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**Optični senzorji - 2-1. del: Merjenje temperature - Temperaturni senzorji na podlagi optovlakenskih Braggovih rešetk (IEC 61757-2-1:2021)**

Fibre Optic Sensors - Part 2-1: Temperature measurement - Temperature sensors based on fibre Bragg gratings (IEC 61757-2-1:2021)

Lichtwellenleitersensoren - Teil 2-1: Temperaturmessung - Temperatursensoren auf der Basis von Faser-Bragg-Gittern (IEC 61757-2-1:2021)

Capteurs fibroniques - Partie 2-1: Mesure de la température - Capteurs de température basés sur des réseaux de Bragg à fibres (IEC 61757-2-1:2021)

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EUROPEAN STANDARD

**EN IEC 61757-2-1**

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EUROPÄISCHE NORM

September 2021

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English Version

**Fibre optic sensors - Part 2-1: Temperature measurement -  
Temperature sensors based on fibre Bragg gratings  
(IEC 61757-2-1:2021)**

Capteurs fibroniques - Partie 2-1: Mesure de la température  
- Capteurs de température basés sur des réseaux de Bragg  
à fibres  
(IEC 61757-2-1:2021)

Lichtwellenleitersensoren - Teil 2-1: Temperaturmessung -  
Temperatursensoren auf der Basis von Faser-Bragg-Gittern  
(IEC 61757-2-1:2021)

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**EN IEC 61757-2-1:2021 (E)****European foreword**

The text of document 86C/1725/FDIS, future edition 1 of IEC 61757-2-1, 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 61757-2-1:2021.

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050	(series)	International Electrotechnical Vocabulary- (IEV)		-
IEC 61757	-	Fibre optic sensors - Generic specification	EN IEC 61757	-
IEC 61757-1-1	2020	Fibre optic sensors - Part 1-1: Strain measurement - Strain sensors based on fibre Bragg gratings	EN IEC 61757-1-1	2020
ISO/IEC Guide 98-3-	-	Uncertainty of measurement - Part 3:- Guide to the expression of uncertainty in measurement (GUM:1995)		-

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# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Fibre optic sensors –  
Part 2-1: Temperature measurement – Temperature sensors based on fibre  
Bragg gratings**

**Capteurs fibroniques –  
Partie 2-1: Mesure de la température – Capteurs de température basés  
sur des réseaux de Bragg à fibres**

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## FIBRE OPTIC SENSORS –

Part 2-1: Temperature measurement –  
Temperature sensors based on fibre Bragg gratings

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

FDIS	Report on voting
86C/1725/FDIS	86C/1737/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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 [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

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## INTRODUCTION

This document is based on the guideline VDI/VDE 2660 Blatt 2:2020-04, *Technical temperature measurement – Optical temperature sensor based on fibre Bragg gratings – Recommendation on temperature measurement and statement of measurement uncertainty* [1]<sup>1</sup>. It was prepared in cooperation with VDI/VDE-GMA Technical Committee 2.17 "Fibre optic measurement techniques".

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.

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<sup>1</sup> Numbers in square brackets refer to the Bibliography.

## FIBRE OPTIC SENSORS –

### Part 2-1: Temperature measurement – Temperature sensors based on fibre Bragg gratings

#### 1 Scope

This part of IEC 61757 specifies the terminology, characteristic performance parameters and related test methods of optical temperature sensors based on fibre Bragg gratings (FBG) that carry out temperature measurements in the temperature range between  $-260\text{ °C}$  and  $600\text{ °C}$ .

Generic specifications for fibre optic sensors are defined in IEC 61757.

#### 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.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)* (available at [www.electropedia.org](http://www.electropedia.org))

IEC 61757, *Fibre optic sensors – Generic specification*  
<https://standards.iteh.ai/catalog/standards/sist/fbec326-c578-4b5f-93a1-162e9f28c7e3/sist-en-iec-61757-2-1-2021>

IEC 61757-1-1:2020, *Fibre optic sensors – Part 1-1: Strain measurement – Strain sensors based on fibre Bragg gratings*

ISO/IEC GUIDE 98-3, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

#### 3 Terms, definitions, abbreviated terms and symbols of quantities

For the purposes of this document, terms and definitions given in IEC 60050 (all parts), IEC 61757, IEC 61757-1-1, and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
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