



SLOVENSKI STANDARD
SIST EN 61028:1995
01-avgust-1995

Električni merilni instrumenti – Koordinatni (X-Y) zapisovalniki (IEC 61028:1991)

Electrical measuring instruments - X-Y recorders

Elektrische Meßgeräte - X-Y-Schreiber

Appareils électriques de mesure - Enregistreurs X-Y

Ta slovenski standard je istoveten z: EN 61028:1993

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ICS:

17.220.20	Merjenje električnih in magnetnih veličin	Measurement of electrical and magnetic quantities
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 UDC 621.317.7

 Descriptors: Measuring instrument, electrical measurement, recorder,
 indirect acting recorder, X-Y recorder

ENGLISH VERSION

 Electrical measuring instruments - X-Y recorders
 (IEC 1028:1991)

 Appareils électriques de mesure
 Enregistreurs X-Y
 (CEI 1028:1991)

 Elektrische Meßgeräte
 X-Y-Schreiber
 (IEC 1028:1991)

 This European Standard was approved by CENELEC on 1992-12-09.
 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.

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 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.

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 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

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Ref. No. EN 61028:1993 E

FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 1028:1991 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 61028 on 9 December 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-12-01
- latest date of withdrawal of conflicting national standards (dow) 1993-12-01

For products which have complied with the relevant national standard before 1993-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-12-01.

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Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

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ENDORSEMENT NOTICE

The text of the International Standard IEC 1028:1991 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

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

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 -----
68	series	Environmental testing	HD 323	series
160	1963	Standard atmospheric conditions for test purposes	-	-
417	1973	Graphical symbols for use on equipment Index, survey and compilation of the single sheets	HD 243 S10*	1993
1010-1	1990	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	-	-

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* Includes supplements A:1974 to K:1991 to IEC 417

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NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC
1028

Première édition
First edition
1991-01

Appareils électriques de mesure –
Enregistreurs X-Y

ITeC STANDARD PREVIEW
Electrical measuring instruments –
X-Y (recorders) (standards.iteh.ai)

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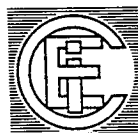
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CONTENTS

	Page
FOREWORD	5
PREFACE	5
Clause	
1. Scope	7
2. Definitions	7
2.1 General terms	9
2.2 Description of recorders according to the number of recording devices	11
2.3 Description of recorders according to their method of marking	11
2.4 Constructional features	17
2.5 Characteristic features	17
2.6 Characteristic values	19
2.7 Influence quantity, reference conditions, nominal range of use and preconditioning	21
2.8 Errors and variations	23
2.9 Accuracy, accuracy class and class index	23
3. Classification and compliance	25
3.1 Measuring class index	25
3.2 Compliance with the requirements of this Standard	25
4. Reference conditions and intrinsic errors	25
4.1 Reference conditions	25
4.2 Fiducial value and limits of intrinsic errors	27
4.3 Conditions for the determination of intrinsic error	31
4.4 Determination of the value of the dead band	33
4.5 Additional error term due to zero displacement	33
4.6 Orthogonality error	33
5. Nominal range of use and variations	35
5.1 Nominal range of use	35
5.2 Limits of variations	35
5.3 Conditions for the determination of variations	37
6. Further electrical and mechanical requirements	39
6.1 Dynamic performance	39
6.2 Continuous load	41
6.3 Permissible overloads	41
6.4 Limiting values of temperature	43
7. Constructional requirements	43
7.1 Sealing to prevent access	43
7.2 Preferred values for sensitivity	43
8. Information, markings and symbols	43
8.1 Information on the recorder	43
8.2 Information in documentation	45
8.3 Information relating to reference conditions and nominal ranges of use	45
9. Markings and symbols for terminals	51
9.1 Requirements for markings	51
9.2 Earthing (grounding) terminals	53
9.3 Measuring circuit terminals	53
Table I	29
Table II	31
Table III	45
Table IV	49-53
APPENDIX A – Determination of the influence of parasitic voltages	57
A.1. Common mode interference	57
A.2. Series mode interference	59
A.3. Statements as to the tests	59

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL MEASURING INSTRUMENTS – X-Y RECORDERS

FOREWORD

- 1) 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.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

PREFACE

This standard has been prepared by IEC Technical Committee No. 85: Measuring equipment for basic electrical quantities.

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

Six Months Rule 85(CO)12	SIST EN 61028:1995 Report on Voting 85(CO)14
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Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the table above.

The following IEC publications are quoted in this standard:

- Publications Nos. 68 Environmental testing
- 160 (1963) Standard atmospheric conditions for test purposes.
 - 417 (1973) Graphical symbols for use on equipment. Index, survey and compilation of the single sheets (and Supplements A, B, C, D, E, F, G, H (from 1974 to 1987)).
 - 1010-1 (1990) Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements.

ELECTRICAL MEASURING INSTRUMENTS – X-Y RECORDERS

1. Scope

This standard applies to X-Y recorders used for recording analogue electrical signals.

This standard specifies requirements for X-Y recorders, which can be used for the measurement of:

- a voltage or a current;
- another electrical quantity;
- a non-electrical quantity.

Recorders for measuring quantities other than voltage or current may contain a device for converting the input quantity into a voltage or current. If the conversion device is interchangeable and removable, this standard applies only to the recorder, provided that the conversion function is known.

This standard applies to recorders and their accessories having electronic devices in their measuring and/or auxiliary circuit(s).

It also applies to non-interchangeable accessories and accessories of limited interchangeability (e.g. shunts, impedance elements, etc.) when they are used with the recorder and adjustments have been made for the combination.

This standard does not apply to X-t recorders. For X-Y recorders incorporating a time base, this standard applies to the X-Y function only.

This standard does not apply to special purpose recorders which are covered by their own IEC standards.

This standard does not apply to special purpose devices nor to interchangeable accessories which are covered by their own IEC standards when they are used as accessories.

For controllers with electrical outputs, containing electrical recorders this standard applies only to the recorder and does not apply to the control circuit.

This standard does not contain requirements for protection against environmental conditions or the relevant tests. If information is required on these aspects, reference should be made to IEC Publication 68.

This standard does not cover safety requirements. For further information, reference should be made to IEC Publication 1010.

2. Definitions

The values of a.c. quantities given in this standard are r.m.s. values, unless otherwise stated.

For the purpose of this standard the following definitions apply.

2.1 General terms

2.1.1 Recorder

A measuring instrument which records, on a recording medium, information corresponding to the values of the measurand.

Notes 1: – Some recorders may incorporate an indicating device.

2. – Some recorders may record information corresponding to more than one measurand.

3. – Some recorders may also include interchangeable plug-in units. In this case, the recorder may have different specifications depending on the plug-in unit being used.

2.1.2 X-Y recorder

A recorder which traces the relationship between two or more analogue electrical signals as a continuous line on two perpendicular axes of a chart.

2.1.3 Accessory

An element, group of elements or device associated with the measuring circuit of a recorder in order to confer specified characteristics on the recorder.

2.1.3.1 Interchangeable accessory

An accessory having its own properties, class index or accuracy class these being independent of those of the recorder with which it may be associated.

Note. – An accessory is considered to be interchangeable when its rated characteristics are known, marked and sufficient to enable its errors and variations to be determined without using the associated recorder. For example, a shunt, whose adjustment takes into account an instrument current which is not negligible and which is known, is considered to be interchangeable.

2.1.3.2 Accessory of limited interchangeability

An accessory having its own properties and errors which can only be associated with recorders for which certain characteristics are within specified limits.

2.1.3.3 Non-interchangeable accessory

An accessory adjusted to take into account the electrical characteristics of a specific recorder.

2.1.4 Distortion factor (total harmonic distortion factor of a quantity)

The ratio $\frac{\text{r.m.s. value of the harmonic content}}{\text{r.m.s. value of the non-sinusoidal quantity}}$

2.1.5 Ripple factor

The ratio $\frac{\text{r.m.s. value of the fluctuating component}}{\text{value of the d.c. component}}$

2.2 Description of recorders according to the number of recording devices

2.2.1 Single recorder

A recorder having one recording device.

2.2.2 Multiple recorder

A recorder having more than one recording device and being able to record, simultaneously, different quantities corresponding to different external signals.

2.2.3 Single-range recorder

A recorder having only one measuring range.

2.2.4 Multi-range recorder

A recorder having more than one measuring range.

2.3 Description of recorders according to their method of marking

2.3.1 Pen recorder

A recording instrument in which the record on the chart is made by a pen supplied with ink. (IEV 302-02-11.)

2.3.2 Stylus recorder

A recording instrument in which the record on the chart is made by a stylus requiring no ink. (IEV 302-02-12.)

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2.4 Constructional features

2.4.1 Measuring circuit (of a recorder)

The part of the electrical circuit internal to the recorder and its accessories, together with the interconnecting leads, if any, which is energized by a voltage or a current, one or both of these quantities being a prime factor in determining the recording of the measurand (one of these quantities may be the recorded quantity itself).

2.4.1.1 Current circuit

A measuring circuit through which flows a current which is the prime factor in determining the recording of the measurand.

Note. – This may be the current directly involved in the recording or a proportional current supplied by an external current transformer or derived from an external shunt.

2.4.1.2 Voltage circuit

A measuring circuit to which is applied a voltage which is the prime factor in determining the recording of the measurand.

Note. – This may be the voltage directly involved in the recording or a proportional voltage supplied by an external voltage transformer or an external voltage divider, or derived by means of an external series resistor (impedance element).

2.4.2 External measuring circuit

The part of the electrical circuit external to the recorder from which a measured value is obtained.