SLOVENSKI STANDARD
SIST EN 60869-1:2013

01-oktober-2013

Optični spojni elementi in pasivne komponente - Pasivne optične naprave za krmiljenje moči - 1. del: Rodovna specifikacija

Fibre optic interconnecting devices and passive components - Fibre optic passive power control devices - Part 1: Generic specification

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Passive Geräte zur Leistungsbegrenzung - Teil 1: Fachgrundspezifikation

Ta slovenski standard je istoveten z: **EN 60869-1:2013**

ICS:

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices

SIST EN 60869-1:2013 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60869-1

June 2013

ICS 33.180.20

Supersedes EN 60869-1:2000

English version

Fibre optic interconnecting devices and passive components - Fibre optic passive power control devices - Part 1: Generic specification
(IEC 60869-1:2012)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Dispositifs à fibres optiques passifs de contrôle de la puissance - Partie 1: Spécification générique (CEI 60869-1:2012)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Passive Geräte zur Leistungsbegrenzung - Teil 1: Fachgrundspezifikation (IEC 60869-1:2012)

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60869-1:2013 E

Foreword

The text of document 86B/3505/FDIS, future edition 4 of IEC 60869-1, 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 60869-1:2013.

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)	2013-12-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2014-01-16

This document supersedes EN 60869-1:2000.

EN 60869-1:2013 includes the following significant technical changes with respect to EN 60869-1:2000:

– the terms and definitions were reconsidered;

– the requirement concerning the IEC Quality Assessment System was reconsidered;

– the clause concerning quality assessment procedures was deleted.

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

Endorsement notice

The text of the International Standard IEC 60869-1:2012 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 61300-1	NOTE	Harmonised as EN 61300-1.
IEC 61754-4	NOTE	Harmonised as EN 61754-4.
IEC 61754-2	NOTE	Harmonised as EN 61754-2.
IEC 61754-13	NOTE	Harmonised as EN 61754-13.
IEC 61300-2 series	NOTE	Harmonised in EN 61300-2 series.
IEC 61300-3 series	NOTE	Harmonised in EN 61300-3 series.
IEC 61753-051-3	NOTE	Harmonised as EN 61753-051-3.
IEC 61753-056-2	NOTE	Harmonised as EN 61753-056-2.
IEC 61753-057-2	NOTE	Harmonised as EN 61753-057-2.
IEC 61753-058-2	NOTE	Harmonised as EN 61753-058-2.
IEC 61753-059-2	NOTE	Harmonised as EN 61753-059-2.
IEC 60874 series	NOTE	Harmonised in EN 60874 series.
IEC 61073-1	NOTE	Harmonised as EN 61073-1.
IEC 61300 series	NOTE	Harmonised in EN 61300 series.

IEC 61753 series	NOTE	Harmonised in EN 61753 series.
IEC 61754 series	NOTE	Harmonised in EN 61754 series.
IEC 61755 series	NOTE	Harmonised in EN 61755 series.
IEC 62005 series	NOTE	Harmonised in EN 62005 series.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

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	Data-base	Graphical symbols for diagrams	-	-
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	Series	Safety of laser products	EN 60825	Series
ISO 129	-	Technical drawings - Dimensioning - General principles, definitions, methods of execution and special indications	-	-
ISO 286-1	-	ISO system of limits and fits - Part 1: Bases 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 60869-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Fibre optic interconnecting devices and passive components – Fibre optic passive power control devices –
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Dispositifs d'interconnexion et composants passifs à fibres optiques – Dispositifs à fibres optiques passifs de contrôle de la puissance –
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIBRE OPTIC INTERCONECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC PASSIVE POWER CONTROL DEVICES –

Part 1: Generic specification

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.

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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 60869-1 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC TC 86: Fibre optics.

This fourth edition cancels and replaces the third edition, published in 1999, and constitutes a technical revision.

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

– the terms and definitions were reconsidered;
– the requirement concerning the IEC Quality Assessment System was reconsidered;
– the clause concerning quality assessment procedures was deleted.

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

FDIS	Report on voting
86B/3505/FDIS	86B/3551/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 60869 series, under the general title *Fibre optic interconnecting devices and passive components – Fibre optic passive power control devices*, can be found on the IEC website.

Future standards will carry the new general title as cited above.

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 INTERCONECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC PASSIVE POWER CONTROL DEVICES –

Part 1: Generic specification

1 Scope

This part of IEC 60869 applies to fibre optic power control devices. These have all of the following general features:

– they are passive in that they contain no opto-electronic or other transducing elements;

– they have two ports for the transmission of optical power and control the transmitted power in a fixed or variable fashion;

– the ports are unconnectorized optical fibre tails or optical fibre pigtails with connectors.

This standard establishes generic requirements for the following passive optical devices:

– optical attenuator;

– optical fuse;

– optical power limiter.

Test and measurement procedures for the above products are described in IEC 61300-1, the IEC 61300-2 series and the 61300-3 series [1,2,3] [1].

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, *Letter symbols to be used in electrical technology*

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

IEC 60617, *Graphical symbols for diagrams*. Available from <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*

ISO 129, *Technical drawings – Indication of dimensions and tolerances*

ISO 286-1, *Geometrical product specifications (GPS) – ISO coding system for tolerances of linear sizes – Part 1: Bases of tolerances and fits*

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1 References in square brackets refer to the Bibliography.

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 definitions given in IEC 60050-731 as well as the following apply.

NOTE Definitions are given in three sub-groups; basic terms, component terms and performance terms.

3.1 Basic terms

3.1.1
insertion loss
reduction in optical power between an input and output port of a passive device, intended to be transparent, expressed in decibel

Note 1 to entry: This is defined as follows:

$IL = -10 \log_{10} (P_1/P_0) = 10 \log_{10} (P_0/P_1)$

where P_0 is the optical power launched into the input port, and P_1 the optical power received from the output port.

3.1.2
operating wavelength
nominal wavelength λ at which a passive device is designed to operate with the specified performance

3.1.3
operating wavelength range –passband
specified range of wavelengths from $\lambda_{i\ min}$ to $\lambda_{i\ max}$ about a nominal operating wavelength λ_i, within which an optical passive device is designed to operate with the specified performance

3.1.4
return loss
fraction of optical input power that is returned from the port of a passive device

Note 1 to entry: This is defined as follows:

$RL = -10 \log_{10} (P_1/P_0) = 10 \log_{10} (P_0/P_1)$

where P_0 is the optical power launched into the port, and P_1 the optical power received back from the same port.

3.2 Component terms

3.2.1
optical attenuator
passive device, which produces a controlled signal attenuation in an optical fibre transmission line. An attenuator is intended to be wavelength independent

3.2.2
variable optical attenuator
VOA
optically passive device, an attenuator that regulates the optical power in fibres, producing a controlled, optical output power, as a result of manual or electrical control input