

INTERNATIONAL STANDARD

**Fibre optic interconnecting devices and passive components – Fibre optic
connector interfaces –
Part 24-11: Type SC-RJ connectors with protective housings based on
IEC 61076-3-117**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2009 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00



IEC 61754-24-11

Edition 1.0 2009-06

INTERNATIONAL STANDARD

**Fibre optic interconnecting devices and passive components – Fibre optic
connector interfaces –
Part 24-11: Type SC-RJ connectors with protective housings based on
IEC 61076-3-117**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE



ICS 33.180.20

ISBN 2-8318-1046-7

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	5
3 Description	5
3.1 General	5
3.2 Functional requirements	6
3.3 Environmental, optical and mechanical requirements	6
4 Interface	6
4.1 Free connector part	6
4.2 Active device receptacle part	8
4.3 Mounting information for the active device receptacle.....	9
Bibliography	11
Figure 1 – Free connector part (male)	7
Figure 2 – Active device receptacle	8
Figure 3 – Mounting information of the active device receptacle.....	9
Table 1 – Intermateability between plugs, adaptors and receptacles	6
Table 2 – Dimensions of the free connector.....	8
Table 3 – Dimensions of the active device receptacle	9
Table 4 – Dimensions for mounting the active device receptacle	10

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 24-11: Type SC-RJ connectors with protective housings based on IEC 61076-3-117

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61754-24-11 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86B/2836/FDIS	86B/2877/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 the parts in 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.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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

Part 24-11: Type SC-RJ connectors with protective housings based on IEC 61076-3-117

1 Scope

This part of IEC 61754 serves as an interface standard and describes an SC-RJ fibre optic connector equipped with a protective housing for upgrading the existing interface described in IEC 61754-24 to IP65 and IP67 ratings according to IEC 60529, for use in harsh industrial environments.

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 thereferenced document (including any amendments) applies.

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

IEC 61076-3-117, *Connectors for electronic equipment – Product requirements – Part 3-117: Rectangular connectors – Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface – Variant 14 related to IEC 61076-3-106 – Push-pull coupling*

IEC 61753-1, *Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards*

IEC 61754-4, *Fibre optic connector interfaces – Part 4: Type SC connector family*

IEC 61754-24, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 24: Type SC-RJ connector family*¹

IEC 61755 (all parts), *Fibre optical connector optical interfaces*

3 Description

3.1 General

IEC 61754-24-11, which is an interface standard, based on IEC 61754-24 describes protective housing for fibre optic connectors for use in harsh industrial environments.

The fully assembled connector incorporates fixed and free connectors which are fully compliant with IEC 61754-24. The mechanical design of the interior allows the mounting of connectors according to IEC 61754-24.

¹ To be published.

This standard is applied the same optical fibres listed in IEC 61754-24 with their various fibre capacities, types and designs.

The intermateability between plugs, adaptors and receptacles are given below in Table 1.

Table 1 – Intermateability between plugs, adaptors and receptacles

Plugs	Adaptors/active device receptacles interfaces		
	61754-24-11	61754-24 (duplex)	61754-4 (simplex)
61754-24-11	Mate (with sealing)	Not mate	Not mate
61754-24 (duplex)	Mate (without sealing)	Mate	Not mate
61754-4 (simplex)	Mate (without sealing)	Mate	Mate

3.2 Functional requirements

The general function of the protective housing according to this standard is to provide:

- a ruggedised housing for fibre optic connectors;
- a cable management system for the external input and output cables;
- a mateable connection between two or more optical fibres, where an optical connector is enclosed by a protective housing;
- to ensure the correct functioning of the fibre optic connection under the specified environmental and mechanical conditions.

3.3 Environmental, optical and mechanical requirements

The optical performance requirements are given in the IEC 61755 series.

Performance tests according to IEC 61753-1 shall be carried out for the chosen performance category. If not covered in the chosen performance category, a test according to IEC 60529 for an IP67 grade shall additionally be performed.

4 Interface

4.1 Free connector part

Figure 1 and Table 2 specify the outline and dimensions of the free connector.

NOTE Figure 1 uses scheme 1 from ISO 5456-2.

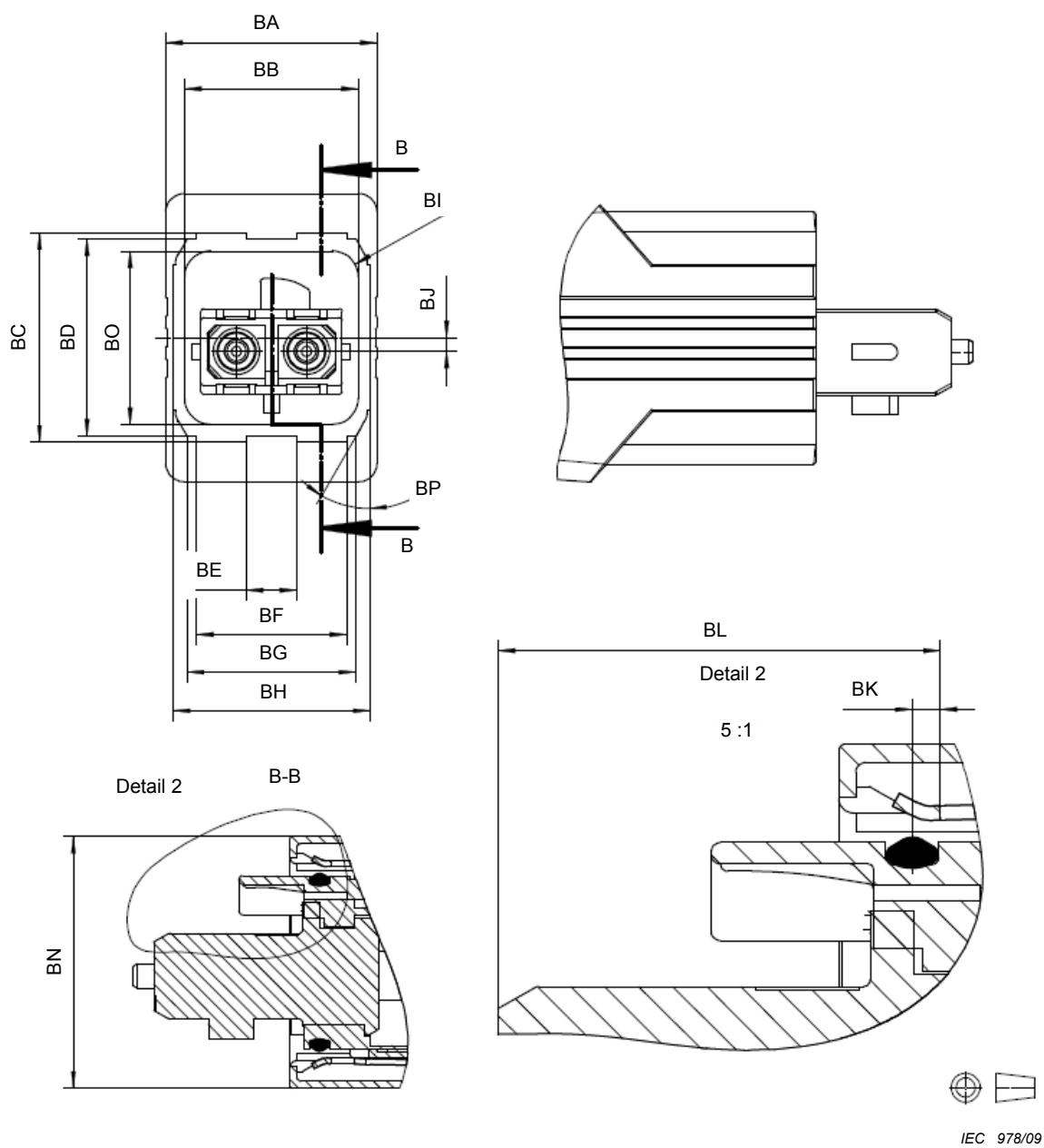


Figure 1 – Free connector part (male)

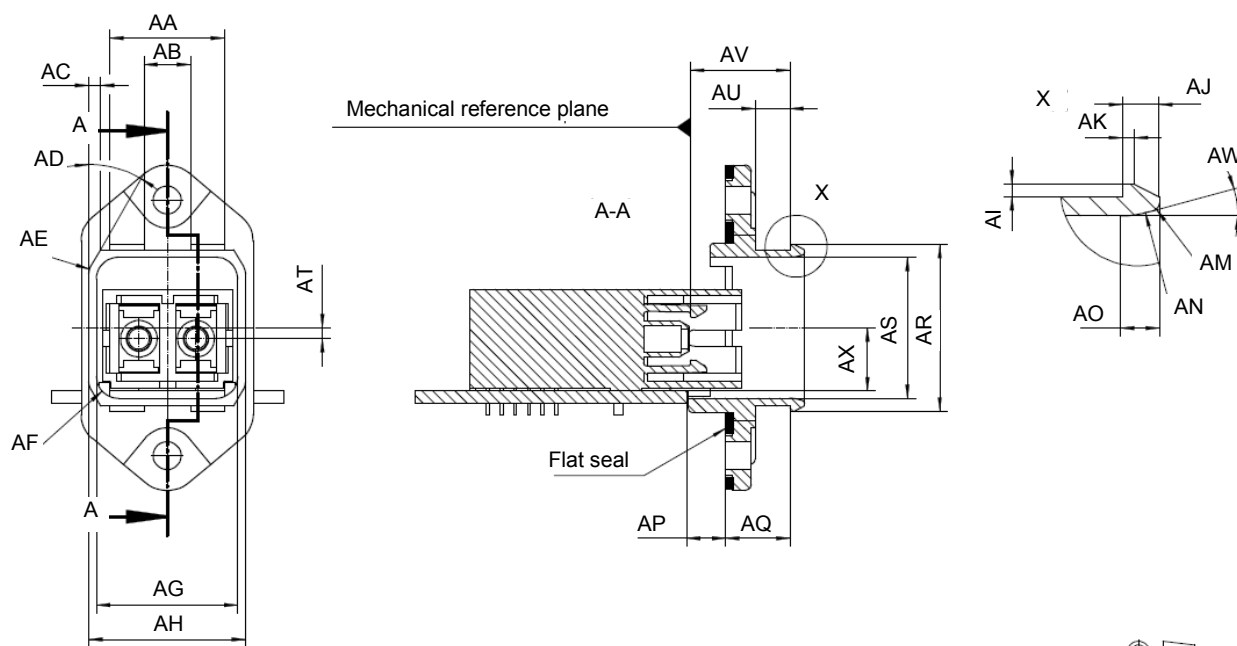
Table 2 – Dimensions of the free connector

Reference	Maximum	Minimum	Nominal
BA	22,8 mm		
BB	18,09 mm	18,03 mm	18,06 mm
BC	21,9 mm	21,7 mm	21,8 mm
BD	20,55 mm	20,45 mm	20,5 mm
BE	5,75 mm	5,45 mm	5,6 mm
BF	15,35 mm	15,05 mm	15,2 mm
BG	17,8 mm	17,4 mm	17,6 mm
BH	20,6 mm	20,4 mm	20,5 mm
BI	2,73 mm	2,67 mm	R 2,7 mm
BJ	1,47 mm	1,37 mm	1,42 mm
BK		1,2 mm	
BL	18,5 mm	18,4 mm	18,45 mm
BN	27,4 mm		
BO	18,09 mm	18,03 mm	18,06 mm
BP			30°

4.2 Active device receptacle part

Figure 2 and Table 3 specify the outline and dimensions of the active device receptacle.

NOTE Figure 2 uses scheme 1 from ISO 5456-2.



IEC 979/09

Figure 2 – Active device receptacle

Table 3 – Dimensions of the active device receptacle

Reference	Maximum	Minimum	Nominal
AA	14,85 mm	14,75 mm	14,8 mm
AB	6,05 mm	5,95 mm	6 mm
AC	1,7 mm	1,3 mm	1,5 mm
AD	31°	29°	30°
AE	2,1 mm	1,9 mm	R 2 mm
AF	2,83 mm	2,77 mm	R 2,8 mm
AG	18,23 mm	18,17 mm	18,2 mm
AH	20,3 mm	20,1 mm	20,2 mm
AI	0,7 mm	0,6 mm	0,65 mm
AJ	1,95 mm	1,85 mm	1,9 mm
AK	0,65 mm	0,55 mm	0,6 mm
AM			R 0,4 mm
AN	5,1 mm	4,9 mm	R 5 mm
AO	2,1 mm	1,9 mm	2 mm
AP		5 mm	
AQ	8,35 mm	8,25 mm	8,3 mm
AR	21,7 mm	21,45 mm	21,5 mm
AS	18,23 mm	18,17 mm	18,2 mm
AT	1,47 mm	1,37 mm	1,42 mm
AU	13 mm	12,8 mm	12,8 mm
AV	7,1 mm	6,9 mm	7 mm
AW	16 mm	14 mm	15°
AX	8,2 mm	8,1 mm	8,15 mm

4.3 Mounting information for the active device receptacle

Following Figure 3 and Table 4 specify the outline and dimensions of the cutout for the active device receptacle.

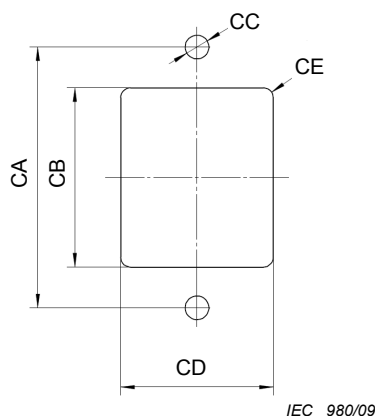
**Figure 3 – Mounting information of the active device receptacle**

Table 4 – Dimensions for mounting the active device receptacle

Reference	Maximum mm	Minimum mm	Nominal mm
CA	33,1	32,9	33
CB	22,9	22,5	22,7
CC			M 3
CD	19,3	19,1	19,2
CE	R 1,25		

Bibliography

IEC 60603-7(all parts), *Connectors for electronic equipment*

IEC 61076-3-106, *Connectors for electronic equipment – Product requirements – Part 3-106: Rectangular connectors – Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface*

IEC 61754-1, *Fibre optic connector interfaces – Part 1: General and guidance*

IEC 61755-1, *Fibre optic connector optical interfaces – Part 1: Optical interfaces for single mode non - dispersion shifted fibres – General and guidance*

ISO 5456-2: *Technical drawings – Projection methods – Part 2: Orthographic representations*

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

3, rue de Varembé
PO Box 131
CH-1211 Geneva 20
Switzerland

Tel: + 41 22 919 02 11
Fax: + 41 22 919 03 00
info@iec.ch
www.iec.ch