

INTERNATIONAL STANDARD

**Connectors for electrical and electronic equipment - Product requirements -
Part 2-118: Circular connectors - Detail specification for shielded and
unshielded, free and fixed connectors with bayonet-locking size B12, B17, B23
and B40, for power, signal and data transmission**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Connectors for electrical and electronic equipment -
Product requirements -
Part 2-118: Circular connectors - Detail specification for free and fixed
connectors with bayonet-locking size B12, B17, B23 and B40, for power,
signal and data transmission**

FOREWORD

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The text of this International Standard is based on the following documents:

Draft	Report on voting
48B/3196/FDIS	48B/3205/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61076 series, published under the general title *Connectors for electrical and electronic equipment - Product requirements*, can be found on the IEC website.

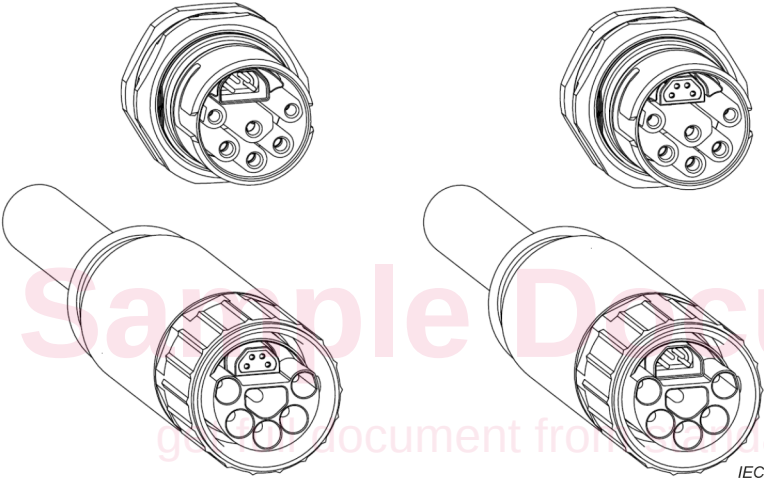
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INTRODUCTION

IEC SC 48B – Electrical connectors Specification available from: IEC General secretariat or from the addresses shown on the inside cover.	IEC 61076-2-118 ED1
DETAIL SPECIFICATION in accordance with IEC 61076-1 ¹	
 IEC	Circular connectors With bayonet-locking Size B12, B17, B23 and B40, for power, signal and data transmission B12: 2-way power, 2 or 4-way data; B17: 2 to 5-way power, 0 or 2-way signal, 2 or 4-way data; B23: 4 or 5-way power, 0 or 2-way signal, 2 or 4-way data; B40: 5-way power, 2 or 4-way data Female (power and signal) + male (data) and male (power and signal) + female (data) connectors Female (power and signal) + female (data) and male (power and signal) + male (data) connectors Male and female contacts Rewirable Non-rewirable
	Free connectors, straight and angled Fixed connectors, flange mounting and single hole mounting

¹ Under preparation. Stage at the time of publication: IEC CDV 61076-1:2026.

1 Scope

This part of IEC 61076 specifies circular connectors with bayonet locking size B12, B17, B23 and B40, typically used for power, signal and data transmissions in industrial applications. These connectors consist of fixed and free connectors either rewirable or non-rewirable.

NOTE B indicates that the connector is equipped with bayonet locking, while 12, 17, 23, 40 are the approximate dimensions in millimetres of the contact carrier diameter of these circular connectors.

Power contacts of male connectors are round contacts with Ø 1 mm, Ø 1,5 mm, Ø 1,8 mm, Ø 2,25 mm and Ø 4 mm, with current ratings up to 64 A per pole and rated voltage of 50 V, 300 V or 600 V AC/DC. Power contact groups are classified by type and identified throughout this document as "P" followed by two digits "01" through "09" (see 4.3, Table 1).

Signal contacts of male connectors are round contacts with Ø 1 mm and Ø 1,8 mm, with current ratings up to 20 A per pole and rated voltage of 50 V AC/DC. Signal contact groups are classified by type and identified throughout this document as "S" followed by "0", "1", or "2" (see 4.3, Table 2).

Male data contacts are round with Ø 0,8 mm and Ø 1 mm, with current ratings up to 4 A and rated voltage of 50 V AC/DC. Data modules are classified by type and identified throughout this document as "D" followed by "1", or "2" (see 4.3, Table 3). D1 modules provide data transmission with frequencies from 1 MHz to 100 MHz; D2 modules provide data transmission with frequencies from 0,1 MHz to 600 MHz.

Besides the size of their bayonet locking (B12, B17, B23 or B40), connectors according to this document can be identified by data module (D) and complementing power (P) and signal (S) contact groups and optionally by number of poles, and finally by their application.

These connectors are designated for two main target applications, which differ as follows:

- Application A is for data transmission with power over data.
- Application B is for data transmission without power over data.

Connectors with power, signal and data contacts of the same gender are intended to also transmit power over the data contacts (application A), while connectors with data contacts not of the same gender of power and signal contacts are not intended to transmit power over the data contacts (application B).

The codings provided by this document prevent the mating to any other connector with similarly sized interfaces covered by this document.

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.

IEC 60068-1, *Environmental testing - Part 1: General and guidance*

IEC 60352 (all parts), *Solderless connections*

IEC 60512-1, *Connectors for electrical and electronic equipment - Tests and measurements - Part 1: Generic specification*

IEC 60512-1-1, *Connectors for electronic equipment - Tests and measurements - Part 1-1: General examination - Test 1a: Visual examination*

IEC 60512-1-2, *Connectors for electronic equipment - Tests and measurements - Part 1-2: General examination - Test 1b: Examination of dimension and mass*

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 60512-2-5, *Connectors for electronic equipment - Tests and measurements - Part 2-5: Electrical continuity and contact resistance tests - Test 2e: Contact disturbance*

IEC 60512-3-1, *Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests - Test 3a: Insulation resistance*

IEC 60512-4-1, *Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof*

IEC 60512-5-1, *Connectors for electronic equipment - Tests and measurements - Part 5-1: Current-carrying capacity tests - Test 5a: Temperature rise*

IEC 60512-6-3, *Connectors for electronic equipment - Tests and measurements - Part 6-3: Dynamic stress tests - Test 6c: Shock*

IEC 60512-6-4, *Connectors for electronic equipment - Tests and measurements - Part 6-4: Dynamic stress tests - Test 6d: Vibration (sinusoidal)*

IEC 60512-9-1, *Connectors for electronic equipment - Tests and measurements - Part 9-1: Endurance tests - Test 9a: Mechanical operation*

IEC 60512-9-2, *Connectors for electronic equipment - Tests and measurements - Part 9-2: Endurance tests - Test 9b: Electrical load and temperature*

IEC 60512-11-1, *Connectors for electrical and electronic equipment - Tests and measurements - Part 11-1: Climatic tests - Test 11a - Climatic sequence*

IEC 60512-11-4, *Connectors for electronic equipment - Tests and measurements - Part 11-4: Climatic tests - Test 11d: Rapid change of temperature*

IEC 60512-11-9, *Connectors for electronic equipment - Tests and measurements - Part 11-9: Climatic tests - Test 11i: Dry heat*

IEC 60512-11-10, *Connectors for electronic equipment - Tests and measurements - Part 11-10: Climatic tests - Test 11j: Cold*

IEC 60512-11-12, *Connectors for electronic equipment - Tests and measurements - Part 11-12: Climatic tests - Test 11m: Damp heat, cyclic*

IEC 60512-13-2, *Connectors for electronic equipment - Tests and measurements - Part 13-2: Mechanical operation tests - Test 13b: Insertion and withdrawal forces*

IEC 60512-13-5, *Connectors for electronic equipment - Tests and measurements - Part 13-5: Mechanical operation tests - Test 13e: Polarizing and keying method*

IEC 60512-16-5, *Connectors for electronic equipment - Tests and measurements - Part 16-5: Mechanical tests on contacts and terminations - Test 16e: Gauge retention force (resilient contacts)*

IEC 60512-28-100, *Connectors for electrical and electronic equipment - Tests and measurements - Part 28-100: Signal integrity tests up to 2 000 MHz - Tests 28a to 28g*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD1:1999

IEC 60529:1989/AMD2:2013

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests*

IEC 60998-2-1, *Connecting devices for low-voltage circuits for household and similar purposes - Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

IEC 60999-1, *Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)*

IEC 61076-1², *Connectors for electronic equipment - Product requirements - Part 1: Generic specification*

IEC 61984:2008, *Connectors - Safety requirements and tests*

ISO 21920-1, *Geometrical product specifications (GPS) - Surface texture: Profile - Part 1: Indication of surface texture*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61076-1, IEC 61076-2, IEC 60512-1, IEC 61984 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

PE

protective conductor

conductor provided for purposes of safety, for example protection against electric shock

Note 1 to entry: In an electrical installation, the conductor identified PE is normally also considered as protective earthing conductor.

[SOURCE: IEC 60050-581:2008, 581-27-26]

² Under preparation. Stage at the time of publication: IEC CDV 61076-1:2026.

3.2**mounting orientation**

circular mounting position of the connector in relation to the polarization of the mating interface

Note 1 to entry: Where the free connector has an angled cable entry (as opposed to a straight cable entry), the angle between the cable entry direction and the polarization keyway should be specified.

4 Technical information**4.1 Systems of levels****4.1.1 Performance levels**

Performance levels for these connectors are specified in 6.6.1, Table 73.

4.1.2 Compatibility levels

Connectors according to this document are intermateable according to IEC 61076-1.

4.2 Classification into climatic categories

Classification into climatic categories is specified in 6.3, Table 59.

4.3 Current-carrying capacity

The current rating of each connector part (power, signal, data) shall be as specified in Table 1, Table 2 and Table 3, respectively.

All contact groups and all contacts in each group, except the PE where present, shall be concurrently loaded, each at its rated current.

NOTE The rated current is defined for an ambient temperature of 40 °C.

Table 1 – Ratings of connector power part

Type	Number of contacts	Function	Male contact Ø	Rated voltage AC or DC	Rated current	
			mm	V	A	
P01	2-pin	2	1	50	8	
P02	3-pin	2 + PE	1,8	300	20	
P03	3-pin	2 + PE	1,5	600	16	
P04	4-pin	3 + PE			14	
P05	5-pin	4 + PE			12	
P06	4-pin	3 + PE			26	
P07	5-pin	4 + PE	2,25			64
P08	4-pin	3 + PE				
P09	5-pin	4 + PE	4			
NOTE 1 The current-carrying capacity depends on the terminated wire size and other influences. Values of rated current for each connector part (power, signal, data) are referred to the maximum wire size for which each contact group is declared suitable by the manufacturer.						
NOTE 2 Reduced rating of P06 and P08 due to the connector signal part.						

Table 2 – Ratings of connector signal part

Type	Number of contacts	Male contact Ø mm	Rated voltage AC or DC V	Rated current A
S0	No signal contacts	-	-	-
S1	2-pin	1,8	50	20
S2	2-pin	1	50	8

NOTE The current-carrying capacity depends on the terminated wire size and other influences. Values of rated current for each connector part (power, signal, data) are referred to the maximum wire size for which each contact group is declared suitable by the manufacturer.

Table 3 – Ratings of connector data part (data module)

Type	Number of contacts	Male contact Ø mm	Rated voltage AC or DC V	Rated current A
D1	4-pin	0,8	50	4
D2	2-pin	1	50	8

NOTE The current-carrying capacity depends on the terminated wire size and other influences. Values of rated current for each connector part (power, signal, data) are referred to the maximum wire size for which each contact group is declared suitable by the manufacturer.

NOTE The rated current is defined for an ambient temperature of 40 °C.

4.4 Type designation

Type designation is defined as follows:

- the first three digits denotes the connector size (B12, B17, B23 or B40);
- the 4th and 5th digit denotes the power contact group type (see 4.3 Table 1);
- the 6th digit denotes the signal contact group type (see 4.3 Table 2);
- the 7th digit denotes the data module type (see 4.3 Table 3);
- the 8th digit denotes the application of the connector (A or B as described in 1 and Table 5).

See Table 4 for details.