BRITISH STANDARD

BS EN
50178:1998

Incorporating
Corrigendum No. 1

Electronic equipment for use in power installations

The European Standard EN 50178:1997 has the status of a British Standard

ICS 29.240.01

National foreword

This British Standard is the English language version of EN 50178:1997.

The UK participation in its preparation was entrusted to Technical Committee PEL/22, Static power convertor equipment, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

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.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 99 and a back cover.

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Sidelining in this document indicates the most recent changes by amendment.

Amendments issued since publication

Amd. No.	Date	Comments
10604 Corrigendum	August 1999	Correction to Table 10

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EUROPEAN STANDARDS

NORME EUROPÉENNE

EUROPÄISHE NORM

EN 50178

October 1997

ICS 29.240.00

Descriptors: electrical installation, industrial electrical installation, electronic equipment, definitions, design, safety, protection against electric shocks, protection against live parts, climatic conditions, electrical properties, mechanical properties, tests, marking

English version

Electronic equipment for use in power installations

Équipement électronique utilisé dans les installations de puissance

Ausrüstung von Starkstromanlagen mit elektronischen Betriebsmitteln

This European Standard was approved by CENELEC on 1997-07-01. 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, Czech Republic, 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 36, B-1050 Brussels

Ref. No. EN 50178:1997 E

Foreword

This European Standard was prepared by the Task Force CENELEC BTTF 60-1, Assembly of electronic equipment.

A first draft was submitted to CENELEC enquiry (6MP) in August 1994 but failed to be accepted. A second draft was submitted to CENELEC enquiry (2MP) in September 1995 and was accepted. The text of the final draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50178 on 1997-07-01.

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) 1998-06-01

— latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-06-01

Annexes designated “informative” are given for information only. In this standard annexes A and B are informative.

Annex A offers additional information e.g. as a basis for design purposes. It also indicated items where new standards are expected to be established. Functions or characteristics presented in the informative annex A may be used as options of the electronic equipment, provided that test methods are specified and test equipment is available. In any case, these points have to be discussed and clarified between customer and manufacturer.

Annex B is under consideration. It is intended to contain tables with all important figures and values. It shows a condensed overview on the conditions and requirements for convenience of the user of the standard.

The requirements of this European Standard are based on basic or generic standards issued by IEC or CLC where these standards exist. This is valid especially for safety and environmental requirements. Additional requirements are stipulated where necessary.

This European Standard is a harmonized standard for electronic equipment for use in power installations according to the Low Voltage Directive 73/23/EEC. No additional requirements are to be met for compliance with this directive.

Contents

Introduction

As the title indicates this European Standard applies where electronic equipment is to be installed or is used in power installations. The term electronic equipment denotes equipment which may contain information technology equipment as well as power electronic equipment and non-electronic components. Electronic equipment may be designed and used as stand-alone-equipment or as sub-assemblies built as cubicles, plug-in-units or assembled printed circuit boards. However, the EMC requirements are always to be fulfilled on the apparatus or system level.

The term power installation as used in this European Standard denotes an installation with assembled electrical and electronic equipment in a given location and designed for coordinated operation and connected to an electricity supply system. Although the use of the installation is not specified it is expected that the main purpose will be controlling, regulating and converting electrical energy. In all cases within this European Standard a power installation is interacting with the electricity supply system, either directly e.g. by means of control, regulating and protection system, or indirectly e.g. by means of measurements leading to intervention by personnel. However, power installation as used in other standards may have other definitions.

As the title "Electronic equipment for use in power installations" implies the standard mainly applies where electronic equipment is integrated into or is used in power installations. As the standard is also concerned with the design and testing of electronic equipment, the appropriate clauses within it apply in cases where no other applicable specifications exist in individual product standards.

Beyond that the main intention of the standard is to stipulate minimum requirements for the design and manufacture of electronic equipment, for protection against electric shock, for testing and for the integration into systems for power installations. Right from the beginning and reflecting the experiences of the experts it seems necessary to use minimum requirements in order to achieve a certain technical level with respect to safety and reliability. This is especially true where electronic equipment is assembled into power installations.

In all cases where more severe requirements are defined in individual product standards or purchasing specifications they shall take precedence over the requirements of this European Standard. This may be true for special safety related applications of electronic equipment or applications under special environmental conditions.

In the other cases where a product standard does not meet the minimum requirements of this European Standard and therefore prevents the direct use of electronic equipment designed and manufactured fulfilling the requirements of those product standards additional means has to be considered in power installations. One possibility is to influence the environmental conditions in which the electronic equipment is operating so that they are compatible with the requirements of this European Standard. This can be done by special casing or means of filtering for example. The other possibility is to improve the electronic equipment so that it meets the requirements of this European Standard.

1 Scope

This European Standard applies to the use of electronic equipment (EE) in power installations where a uniform technical level with respect to safety and reliability is necessary. This standard also applies to EE which are not covered by a specific product standard.

This European Standard defines the minimum requirements for the design and manufacture of EE, for protection against electric shock, for testing and its integration into systems for power installations.

This European Standard does not cover the following applications: electrical accessories and electrical appliances for household and similar purposes, medical equipment, electric railway equipment, data processing without control on systems and processes, public and private non-industrial telecommunication and radio communication equipment and networks, protection relays, residual-current-operated protective devices, uninterruptible power supplies, lighting equipment and public charging equipment for electrical vehicles.

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 standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

European Standards

EN 29000:1988, *Quality management and quality assurance — Guidelines for selection and use.*

EN 50081-1, *Electromagnetic compatibility — Generic emission standard — Part 1: Residential, commercial and light industry.*

EN 50081-2, *Electromagnetic compatibility — Generic emission standard — Part 2: Industrial environment.*

EN 50082-1, *Electromagnetic compatibility — Generic immunity standard — Part 1: Residential, commercial and light industry*

EN 50082-2, *Electromagnetic compatibility — Generic immunity standard — Part 2: Industrial environment.*

prEN 50093:1991, *Basic immunity standard for voltage dips, short interruptions and voltage variations.*