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## REDLINE VERSION

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### **Fiberoptik – Anslutningsdon och passiva komponenter – Cirkulatorer – Artspecifikation**

*Fibre optic interconnecting devices and passive components –  
Fibre optic circulators –  
Generic specification*

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IEC 62077

Edition 4.0 2022-08  
REDLINE VERSION

# INTERNATIONAL STANDARD



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**Fibre optic interconnecting devices and passive components – Fibre optic circulators – Generic specification**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ICS 33.180.20

ISBN 978-2-8322-5470-7

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**FIBRE OPTIC INTERCONNECTING  
DEVICES AND PASSIVE COMPONENTS –  
FIBRE OPTIC CIRCULATORS – GENERIC SPECIFICATION****FOREWORD**

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**This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 62077:2015. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.**

IEC 62077 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2015. This edition constitutes a technical revision.

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

- a) harmonization of terms and definitions with IEC TS 62627-09;
- b) change of Clause 4 regarding requirements.

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

Draft	Report on voting
86B/4624/FDIS	86B/4645/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

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

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# FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CIRCULATORS – GENERIC SPECIFICATION

## 1 Scope

This document applies to circulators used in the field of fibre optics bearing all of the following features:

- they are non-reciprocal optical devices, in which each port is either an optical fibre or fibre optic connector;
- they are passive devices in accordance with the categorization and definition provided in IEC TS 62538;
- they have three or more ports for directionally transmitting optical power.

An example of optical circulator technology and application is described in Annex A and Annex B, respectively.

## 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 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050-731, *International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication*, available at <http://www.electropedia.org>

IEC 60617, *Graphical symbols for diagrams*, available at <http://std.iec.ch/iec60617>

~~IEC 60695-11-5, *Fire hazard testing – Part 11-5: Test flames – Needle flame test method – Apparatus, confirmatory test arrangement and guidance*~~

IEC 60825 (all parts), *Safety of laser products*

IEC 61300 (all parts), *Fibre optic interconnecting devices and passive components – Basic tests and measurement procedures*

IEC TR 61930, *Fibre optic graphical symbology*

IEC TS 62627-09, *Fibre optic interconnecting devices and passive components – Vocabulary for passive optical devices*

ISO 129-1, *Technical ~~drawings~~ product documentation (TPD) – ~~Indication~~ Presentation of dimensions and tolerances – Part 1: General principles*

ISO 286-1, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 1: Basis of tolerances, deviations and fits*

ISO 1101, *Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

~~ISO 8601, *Data elements and interchange formats – Information interchange – Representation of dates and times*~~

ISO 8601-1, *Date and time – Representations for information interchange – Part 1: Basic rules*

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## Fiberoptik – Anslutningsdon och passiva komponenter – Cirkulatorer – Artspecifikation

*Fibre optic interconnecting devices and passive components –  
Fibre optic circulators –  
Generic specification*

Som svensk standard gäller europastandarden EN IEC 62077:2022. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 62077:2022.

### Nationellt förord

Europastandarden EN IEC 62077:2022

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62077, Fourth edition, 2022 - Fibre optic interconnecting devices and passive components - Fibre optic circulators - Generic specification**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 62077, utg 3:2016, gäller ej fr o m 2023-09-14.

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ICS 33.180.20

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Denna standard är fastställd av SEK Svensk Elstandard,  
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English Version

Fibre optic interconnecting devices and passive components -  
Fibre optic circulators - Generic specification  
(IEC 62077:2022)

Dispositifs d'interconnexion et composants passifs  
fibroniques - Circulateurs fibroniques - Spécification  
générique  
(IEC 62077:2022)

Lichtwellenleiter - Verbindungselemente und passive  
Bauteile - Lichtwellenleiterzirkulatoren -  
Fachgrundspezifikation  
(IEC 62077:2022)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

## **European foreword**

The text of document 86B/4624/FDIS, future edition 4 of IEC 62077, prepared by SC 86B "Fibre optic interconnecting devices and passive components" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62077:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-06-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-09-14

This document supersedes EN 62077:2016 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

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The text of the International Standard IEC 62077:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068 (series) NOTE Harmonized as EN 60068 (series)

IEC 60695-11-5 NOTE Harmonized as EN 60695-11-5

IEC 60793-2-50 NOTE Harmonized as EN IEC 60793-2-50

IEC 61753 (series) NOTE Harmonized as EN 61753 (series)

IEC 61753-091-02 NOTE Harmonized as EN IEC 61753-091-02

IEC 61754 (series) NOTE Harmonized as EN 61754 (series)

IEC 61754-4 NOTE Harmonized as EN IEC 61754-4

IEC 62005 (series) NOTE Harmonized as EN IEC 62005 (series)

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60027	series	Letter symbols to be used in electrical technology	EN 60027	series
IEC 60050-731	-	International Electrotechnical Vocabulary - Chapter 731: Optical fibre communication	-	-
IEC 60617	-	Graphical symbols for diagrams	-	-
IEC 60825	series	Safety of laser products	EN 60825	series
IEC 61300	series	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures	EN IEC 61300	series
IEC/TR 61930	-	Fibre optic graphical symbology	-	-
IEC/TS 62627-09	-	Fibre optic interconnecting devices and passive components - Vocabulary for passive optical devices	-	-
ISO 129-1	-	Technical product documentation (TPD) – Presentation of dimensions and tolerances - Part 1: General principles	EN ISO 129-1	-
ISO 286-1	-	Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes - Part 1: Basis of tolerances, deviations and fits	EN ISO 286-1	-
ISO 1101	-	Geometrical product specifications (GPS) - Geometrical tolerancing - Tolerances of form, orientation, location and run-out	EN ISO 1101	-
ISO 8601-1	-	Date and time - Representations for information interchange - Part 1: Basic rules	-	-

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Fibre optic interconnecting devices and passive components – Fibre optic circulators – Generic specification**

**Dispositifs d'interconnexion et composants passifs fibroniques – Circulateurs fibroniques – Spécification générique**

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## **FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CIRCULATORS – GENERIC SPECIFICATION**

### FOREWORD

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ISO 286-1, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 1: Basis of tolerances, deviations and fits*

ISO 1101, *Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

ISO 8601-1, *Date and time – Representations for information interchange – Part 1: Basic rules*