IEC 62134-1

Edition 2.0 2009-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fibre optic interconnecting devices and passive components – Fibre optic closures –
Part 1: Generic specification

Dispositifs d'interconnexion et composants passifs à fibres optiques – Boîtiers à fibres optiques –
Partie 1: Spécification générique

IEC 62134-1:2009

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CLOSURES –

Part 1: Generic specification

FOREWORD

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International Standard IEC 62134-1 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2002. It constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

– addition and rewording of some terms and definitions;
– reconsideration of type, style and variant in the requirements;
– removal of quality assessment procedures.

The text of this standard is based on the following documents:

FDIS	Report on voting
86B/2846/FDIS	86B/2885/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,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

INTRODUCTION

Closures comprise a broad component family that functions to protect, secure and store passive fibre optic components (such as splices or connectors) or other non-interconnecting devices (such as optical branching devices). They are installed at either indoor or outdoor locations, and provide access to the optical path of one or more cabled optical fibres. They also generally provide a fibre management system for the orderly management, routing, and storage of optical fibres. Configuration definitions may specify integrated functions, or permit grouped combinations of compatible independent sub-units. Specific classification requirements vary, and may or may not include isolation from environmental hazards (such as water ingress), structure codes (such as fire safety), or other appropriate considerations.

Closures are not intended to provide the primary packaging or structure for uncabled optical fibre splices (such as a rigid mechanical splice shell, or a fusion splice protection sleeve). Specification for those devices is defined in IEC 61073-1.

It is also intended that closures specified under this standard are not sufficiently characterized for continuous brine or deep-water submersion. Examples of this are oceanic or lake-crossing applications. Cables, closures and installation methods suited to this use are highly specialised and are not within the scope of this standard or supporting test procedures.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC CLOSURES –

Part 1: Generic specification

1 Scope

This part of IEC 62134 establishes uniform generic requirements for fibre optic closures.

This standard does not cover test and measurement procedures, which are described in IEC 61300 series.

2 Normative references

The following referenced documents are indispensable for the application 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.

IECQ 001002-3:2005, *IEC Quality Assessment System for Electronic Components (IECQ) – Rules of Procedure – Part 3: Approval procedures*

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050(731), *International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication*

IEC 60068 (all parts), *Environmental testing*

IEC 60068-2-10, *Environmental testing – Part 2-10: Tests – Test J and guidance: Mould growth*

IEC 60617 (all parts), *Graphical symbols for diagrams*

IEC 60695 (all parts), *Fire hazard testing*

IEC 60695-1-1, *Fire hazard testing – Part 1-1: Guidance for assessing the fire hazard of electrotechnical products – General guidelines*

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

IEC 60794-2, *Optical fibre cables – Part 2: Indoor cables – Sectional specification*

IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

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

IEC 61300-3 (all parts), *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3: Examinations and measurements*

IEC 61753-1, *Fibre optic interconnecting devices and passive components performance standard – Part 1: General and guidance for performance standards*

IEC 61754 (all parts), *Fibre optic connector interfaces*

IEC/TR 61930, *Fibre optic graphical symbology*

IEC/TR 61931, *Fibre optic – Terminology*

IEC 62005 (all parts); *Reliability of fibre optic interconnecting devices and passive optical components*

ISO 129-1, *Technical drawings – Indication of dimensions and tolerances – Part 1: General principles*

ISO 286-1, *ISO system of limits and fits – Part 1: Bases of tolerances, deviations and fits*

ISO 1101, *Geometrical Product Specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

ISO 4892-3, *Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps*

ISO 8601, *Data elements and interchange formats – Information interchange – Representation of dates and times*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050(731) and IEC 61931, as well as the following apply.

3.1
cable splice
permanent or separable joint between two or more optical fibre cables. It may consist of optical fibre joints, fibre management systems, closures or other safety devices

3.2
closure
all external housings except, outdoor wall boxes, cabinets or pedestals

3.3
enclosure
indoor and outdoor housings (wall boxes, cabinets, cases, distribution frames or pedestals)

3.4
fibre management system
system to control, protect and store fibres from the incoming to the outgoing fibres. It is intended for installation within another closure

3.5
fibre splice
permanent or separable splice between two or more optical fibres

3.6
optical fibre closure
housing or compartment of generally closed construction, utilised for the storage, distribution, or protection of one or more cabled fibre joints. It frequently restores the mechanical, environmental, strain relief, and moisture resistance, which are provided by cable jackets, removed at outdoor cable splice locations

3.7
hybrid closure
closure that is used to protect cable joints comprised of both optical fibre and electrically conductive media

3.8
pressurised closure
sealed closure that provides protection from water ingress by maintaining a continuous positive regulated internal gas pressure

3.9
non-pressurised closure
closure that provides protection from water ingress by permanently sealed construction, but does not maintain a continuous regulated internal pressure

3.10
cabinet
container that may enclose connection devices, terminations, apparatus, cabling, and equipment. It may be either wall-mounted or self-supporting

3.11
pedestal
secure outer enclosure that provides external mechanical and weather protection at a cable splice or distribution location. It is typically installed above ground-level on a prepared site, and provides entry for below-grade cables

3.12
distribution frame/panel
structure with terminations for connecting the permanent cabling of a facility in a manner that inter-connection or cross-connection may be readily made and rearranged to facilitate cabling administration

3.13
organiser
an organiser contains one or more splice trays (or cassettes) and additional functional elements and can be a fibre management system or a part of a fibre management system

3.14
single circuit
SC
optical circuit consisting of one or more than one fibre providing one termination

3.15
single element
SE
cable subassembly comprising one or more optical fibres inside a common covering e.g. tube or inside one groove of a grooved cable (slotted core cable)

NOTE 1 Single elements provide more than one termination or circuit.

NOTE 2 A fibre ribbon is a single element.

3.16
multiple element
ME

subassembly comprising one or more single elements or single ribbons

3.17
single ribbon
SR
can be a single circuit or a single element depending on the fibres' deployment to carry one or more circuits

3.18
multiple ribbon
MR
multiple ribbon refers to multiple element

3.19
telecommunications outlet
fixed connecting device where the horizontal cable terminates. The telecommunications outlet provides the interface to the work area cabling

4 Requirements

4.1 Classification

4.1.1 General

Fibre optic closures shall be classified by the following categories.

– Type
– Style
– Variant
– Arrangement
– Normative reference extensions
– Climatic category
– Assessment level

4.1.2 Type

Closure type identifies a general category that indicates the functionality or application service use. It may also further identify an appropriate intended service location.

– Type name

  Examples:

  - Pressurised splice closure
  - Non-pressurised splice closure
  - Pedestal enclosure
  - Distribution frame/panel
  - Telecommunications outlet

– Service location

  Examples:

  - Aerial (overhead cable strand mounting)

- Above ground (exterior building or earth surface placement)
- Buried (direct sub-surface earth placement)
- Underground (within accessible buried protective compartments, usually joined by cable ducts)
- Inside building (protected habitable environments)
- Universal (no placement restrictions)

4.1.3 Style

Closure style further differentiates categories within a type and may indicate end use suitability, specialised capabilities, or limitations. A sectional specification may further identify characteristics to define the closure capabilities or specialised requirements. Style is not intended to define material or design.

– Installation capability

  Examples:

  - Full service (all ports split to accept cut or uncut cable/fibre entry)
  - New construction (ports accept cable/fibre ends only)
  - System expansion (primary ports split, secondary port openings accept cable/fibre ends only, addition of splice)

– Configuration

  Examples:

  - Inline (cables/fibres enter both ends)
  - Butt or pan (cables/fibres enter on same side)
  - Track joint (for interconnection of 2 cables)

  - Branch (primary cables/fibres in, multiple secondary cables/fibres out)
  - Distribution or add/drop (majority of cabled fibres are uncut, coiled internally for storage)

4.1.4 Variant

Variant categories define the functional attribute details necessary to specify the fibre management system, capacities, as well as safety and serviceability requirements, where appropriate.

– Fibre management system

  Examples:

  - Fibre separation level (SC, SE, SR, ME, MR)
  - Fibre splice types
  - Connector type

– Size capacity

  Examples:

  - Maximum fibre splice or connector storage
  - Perimeter envelope dimensions
  - Minimum interior volume

– Entry port capacity

  Examples:

  - Number and size of primary entry ports
  - Number and size of secondary entry ports