

# Multi-element metallic cables used in analogue and digital communication and control —

## Part 7: Sectional specification for instrumentation and control cables

The European Standard EN 50288-7:2005 has the status of a  
British Standard

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## National foreword

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**Multi-element metallic cables used  
in analogue and digital communication and control  
Part 7: Sectional specification  
for instrumentation and control cables**

Câbles métalliques à éléments multiples  
utilisés pour les transmissions et les  
commandes analogiques et numériques  
Partie 7: Spécification intermédiaire  
pour les câbles d'instrumentation  
et de contrôle

Mehradrige metallische Daten-  
und Kontrollkabel für analoge  
und digitale Übertragung  
Teil 7: Rahmenspezifikation  
für Instrumenten- und Kontrollkabel

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## 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**

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## 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 50288-7 on 2005-04-01.

This Part 7 is to be used in conjunction with EN 50288-1.

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) 2006-04-01
  - latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2008-04-01
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## 1 Scope

This sectional specification covers multi-element cables suitable for connecting instruments and control systems for analogue or digital signal transmission. They may or may not be screened and optionally may incorporate armouring and/or moisture or environmental protection layers.

The cables shall have a mechanically robust construction and electrical transmission handling properties. The electrical, mechanical, transmission and environmental performance characteristics of the cables, related to their reference test methods are detailed.

This sectional specification is to be read in conjunction with EN 50288-1, which contains the essential provisions for its application.

Cables covered by this specification have maximum rated voltages of 90 V, 300 V and 500 V a.c.

These cables shall not be connected directly to mains electricity supply or other low impedance sources. Multi-element cables for use in analogue, digital and control circuits are not designed to be used for power supply.

These cables should be installed in accordance with the applicable local and national regulations.

Cables intended to have limited circuit integrity in a fire are not covered by this specification, but they are however under consideration for future editions.

There may be occasions when cables are required to have higher operating temperature ratings than those provided by using materials specified by the EN 50290 series. Suitable alternative materials are under consideration.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>
EN 10218-1	-	Steel wire and wire products – General – Part 1: Test methods
EN 10244-2	-	Steel wire and wire products – Non-ferrous metallic coatings on steel wire – Part 2: Zinc or zinc alloy coatings
EN 10257-1	-	Zinc or zinc alloy coated non-alloy steel wire for armouring either power cables or telecommunications cables – Part 1: Land cables
EN 50289	Series	Communication cables - Specifications for test methods
EN 50290	Series	Communication cables
EN 50307	-	Lead and lead alloy sheath and sleeves of electric cables

EN 60708	-	Low-frequency cables with polyolefin insulation and moisture barrier polyolefin sheath (IEC 60708)
EN 60811-1-1	-	Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-1: General application – Measurement of thickness and overall dimensions – Tests for determining the mechanical properties (IEC 60811-1-1)
HD 383 S2	-	Conductors of insulated cables First supplement: Guide to the dimensional limits of circular conductors (IEC 60228 + IEC 60228A, mod.)
HD 446.3 S1	-	Thermocouples - Part 3: Extension and compensating cables – tolerances and identification system (IEC 60584-3, mod.)
IEC 60189-2	-	Low-frequency cables and wires with PVC insulation and PVC sheath - Part 2: Cables in pairs, triples, quads and quintuples for inside installations

### **3 Definitions, symbols and abbreviations**

For the purposes of this European Standard the definitions of EN 50288-1 apply in addition to the following:

#### **3.1 foil**

a metal tape laminated to a plastic tape

### **4 Cable construction**

#### **4.1 Conductor**

Except for thermocouple extension and compensating cables, with conductors as described in Annex D, conductors shall be solid, stranded or flexible plain or metal coated copper in accordance with Class 1, 2 or 5 of HD 383 in the range of 0,5 mm<sup>2</sup> to 2,5 mm<sup>2</sup>. For multi-core cables the maximum conductor resistance shall be as HD 383, and for finished multi-pair, multi-triple and multi-quad cables the maximum resistance of HD 383 shall be increased by 2 %.

Conductor joints shall be as EN 50288-1.

Stranded and flexible conductors shall consist of wires circular in cross section assembled, without insulation between them, by concentric stranding or by bunching.

When the installed length of cable results in a high conductor resistance, larger conductor sizes can be used.