



# SLOVENSKI STANDARD SIST EN 50288-1:2002

01-september-2002

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SIST HD 608 S1:1998

## Multi-element metallic cables use in analogue and digital communication and control - Part 1: Generic specification

Multi-element metallic cables used in analogue and digital communication and control -- Part 1: Generic specification

Mehradrige metallische Daten- und Kontrollkabel für analoge und digitale Übertragung -- Teil 1: Fachgrundspezifikation

Câbles métalliques à éléments multiples utilisés pour les transmissions et les commandes analogiques et numériques -- Partie 1: Spécification générique

Ta slovenski standard je istoveten z: EN 50288-1:2001

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EUROPEAN STANDARD

**EN 50288-1**

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English version

**Multi-element metallic cables use in analogue and digital  
communication and control  
Part 1: Generic specification**

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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 35, B - 1050 Brussels**

### Foreword

This European Standard was prepared by SC 46XC, Multicore, Multipair and Quad Data communication cables, of Technical Committee CENELEC TC 46X, Communication cables.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50288-1 on 1999-10-01.

This European Standard supersedes HD 608 S1:1992.

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) 2001-09-01
- latest date by which national standards conflicting with the EN have to be withdrawn (dow) 2002-10-01

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EN 60811-1-1	Insulating and sheathing materials of electric cables - Common test methods -- Part 1: General application -- Section 1: Measurement of thickness and overall dimensions - Tests for determining the mechanical properties
EN 60811-1-3	Part 1: General application -- Section 3: Methods for determining the density - Water absorption tests - Shrinkage test
EN 60811-1-4	Part 1: General application -- Section 4: Tests at low temperature
EN 186000-1	Generic Specification: Connector sets for optical fibres and cables Part 1: Requirements, test methods and qualification approval procedures
EN 187000	Generic Specification: Optical fibre cables
HD 402 S2	Standard colours for insulation for low-frequency cables and wires (IEC 60304)
HD 405.3 S1	Tests on electric cables under fire conditions Part 3: Tests on bunched wires or cables (IEC 60332-3)
HD 606.1 S1	Measurement of smoke density of electric cables burning under defined conditions -- Part 1: Test apparatus (IEC 61034-1, modified)
HD 606.2 S1	Part 2: Test procedure and requirements (IEC 61034-2, modified)
IEC 60028	International standard of resistance for copper
IEC 60189-1	Low-frequency cables and wires with PVC insulation and PVC sheath Part 1: General test and measuring methods

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### 3 Definitions

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For the purposes of this European Standard, the definitions given in EN 50290-1-2 and the following apply:

#### 3.1

##### **horizontal cable**

cable suitable for connecting a floor distributor to a telecommunications outlet. It is suitable for horizontal installation in ducts, trunking, suspended floors and ceiling cavities

#### 3.2

##### **building backbone cable**

cable suitable for connecting a building distributor to a floor distributor and may also connect floor distributors in the same building. It is suitable for horizontal installation or vertical installation between floors provided the cable has adequate mechanical strength

NOTE Horizontal cables as defined in 3.1 may also be used as building backbone cables provided that they have adequate mechanical strength and fire performance characteristics.

#### 3.3

##### **work area cable**

a cable connecting the telecommunications outlet to the terminal equipment

### 3.4

#### **patch cord cable**

flexible cable unit or element with connector(s), used to establish connections on a patch panel

NOTE Work area cables, as defined in 3.3, may be used as patch cord cable in any distributor of a generic building wiring system to interconnect with equipment or to cross-connect between cabling systems.

### 3.5

#### **campus backbone cable**

cable suitable for connecting a campus distributor to a building distributor(s). If used outdoors or for direct burial, it shall have adequate protection for its operational environment

### 3.6

#### **equipment cable**

a cable connecting equipment to a distributor

### 3.7

#### **instrumentation cable**

multi-element copper cable suitable for connecting instruments and control systems. It may incorporate screening, armouring and/or moisture or environmental protection layers

## 4 Requirements for cable construction

### 4.1 Conductor

The conductor shall be either solid or stranded annealed copper. The conductivity of the copper shall be in accordance with IEC 60028.

Joints in the drawn conductors of finished cables are not permitted.

The stranded conductor shall consist of wires circular in section and assembled without insulation between them by concentric stranding or bunching.

The individual wires of the solid or stranded conductor may be plain or metal-coated.

### 4.2 Insulation

The insulation material(s) shall meet the requirements of the relevant part or parts of EN 50290-2 or otherwise as detailed in the appropriate sectional specification. Conductor insulation shall be composed of one or more suitable dielectric materials. The insulation may be solid, cellular or composite (e.g. foam skin).

The insulation shall be continuous, having a thickness as uniform as possible. When required, the thickness of the insulation shall be measured in accordance with the method specified in 8.1 of EN 60811-1-1:1995.

The insulation shall be applied to fit closely to the conductor. When required, the stripping properties of the insulation shall be checked in accordance with the method specified in 3.4 of IEC 60189-1:1986.



### 4.3 Cable elements

The cable element is:

- a single insulated wire, or
- a pair consisting of two insulated conductors twisted together and designated wire “a” and wire “b”, or
- a triple consisting of three insulated conductors twisted together and designated wire “a”, wire “b” and wire “c” in order of rotation, or
- a quad consisting of four insulated conductors twisted together and designated wire “a”, wire “c”, wire “b” and wire “d” in order of rotation. Wires “a” and “b” form pair 1 and wires “c” and “d” form pair 2.

The choice of the maximum average lay length of the cable elements in the finished cable shall take into account the transmission requirements, handling performance and identification.

### 4.4 Identification of cabling elements

When required the insulated conductors shall be identified by colours and/or additional ring markings and/or symbols achieved by the use of coloured insulation or by a coloured surface using extrusion, printing or painting. Colours shall be clearly identifiable and shall correspond reasonably with the standard colours shown in HD 402.

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### 4.5 Screening of cabling elements

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When required by the relevant sectional specification the cabling elements shall be screened by one or any combination of the following:

- a metal tape; <https://standards.iteh.ai/catalog/standards/sist/49d4fb19-8250-420d-94a6-c941421f9b81/sist-en-50288-1-2002>
- a metal tape laminated to a plastic tape;
- a plain or coated metal braid;
- a helical wrap of parallel copper wires;
- a semi-conducting layer.

If a drain wire is incorporated it shall be in contact with the main screen element. The drain wire is either solid or stranded made of plain or metal coated copper wire.

Care should be taken when putting dissimilar metals in contact with each other. Coatings or other methods of protection may be necessary to prevent galvanic interaction.

A protective wrapping may be applied under and/or over the screen.

### 4.6 Cable make-up

The cable elements may be laid up in concentric layers or in unit construction. The cable core assembly may be protected by wrappings of non-hygroscopic tape.

NOTE When required by the sectional specification, units shall be identified by the use of coloured or numbered non-hygroscopic binders.