Irish Standard
I.S. EN 50173-3:2007

Information technology - Generic cabling systems -- Part 3: Industrial premises

I.S. EN 50173-3:2007

Incorporating amendments/corrigenda issued since publication:

EN 50173-3:2007/A1:2010
EN 50173
-3:2007/A1:2010/AC:2011

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SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:	*This document is based on:* EN 50173-3:2007	*Published:* 14 September, 2007

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Údarás um Chaighdeáin Náisiúnta na hÉireann

Corrigendum to EN 50173-3:2007/A1:2010

English version

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Replace all occurences of EN 50173-1:2007 and EN 50173-1:201X, respectively, **with** EN 50173-1:2011.

8.3.3.1.1 Connecting hardware at the TO

Replace the 3rd paragraph **with:**

For cabled optical fibre cable of Category OP2, the interface shall be in accordance with EN 61754-20:201X,Interface 20-5 (duplex LC). The termination of the intermediate cabling shall be a plug in accordance with EN 61754-20:201X, Interface 20-9 (simplex LC) or Interface 20-10 (duplex LC).

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May 2011

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50173-3/A1

December 2010

ICS 35.110

English version

Information technology - Generic cabling systems - Part 3: Industrial premises

Technologies de l'information - Systèmes de câblage générique - Partie 3: Bâtiments du secteur industriel

Informationstechnik - Anwendungsneutrale Kommunikationskabelanlagen - Teil 3: Industriell genutzte Standorte

This amendment A1 modifies the European Standard EN 50173-3:2007; it was approved by CENELEC on 2010-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 50173-3:2007/A1:2010 E

Foreword

This amendment was prepared by the Technical Committee CENELEC TC 215, Electrotechnical aspects of telecommunication equipment.

The text of the draft was submitted to the formal vote and was approved by CENELEC as amendment A1 to EN 50173-3:2007 on 2010-12-01.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) 2011-12-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2013-12-01

This standard introduces several changes in order to align the standard with the changes resulting from the introduction of new Channel classes and component Categories in EN 50173-1:201X. Furthermore, it updates requirements for optical fibre connecting hardware.

For the convenience of the reader of this standard, the pertinent tables are reproduced in total, with grey shading of new table cells. Where modifications to text apply to single expressions or a few words only, this is indicated by underlining.

I.S. EN 50173-3:2007

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50173-3

September 2007

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English version

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Informationstechnik - Anwendungsneutrale Kommunikationskabelanlagen - Teil 3: Industriell genutzte Standorte

This European Standard was approved by CENELEC on 2007-09-01. 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.

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CENELEC

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Ref. No. EN 50173-3:2007 E

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 215, Electrotechnical aspects of telecommunication equipment.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50173-3 on 2007-09-01.

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) 2008-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2010-09-01

The European Standards EN 50173:1995 and EN 50173-1:2002 have been developed to enable the application-independent cabling to support ICT applications in office premises. Their basic principles, however, are applicable to other types of applications and in other types of premises.

TC 215 has decided to establish relevant European Standards which address the specific requirements of these premises. In order to point out the commonalities of these cabling design standards, these EN are published as individual parts of the series EN 50173, thus also acknowledging that standards users recognize the designation “EN 50173” as a synonym for generic cabling design.

At the time of publication of this European Standard, series EN 50173 comprises the following standards:

EN 50173-1	Information technology – Generic cabling systems – Part 1: General requirements
EN 50173-2	Information technology – Generic cabling systems – Part 2: Office premises
EN 50173-3	Information technology – Generic cabling systems – Part 3: Industrial premises
EN 50173-4	Information technology – Generic cabling systems – Part 4: Homes
EN 50173-5	Information technology – Generic cabling systems – Part 5: Data centres

This European Standard, EN 50173-3, contains specific requirements for generic cabling systems intended to be operated in industrial premises, referencing the general requirements of EN 50173-1:2007. It is based upon but is not identical to ISO/IEC 24702:2006, Information technology - Generic cabling - Industrial premises.

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Introduction

The importance of the information technology cabling infrastructure is similar to that of other utilities such as heating, lighting and electricity supplies. As with other utilities, interruptions to service can have serious impact. Poor quality of service due to lack of planning, use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten an organisation's effectiveness.

Historically, the cabling within premises comprised both application-specific and multipurpose networks. Standards within the EN 50173 series have enabled a controlled migration to generic cabling (with an associated reduction in the use of application-specific cabling) and supported the development of high data rate applications based upon defined cabling models.

This European Standard, EN 50173-3, recognizes the benefit of generic cabling to interconnect several pieces of apparatus within industrial premises (within and between structures and buildings) and is to be read in conjunction with EN 50173-1.

This European Standard provides, for industrial premises:

a) users with an application independent generic cabling system and an open market for cabling components;

b) requirements for infrastructures that support critical automation, process control and monitoring applications in a range of industrial environments;

c) users with a flexible cabling scheme such that modifications are both easy and economical;

d) building professionals (for example, architects), production and control engineers with guidance allowing the accommodation of cabling both before specific requirements are known, i.e. in the initial planning either for construction or refurbishment, and for further deployment as the requirements of specific industrial areas are defined;

e) industry and standardisation bodies with a cabling system which supports current products and provides a basis for future product development and applications standardisation.

This European Standard specifies multi-vendor cabling, and is related to:

- the associated standard covering general requirements for generic cabling within premises (EN 50173-1);

- standards for cabling components developed by Technical Committees of CENELEC and/or IEC;

- standards for the quality assurance and installation of information technology cabling (series EN 50174) and testing of installed cabling (EN 50346);

- applications developed by the technical bodies of IEC (including the subcommittees of ISO/IEC JTC 1), study groups of ITU-T and CENELEC TC 65CX “Fieldbus”.

Within this European Standard the cabling, defined between the interfaces shown in Figure 1, contains passive components only.

The applications listed in EN 50173-1:2007, Annex F, have been analysed to determine the requirements for a generic cabling system. These requirements, together with statistics concerning premises geography from different countries and the models described in Clause 6, have been used to develop the requirements for cabling components and to stipulate their arrangement into cabling systems. As a result, generic cabling defined within this European Standard is targeted at, but not limited to, industrial premises.

It is anticipated that the generic cabling system meeting the minimum requirements of this European Standard will have a life expectancy consistent with other infrastructures within industrial premises.

Figure 1 shows the relationship of generic cabling to the OSI reference model.

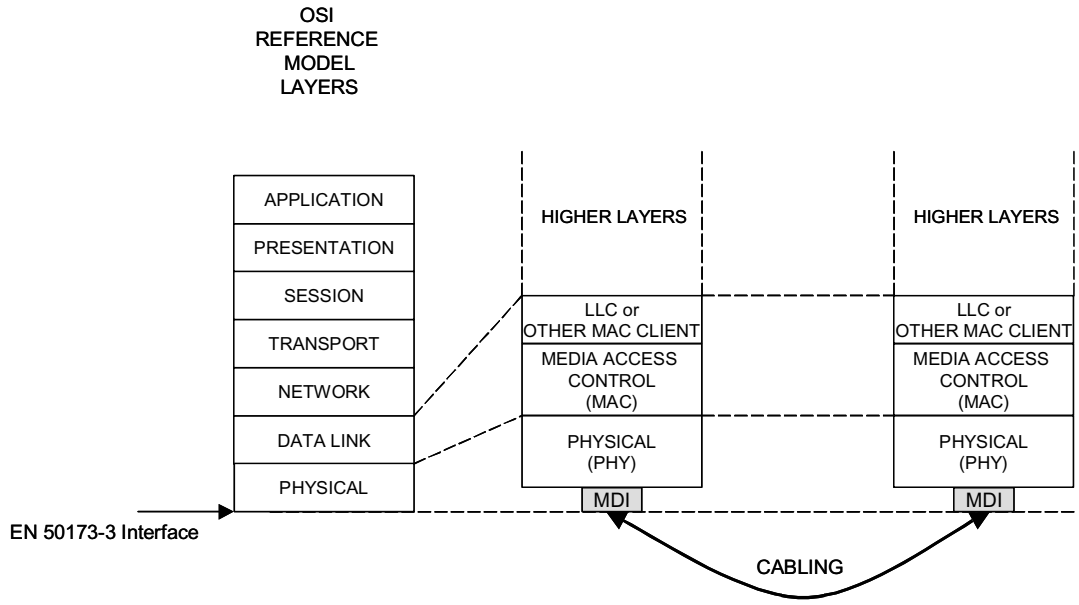

Figure 1 - Cabling specified by EN 50173-3 and its relationship to OSI reference model layers

Figure 2 and Table 1 show the schematic and contextual relationships between the standards produced by TC 215 for information technology cabling, namely:

1) this and other parts of the EN 50173 series;

2) application dependent cabling design (e.g. EN 50098 series);

3) installation (EN 50174 series);

4) testing of installed cabling (EN 50346);

5) equipotential bonding requirements (EN 50310).

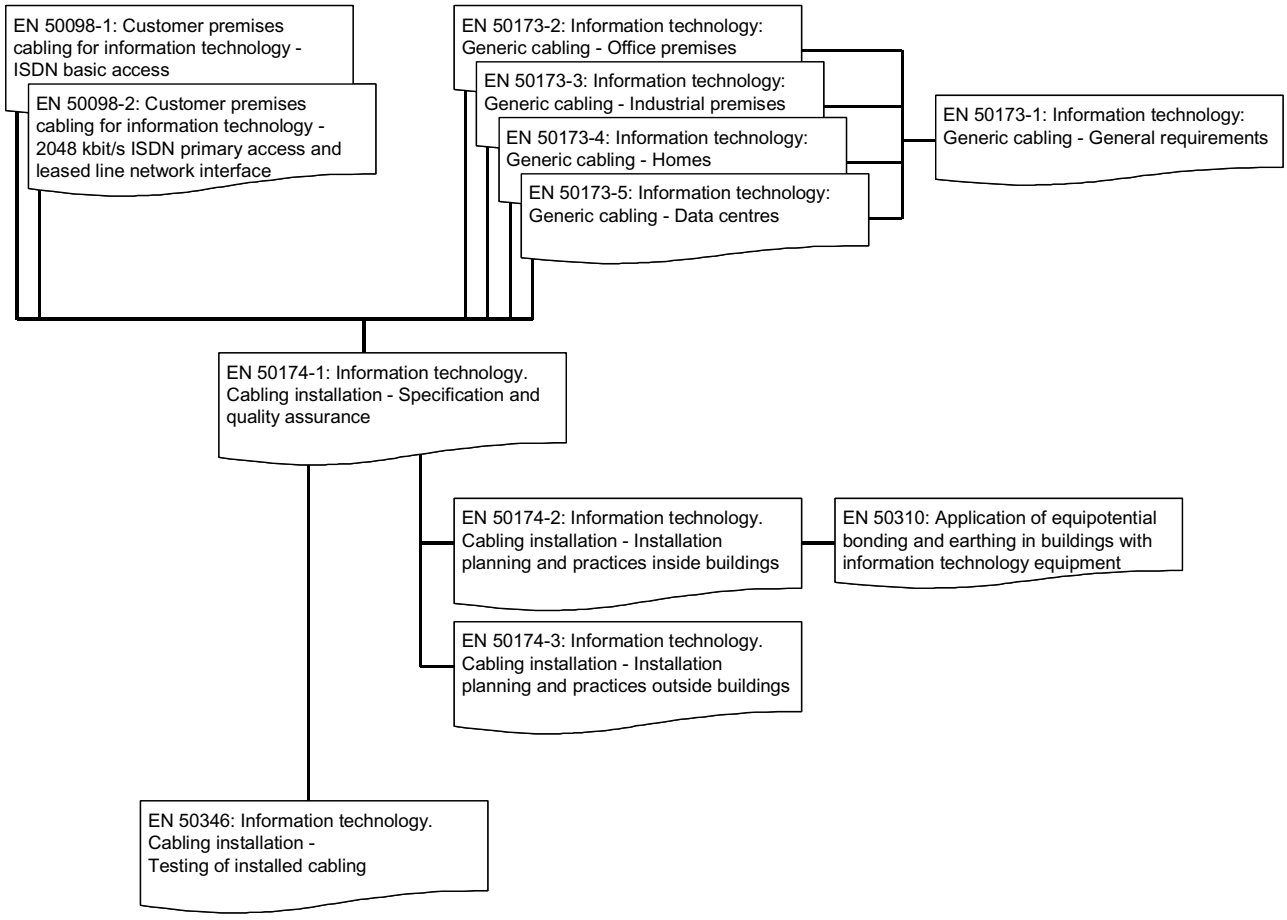

Figure 2 - Schematic relationship between the EN 50173 series and other relevant Standards

Table 1 - Contextual relationship between EN 50173 series and other Standards relevant for information technology cabling systems

Building design phase	Generic cabling design phase	Specification phase	Installation phase	Operation phase
EN 50310 5.2: Common bonding network (CBN) within a building 6.3: AC distribution system and bonding of the protective conductor (TN-S)	**EN 50173 series except EN 50173-4** 4: Structure 5: Channel performance 7: Cable requirements 8: Connecting hardware requirements 9: Requirements for cords and jumpers A: Link performance limits	**EN 50174-1** 4: Requirements for installers 5: Requirements for premises owners		**EN 50174-1** 5: Requirements for premises owners
		Planning phase		
	and EN 50173-4 4 and 5: Structure 6: Channel performance 8: Cable requirements 9: Connecting hardware requirements 10: Requirements for cords and jumpers A: Link performance limits	**EN 50174-2** 5: Requirements for planning installations of information technology cabling 6: Segregation of metallic information technology and mains power cabling 7: Additional considerations **and EN 50174-3** **and (for equipotential bonding) EN 50310** 5.2: Common bonding network (CBN) within a building 6.3: AC distribution system and bonding of the protective conductor (TN-S)	**EN 50174-2** 4: Requirements for installers of information technology cabling 6: Segregation of metallic information technology and mains power cabling **and EN 50174-3** **and (for equipotential bonding) EN 50310** 5.2: Common bonding network (CBN) within a building 6.3: AC distribution system and bonding of the protective conductor (TN-S) **and EN 50346** 4: General requirements 5: Test parameters for balanced cabling 6: Test parameters for optical fibre cabling	

1 Scope and conformance

1.1 Scope

This European Standard specifies generic cabling that supports a wide range of communications services including automation, process control and monitoring applications for use within industrial premises comprising single or multiple buildings on a campus. It covers balanced cabling and optical fibre cabling.

This European Standard is based upon and references the requirements of EN 50173-1. This European Standard contains additional requirements that are appropriate to industrial premises in which the maximum distance over which communications services have to be distributed is 10 000 m. The principles of this European Standard may also be applied to installations that do not fall within this range.

In addition to the requirements of EN 50173-1, this European Standard specifies:

a) a modified structure and configuration for generic cabling within industrial premises in which information technology applications are used to support process monitoring and control functions;

b) implementation options;

c) additional requirements that reflect the range of operating environments within industrial premises.

Safety (electrical safety and protection, optical power, fire, etc.) and electromagnetic compatibility (EMC) requirements are outside the scope of this European Standard and are covered by other Standards and regulations. However, information given in this European Standard may be of assistance in meeting these Standards and regulations.

1.2 Conformance

For a cabling system to conform to this European Standard:

a) the structure and configuration shall conform to the requirements of Clause 4;

b) the interfaces to the cabling at the telecommunications outlet shall conform to the requirements of Clause 8 with respect to mating interfaces and performance;

c) connecting hardware at other places in the cabling structure shall conform to the requirements of Clause 8;

d) the performance of channels[1)] shall conform to the applicable transmission performance requirements of Clause 5. This shall be achieved by one of the following:

   - a channel design and implementation ensuring that the prescribed channel performance Class of Clause 5 is met;

   - attachment of appropriate components to a permanent link design meeting the prescribed performance Class of Annex A. Channel performance shall be assured where a channel is created by adding more than one cord to either end of a permanent link meeting the requirements of Annex A;

   - using the reference implementations of Clause 6 and compatible cabling components conforming to the requirements of Clauses 7, 8 and 9, based upon a statistical approach of performance modelling.

e) local regulations concerning safety and electromagnetic emissions shall be met.

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1) This term, as defined in EN 50173-1, refers to the passive cabling between the interfaces described in Clauses 4 and 5. Different definitions of the term “channel” as given in other standards are not applicable in this European Standard.