Irish Standard
I.S. EN IEC 61757-1-1:2020

Fibre optic sensors - Part 1-1: Strain measurement - Strain sensors based on fibre Bragg gratings

I.S. EN IEC 61757-1-1:2020

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61757-1-1

May 2020

ICS 33.180.99

Supersedes EN 61757-1-1:2017 and all of its amendments and corrigenda (if any)

English Version

Fibre optic sensors - Part 1-1: Strain measurement - Strain sensors based on fibre Bragg gratings (IEC 61757-1-1:2020)

Capteurs fibroniques - Partie 1-1: Mesure de déformation - Capteurs de déformation basés sur des réseaux de Bragg à fibres
(IEC 61757-1-1:2020)

Lichtwellenleitersensoren - Teil 1-1: Dehnungsmessungen - Dehnungssensoren basierend auf Faser-Bragg-Gitter
(IEC 61757-1-1:2020)

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Comité Européen de Normalisation Electrotechnique
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European foreword

The text of document 86C/1642/FDIS, future edition 2 of IEC 61757-1-1, 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 61757-1-1:2020.

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) 2021-02-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-05-01

This document supersedes EN 61757-1-1:2017 and all of its amendments and corrigenda (if any).

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

IEC 60793-1-30	NOTE	Harmonized as EN 60793-1-30
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IEC 60793-1-33	NOTE	Harmonized as EN 60793-1-33
ISO 527-4	NOTE	Harmonized as EN ISO 527-4
ISO 7500-1	NOTE	Harmonized as EN ISO 7500-1
ISO 14125	NOTE	Harmonized as EN ISO 14125

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.

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Publication	Year	Title	EN/HD	Year
IEC 60050	series	International Electrotechnical Vocabulary	-	-
IEC 60068-2	series	Environmental testing - Part 2: Tests	EN 60068-2	series
IEC 60793-2	-	Optical fibres - Part 2: Product specifications - General	EN IEC 60793-2	-
IEC 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN IEC 60793-2-50	-
IEC 61300-2	series	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2: Tests	EN 61300-2	series
IEC 61754	series	Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces	EN 61754	series
IEC 61757	-	Fibre optic sensors - Generic specification	EN IEC 61757	-
IEC/TR 61931	-	Fibre optic - Terminology	-	-
IEC 62129-1	-	Calibration of wavelength/optical frequency measurement instruments - Part 1: Optical spectrum analyzers	EN 62129-1	-
IEC 62129-2	-	Calibration of wavelength/optical frequency measurement instruments - Part 2: Michelson interferometer single wavelength meters	EN 62129-2	-
IEC 62129-3	-	Calibration of wavelength/optical frequency measurement instruments - Part 3:Optical frequency meters internally referenced to a frequency comb	EN IEC 62129-3	-

EN IEC 61757-1-1:2020 (E)

Publication	Year	Title	EN/HD	Year
ISO/IEC Guide 99	-	International vocabulary of metrology - Basic and general concepts and associated terms (VIM)	-	-

IEC 61757-1-1

Edition 2.0 2020-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Fibre optic sensors –
Part 1-1: Strain measurement – Strain sensors based on fibre Bragg gratings

Capteurs fibroniques –
Partie 1-1: Mesure de déformation – Capteurs de déformation basés sur des réseaux de Bragg à fibres

IEC 61757-1-1:2020-03(en-fr)

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IEC 61757-1-1

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INTERNATIONAL STANDARD

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Fibre optic sensors – Part 1-1: Strain measurement – Strain sensors based on fibre Bragg gratings

Capteurs fibroniques – Partie 1-1: Mesure de déformation – Capteurs de déformation basés sur des réseaux de Bragg à fibres

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIBRE OPTIC SENSORS –

Part 1-1: Strain measurement – Strain sensors based on fibre Bragg gratings

FOREWORD

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International Standard IEC 61757-1-1 has been prepared by subcommittee SC 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 2016. This edition constitutes a technical revision.

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

a) update of cited standards;
b) clarification of definitions and test specifications.

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

FDIS	Report on voting
86C/1642/FDIS	86C/1650/RVD

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 61757 series, published under the general title *Fibre optic sensors*, 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

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INTRODUCTION

The IEC 61757 series is published with the following logic: the sub-parts are numbered as IEC 61757-M-T, where M denotes the measure and T, the technology.

FIBRE OPTIC SENSORS –

Part 1-1: Strain measurement – Strain sensors based on fibre Bragg gratings

1 Scope

This part of IEC 61757 defines detail specifications for fibre optic sensors using one or more fibre Bragg gratings (FBG) as the sensitive element for strain measurements. Generic specifications for fibre optic sensors are defined in IEC 61757.

This document specifies the most important features and characteristics of a fibre optic sensor for strain measurements, based on use of an FBG as the sensitive element, and defines the procedures for their determination. Furthermore, it specifies basic performance parameters and characteristics of the corresponding measuring instrument to read out the optical signal from the FBG. This document refers to the measurement of static and dynamic strain values in a range of frequencies.

A blank detail specification is provided in Annex B.

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.

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IEC 60068-2 (all parts), *Environmental testing – Part 2: Tests*

IEC 60793-2, *Optical fibres – Part 2: Product specifications – General*

IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

IEC 61300-2 (all parts), *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2: Tests*

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