

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Organic light emitting diode (OLED) light sources for general lighting – Safety –
Part 2-1: Particular requirements – Semi-integrated OLED modules

Sources lumineuses à diodes électroluminescentes organiques (OLED)
destinées à l'éclairage général – Sécurité –
Partie 2-1: Exigences particulières – Modules OLED semi-intégrés



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ORGANIC LIGHT EMITTING DIODE (OLED) LIGHT
SOURCES FOR GENERAL LIGHTING – SAFETY –****Part 2-1: Particular requirements – Semi-integrated OLED modules**

FOREWORD

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International Standard IEC 62868-2-1 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting.

IEC 62868-2-1 has been prepared in parallel with IEC 62868-2-2.

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

FDIS	Report on voting
34A/2192/FDIS	34A/2199/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 62868 series, published under the general title *Organic light emitting diode (OLED) light sources for general lighting – Safety*, can be found on the IEC website.

In this document, the following print type is used:

– *compliance statements: in italic type.*

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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ORGANIC LIGHT EMITTING DIODE (OLED) LIGHT SOURCES FOR GENERAL LIGHTING – SAFETY –

Part 2-1: Particular requirements – Semi-integrated OLED modules

1 Scope

This part of IEC 62868 specifies safety requirements for semi-integrated organic light emitting diode modules operating with an external controlgear connected to the mains voltage, and which, in addition, have a control means inside ("semi-integrated") for operation under constant voltage, constant current or constant power and have a rated voltage up to 120 V ripple free DC or 50 V AC RMS at 50 Hz or 60 Hz.

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 60598-1:2014, *Luminaires – Part 1: General requirements and tests*
IEC 60598-1:2014/AMD1:2017

IEC 60838-2-2, *Miscellaneous lampholders – Part 2-2: Particular requirements – Connectors for LED modules*
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IEC 61347-1:2015, *Lamp controlgear – Part 1: General and safety requirements*
IEC 61347-1:2015/AMD1:2017

IEC 62504, *General lighting – Light emitting diode (LED) products and related equipment – Terms and definitions*

IEC 62868-1:2020, *Organic light emitting diode (OLED) light sources for general lighting – Safety – Part 1: General requirements and tests*

IEC TS 62972, *General lighting – Organic light emitting diode (OLED) products and related equipment – Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62504, IEC 62868-1 and IEC TS 62972 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/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 rated maximum temperature

t_c
highest permissible temperature which may occur on the outer surface of the OLED module (at the indicated position, if marked) under normal operating conditions and at the rated voltage/current/power or the maximum of the rated voltage/current/power range

4 General

The requirements of IEC 62868-1:2020, Clause 4 apply.

5 Marking

5.1 Contents and location

Marking of the module shall be done according to IEC 62868-1:2020, 5.1. Additionally, the rated maximum temperature t_c shall be marked on the packaging or product datasheet or leaflet but is optional on the product.

5.2 Durability and legibility of marking

The requirements of IEC 62868-1:2020, 5.2 apply.

6 Construction

The requirements of IEC 62868-1:2020, Clause 6 apply.

7 Mechanical hazard

The requirements of IEC 62868-1:2020, Clause 7 apply.

8 Fault conditions

The requirements of IEC 61347-1:2015, Clause 14 and IEC 61347-1:2015/AMD1:2017, Clause 14, apply. Additionally, the requirements of IEC 62868-1:2020, Clause 8 apply.

9 Insulation resistance and electric strength after humidity treatment

9.1 General requirements

Insulation resistance and electric strength shall be adequate between live parts of the OLED module and accessible parts of the OLED module.

9.2 Insulation resistance

Insulation shall be adequate between live parts and outer metal parts, including fixing screws and metal foil in contact with outer insulating parts.

The OLED module shall be conditioned for 48 h in a cabinet containing air with a relative humidity between 91 % and 95 %. The temperature of the air shall be maintained within 1 °C of any convenient value between 20 °C and 30 °C.

Insulation resistance shall be measured in the humidity cabinet with a DC voltage of 100 V, 1 min after application of the voltage.

Compliance:

The insulation resistance shall be not less than 1 MΩ between live parts and the outer metal parts.

9.3 Electric strength

Immediately after the insulation resistance test, the OLED module shall withstand an electric strength test for 1 min applied between the parts as specified in 9.2.

The test voltage of substantially sine-wave form shall have a value of 500 V RMS and frequency of 50 Hz or 60 Hz. Initially, not more than half the specified voltage shall be applied, the voltage shall then be raised rapidly to the full value. Measurements shall be carried out in a humidity cabinet.

Compliance:

No flashover or breakdown shall occur during the test.

10 Creepage distances and clearances

The requirements of IEC 61347-1:2015, Clause 16 and IEC 61347-1:2015/AMD1:2017, Clause 16 apply.

11 Resistance to heat and fire

The requirements of IEC 61347-1:2015, Clause 18 apply.

12 Photobiological safety

OLED products are not expected to reach a level of UV, infrared or blue light hazard that requires marking or measurement.

13 Terminals

For screw terminals, the requirements of IEC 60598-1:2014, Section 14, shall be used, if applicable.

For screwless terminals, the requirements of IEC 60598-1:2014, Section 15, shall be used, if applicable.

For connectors, the requirements of IEC 60838-2-2 shall be used, if applicable.

14 Protection against accidental contact with live parts

The requirements of IEC 61347-1:2015, Clause 10 and IEC 61347-1:2015/AMD1:2017, Clause 10, apply.

15 Screws, current-carrying parts and connections

The requirements of IEC 61347-1:2015, Clause 17, apply.

16 Resistance to corrosion

The requirements of IEC 61347-1:2015, Clause 19, apply.

17 Information for luminaire design

Information for luminaire design is given in IEC 62868-1:2020, Annex B.

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