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Edition 1.0 2021-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic sensors – Part 5-1: Tilt measurement – Tilt sensors based on fibre Bragg gratings

Capteurs fibroniques – Partie 5-1: Mesure d'inclinaison – Capteurs d'inclinaison basés sur des réseaux de Bragg à fibres

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FOREWORD

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IEC 61757-5-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee TC86: Fibre optics. It is an International Standard.

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

Draft	Report on voting
86C/1699/CDV	86C/1718/RVC

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. The main document types developed by IEC are described in greater detail at 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 in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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 5-1: Tilt measurement – Tilt sensors based on fibre Bragg gratings

1 Scope

This part of IEC 61757 defines the terminology, structure, characteristics and their measurement method including the procedures, for an optical tilt sensor based on fibre Bragg gratings (FBGs) as the sensitive element.

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)

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

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

IEC 61754 (all parts), *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces*

IEC 61757, *Fibre optic sensors – Generic specification*

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

IEC 62129-1, *Calibration of wavelength/optical frequency measurement instruments – Part 1: Optical spectrum analyzers*

IEC 62129-2, *Calibration of wavelength/optical frequency measurement instruments – Part 2: Michelson interferometer single wavelength meters*

IEC 62129-3, *Calibration of wavelength/optical frequency measurement instruments – Part 3: Optical frequency meters internally referenced to a frequency comb*

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

3 Terms and definitions

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