the definitions and the test and measurement procedures are now issued separately in this Part 3 of the Generic Specification.

Aty ass For application within the CECC quality assessment system, this specification has to be used in conjunction with EN 116000-1:1996.

CONTENTS

1	General	
1.1 1.2	Scope Normative references	5 5
2	Definitions	
2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 2.11	Types of relays Types of relays, based upon environmental protection Functions of a relay Types of contacts Prefixes for the values applicable to relays Energization values Electrical properties of contacts Categories of application of contacts Mechanical properties of contacts Terms relating to times Coil transient suppression device	8 9 9 10 11 11 12 12
3	Test and measurement procedures	
3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 3.10	General Alternative test methods Precision of measurement Requirements in Detail Specifications Standard conditions for testing Visual inspection and check of dimensions Mechanical tests and weighing Relay coil properties Dielectric test Impulse voltage test	13 13 13 13 14 15 15 17
3.11 3.12 3.13 3.14 3.15 3.16 3.17 3.18 3.19 3.20	Insulation resistance Contact-circuit resistance (or voltage drop) Functional tests Timing tests Climatic sequence Damp heat, steady state Thermal resistance Heating Rapid change of temperature Enclosure	17 18 19 20 21 23 24 25 25 25
		5

CONTENTS (continued)

	Y A	26
3.21	Internal moisture	27
3.22	Corrosive atmospheres	<u>-</u> 7
3.23	Mould growth	27
3.24	Robustness of terminals	28
3.25	Soldering	28
3.26	Shock	29
3.27	Bump	30
3.28	Vibration Acceleration	31
3.29	Electrical endurance	31
3.30	Electrical endurance	35
3.31	Mechanical endurance	35
3.32	Thermal endurance	36
3.33	Limiting continuous current	36
3.34	Overload (contact circuit)	37
3.35	Load transfer	37
3.36	Electromagnetic compatibility	38
3.37	Magnetic interference	38
3.38	Crosstalk and insertion loss	38
3.39	Electrical contact noise	39
3.40	Thermoelectric e.m.f.	
3.41	Capacitance	39
3.42	Contact sticking	39
3.43	Magnetic remanence	39
3.44	Acoustic noise	40
3.45	Continuity of protective earth connection	41
3.46	Fluid contamination	41
3.47	Resistance to cleaning solvents	42 42
3.48	Fire hazard	42 42
3.49	Free particle noise test	43
3.50	Contact dynamic dielectric test	
0.54	Temperature rise at rated load	43
3.51	Ozone test	43
3.52	Explosion proof	44
3.53	Rupture	44
3.54 3.55	Time current characteristic	44
3.56	Mechanical interlock	45
3.50 3.57	Mixed load	45
3.58	Insertion and withdrawal force	46
3.59	immersion	46
3.60	Monitoring of contacts	46
3.00	Monte and a second	
		48
Figure	es 1 to 14	
		ε.
Anne	x A: Free particle noise test	<u>ئ</u>

1 General

1.1 Scope

This Generic Specification applies to electromechanical all-or-nothing relays.

In conjunction with EN 116000-1:1996 this specification is the basis for qualification approval within the CECC quality assessment system in accordance with CECC 00 114.

However, it is not restricted to this purpose: this specification can also be used outside the CECC quality assessment system as a general technical reference for test and measurement procedures in the field of electromechanical all-or-nothing relays.

Where in this document the term "Detail Specification" is used, this either has the meaning defined in CECC 00 114 for application within the CECC system, or it means any appropriate document, e.g. manufacturer's data sheet, Test Specification, Customer Detail Specification.

1.2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

CCITT K.17	1988	Tests on power-fed repeaters using solid-state devices in order to check the arrangements for protection from external interference (Blue book, Volume IX)		
CECC 00 114		Rule of procedure 14: Quality assessment procedures		
CECC 00 802	1994	Guidance document: CECC standard method for the specification of surface mounting components (SMDs) of assessed quality		
IEC 27-1	1992	Letter symbols to be used in electrical terminology Part 1: General		
IEC 50		International Electrotechnical Vocabulary (IEV)		
IEC 50(446)	1983	International Electrotechnical Vocabulary (IEV) Chapter 446: Electrical relays		
IEC 60-1	1989	High voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 68-1	1988	Basic environmental testing procedures Part 1: General and guidance	EN 60068-1	1994
	1992	Amendment No 1		
IEC 68-2-1	1990	Basic environmental testing procedures Part 2: Tests - Test A: Cold	EN 60068-2-1	1993
IEC 68-2-2	1974	Basic environmental testing procedures Part 2: Tests - Test B: Dry heat	EN 60068-2-2	1993
	1976	Supplement: IEC 68-2-2A		
IEC 68-2-3	1969	Basic environmental testing procedures Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2	1987
	1984	Amendment No 1	(),	

		A La stata a sanaduran	EN 60068-2-6	1995
IEC 68-2-6	1982 1983	Basic environmental testing procedures Part 2: Tests - Test Fc: Vibration (sinusoidal) Amendment No 1	LI4 00000-2-0	,,,,,
\	1985	Amendment No 2		
IEC 68-2-7	1983	Basic environmental testing procedures Part 2: Tests - Test Ga: Acceleration, steady state	EN 60068-2-7	1993
3.0	1986	Amendment No 1	HD 323.2.10 S3	1988
IEC 68-2-10	1988	Basic environmental testing procedures Part 2: Tests - Test J: Mould growth		
IEC 68-2-11	1981	Basic environmental testing procedures Part 2: Tests - Test Ka: Salt mist	HD 323.2.11 S1	1988
IEC 68-2-13	1983	Basic environmental testing procedures Part 2: Tests - Test M: Low air pressure	HD 323.2.13 S1	1987
IEC 68-2-14	1984 1986	Basic environmental testing procedures Part 2: Tests - Test N: Change of temperature Amendment No 1	HD 323.2.14 S2	1987
IEC 68-2-17	1994	Basic environmental testing procedures Part 2: Tests - Test Q: Sealing	EN 60068-2-17	1994
IEC 68-2-20	1979	Basic environmental testing procedures Part 2: Tests - Test T: Soldering	HD 323.2.20 S3	1992
	1986 1987	Amendment No 1 Amendment No 2		
IEC 68-2-21	1983 1991	Basic environmental testing procedures Part 2: Tests - Test U: Robustness of terminations and integral mounting devices Amendment No 1	HD 323.2.21 S3	1988
	1992	Amendment No 2	EN 00008 3 37	1993
IEC 68-2-27	1987	Basic environmental testing procedures Part 2: Tests -Test Ea: Shock	EN 60068-2-27	
IEC 68-2-29	1987	Basic environmental testing procedures Part 2: Tests -Test Eb: Bump	EN 60068-2-29	1993
IEC 68-2-30	1980	Basic environmental testing procedures Part 2: Tests - Test Ob: Damp heat, cyclic	HD 323.2.30 S3	1988
	1985	Amendment No 1		4000
IEC 68-2-34	1973	Basic environmental testing procedures Part 2: Tests - Test Fd: Random vibration wideband, general requirements	HD 323.2.34 S1	1988
	1983			
			2	
			40	

IEC 68-2-36	1973	Basic environmental testing procedures Part 2: Tests - Test Fdb: Random vibration wideband, reproducibility medium	HD 323.2.36 S1	1988
	1983	Amendment No 1		
IEC 68-2-45	1980	Basic environmental testing procedures Part 2: Tests - Test XA: Immersion in cleaning solvents	EN 60068-2-45	1992
.0	1993	Amendment No 1		
IEC 255-1-00	1975	All-or-nothing electrical relays		
IEC 255-5	1977	Electrical relays Part 5: Insulation tests for electrical relays		
IEC 255-14	1981	Electrical relays Part 14: Endurance tests for electrical relay contacts Preferred values for contact loads		
IEC 255-15	1981	Electrical relays Part 15: Endurance tests for electrical relay contacts Specification for the characteristics of test equipment		
IEC 255-23	1994	Electrical relays Part 23: Contact performance of electrical relays		
IEC 433	1980	Stabilized supply apparatus for measurement		
IEC 512-7	1993	Electromechanical components for electronic equipment - Basic testing procedures and measuring methods Part 7: Mechanical operating tests and sealing tests		
IEC 617		Graphical symbols for diagrams.		
IEC 695-2-1	1991	Fire hazard testing Part 2: Test methods - Glow-wire test and guidance		
IEC 695-2-2	1991	Fire hazard testing Part 2: Test methods - Needle-flame test	HD 444.2.2 S2	1992
IEC 749	1984	Semiconductor devices. Mechanical and climatic test		
	1991 1993	methods Amendment No 1 Amendment No 2		
IEC 947-1	1988	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1	1991
ISO 1000	1973	SI units and recommendations for the use of their multiples and of certain other units		
ITU-T K.20	1993	Resistibility of telecommunication switching equipment to overvoltages and overcurrents		
MIL-STD-202		Test methods for electronic and electrical component parts	9_	
			1.72	