IEC 61757-3-2

Edition 1.0 2022-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Fibre optic sensors –
Part 3-2: Acoustic sensing and vibration measurement – Distributed sensing

Capteurs fibroniques –
Partie 3-2: Détection acoustique et mesure des vibrations – Détections réparties

IEC 61757-3-2:2022 (en-fr)

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FOREWORD

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

Draft	Report on voting
86C/1700/CDV	86C/1719/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. 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- withdrawn,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.

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This document is based on SEAFOM Measuring Sensor Performance Document – 02 (SEAFOM MSP-02) [1][1]. Within the framework of a type C liaison, SEAFOM proposed this document as a new work item, which was approved by the participating members of IEC SC 86C.

NOTE Except for Figure 1, Figure C.1, Figure C.2, and Figure C.3, all figures in this document were adopted from SEAFOM MSP-02 either in original or in modified form with permission from SEAFOM.

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.

1 Numbers in square brackets refer to the Bibliography.

FIBRE OPTIC SENSORS –

Part 3-2: Acoustic sensing and vibration measurement – Distributed sensing

1 Scope

This part of IEC 61757 specifies the terminology, characteristic performance parameters, related test and calculation methods, as well as specific test equipment for interrogation units used in distributed fibre optic acoustic sensing and vibration measurement systems. This document refers to the Rayleigh backscatter and phase detection method by phase sensitive coherent optical time-domain reflectometry (ϕ-OTDR) only. Quasi-static and low frequency operation modes are not covered by this document.

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 61757:2018, *Fibre optic sensors – Generic specification*

IEC 61757-2-2:2016, *Fibre optic sensors – Part 2-2: Temperature measurement – Distributed sensing*

3 Terms, definitions, abbreviated terms and symbols

3.1 Terms and definitions

For the purposes of this document, terms and definitions given in IEC 61757, IEC 61757-2-2:2016 and the following apply.

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

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

3.1.1
distributed fibre optic sensor
fibre optic sensor that provides a spatially resolved measurement of a measurand over an extended region by means of a continuous sensing element

[SOURCE: IEC 61757:2018, 3.5]