

Electrical measuring instruments — X-Y recorders

**BS EN
61028:1993**

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ICS 17.220.20

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Power Electrical Engineering Standards Policy Committee (PEL/-) to Technical Committee PEL/13, upon which the following bodies were represented:

- Association of Consulting Engineers
- Department of Energy (Electricity Division)
- Department of Trade and Industry (National Physics Laboratory)
- Electricity Association
- The Association for the Instrumentation, Control and Automation Industry
GAMBICA (BEAMA Ltd.)
- Institution of Electrical Engineers
- Institution of Incorporated Executive Engineers

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National foreword

This British Standard has been prepared by Technical Committee PEL/85 (formerly PEL/13) and is the English language version of EN 61028:1993 including amendments A1:1995 + A2:1997. It is identical with IEC 61028:1991 including amendments 1 and 2.

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standard Correspondence Index” or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, the EN title page, pages 2 to 22, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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January 1993

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English version

Electrical measurement instruments — X-Y recorders

(Includes amendments A1:1995 + A2:1997)
(IEC 61028:1991 + A1:1995 + A2:1997)

Appareils électriques de mesure —
Enregistreurs X-Y
(Inclut les amendements A1:1995 + A2:1997)
(CEI 61028:1991 + A1:1995 + A2:1997)

Elektrische Meßgeräte —
X-Y-Schreiber
(Enthält Änderungen A1:1995 + A2:1997)
(IEC 61028:1991 + A1:1995 + A2:1997)

This European Standard was approved by CENELEC on 1992-12-09. Amendment A1 was approved by CENELEC on 1995-07-04 and amendment A2 on 1997-10-01. 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

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Ref. No. EN 61028:1993 + A1:1995 + A2:1997 E

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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 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.

Annexes designated “normative” are part of the body of the standard. In this standard, Annex ZA is normative.

Endorsement notice

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

Foreword to amendment A1

The text of document 85/42/DIS, future Amendment 1 to IEC 1028:1991, prepared by IEC TC 85, Measuring equipment for electromagnetic quantities, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as Amendment A1 to EN 61028:1993 on 1995-07-04.

The following dates were fixed:

- latest date by which the
amendment has to be
implemented at national
level by publication of an
identical national standard
or by endorsement (dop) 1996-04-01
- latest date by which the
national standards
conflicting with the
amendment have to be
withdrawn (dow) 1996-04-01

For products which have complied with EN 61028:1993 before 1996-04-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2001-04-01.

Foreword to amendment A2

The text of document 85/163/FDIS, future amendment 2 to IEC 61028:1991, prepared by IEC TC 85, Measuring equipment for electromagnetic quantities, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 61028:1993 on 1997-10-01.

The following dates were fixed:

- latest date by which the
amendment has to be
implemented at national
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- latest date by which the
national standards
conflicting with the
amendment have to be
withdrawn (dow) 1998-07-01

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

NOTE 1 Some recorders may incorporate an indicating device.

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

NOTE 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