IEC/PAS 61076-2-107

Edition 1.0 2007-12

PUBLICLY AVAILABLE SPECIFICATION

PRE-STANDARD

Connectors for electronic equipment – Product requirements – Part 2-107: Circular connectors – Detail specification for circular hybrid connectors M12 with electrical and fibre-optic contacts with screw-locking

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE V

ICS 31.220.10

ISBN 2-8318-9501-4

CONTENTS

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CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2-107: Circular connectors – Detail specification for circular hybrid connectors M12 with electrical and fibre-optic contacts with screw-locking

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IEC PAS 61076-2-107 edition 1 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment, in cooperation with subcommittee 86B: Fibre optic interconnecting devices and passive components, of technical committee 86: Fibre optics.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

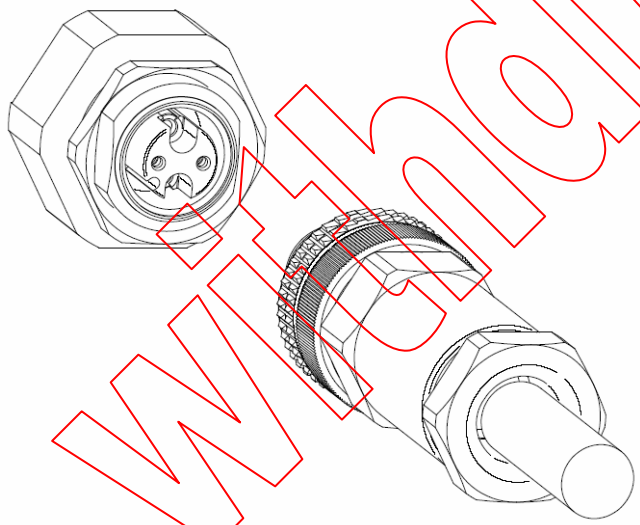
Draft PAS	Report on voting
48B/1790B/NP	48B/1828/RVN

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned will transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of three years starting from 2007-12. The validity may be extended for a single three-year period, following which it shall be revised to become another type of normative document or shall be withdrawn.

CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 2-107: Circular connectors – Detail specification for circular hybrid connectors M12 with electrical and fibre-optic contacts with screw-locking

IEC SC 48B – Connectors Specification available from: IEC General secretariat or from the addresses shown on the inside cover.	IEC/PAS 61076-2-107
ELECTRONIC COMPONENTS DETAIL SPECIFICATION in accordance with IEC 61076-1	
	Circular hybrid connectors M12-4: with 2 way electrical connections with ø 1,0 male contacts and with 2 way fibre optic connections with ø 1,25 ceramic LC ferrule
	Free cable connectors Straight connectors Fixed connectors Flange mounting Single hole mounting Adapters Feed through

1 General information

This Publicly Available Specification (PAS) has been prepared by SC 48B to support and to be referenced in IEC 61784-5-3:2007.

This PAS is subject to further development of a joint Project Team of SC 48B and SC 86B to publish an International Standard IS.

1.1 Scope

This PAS describes circular M12-connectors typically used for industrial process measurement and control. These connectors consist of fixed and free connectors with screw-locking as well as adaptors.

The connectors are suitable to connect two optic fibres and two electrical wires intended for power transmission to the optionally integrated transmitter and receiver, not specified in this PAS.

Male connectors have round electrical contacts Ø 1,0 mm and cylindrical ceramic optic contacts Ø 1,25 mm according to IEC 61754-20 Type LC for

All-silica optic fibre cables
Single-Mode fibre 9/125 µm
Multi-Mode fibre 50/125 µm or 62,5/125 µm

NOTE M12 is the dimension of the thread of the screw locking mechanism of these circular connectors.

1.2 Recommended method of termination

The electrical contact terminations shall be of the following types: screw, crimp, insulation piercing, insulation displacement, press-in or solder.

The optical contact terminations shall be defined between manufacturer and user. Preferred termination method for the international standard should be developed between SC 48B and SC 86B.

1.3 Ratings and characteristics

1.3.1 Electrical contacts

Rated voltage: 250 V d.c. or a.c.

Rated current: 4 A

Insulation resistance: minimum 10^8 Ω

Climatic category: see 4.1, Table 6

Contact spacing: see Clause 3

1.3.2 Optic contacts

Dimensions for ferrule and end face:

– for mono mode fibre, according to Grade 1 of IEC 61754-20
– for multi mode fibre, according to Grade 2 of IEC 61754-20

Insertion loss: Under development between SC 48B and SC 86B

Return loss: Under development between SC 48B and SC 86B

Climatic category : see 4.1, Table 6

Contact spacing : not applicable

1.4 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 60050-581, *International Electrotechnical Vocabulary – Electromechanical components for electronic equipment*

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1 (1992)

IEC 60352 (all parts), *Solderless connections*

IEC 60512 (all parts), *Connectors for electronic equipment – Tests and measurements*

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

IEC 60529:2001, *Degrees of protection provided by enclosures (IP code)*

IEC 60664-1, *Insulation coordination for equipment within low-voltage 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 60999-2, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units*

IEC 61076-1:2006, *Connectors for electronic equipment – Product requirements – Part 1: Generic specification*

IEC 61754-20:2002, *Fibre optic connector interfaces – Part 20: Type LC connector family*

ISO 1302, *Geometrical Product Specification (GPS) – Indication of surface texture in technical product documentation*