SLOVENSKI STANDARD

SIST EN 60876-1:2015

01-april-2015

Nadomešča:

SIST EN 60876-1:2012

Optični spojni elementi in pasivne komponente - Optična prostorska stikala - 1. del: Rodovna specifikacija (IEC 60876-1:2014)

Fibre optic interconnecting devices and passive components - Fibre optic spatial switches - Part 1: Generic specification (IEC 60876-1:2014)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Räumliche Umschalter für Lichtwellenleiter Teil 1: Fachgrundspezifikation (IEC 60876-1:2014)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Commutateurs spatiaux à fibres optiques Partie 1: Spécification générique (CEI 60876-1:2014)

Ta slovenski standard je istoveten z: **EN 60876-1:2014**

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31.220.20	Stikala	Switches
33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices

SIST EN 60876-1:2015 **en**

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NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60876-1

October 2014

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Supersedes EN 60876-1:2012

English Version

Fibre optic interconnecting devices and passive components - Fibre optic spatial switches - Part 1: Generic specification (IEC 60876-1:2014)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Commutateurs spatiaux à fibres optiques
Partie 1: Spécification générique
(CEI 60876-1:2014)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Räumliche Umschalter für Lichtwellenleiter
Teil 1: Fachgrundspezifikation
(IEC 60876-1:2014)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

The text of document 86B/3713/CDV, future edition 5 of IEC 60876-1, 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 60876-1:2014.

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)	2015-06-26
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-09-26

This document supersedes EN 60876-1:2012

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Endorsement notice

The text of the International Standard IEC 60876-1:2014 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 60410	NOTE	Harmonised as EN 60410
IEC 60869-1	NOTE	Harmonised as EN 60869-1
IEC 61073-1	NOTE	Harmonised as EN 61073-1

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60027	Series	Letter symbols to be used in electrical technology	EN 60027	Series
IEC 60050-731	-	International Electrotechnical Vocabulary (IEV) Chapter 731: Optical fibre communication	-	-
IEC 60617	Series	Standard data element types with associated classification scheme for electric components	-	Series
IEC 60695-11-5	-	Fire hazard testing Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	-
IEC 60825-1	-	Safety of laser products Part 1: Equipment classification and requirements	EN 60825-1	-
IEC 61300	Series	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures	EN 61300	Series
IEC/TR 61930	-	Fibre optic graphical symbology	-	-
IEC 62047-1	-	Semiconductor devices - Micro-electromechanical devices Part 1: Terms and definitions	EN 62047-1	-
ISO 129-1	-	Technical drawings - Indication 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	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	-	Data elements and interchange formats - Information interchange - Representation of dates and times	-	-

IEC 60876-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Fibre optic interconnecting devices and passive components – Fibre optic spatial switches – Part 1: Generic specification

Dispositifs d'interconnexion et composants passifs à fibres optiques – Commutateurs spatiaux à fibres optiques – Partie 1: Spécification générique

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC SPATIAL SWITCHES –

Part 1: Generic specification

FOREWORD

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International Standard IEC 60876-1 has been prepared by subcommittee SC86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This fifth edition cancels and replaces the fourth edition that was published in 2012 and constitutes a technical revision.

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

a) addition of definitions for the terms for "normally-on; "normally-off" and "crosstalk";
b) addition of a new Annex E.

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

CDV	Report on voting
86B/3713/CDV	86B/3788/RVC

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 60876 series, published under the general title *Fibre optic interconnecting devices and passive components – Fibre optic spatial switches* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – IBRE OPTIC SPATIAL SWITCHES –

Part 1: Generic specification

1 Scope

This part of IEC 60876 applies to fibre optic switches possessing all of the following general features:

– they are passive in that they contain no optoelectronic or other transducing elements;

– they have one or more ports for the transmission of optical power and two or more states in which power may be routed or blocked between these ports;

– the ports are optical fibres or fibre optic 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 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050-731, *International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication*

IEC 60617 (all parts), *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 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

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

IEC TR 61930, *Fibre optic graphical symbology*

IEC 62047-1, *Semiconductor devices – Micro-electromechanical devices – Part 1: Terms and definitions*

ISO 129-1, *Technical drawings – Indication 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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-731, together with the following, apply.

3.1 Basic terms and definitions

3.1.1
port
optical fibre or fibre optic connector attached to a passive component for the entry and/or exit of optical power

3.1.2
transfer matrix
optical properties of a fibre optic switch can be defined in a $n \times n$ matrix of coefficients (n is the number of ports)

Note 1 to entry: The T matrix represents the on-state paths (worst-case transmission) and the T° matrix represents the off-state paths (worst-case isolation).

3.1.3
transfer coefficient
element t_{ij} or $t°_{ij}$ of the transfer matrix

Note 1 to entry: Each transfer coefficient t_{ij} is the worst-case (minimum) fraction of power transferred from port i to port j for any state with path ij switched on. Each coefficient $t°_{ij}$ is the worst-case (maximum) fraction of power transferred from port i to port j for any state with path ij switched off.

3.1.4
logarithmic transfer matrix

$$a_{ij} = -10 \log_{10} t_{ij}$$

where

a_{ij} is the optical power reduction in decibels out of port j with unit power into port i, i.e.

t_{ij} is the transfer coefficient

Note 1 to entry: Similarly, for the off state, $a°_{ij} = -10 \log_{10} t°_{ij}$.

3.1.5
switch state
particular optical configuration of a switch, whereby optical power is transmitted or blocked between specific ports in a predetermined manner

3.1.6
actuation mechanism
physical means (mechanical, electrical, acoustic, optical, etc.) by which a switch is designed to change between states

3.1.7
actuation energy
input energy required to place a switch in a specific state