

Direct-current potentiometers

The European Standard EN 60523:1993 with the incorporation of amendment A2:1997 has the status of a British Standard

ICS 17.220.20

Committees responsible for this British Standard

The Power Electrical Engineering Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following:

- Associated Offices Technical Committee
- Association of Short Circuit Testing Authorities
- British Electrical and Allied Manufacturers' Association (BEAMA)
- British Railways Board
- British Steel Corporation
- Cbmpe
- Department of Energy (Electricity)*
- Electrical Contractors' Association
- Electrical Contractors' Association of Scotland
- Electricity Supply Industry in England and Wales*
- Era Technology Ltd.
- Institute of Purchasing and Supply
- Institution of Electrical Engineers*
- Ministry of Defence*
- National Coal Board
- National Economic Development Office

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this British Standard:

- Association of Consulting Engineers
- Association of Supervisory and Executive Engineers
- British Industrial Measuring and Control Apparatus Manufacturers' Association
- Electrical Power Engineers' Association
- Post Office
- Scientific Instrument Manufacturers' Association
- Individual expert

Amendments issued since publication

Amd. No.	Date	Comments
7914	October 1993	Renumbers BS 5981
10280	March 1999	Indicated by a sideline in the margin

This British Standard, having been prepared under the direction of the Power Electrical Engineering Standards Committee, was published under the authority of the Executive Board and comes into effect on 29 August 1980

© BSI 03-2000

ISBN 0 580 11560 7

Contents

	Page
Committees responsible	Inside front cover
National foreword	iii
Foreword	2
1 Scope	3
2 Terms and definitions	3
2.1 D.C. potentiometer (hereinafter designated “potentiometer”)	3
2.2 Measuring dials	3
2.3 Effective range	3
2.4 Range-changing device	3
2.5 Standardization of a potentiometer	3
2.6 Dial setting	3
2.7 Auxiliary equipment	3
2.8 Resolution	3
2.9 Circuit insulation voltage (nominal circuit voltage)	3
2.9a Distortion factor (total harmonic) (of a quantity)	4
2.10 Ripple content (of a quantity)	4
2.11 Leakage current screen (circuit)	4
2.12 Electrostatic screen	4
2.13 Measuring terminals	4
2.14 Measuring circuit	4
2.15 Measured quantity circuit selector switch	4
2.16 Residual e.m.f. of a potentiometer	4
2.17 Incremental linearity	4
2.18 Influence quantity	4
2.19 Common mode voltage	4
2.20 Variation with influence quantity	5
2.21 Reference conditions	5
2.22 Reference value	5
2.23 Reference range	5
2.24 Nominal range of use	5
2.25 Limiting values of an influence quantity	5
2.26 Fiducial value	5
2.27 Error	5
2.28 Intrinsic error	5
2.29 Accuracy	5
2.30 Accuracy class	5
2.31 Class index	6
3 Classification	6
4 Limits of intrinsic error	6
4.1 Permissible limits of intrinsic error	6
4.2 Incremental linearity	6
4.3 Resolution	7
4.4 Range-changing device	7
4.5 Independent circuit for standardization of a potentiometer	7
5 Conditions for the determination of intrinsic errors	7
6 Permissible variations	8
6.1 Limits of variation	8
6.2 Conditions for the determination of the variations	8

	Page
6.3 Determination of the effect of a common mode voltage	9
6.4 Variation due to the influence of a magnetic field of external origin	9
7 Additional electrical and mechanical requirements	9
7.1 Voltage test and other safety requirements	9
7.2 Functional insulation test	9
7.3 Measured quantity circuit selector switches	10
7.4 Potentiometer adjustments	11
7.5 Limiting temperature for storage, transport and use	11
8 Information, markings and symbols	11
8.1 Information	11
8.2 Markings, symbols and their locations	11
8.3 Documentation	12
8.4 Example of the marking of a potentiometer	12
Appendix A Determination of the effect of common mode voltage. Direct method	15
Appendix B Determination of the effect of common mode voltage. Indirect method (Superposition method)	16
Table I — Reference conditions and tolerances of the influence quantities	8
Table II — Limits of the nominal range of use and permissible variations	10
Table III — Minimum values of insulation resistance	10
Table IV — Symbols for marking potentiometers	14
Publications referred to	Inside back cover

National foreword

This British Standard has been prepared by Technical Committee PEL/85 (formerly PEL/13) and is the English language version of EN 60523:1993 including amendment A2:1997. It is identical with IEC 523:1975 including amendment 1:1979, corrigendum 1980 and amendment 2:1997.

Editorial note. The incorporation of this amendment has involved some rearrangement of the original pagination; for this reason, the normal convention of quoting IEC page numbers in square brackets at the foot of each page has not been adopted.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication, without deviation, as a British Standard. Some terminology and certain conventions are not identical with those used in British Standards.

Textual note. There is an abbreviation specified in IEC 61010-1 amendment 2 for pollution degree. Suggested abbreviation “PD” has been used.

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 Standards Correspondence Index” or by using the “Find” facility of the BSI *Standards Electronic Catalogue*.

Additional information. With reference to subclause 2.9 “Circuit insulation voltage (nominal circuit voltage)”, attention is drawn to the notes on circuit insulation voltage in the Appendix of BS 5458:1977 (IEC 414:1973).

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, the EN title page, pages 2 to 16, 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.

Descriptors: Measuring instrument, electrical measuring instrument, potentiometer, direct current potentiometer

English version

Direct-current potentiometers

(includes amendment A2:1997)

(IEC 523:1975 + A1:1979 + corrigendum 1980 + A2:1997)

Potentiomètres à courant continu
(Inclut l'amendement A2:1997)
(CEI 523:1975 + A1:1979
+ Corrigendum 1980 + A2:1997)

Gleichspannungs-Kompensatoren
(Enthält Änderung A2:1997)
(IEC 523:1975 + A1:1979
+ Corrigendum 1980 + A2:1997)

This European Standard was approved by CENELEC on 1993-03-09; amendment A2 was approved by CENELEC 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

Foreword

At the request of 72 Technical Board,
HD 613 S1:1992 (IEC 523:1975 + A1:1979
+ corrigendum December 1980) was submitted to
the CENELEC voting procedure for conversion into
a European Standard.

The text of the International Standard was
approved by CENELEC as EN 60523
on 9 March 1993.

The following dates were fixed:

- latest date of publication of
an identical national standard (dop) 1994-03-01
- latest date of withdrawal of
conflicting national standards (dow) —

Foreword to amendment A2

The text of document 85/168/FDIS, future
amendment 2 to IEC 60523:1975, 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 60523:1993
on 1997-10-01.

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