

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces –  
Part 6: Type MU connector family

Dispositifs d'interconnexion et composants passifs à fibres optiques –  
Interfaces de connecteurs pour fibres optiques –  
Partie 6: Famille de connecteurs de type MU





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# INTERNATIONAL STANDARD

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Part 6: Type MU connector family**

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## CONTENTS

FOREWORD.....	5
1 Scope .....	7
2 Normative references .....	7
3 Description .....	7
4 Interfaces .....	7
Annex A (informative) Configuration of type MU-A connector set.....	74
Annex B (informative) Configuration of type MU-B connector set.....	75
Annex C (informative) Floating 2-port connector plug.....	76
Bibliography .....	77
Figure 1 – Simplex plug connector interface – Push/pull .....	11
Figure 2 – 4,5 mm duplex plug connector interface – Push/pull .....	14
Figure 3 – Simplex adaptor connector interface – Push/pull .....	17
Figure 4 – Gauge pin for resilient alignment sleeve.....	19
Figure 5 – 4,5 mm duplex adaptor connector interface – Push/pull.....	20
Figure 6 – 8-port adaptor connector interface – Push/pull.....	23
Figure 7 – Plug connector interface – For printed board housings .....	25
Figure 8 – Sleeve holder interface.....	27
Figure 9 – 2-port backplane housing interface .....	30
Figure 10 – 2-port printed board housing interface.....	34
Figure 11 – 8-port backplane housing interface.....	37
Figure 12 – 8-port printed board housing interface.....	41
Figure 13 – Simplex active device receptacle interface .....	43
Figure 14 – Detail of the mechanical stop for rigid bore alignment feature .....	45
Figure 15 – 4,5 mm duplex active device receptacle interface .....	46
Figure 16 – Detail of the mechanical stop for rigid bore alignment feature .....	48
Figure 17 – 6,25 mm duplex active device receptacle interface .....	49
Figure 18 – Detail of the mechanical stop for rigid bore alignment feature .....	51
Figure 19 – Plug connector interface for printed board housings, APC .....	53
Figure 20 – Simplex plug connector interface – Push/pull, APC.....	56
Figure 21 – 4,5 mm duplex plug connector interface – Push/pull, APC .....	59
Figure 22 – 6,25 mm duplex plug connector interface – Push/pull, APC .....	62
Figure 23 – 6,25 mm duplex plug connector interface – Push/pull .....	64
Figure 24 – 6,25 mm duplex adaptor connector interface .....	67
Figure 25 – Horizontal duplex plug connector interface – Push/pull.....	69
Figure 26 – Horizontal duplex adaptor connector interface.....	72
Figure A.1 – Configuration of type MU-A connector set.....	74
Figure B.1 – Configuration of type MU-B connector set.....	75
Figure C.1 – Floating 2-port connector plug.....	76
Table 1 – MU-A connector set.....	9

Table 2 – MU-B connector set .....	9
Table 3 – MU receptacles .....	10
Table 4 – Dimensions of the simplex plug connector interface.....	12
Table 5 – Grade.....	13
Table 6 – Dimensions of the 4,5 mm duplex plug connector interface.....	15
Table 7 – Grade.....	16
Table 8 – Dimensions of the simplex adaptor connector interface .....	18
Table 9 – Grade.....	18
Table 10 – Gauge pin dimensions .....	19
Table 11 – Dimensions of the 4,5 mm duplex adaptor connector interface.....	21
Table 12 – Grade.....	22
Table 13 – Dimensions of the 8-port adaptor connector interface .....	24
Table 14 – Grade.....	24
Table 15 – Dimensions of the plug connector interface .....	26
Table 16 – Grade.....	26
Table 17 – Dimensions of the sleeve holder interface .....	28
Table 18 – Grade.....	28
Table 19 – Dimensions of the 2-port backplane housing interface) .....	31
Table 20 – Grade.....	32
Table 21 – Dimensions of the 2-port printed board housing interface.....	35
Table 22 – Dimensions of the 8-port backplane housing interface .....	38
Table 23 – Grade.....	39
Table 24 – Dimensions of the 8-port printed board housing interface.....	42
Table 25 – Dimensions of the simplex active device receptacle interface .....	44
Table 26 – Alignment feature grade.....	45
Table 27 – Dimensions of the mechanical stop for rigid bore alignment feature .....	45
Table 28 – Mechanical stop feature grade .....	46
Table 29 – Dimensions of the 4,5 mm duplex active device receptacle interface.....	47
Table 30 – Alignment feature grade.....	48
Table 31 – Dimensions of the mechanical stop for rigid bore alignment feature .....	48
Table 32 – Mechanical stop feature grade .....	49
Table 33 – Dimensions of the 6,25 mm duplex active device receptacle interface.....	50
Table 34 – Alignment feature grade.....	51
Table 35 – Dimensions of the mechanical stop for rigid bore alignment feature .....	51
Table 36 – Mechanical stop feature grade .....	52
Table 37 – Dimensions of the plug connector interface for printed board housings, APC.....	54
Table 38 – Dimensions of the simplex plug connector interfaces, APC .....	57
Table 39 – Dimensions of the 4,5 mm duplex plug connector interfaces, APC .....	60
Table 40 – Dimensions of the 6,25 mm duplex plug connector interface, APC .....	63
Table 41 – Dimensions of the 6,25 mm duplex plug connector interface .....	65
Table 42 – Grade.....	66
Table 43 – Dimensions of the 6,25 mm duplex adaptor connector interface.....	68
Table 44 – Grade.....	68

Table 45 – Dimensions of the horizontal duplex plug connector interface ..... 70  
Table 46 – Grade..... 71  
Table 47 – Dimensions of the horizontal duplex adaptor connector interface ..... 73  
Table 48 – Grade..... 73  
Table C.1 – Dimensions table for 2-port connector plug ..... 76

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**FIBRE OPTIC INTERCONNECTING  
DEVICES AND PASSIVE COMPONENTS –  
FIBRE OPTIC CONNECTOR INTERFACES –****Part 6: Type MU connector family**

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International Standard IEC 61754-6 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 1997 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) addition of standard references;
- b) revision of intermateability.

This bilingual version (2016-05) corresponds to the monolingual English version, published in 2013-07.

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

FDIS	Report on voting
86B/3627/FDIS	86B/3662/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.

The French version of this standard has not been voted upon.

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

A list of all parts of the IEC 61754 series, under the general title *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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# FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CONNECTOR INTERFACES –

## Part 6: Type MU connector family

### 1 Scope

This part of IEC 61754 defines the standard interface dimensions for type MU family of connectors.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61755-3-1, *Fibre optic connector optical interfaces – Part 3-1: Optical interface, 2,5 mm and 1,25 mm diameter cylindrical full zirconia PC ferrule, single mode fibre*

IEC 61755-3-2, *Fibre optic connector optical interfaces – Part 3-2: Optical interface, 2,5 mm and 1,25 mm diameter cylindrical full zirconia ferrules for 8 degrees angled-PC single mode fibres*

[IEC 61754-6:2013](https://standards.iteh.ai/catalog/standards/sist/114e943f-1b2d-4413-bc9a-5e75b16e5ad9/iec-61754-6-2013)

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### 3 Description

The parent connector for type MU connector family is a miniature single-position plug which is characterized by a cylindrical, spring-loaded butting ferrule(s) of a 1,25 mm typical diameter, and a push-pull coupling mechanism. The optical alignment mechanism of the connectors is of a rigid hole or a resilient sleeve style.

This part 6 type MU connector family defines the standard interface dimensions of active device receptacles for the type MU connectors. The receptacles are used to retain the connector plugs and mechanically maintain the optical datum target of the plugs at a defined position within the receptacle housings.

### 4 Interfaces

This standard contains the following standard interfaces.

- Interface IEC 61754-6-1: Simplex plug connector interface – Push/pull (See Figure 1)
- Interface IEC 61754-6-2: 4,5 mm duplex plug connector interface – Push/pull (See Figure 2)
- Interface IEC 61754-6-3: Simplex adaptor connector interface – Push/pull (See Figure 3)
- Interface IEC 61754-6-4: 4,5 mm duplex adaptor connector interface – Push/pull (see Figure 5)
- Interface IEC 61754-6-5: 8-port adaptor connector interface – Push/pull (See Figure 6)
- Interface IEC 61754-6-6: Plug connector interface – for printed board housings (See Figure 7)
- Interface IEC 61754-6-7: Sleeve holder interface – for printed board housings (See Figure 8)
- Interface IEC 61754-6-8: 2-port backplane housing interface – Self-retentive (See Figure 9)

- Interface IEC 61754-6-9: 2-port printed board housing interface – Self-retentive (See Figure 10)
- Interface IEC 61754-6-10: 8-port backplane housing interface – Self-retentive (See Figure 11)
- Interface IEC 61754-6-11: 8-port printed board housing interface – Self-retentive (See Figure 12)
- Interface IEC 61754-6-12: Simplex active device receptacle interface – for PC connector plug (See Figure 13)
- Interface IEC 61754-6-13: 4,5 mm duplex active device receptacle interface – for PC connector plug (See Figure 15)
- Interface IEC 61754-6-14: 6,25 mm duplex active device receptacle interface – for PC connector plug (See Figure 17)
- Interface IEC 61754-6-15: Plug connector interface – for printed board housings, APC 8 degrees (See Figure 19)
- Interface IEC 61754-6-16: Simplex plug connector interface – Push/pull, APC 8 degrees (See Figure 20)
- Interface IEC 61754-6-17: 4,5 mm duplex plug connector interface – Push/pull, APC 8 degrees (See Figure 21)
- Interface IEC 61754-6-18: 6,25 mm duplex plug connector interface – Push/pull, APC 8 degrees (See Figure 22)
- Interface IEC 61754-6-19: 6,25 mm duplex plug connector interface – Push/pull (See Figure 23)
- Interface IEC 61754-6-20: 6,25 mm duplex adaptor connector interface – Push/pull (See Figure 24)
- Interface IEC 61754-6-21: Horizontal duplex plug connector interface – Push/pull (See Figure 25)
- Interface IEC 61754-6-22: Horizontal duplex adaptor connector interface – Push/pull (See Figure 26)

The plugs of interfaces IEC 61754-6-1, IEC 61754-6-2, IEC 61754-6-6, IEC 61754-6-19 and IEC 61754-6-21 have a ferrule(s) with a spherically polished endface and realize physical contact (PC). The plugs of interfaces IEC 61754-6-15, IEC 61754-6-16, IEC 61754-6-17 and IEC 61754-6-18 have a ferrule(s) with a spherically polished angled endface and realize angled PC (APC).

The type MU connector family comprises two types of connector set: MU-A connector set (see Annex A) and MU-B connector set (see Annex B). The MU-A connector set is a plug/adaptor configuration with a push-pull coupling mechanism. The MU-B connector set is a plug-in type back-plane connector configuration which is plug/backplane and printed board housings/plug for printed board housing/sleeve holder configuration and is equipped with a self-retentive mechanism.

The type MU-A connector set consists of simplex and duplex plugs, and simplex, duplex and 8-port adaptors. The plugs are common to the backplane connector housings of the type MU-B connector set.

The type MU-B connector set consists of 2-port and 8-port backplane and printed board connector housings, simplex and duplex plugs, plug for printed board connector housings, and sleeve holder. The plug for printed board connector housing is used as a jack together with the sleeve holder. The jack is attached into the printed board connector housing.

TableS 1, 2 and 3 show the intermateability of the standard interfaces. It shall be noted however that in order to obtain the designated optical performance, any plug shall be connected to a counterpart plug whose ferrule end is polished to the same condition.

**Table 1 – MU-A connector set**

Plugs	Adaptors				
	61754-6-3	61754-6-4	61754-6-5	61754-6-20	61754- 6-22
61754-6-1	Mate	Mate	Mate	Mate	Mate
61754-6-2	Not mate	Mate	Mate	Not mate	Not mate
61754-6-16	Mate	Mate	Mate	Mate	Mate
61754- 6-17	Not Mate	Mate	Mate	Not Mate	Not mate
61754-6-18	Not mate	Not mate	Not mate	Mate	Not mate
61754-6-19	Not mate	Not mate	Not mate	Mate	Not mate
61754-6-21	Not mate	Not mate	Not mate	Not mate	Mate

**Table 2 – MU-B connector set**

Plugs	Connector housings			
	Backplane connector housing		Printed board connector housing	
	61754-6-8	61754-6-10	61754-6-9	61754-6-11
61754-6-1	Mate	Mate	Not mate	Not mate
61754-6-2	Mate	Mate	Not mate	Not mate
61754-6-6 with 61754-6-7	Not mate	Not mate	Mate	Mate
61754-6-15 with 61754- 6-7	Not mate	Not mate	Mate	Mate
61754-6-16	Mate	Mate	Not mate	Not mate
61754-6-17	Mate	Mate	Not mate	Not mate
61754-6-18	Not mate	Not mate	Not mate	Not mate
61754-6-19	Not mate	Not mate	Not mate	Not mate
61754-6-21	Not mate	Not mate	Not mate	Not mate

**Table 3 – MU receptacles**

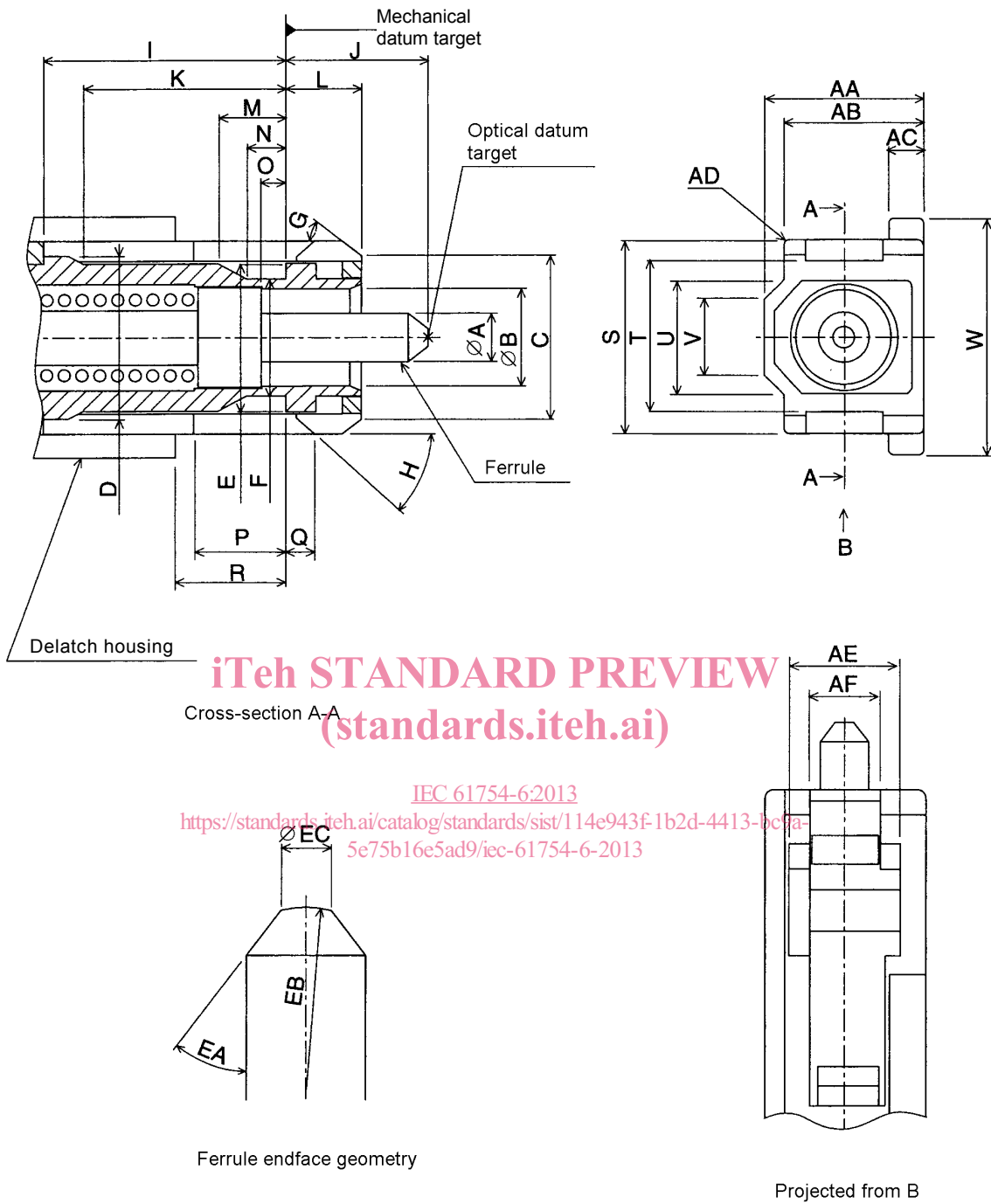
Plugs	Receptacles		
	61754-6-12	61754-6-13	61754-6-14
61754-6-1	Mate	Mate	Mate
61754-6-2	Not mate	Mate	Not mate
61754-6-16	Not mate	Not mate	Not mate
61754-6-17	Not mate	Not mate	Not mate
61754-6-18	Not mate	Not mate	Not mate
61754-6-19	Not mate	Not mate	Mate
61754-6-21	Not mate	Not mate	Not mate

Figure 1 is an example of a simplex plug connector interface. Table 4 gives dimensions of the simplex plug connector interface and Table 5 gives the grade of the simplex plug connector interface.

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Figure 1 – Simplex plug connector interface – Push/pull

**Table 4 – Dimensions of the simplex plug connector interface**

Reference	Dimensions		Remarks
	Minimum	Maximum	
A		1,249 5 mm	<sup>a</sup> , see Table 5
B	2,6 mm	2,7 mm	
C	4,6 mm	4,8 mm	
D	4,65 mm	4,75 mm	
E	4,3 mm	4,4 mm	
F	3,3 mm	3,4 mm	
G	25°	35°	Angle
H	25°	35°	Angle
I	6,55 mm	–	<sup>b</sup>
J	4,2 mm	4,5 mm	<sup>c</sup>
K	5,5 mm	–	
L	2,4 mm	2,5 mm	
M	1,5 mm	–	
N	0,6 mm	–	
O	0,5 mm	–	
P	2,6 mm	–	<sup>b</sup>
Q	1 mm	1,1 mm	<sup>b</sup> and <sup>d</sup>
R	2,65 mm	2,9 mm	<sup>b</sup>
S	5,5 mm	5,6 mm	
T	4,3 mm	4,5 mm	
U	–	3,7 mm	
V	–	2,4 mm	
W	6,5 mm	6,6 mm	
AA	4,3 mm	4,4 mm	
AB	3,85 mm	3,95 mm	
AC	0,7 mm	0,9 mm	
AD	0,2 mm	–	Radius
AE	3 mm	–	
AF	2,2 mm	2,3 mm	
EA	32.5°	45°	Angle, <sup>e</sup>
EB	5 mm	30 mm	Radius, <sup>f</sup>
EC	0,45 mm	0,73 mm	Diameter

<sup>a</sup> A chamfer or radius is allowed to a maximum depth of 0,5 mm from the ferrule endface.

<sup>b</sup> The delatch housing shall be movable toward the right and the left directions. These dimensions are given when the coupling sleeve is moved in its most right-direction position.

<sup>c</sup> The dimension J is given for the plug endface when not mated. It is noticed that the ferrule is movable by a certain axial compression force with direct contacting endfaces, and therefore the dimension J is variable. Ferrule compression force shall be 5,5 N to 6,5 N when the position of the optical datum target from the mechanical datum target is moved in the range of 3,9 mm to 4,1 mm. In addition, the dimension J shall become less than 3,25 mm with a relatively large axial compression force.

<sup>d</sup> The right-side position of Q shall become the left-side position to the mechanical datum target when the coupling sleeve is moved to its most left-direction position.

<sup>e</sup> 40° to 45° are desirable to minimize debris for backplane connectors.

<sup>f</sup> Dome eccentricity of the spherically polished ferrule endface shall be less than 70 μm.

**Table 5 – Grade**

Grade	Dimensions mm		Remarks
	A		
	Minimum	Maximum	
A	–	–	a
B	–	–	a
C	–	–	a
D	–	–	a
Am	1,248 3	1,249 5	b
Bm	1.246 7	1,249 5	b
<sup>a</sup> See IEC 61755-3-1 <sup>b</sup> See IEC 61755-6-1.			

Figure 2 is an example of a 4,5 mm duplex plug connector interface. Table 6 gives dimensions of the 4,5 mm duplex plug connector interface e and Table 7 gives the grade of the 4,5 mm duplex plug connector interface.

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