SLOVENSKI STANDARD
SIST HD 543.2 S1:1997

01-avgust-1997

Performance and testing of teleprotection equipment of power systems - Part 2: Analoguecomparison systems

Performance and testing of teleprotection equipment of power systems -- Part 2: Analogue comparison systems

Leistungsmerkmale und Prüfungen für Schutzsignal-Übertragungseinrichtungen für Energieversorgungssysteme -- Teil 2: Systeme mit Übertragung analoger Größen

Performances et essai des matériels de téléprotection des réseaux d'énergie électrique -- Partie 2: Systèmes à comparaison analogique

Ta slovenski standard je istoveten z: **HD 543.2 S1:1995**

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control

SIST HD 543.2 S1:1997 **en**

HARMONIZATION DOCUMENT
DOCUMENT D'HARMONISATION
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HD 543.2 S1

February 1995

ICS 25.040.40

Descriptors: Telecommunication, electric power system, teleprotection equipment, analogue comparison system, characteristic, interface, digital technique, comparison, reliability, safety, protection, performance, testing

English version

Performance and testing of teleprotection equipment of power systems
Part 2: Analogue comparison systems
(IEC 834-2:1993, modified)

Performances et essai des matériels de téléprotection des réseaux d'énergie électrique
Partie 2: Systèmes à comparaison analogique
(CEI 834-2:1993, modifiée)

Leistungsmerkmale und Prüfungen für Schutzsignal-Übertragungseinrichtungen für Energieversorgungssysteme
Teil 2: Systeme mit Übertragung analoger Größen
(IEC 834-2:1993, modifiziert)

This Harmonization Document was approved by CENELEC on 1994-12-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

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

This Harmonization Document exists in three official versions (English, French, German).

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

Foreword

The text of the International Standard IEC 834-2:1993, prepared by IEC TC 57, Telecontrol, teleprotection and associated telecommunications for electric power systems, together with common modifications prepared by Reporting Secretariat SR 57, was submitted to the formal vote and was approved by CENELEC as HD 543.2 S1 on 1994-12-06.

NOTE: Austria has no obligation to implement this European Standard.

The following dates were fixed:

- latest date by which the existence of the HD has to be announced at national level (doa) 1995-06-01
- latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 1995-12-01
- latest date by which the national standards conflicting with the HD have to be withdrawn (dow) 1995-12-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A, B, and C are informative.
Annex ZA has been added by CENELEC.

HD 543 consists of the following parts, under the general title "Performance and testing of teleprotection equipment of power systems":

- Part 1:1991, Narrow-band command systems (IEC 834-1:1988, modified);
- Part 2:1995, Analogue comparison systems (IEC 834-2:1993, modified).

Endorsement notice

The text of the International Standard IEC 834-2:1993 was approved by CENELEC as a Harmonization Document with agreed common modifications as given below.

COMMON MODIFICATIONS

1	**General**
1.3.1	**Replace** the first dashed paragraph by: - temperature range - 5 °C to + 40 °C
4	**Requirements**
4.3.1 a)	**Replace** in the second dashed paragraph of the English version "rated line current" by "nominal line current" for the current I_N.
Figure 2	**Insert** a lightning-arrow as the symbol of the fault inception.
5	**Methods for performance testing**
5.3.3, (5.3.4) and figure 3	**Replace** in the English version "rated current of the (protection) equipment" by "nominal current of the protection equipment" for the current I_N.
5.3.6 and figures 4,6 and 8	**Replace** the letter symbol N_{uc} by N_{uc} for the "number of unwanted commands" and the letter symbols P_{Mc} or P_{MC} by P_{mc} for the "probability of a missing command".

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

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.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
50(151)	1978	International Electrotechnical Vocabulary (IEV) - Chapter 151: Electrical and magnetic devices	-	-
255-4	1976	Electrical relays - Part 4: Single input energizing quantity measuring relays with dependent specified time	-	-
255-5	1977	Part 5: Insulation tests for electrical relays	-	-
255-6 (mod)	1988	Part 6: Measuring relays and protection equipment	EN 60255-6	1994
255-22-1	1988	Part 22: Electrical disturbance tests for measuring relays and protection equipment Section 1: 1 MHz burst disturbance tests	-	-
834-1 (mod)	1988	Performance and testing of teleprotection equipment of power systems Part 1: Narrow-band command systems	HD 543.1 S1	1991

Other publications:

CCITT Recommendation V.11:1976 - Electrical characteristics for balanced double-current interchange circuit for general use with integrated circuit equipment in the field of data communications - CCITT Red Book, volume VII fascicle VIII.1, 1985

CCITT Recommendation V.28:1972 - Electrical characteristics for unbalanced double-current interchange circuits - CCITT Red Book, volume VIII - fascicle VIII.1, 1985

CCITT Recommendation G.703:1972 - Physical/electrical characteristics of hierarchical digital interfaces CCITT Red Book, volume III - fascicle III.3, 1985

CIGRE SC 34 and 35 - WG 05:1987 - Protection systems using telecommunication

CIGRE SC 35:1979 - Guide on power line carrier

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Performances et essai des matériels de téléprotection des réseaux d'énergie électrique –

Partie 2:
Systèmes à comparaison analogique

Performance and testing of teleprotection equipment of power systems –

Part 2:
Analogue comparison systems

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PERFORMANCE AND TESTING OF TELEPROTECTION EQUIPMENT OF POWER SYSTEMS –

Part 2: Analogue comparison systems

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 834-2 has been prepared by IEC technical committee 57: Telecontrol, teleprotection and associated telecommunications for electric power systems.

The text of this standard is based on the following documents:

DIS	Report on Voting
57(CO)55	57(CO)64

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

IEC 834 consists of the following parts, under the general title "Performance and testing of teleprotection equipment of power systems":

- Part 1: 1988, Narrow-band command systems
- Part 2: 1993, Analogue comparison systems.

Annexes A, B and C are for information only.

PERFORMANCE AND TESTING OF TELEPROTECTION EQUIPMENT OF POWER SYSTEMS –

Part 2: Analogue comparison systems

SECTION 1: GENERAL

1.1 Scope and object

This part of IEC 834 applies to narrowband and wideband teleprotection systems used to convey analogue information about the primary quantities such as phase or phase and amplitude. The teleprotection equipment can either be separate or integrated in one unit with the protection equipment or the telecommunication equipment.

Narrow-band systems include systems operating within a 4 kHz band (for each direction of transmission).

Wide-band systems include systems occupying more than 4 kHz bandwidth (for each direction of transmission).

Broad-band command systems are not dealt with in this standard.

The object of this part of IEC 834 is to establish performance requirements and recommended testing methods for analogue comparison teleprotection equipments used in connection with power network protection systems and to define the associated terminology. The information conveyed and compared such as phase or phase and amplitude quantities can be in analogue or digital form.

In addition to the power supply and the interfaces belonging to the teleprotection equipment, the performance of the teleprotection equipment in conjunction with the protection equipment shall be tested.

All the tests should be considered as type tests (see IEC 50(151)).

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 834. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 834 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 50(151): 1978, *International Electrotechnical Vocabulary (IEV) – Chapter 151: Electrical and magnetic devices*