SVENSK STANDARD SS-EN 50173-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
2018-09-12	2	1 (1+51)	SEK TK 215

Fastighetsnät för informationsöverföring – Generella kabelnät – Del 3: Industrier

Information technology – Generic cabling systems – Part 3: Industrial spaces

Som svensk standard gäller europastandarden EN 50173-3:2018. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50173-3:2018.

Nationellt förord

Tidigare fastställd svensk standard SS-EN 50173-3, utgåva 1, 2007, SS-EN 50173-3/A1, utgåva 1, 2011 och SS-EN 50173-3/A1 C1, utgåva 1, 2011, gäller ej fr o m 2021-03-19.

ICS 35.110.00

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

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SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50173-3

June 2018

ICS 35.110

Supersedes EN 50173-3:2007

English Version

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

Technologies de l'information - Systèmes de câblage générique - Partie 3: Espaces industriels

Informationstechnik - Anwendungsneutrale Kommunikationskabelanlagen - Teil 3: Industriell genutzte Bereiche

This European Standard was approved by CENELEC on 2018-03-19. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

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Ref. No. EN 50173-3:2018 E

Contents

Page

Figures

Tables

European foreword

This document (EN 50173-3:2018) has been prepared by the Technical Committee CENELEC TC 215 *"Electrotechnical aspects of telecommunication equipment"*.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2019-03-19
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2021-03-19

This document supersedes EN 50173-3:2007 + A1:2010 + AC:2011.

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 spaces
EN 50173-4	Information technology – Generic cabling systems – Part 4: Homes
EN 50173-5	Information technology – Generic cabling systems – Part 5: Data centres
EN 50173-6	Information technology – Generic cabling systems – Part 6: Distributed building services

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 50173-1:2018

This edition of EN 50173-3:

a) introduces new balanced cabling component Categories 8.1 and 8.2 to support new channel Classes I and II;

b) introduces a new cabled optical fibre Category OM5 and Category OS1a;

c) introduces a new Annex on the industrial cabling subsystem;

d) amends various other subclauses, tables and figures;

e) aligns the document structure across the EN 50173 series and updates the document both technically and editorially.

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

Introduction

The importance of cabling infrastructure is similar to that of other fundamental utilities such as water and energy supply and interruptions to the services provided over that infrastructure can have a serious impact. A lack of design foresight, the use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten quality of service and have commercial consequences for all types of users.

This standard specifies generic cabling to serve the automation islands in industrial premises, or industrial spaces within other types of building.

Additionally those premises can include:

— office spaces for which generic cabling is specified in EN 50173-2;

— data centre spaces for which generic cabling is specified in EN 50173-5.

Generic cabling for distributed building services in industrial spaces is specified in EN 50173-6 which addresses all of the above premises and spaces within them.

Figure 1 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) installation (EN 50174 series);

3) bonding (EN 50310).

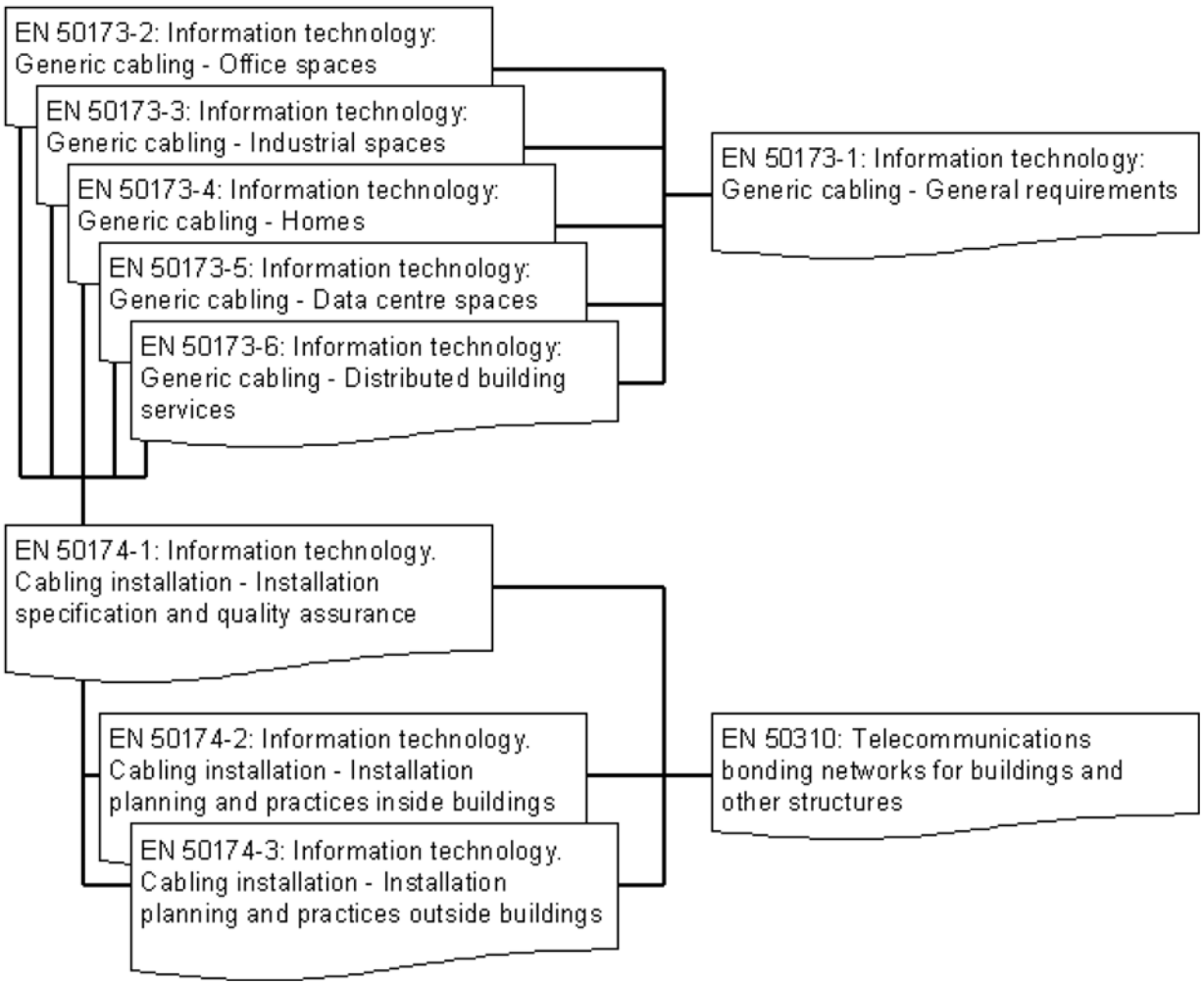

Figure 1 — Schematic relationship between the EN 50173 series and other relevant standards

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	**EN 50173-2** **EN 50173-3** **EN 50173-4** **EN 50173-5** **EN 50173-6** (these ENs reference general requirements of EN 50173-1)	**EN 50174-1** **Planning phase** **EN 50174-2** **EN 50174-3** **EN 50310**	**EN 50174-2** **EN 50174-3** **EN 50310**	**EN 50174-1**

In addition, a number of Technical Reports have been developed to support or extend the application of these standards, including:

— CLC/TR 50173-99-1, *Cabling guidelines in support of 10 GBASE-T*;

— CLC/TR 50173-99-2, *Information technology — Implementation of BCT applications using cabling in accordance with EN 50173-4;*

— CLC/TR 50173-99-3, *Information technology — Generic cabling systems — Part 99-3: Home cabling infrastructures up to 50 m in length to support simultaneous and non simultaneous provision of applications*.

In addition, a number of cabling design standards have been developed using components of EN 50173-1 (e.g. EN 50098 series and EN 50700).

The generic cabling specified by this standard provides users with:

— an application independent system capable of supporting a wide range of applications in a range of installation and operating environments;

— a flexible scheme such that modifications are both easy and economical;

— a multi-vendor supply chain within an open market for cabling components.

In addition this standard provides:

a) relevant industry professionals with guidance allowing the accommodation of cabling before specific requirements are known; i.e. in the initial planning either for construction or refurbishment and for further deployment as the requirements of areas are defined;

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

Applications addressed in this standard include those developed by the Technical Committees of IEC (including the subcommittees of ISO/IEC JTC 1) and study groups of ITU-T. In addition the Fieldbus applications of EN 61784 (series) are included in order to support critical automation, process control and monitoring applications in a range of industrial environments.

Physical layer requirements for the applications listed in EN 50173-1:2018, Annex F, have been analysed to determine their compatibility with the cabling performance specified in this standard and, together with statistics concerning premises geography from different countries and the models described in Clause 4, have been used to develop the requirements for cabling components and to stipulate their arrangement into cabling systems.

As a result, this standard:

a) specifies a structure for generic cabling supporting a wide variety of applications including, but not restricted to, those in EN 50173-1:2018, Annex F;

b) adopts balanced cabling channel and link Classes D, E, E_A, F and F_A, specified in EN 50173-1;

c) adopts optical fibre cabling channel and link requirements specified in EN 50173-1;

d) adopts component requirements, specified in EN 50173-1, and specifies cabling implementations that ensures performance of links and of channels meeting the requirements of a specified group (e.g. Class) of applications.

With appropriate choice of components, generic cabling systems meeting the requirements of this standard are expected to have a life expectancy consistent with other infrastructures within industrial premises.

Figure 2 shows the relationships between the generic cabling standards produced by CLC TC215 and the application specific standards that apply to the industrial premises produced by CLC SC65CX.

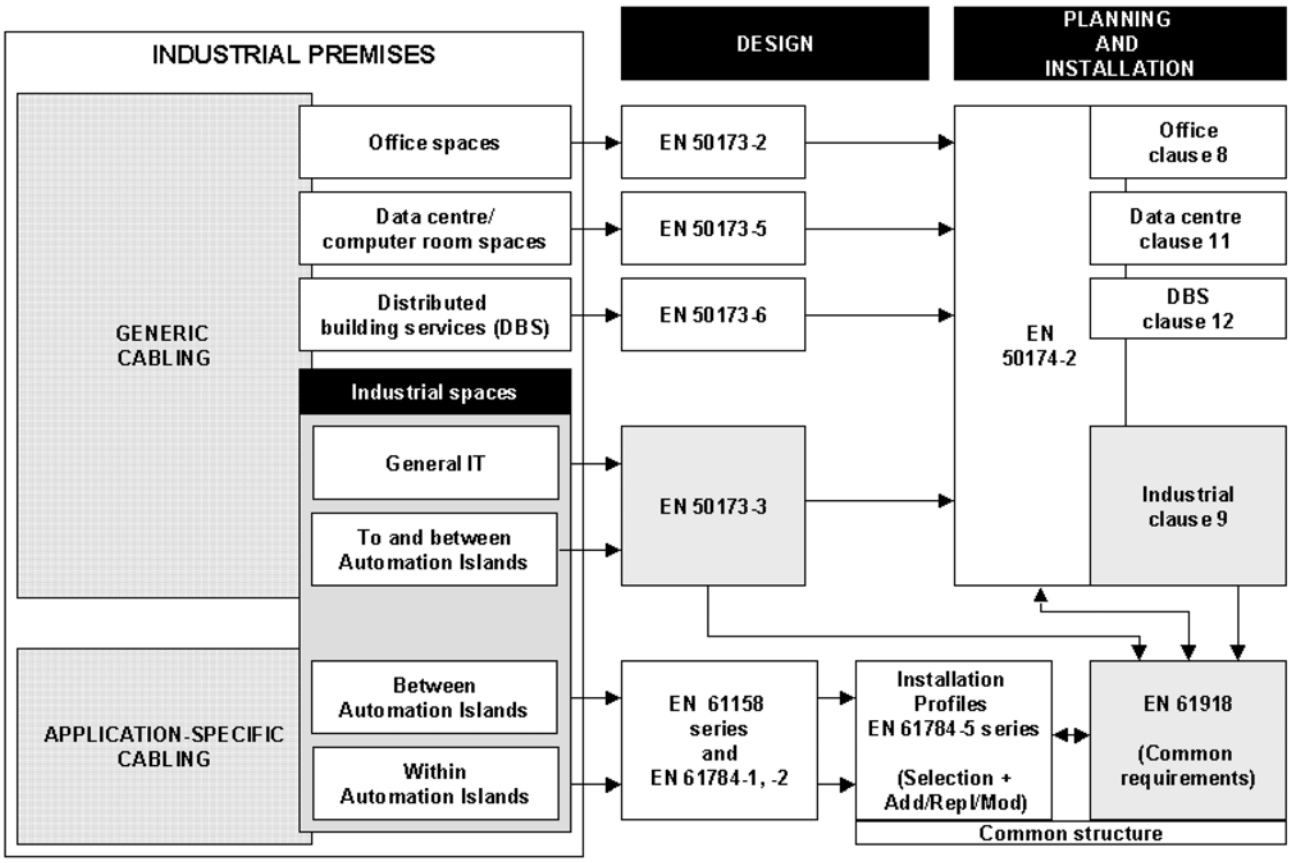

Figure 2 — Relationships between the generic cabling standards produced by CLC TC215 and CLC SC65CX

1 Scope and conformance

1.1 Scope

This standard specifies generic cabling to serve the automation islands in industrial premises, or industrial spaces within other types of building.

It covers balanced cabling and optical fibre cabling.

This standard specifies directly or via reference to EN 50173-1 the:

— structure and minimum configuration for generic cabling within industrial spaces;

— interfaces at the telecommunications outlet (TO);

— performance requirements for cabling links and channels;

— implementation requirements and options;

— performance requirements for cabling components;

— conformance requirements and verification procedures.

This standard has taken into account requirements specified in application standards listed in EN 50173-1.

Safety and electromagnetic compatibility (EMC) requirements are outside the scope of this standard and are covered by other standards and regulations. However, information given in this standard can be of assistance in meeting these standards and regulations.

1.2 Conformance

For a cabling installation to conform to this standard the following applies.

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

b) Channels shall meet the requirements of Clause 5.

This shall be achieved by one of the following:

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

2) attachment of appropriate components to a permanent link or CP link design meeting the prescribed performance class of Annex A. Channel performance shall be ensured where a channel is created by adding more than one cord to either end of a link meeting the requirements of Annex A;

3) for E_1 environments, 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.

c) The interfaces to the cabling at the TO shall conform to the requirements of Clause 8 with respect to mating interfaces and performance.

d) Connecting hardware at other places in the cabling structure shall meet the performance requirements specified in Clause 8 independent of the interface used.

e) The requirements of EN 50174 series standards and EN 50310 shall be met.

f) Local regulations, including those concerning safety and EMC, shall be met.

This standard does not specify which tests and sampling levels should be adopted. Test methods to assess conformance with the channel and link requirements of Clause 5 and Annex A respectively are specified in EN 50173-1. The test parameters to be measured, the sampling levels and the treatment of measured results to be applied for a particular installation shall be defined in the installation specification and quality plans for that installation prepared in accordance with EN 50174-1.

In the absence of the channel, the conformance of the link shall be used to verify conformance with the standard.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50173-1:2018, *Information technology — Generic cabling systems — Part 1: General requirements*

EN 50174-1, *Information technology — Cabling installation — Part 1: Installation specification and quality assurance*

EN 50174-2, *Information technology — Cabling installation — Part 2: Installation planning and practices inside buildings*

EN 50174-3, *Information technology — Cabling installation — Part 3: Installation planning and practices outside buildings*

EN 61076-3-106:2006, *Connectors for electronic equipment — Product requirements — Part 3-106: Rectangular connectors — Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface (IEC 61076-3-106:2006)*

EN 61754-20:2012, *Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces — Part 20: Type LC connector family (IEC 61754 20:2012)*