



SLOVENSKI STANDARD SIST EN IEC 61757-1:2018

01-december-2018

Nadomešča:
SIST EN 61757-1:2012

Optična zaznavala - 1. del: Splošna specifikacija (IEC 61757:2018)

Fibre optic sensors - Part 1: Generic specification (IEC 61757:2018)

LWL-Sensoren - Teil 1: Fachgrundspezifikation (IEC 61757:2018)

Capteurs a fibres optiques - Partie 1: Spécification générique (IEC 61757:2018)

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ICS:

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| 33.180.99 | Druga oprema za optična vlakna | Other fibre optic equipment |
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EUROPEAN STANDARD

EN IEC 61757

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2018

ICS 33.180.99

Supersedes EN 61757-1:2012

English Version

**Fibre optic sensors - Generic specification
(IEC 61757:2018)**Capteurs à fibres optiques - Spécification générique
(IEC 61757:2018)LWL-Sensoren - Fachgrundspezifikation
(IEC 61757:2018)

This European Standard was approved by CENELEC on 2018-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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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 61757:2018 (E)**European foreword**

The text of document 86C/1461/CDV, future edition 1 of IEC 61757, prepared by SC 86C "Fibre optic systems and active devices" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61757:2018.

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) 2019-04-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-10-19

This document supersedes EN 61757-1:2012.

This document constitutes a technical revision including the following technical changes with respect to EN 61757-1:2012:

- a. change of the document number due to a new structure of the fibre optic sensor standard series;
- b. update of the normative references and bibliography;
- c. revision of Annex A.

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

| | | |
|-------------|------|---------------------------|
| IEC 60654-4 | NOTE | Harmonized as EN 60654-4. |
| IEC 60721-1 | NOTE | Harmonized as EN 60721-1. |

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.

NOTE 1 Where 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.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|------------------|-------------|
| IEC 60050 | series | International Electrotechnical Vocabulary | - | series |
| IEC 60060-1 | - | High-voltage test techniques -- Part 1: General definitions and test requirements | EN 60060-1 | - |
| IEC 60068-1 | - | Environmental testing -- Part 1: General and guidance | EN 60068-1 | - |
| IEC 60068-2-1 | - | Environmental testing - Part 2-1: Tests Test A: Cold | EN 60068-2-1 | - |
| IEC 60068-2-2 | - | Environmental testing - Part 2-2: Tests Test B: Dry heat | EN 60068-2-2 | - |
| IEC 60068-2-5 | - | Environmental testing – Part 2-5: Tests – Test Sa: Simulated solar radiation at ground level and guidance for solar radiation testing | EN IEC 60068-2-5 | - |
| IEC 60068-2-6 | - | Environmental testing - Part 2-6: Tests Test Fc: Vibration (sinusoidal) | EN 60068-2-6 | - |
| IEC 60068-2-10 | - | Environmental testing - Part 2-10: Tests Test J and guidance: Mould growth | EN 60068-2-10 | - |
| IEC 60068-2-11 | - | Basic environmental testing procedures Part 2-11: Tests - Test Ka: Salt mist | EN 60068-2-11 | - |
| IEC 60068-2-13 | - | Basic environmental testing procedures Part 2-13: Tests - Test M: Low air pressure | EN 60068-2-13 | - |
| IEC 60068-2-14 | - | Environmental testing - Part 2-14: Tests Test N: Change of temperature | EN 60068-2-14 | - |
| IEC 60068-2-27 | - | Environmental testing - Part 2-27: Tests Test Ea and guidance: Shock | EN 60068-2-27 | - |
| IEC 60068-2-30 | - | Environmental testing - Part 2-30: Tests Test Db: Damp heat, cyclic (12 h + 12 h cycle) | EN 60068-2-30 | - |

EN IEC 61757:2018 (E)

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|-------------------|-------------|
| IEC 60068-2-42 | - | Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections | EN 60068-2-42 | - |
| IEC 60068-2-43 | - | Environmental testing - Part 2-43: Tests - Test Kd: Hydrogen sulphide test for contacts and connections | EN 60068-2-43 | - |
| IEC 60068-2-78 | - | Environmental testing -- Part 2-78: Tests - Test Cab: Damp heat, steady state | EN 60068-2-78 | - |
| IEC 60079-28 | - | Explosive atmospheres -- Part 28: Protection of equipment and transmission systems using optical radiation | EN 60079-28 | - |
| IEC 60529 | - | Degrees of protection provided by - enclosures (IP Code) | | - |
| IEC 60793-1-20 | - | Optical fibres - Part 1-20: Measurement methods and test procedures - Fibre geometry | EN 60793-1-20 | - |
| IEC 60793-1-21 | - | Optical fibres -- Part 1-21: Measurement methods and test procedures - Coating geometry | EN 60793-1-21 | - |
| IEC 60793-1-31 | - | Optical fibres -- Part 1-31: Measurement methods and test procedures - Tensile strength | EN 60793-1-31 | - |
| IEC 60793-1-32 | - | Optical fibres -- Part 1-32: Measurement methods and test procedures - Coating strippability | EN 60793-1-32 | - |
| IEC 60793-1-47 | - | Optical fibres -- Part 1-47: Measurement methods and test procedures - Macrobending loss | EN IEC 60793-1-47 | - |
| IEC 60793-1-54 | - | Optical fibres -- Part 1-54: Measurement methods and test procedures -- Gamma irradiation | EN IEC 60793-1-54 | - |
| IEC 60794-1-21 | - | Optical fibre cables - Part 1-21: Generic specification - Basic optical cable test procedures - Mechanical tests methods | EN 60794-1-21 | - |
| IEC 60825-1 | - | Safety of laser products -- Part 1: Equipment classification and requirements | EN 60825-1 | - |
| IEC 60874-1 | - | Fibre optic interconnecting devices and passive components - Connectors for optical fibres and cables -- Part 1: Generic specification | EN 60874-1 | - |
| IEC 61000-4-2 | - | Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test | EN 61000-4-2 | - |
| IEC 61000-4-3 | - | Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test | | - |

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|---------------|-------------|
| IEC 61000-4-4 | - | Electromagnetic compatibility (EMC) -- Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test | EN 61000-4-4 | - |
| IEC 61000-4-5 | - | Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test | EN 61000-4-5 | - |
| IEC 61300 | series | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures | EN 61300 | series |
| IEC 61300-2-1 | - | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-1: Tests - Vibration (sinusoidal) | EN 61300-2-1 | - |
| IEC 61300-2-9 | - | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-9: Tests - Shock | EN 61300-2-9 | - |
| IEC 61300-2-18 | - | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-18: Tests - Dry heat - High temperature endurance | EN 61300-2-18 | - |
| IEC 61300-2-22 | - | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-22: Tests - Change of temperature | EN 61300-2-22 | - |
| IEC 61300-2-34 | - | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-34: Tests - Resistance to solvents and contaminating fluids of interconnecting components and closures | EN 61300-2-34 | - |
| IEC 61300-2-46 | - | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-46: Tests - Damp heat cyclic | EN 61300-2-46 | - |
| IEC 61300-3-35 | - | Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-35: Examinations and measurements - Visual inspection of fibre optic connectors and fibre-stub transceivers | EN 61300-3-35 | - |
| IEC 61753 | series | Fibre optic interconnecting devices and passive components performance standard | EN 61753 | series |
| IEC/TR 61931 | - | Fibre optic - Terminology | - | - |
| IEC/TR 62222 | - | Fire performance of communication cables - installed in buildings | - | - |
| IEC/TR 62283 | - | Optical fibres - Guidance for nuclear - radiation tests | - | - |

EN IEC 61757:2018 (E)

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|--------------|-------------|
| IEC/TR 62627-01 | - | Fibre optic interconnecting devices and - passive components - Part 01: Fibre optic connector cleaning methods | | - |
| ISO/IEC Guide 99 | - | International vocabulary of metrology - - Basic and general concepts and associated terms (VIM) | | - |

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IEC 61757

Edition 1.0 2018-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic sensors – Generic specification

Capteurs à fibres optiques – Spécification générique

SIST EN IEC 61757-1:2018

<https://standards.iteh.ai/catalog/standards/sist/0fa5aacb-39ad-47f9-8f21-2ee5e7d05a3/sist-en-iec-61757-1-2018>

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ICS 33.180.99

ISBN 978-2-8322-5303-8

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC SENSORS –
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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International Standard IEC 61757 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This first edition of IEC 61757 cancels and replaces IEC 61757-1, published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 61757-1:2012:

- a) change of the document number due to a new structure of the fibre optic standard series;
- b) update of the normative references and bibliography;
- c) revision of Annex A.