

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Connectors for electronic equipment –  
Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors for  
data transmission with frequencies up to 600 MHz**

**Connecteurs pour équipements électroniques –  
Partie 7-7: Spécification particulière pour les fiches et les embases blindées à  
8 voies pour la transmission de données à des fréquences jusqu'à 600 MHz**



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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE  
CODE PRIX

U

ICS 31.220.10

ISBN 978-2-88910-967-8

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## CONNECTORS FOR ELECTRONIC EQUIPMENT –

**Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors for data transmission with frequencies up to 600 MHz**

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International Standard IEC 60603-7-7 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This third edition of IEC 60603-7-7 cancels and replaces the second edition issued in 2006, and constitutes a technical revision.

The main technical changes with regard to the previous edition are as follows:

- Removal of test methods that are now referenced to IEC 60512-26-100.
- Addition of TCL and TCTL requirements.
- Removal of the electrical, mechanical, dimensional, environmental conditioning tests by reference to IEC 60603-7.

The text of this standard is based on the following documents:

FDIS	Report on voting
48B/2152/FDIS	48B/2187/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 60603 series, under the general title *Connectors for electronic equipment*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,
- replaced by a revised edition, or
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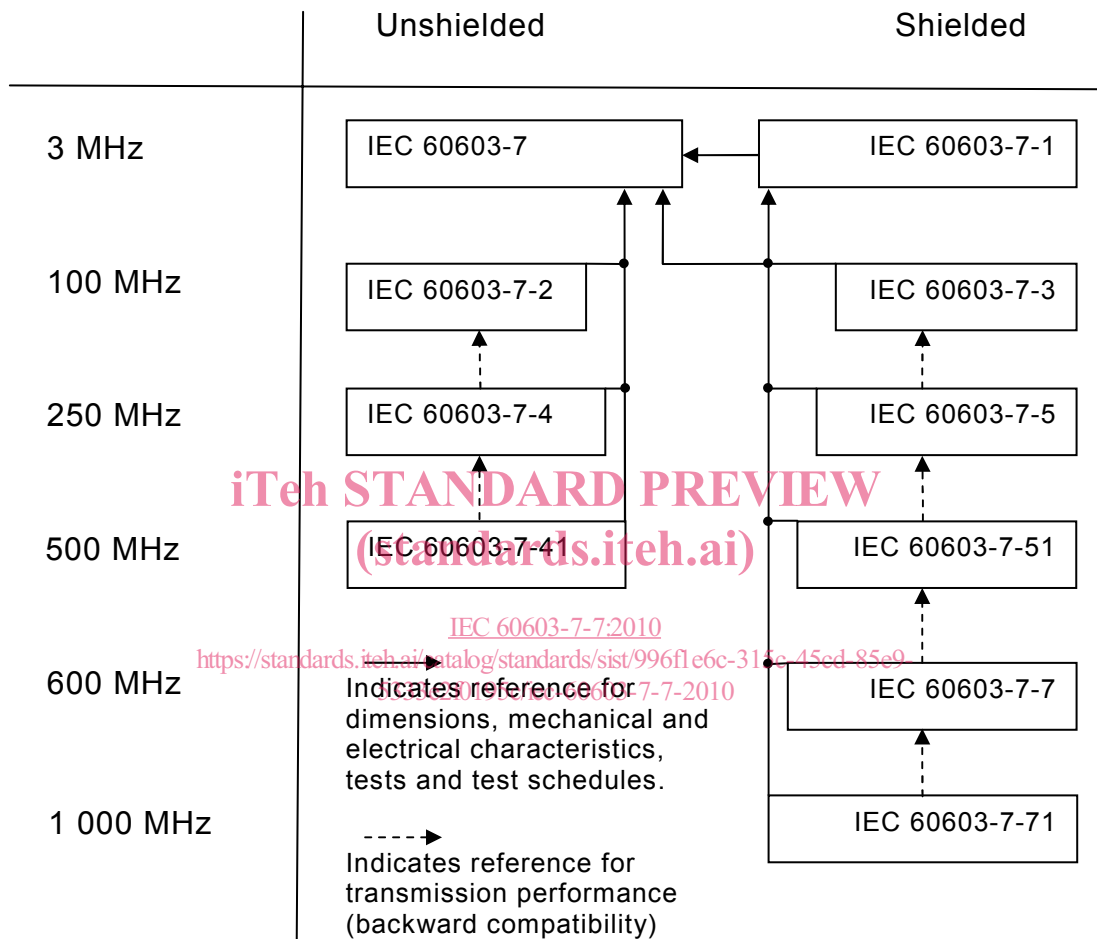
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### INTRODUCTION

IEC 60603-7 is the base specification of the whole series. Subsequent specifications do not duplicate information given in the base document, but list only additional requirements. For complete specification regarding a component of a higher number document all lower numbered documents shall be considered as well. The following diagram shows the interrelation of the documents:





## CONNECTORS FOR ELECTRONIC EQUIPMENT –

### Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors for data transmission with frequencies up to 600 MHz

## 1 General

### 1.1 Scope

This part of IEC 60603 covers 8-way, shielded, free and fixed connectors, references dimensional, mechanical, electrical and environmental characteristics and tests in IEC 60603-7 and IEC 60603-7-1, and specifies electrical transmission requirements for frequencies up to 600 MHz. These connectors are typically used as category 7 connectors in class F cabling systems specified in ISO/IEC 11801.

These connectors are intermateable and interoperable with other IEC 60603-7 series connectors as defined in Clause 2 of IEC 60603-7-1,

### 1.2 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.

IEC 60512-1-100: *Connectors for electronic equipment – Part 1-100: General – Applicable publications*

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IEC 60512-2-1, *Connectors for electronic equipment – Tests and measurements – Part 2-1: Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method*

IEC 60512-25-9, *Connectors for electrical equipment – Tests and measurements – Part 25-9: Signal integrity tests – Test 25i: Alien crosstalk*

IEC 60512-27-100, *Connectors for electronic equipment – Tests and measurements – Part 27-100: Signal integrity tests up to 500 MHz on IEC 60603-7 series connectors – Tests 27a to 27g<sup>1</sup>*

IEC 60603-7:2008, *Connectors for electronic equipment – Part 7: Detail specification for 8-way, unshielded, free and fixed connectors*

IEC 60603-7-1:2009, *Connectors for electronic equipment – Part 7: Detail specification for 8-way, shielded, free and fixed connectors*

IEC 60603-7-71, *Connectors for electronic equipment – Part 7-51: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 1 000 MHz<sup>2</sup>*

IEC 61156 (all parts): *Multi-core and symmetrical pair/quad cables for digital communications*

<sup>1</sup> To be published.

<sup>2</sup> To be published.

## 2 Terms and definitions

For the purposes of this document, the terms and definitions given in Clause 2 of IEC 60603-7 and Clause 2 of IEC 60603-7-1 apply as well as the following.

### 2.1

#### **backward compatibility**

the backward compatibility requirement ensures that a free or fixed connector which is in compliance with this standard, mated with a fixed or free connector respectively in compliance with any lower frequency IEC 60603-7 series connector, fully complies with the requirements of the lower frequency IEC 60603-7 series connector

## 3 Common features and isometric view

See Clause 3 of IEC 60603-7 for dimensions, views and requirements applicable to all IEC 60603-7 connectors. See Clause 3 of IEC 60603-7-1 for dimensions, views and requirements applicable to all shielded IEC 60603-7 connectors.

Dimensions, views and requirements applicable to all IEC 60603-7-7 connectors are given herein for fixed connectors and free connectors.

### 3.1 General

The shape of the connectors may deviate from those given in the following drawings as long as the specified dimensions are not influenced.

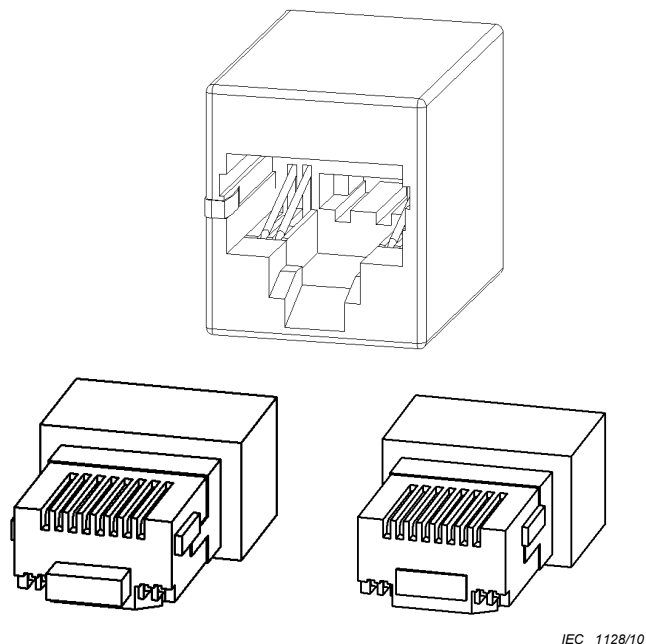
Dimensions are given in millimetres.

[IEC 60603-7-7:2010](#)

Drawings are shown in first angle projection unless specifically stated otherwise in the figure.

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### 3.2 Isometric view



NOTE The free connector protrusions move together, between the extended position and the retracted position, to activate the switch within the free connector see 4.1 .

**Figure 1 – Isometric view, example of fixed and free connector, free connector shown with both switch positions**

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### 3.3 Common features

These connectors have common features concerning the arrangement of the contacts, mating information, and the coupling device.

These connectors have the same common features as the IEC 60603-7 series connectors.

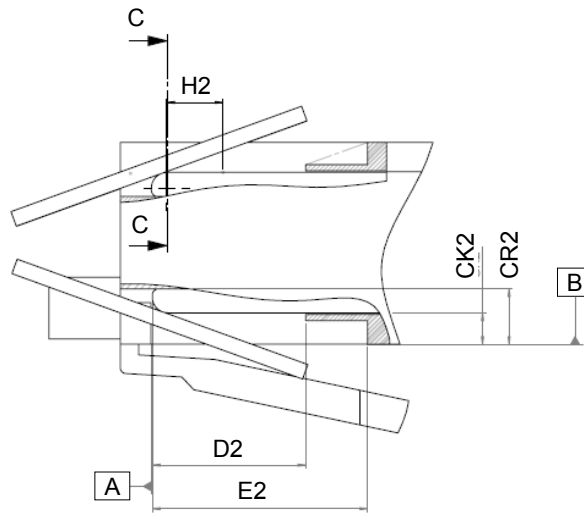
Mating alignment is controlled by a vertical and horizontal reference position and the centering of the coupling device (latch).

### 3.4 Engagement (mating) information

Common dimensions are given in Figure 2 and in Table 1.

Care shall be taken that contacts avoid interference with the plastic of the free connector.

The mating information shown can only be achieved with a free connector with a cable attached.



IEC 1129/10

Figure 2 – Contact interface dimensions with terminated free connector

Table 1 – Physical interface, contacts interface

Letter	Maximum	Minimum
	mm	mm
D2		2,79
E2	IEC 60603-7-7:2010	4,11
H2 <sup>a</sup>		0,38
CK2	0,60	0,50
CR2		1,70
<sup>a</sup> H2: Burrs shall not project above top of contact in this area, since it may be a contact area.		

### 3.5 Fixed connectors

Common dimensions are given in Figure 3 and Figure 4 and in Table 2.

All internal corners in the connector cavity shall have a maximum radius of 0,38 mm unless otherwise specified.

Contacts are shown at rest. Contacts shall always be contained inside guide slots. Contacts shall move freely within their guide slots.

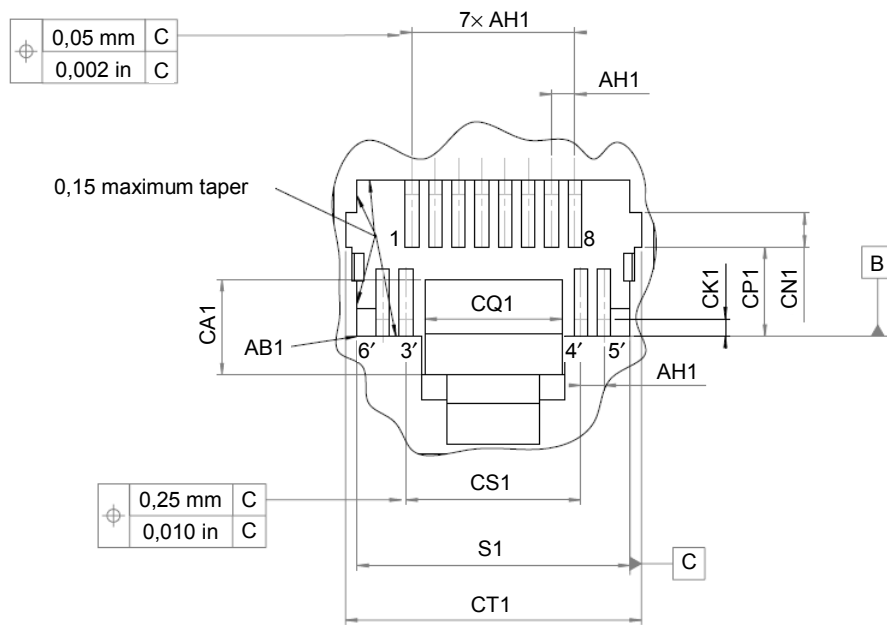


Figure 3 – Physical interface, fixed connector, front view

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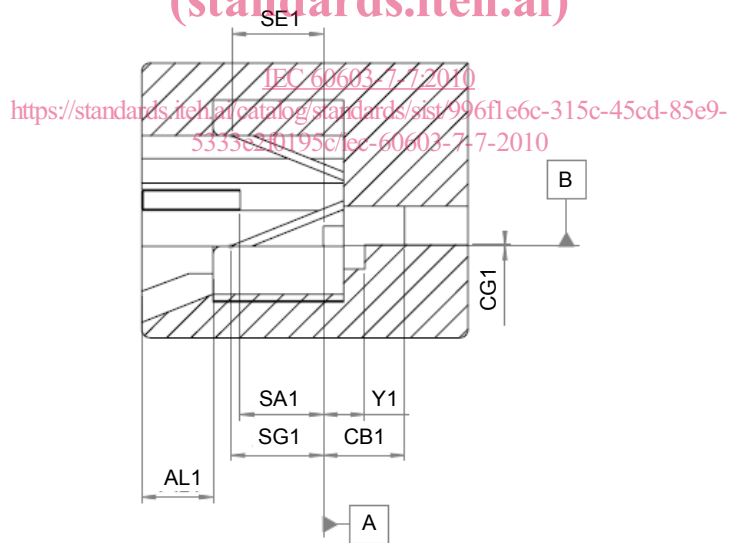


Figure 4 – Physical interface, fixed connector, side view

**Table 2 – Fixed connector common dimensions**

Letter	Maximum	Minimum	Nominal
	mm	mm	mm
S1	12,04	11,84	11,94
Y1		2,34	
AA1 <sup>a</sup>	1,24		
AB1	0,38		
AH1 <sup>f</sup>			1,02
AL1 <sup>b</sup>		1,40	
CA1	2,30	2,20	
CB1		3,95	
CG1	0,10		
CK1 <sup>a</sup>		0,65	
CN1	1,40	1,30	
CP1	5,05	4,95	
CQ1	6,00	5,80	
CS1			7,66
CT1	13,0	12,9	
SA1		5,31	
SE1 <sup>c</sup>	5,80		
SG1 <sup>d, e</sup>	5,80		

<sup>a</sup> AA1: Preferred male free connector stop.

<sup>b</sup> AL1: Front surface need not be planar or coincident with the surface below the locking device as long as insertion, latching and unlatching of free connectors is not inhibited. Projections beyond AL1 dimension shall not prevent finger access to the free connector locking (coupling) device.

<sup>c</sup> SE1: Maximum forward extension of contacts below surface AC1, to avoid contact with shields of free connectors. Applies in the mated state.

<sup>d</sup> SG1: Maximum forward extension of contacts above surface reference plane B, to avoid contact with shields of free connectors. Applies in the mated state.

<sup>e</sup> SG1: When this dimension is greater than 2,5 mm, and the fixed connector is mated with a lower frequency 60603-7 series free connector, then "additional switch function" (see Figure 12) should be utilised. The clearance requirement between signal conductors 6',3',4',5' of the fixed connector and the screen of a IEC 60603-7-1,2,3,4,5 free connector is maintained when this dimension is 2,5 mm or less while the "basic switch function" (see Figure 11) is utilised. SG1 is typically 0,0 mm in the mated state with a IEC 60603-7-1,2,3,4,5 free connector.

<sup>f</sup> AH1: True position.

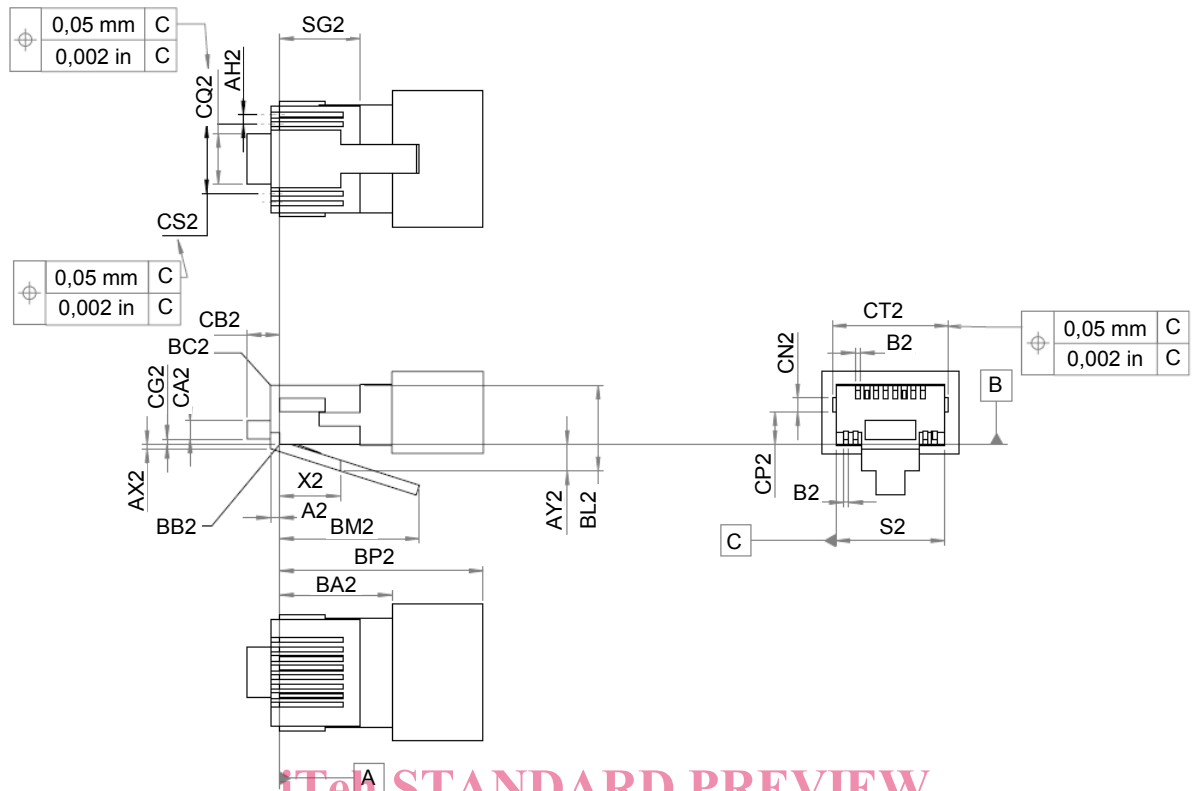
NOTE 1 Care should be taken that all screen contacts of the fixed connector always make contact with the screen contacts of the free connector in worst case condition to ensure reliable performance.

NOTE 2 All internal corners in the connector cavity should be 0,38 mm radius maximum unless otherwise specified.

### 3.6 Free connectors

Common dimensions are given in Figure 5 and in Table 3.

Full radius permitted on all contact slots.



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Figure 5 – Physical interface, free connector

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