



# SLOVENSKI STANDARD SIST EN IEC 61281-1:2018

01-maj-2018

Nadomešča:  
SIST EN 61281-1:2001

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**Optični komunikacijski podsistemi - 1. del: Splošna specifikacija (IEC 61281-1:2017)**

Fibre optic communication subsystems - Part 1: Generic specification (IEC 61281-1:2017)

Lichtwellenleiter-Kommunikationsuntersysteme - Teil 1: Fachgrundspezifikation (IEC 61281-1:2017)

Sous-systèmes de télécommunications par fibres optiques - Partie 1: Spécification générique (IEC 61281-1:2017)

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**Ta slovenski standard je istoveten z: EN IEC 61281-1:2018**

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**ICS:**

33.180.01	Sistemi z optičnimi vlakni na splošno	Fibre optic systems in general
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**SIST EN IEC 61281-1:2018**

**en**

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EUROPEAN STANDARD

**EN IEC 61281-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2018

ICS 33.180.01

Supersedes EN 61281-1:1999

English Version

**Fibre optic communication subsystems - Part 1: Generic  
specification  
(IEC 61281-1:2017)**

Sous-systèmes de télécommunications fibroniques - Partie  
1: Spécification générique  
(IEC 61281-1:2017)

Lichtwellenleiter-Kommunikationsunterssysteme - Teil 1:  
Fachgrundspezifikation  
(IEC 61281-1:2017)

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

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

**EN IEC 61281-1:2018 (E)****European foreword**

The text of document 86C/1408/CDV, future edition 2 of IEC 61281-1, prepared by IEC/SC 86C "Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61281-1:2018.

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) 2018-10-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-01-19

This document supersedes EN 61281-1:1999.

This edition constitutes a technical revision. With respect to the previous edition, several new definitions are added.

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The text of the International Standard IEC 61281-1:2017 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 61280-1-1	NOTE	Harmonized as EN 61280-1-1.
IEC 61280-1-3	NOTE	Harmonized as EN 61280-1-3.
IEC 61280-1-4	NOTE	Harmonized as EN 61280-1-4.
IEC 61280-2-1	NOTE	Harmonized as EN 61280-2-1.
IEC 61280-2-2	NOTE	Harmonized as EN 61280-2-2.
IEC 61280-2-3	NOTE	Harmonized as EN 61280-2-3.
IEC 61280-2-8	NOTE	Harmonized as EN 61280-2-8.
IEC 61280-2-9	NOTE	Harmonized as EN 61280-2-9.
IEC 61280-2-10	NOTE	Harmonized as EN 61280-2-10.
IEC 61280-2-11	NOTE	Harmonized as EN 61280-2-11.
IEC 61280-2-12	NOTE	Harmonized as EN 61280-2-12.
IEC 61280-4-1	NOTE	Harmonized as EN 61280-4-1.
IEC 61280-4-2	NOTE	Harmonized as EN 61280-4-2.
IEC 61280-4-4	NOTE	Harmonized as EN 61280-4-4.
IEC 62614	NOTE	Harmonized as EN 62614.
IEC 61290-1-1	NOTE	Harmonized as EN 61290-1-1.
IEC 61290-1-2	NOTE	Harmonized as EN 61290-1-2.
IEC 61290-1-3	NOTE	Harmonized as EN 61290-1-3.
IEC 61290-3-1	NOTE	Harmonized as EN 61290-3-1.

IEC 61290-3-2	NOTE	Harmonized as EN 61290-3-2.
IEC 61290-3-3	NOTE	Harmonized as EN 61290-3-3.
IEC 61290-4-1	NOTE	Harmonized as EN 61290-4-1.
IEC 61290-4-2	NOTE	Harmonized as EN 61290-4-2.
IEC 61290-4-3	NOTE	Harmonized as EN 61290-4-3.
IEC 61290-5-1	NOTE	Harmonized as EN 61290-5-1.
IEC 61290-5-2	NOTE	Harmonized as EN 61290-5-2.
IEC 61290-5-3	NOTE	Harmonized as EN 61290-5-3.
IEC 61290-6-1	NOTE	Harmonized as EN 61290-6-1.
IEC 61290-7-1	NOTE	Harmonized as EN 61290-7-1.
IEC 61290-10-1	NOTE	Harmonized as EN 61290-10-1.
IEC 61290-10-2	NOTE	Harmonized as EN 61290-10-2.
IEC 61290-10-3	NOTE	Harmonized as EN 61290-10-3.
IEC 61290-10-4	NOTE	Harmonized as EN 61290-10-4.
IEC 61290-10-5	NOTE	Harmonized as EN 61290-10-5.
IEC 61290-11-1	NOTE	Harmonized as EN 61290-11-1.
IEC 61290-11-2	NOTE	Harmonized as EN 61290-11-2.
IEC 60793-1-41	NOTE	Harmonized as EN 60793-1-41.
IEC 60793-2	NOTE	Harmonized as EN 60793-2.
IEC 60793-2-10	NOTE	Harmonized as EN 60793-2-10.
IEC 60793-2-50	NOTE	Harmonized as EN 60793-2-50.
IEC 60794-1-1	NOTE	Harmonized as EN 60794-1-1.
IEC 60869-1:2012	NOTE	Harmonized as EN 60869-1:2013 (not modified).
IEC 60874-1:2011	NOTE	Harmonized as EN 60874-1:2012 (not modified).
IEC 60875-1:2015	NOTE	Harmonized as EN 60875-1:2015 (not modified).
IEC 60876-1:2014	NOTE	Harmonized as EN 60876-1:2014 (not modified).
IEC 61073-1	NOTE	Harmonized as EN 61073-1.
IEC 61274-1	NOTE	Harmonized as EN 61274-1.
IEC 61291 (series)	NOTE	Harmonized as EN 61291 (series).
IEC 61291-1:2012	NOTE	Harmonized as EN 61291-1:2012 (not modified).
IEC 61291-2	NOTE	Harmonized as EN 61291-2.
IEC 61291-4	NOTE	Harmonized as EN 61291-4.
IEC 61703	NOTE	Harmonized as EN 61703.
IEC 61753 (series)	NOTE	Harmonized in EN 61753 (series).
IEC 62149 (series)	NOTE	Harmonized in EN 62149 (series).
IEC 62149-1	NOTE	Harmonized as EN 62149-1.
IEC 62343-1 (series)	NOTE	Harmonized as EN 62343-1 (series).
IEC 62343-3 (series)	NOTE	Harmonized as EN 62343-3 (series).

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IEC 61281-1

Edition 2.0 2017-12

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Fibre optic communication subsystems –  
Part 1: Generic specification**

**Sous-systèmes de télécommunications fibroniques –  
Partie 1: Spécification générique**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 33.180.01

ISBN 978-2-8322-5188-1

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FIBRE OPTIC COMMUNICATION SUBSYSTEMS –

## Part 1: Generic specification

## FOREWORD

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International Standard IEC 61281-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 1999. This edition constitutes a technical revision.

This edition includes the following significant technical change with respect to the previous edition: addition of new definitions.

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

CDV	Report on voting
86C/1408/CDV	86C/1468/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61281-1 series, published under the general title *Fibre optic communication subsystems*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<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 COMMUNICATION SUBSYSTEMS –

## Part 1: Generic specification

### 1 Scope

This part of IEC 61281 is a generic specification for fibre optic communication subsystems (FOCSSs).

The parameters defined herein form a specifiable minimum set of specifications that are common to all fibre optic subsystems. Additional parameters can be used depending on the particular application and technology. Those additional parameters will be specified in the relevant documents, as appropriate.

Each specified parameter is measured using one of the test procedures. The use of these parameters for system design is given in design guides.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

NOTE Within a definition, terms defined elsewhere in Clause 3 are in italics.

#### 3.1

##### **active optical device**

optical device, other than an optical dynamic device, exhibiting one or more of the following functions:

- generation or detection of optical power;
- conversion of an electronic signal to a corresponding optical one or vice versa;
- optical amplification or optical regeneration (2R or 3R) of an optical signal;
- direct conversion of the optical frequency of an optical signal

Note 1 to entry: Active optical devices may comprise passive optical elements.

[SOURCE: IEC TS 62538:2008, 2.1.2, modified – The term "optical active device" has been replaced by "active optical device".]

**3.2****amplified spontaneous emission**

ASE

optical power associated to spontaneously emitted photon amplified by an active medium in an *optical amplifier*

Note 1 to entry: This note applies to the French language only.

[SOURCE: IEC TR 61931:1998, 2.7.87 – The note has been added.]

**3.3****analogue input signal bandwidth**

bandwidth at the electrical input to the *transmitter*

**3.4****attenuation**

reduction of optical power induced by transmission through a medium, given as  $L$  (dB) where  $L = 10 \log_{10}(P_{in}/P_{out})$ , and  $P_{in}$  and  $P_{out}$  are the power into and out of the transmission medium

Note 1 to entry:  $P_{in}$  and  $P_{out}$  are typically expressed in mW.

**3.5****bandwidth**

difference (expressed in Hz) between the highest and lowest modulation frequencies at which the modulus of the power spectrum or of the complex transfer function is one-half of the peak value of the modulus

**3.6****basic fibre optic system**

BFOS

serial combination of a transmit terminal device, a fibre optic link, and a receive terminal device

Note 1 to entry: This note applies to the French language only.

**3.7****bit-error ratio**

BER

number of errored bits divided by the total number of bits, over some stipulated period of time

Note 1 to entry: This note applies to the French language only.

**3.8****branching device**

BD

passive device whose purpose is to transfer optical power between two or more ports in a predetermined manner

Note 1 to entry: The ports may be connected to waveguides, sources, detectors etc.

Note 2 to entry: This note applies to the French language only.

[SOURCE: IEC 60050-731:1991, 731-05-10, modified – The other terms "optical fibre coupler" and "optical coupler" have been deleted, and the acronym "BD" has been added. Note 2 has also been added.]