BS EN IEC 61820-1-2:2024

BSI Standards Publication

Electrical installations for lighting and beaconing of aerodromes

Part 1-2: Fundamental principles — Particular requirements for series circuits

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National foreword

This British Standard is the UK implementation of EN IEC 61820-1-2:2024. It is identical to IEC 61820-1-2:2024.

The UK participation in its preparation was entrusted to Technical Committee EPL/97, Aeronautical ground lighting.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61820-1-2

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English Version

Electrical installations for lighting and beaconing of aerodromes - Part 1-2: Fundamental principles - Particular requirements for series circuits (IEC 61820-1-2:2024)

Installations électriques pour l'éclairage et le balisage dans les aérodromes - Partie 1-2 : Principes fondamentaux - Exigences particulières relatives aux circuits série (IEC 61820-1-2:2024)

Elektrische Anlagen für Beleuchtung und Befeuerung von Flugplätzen - Teil 1-2: Allgemeine Grundsätze - Anforderungen an die Serienkreise (IEC 61820-1-2:2024)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 97/267/FDIS, future edition 1 of IEC 61820-1-2, prepared by IEC/TC 97 "Electrical installations for lighting and beaconing of aerodromes" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61820-1-2:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2025-02-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-05-10

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The text of the International Standard IEC 61820-1-2:2024 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60060-3 NOTE Approved as EN 60060-3

IEC 61000-4-5 NOTE Approved as EN 61000-4-5

IEC 61821 NOTE Approved as EN 61821

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60060	series	High-voltage test techniques	EN 60060	series
IEC 60364	series	Low-voltage electrical installations	HD 60364	series
IEC 61000	series	Electromagnetic compatibility (EMC)	EN 61000	series
IEC 61557	series	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures	EN IEC 61557	series
IEC 61820-1	2019	Electrical installations for aeronautical ground lighting at aerodromes - Part 1: Fundamental principles	EN IEC 61820-1	2019
IEC 61820-3-2	-	Electrical installations for lighting and beaconing of aerodromes - Part 3-2: Requirements for power supplies - Particular requirements for series circuits	EN IEC 61820-3-2	-
IEC 61820-3-4	-	Electrical installations for lighting and beaconing of aerodromes - Part 3-4: Safety secondary circuits in series circuits - General safety requirements	EN IEC 61820-3-4	-
IEC 61823	-	Electrical installations for lighting and beaconing of aerodromes - AGL series transformers	EN 61823	-
IEC 63067	-	Electrical installations for lighting and beaconing of aerodromes - Connecting devices - General requirements and tests	EN IEC 63067	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL INSTALLATIONS FOR LIGHTING AND BEACONING OF AERODROMES –

Part 1-2: Fundamental principles – Particular requirements for series circuits

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 61820-1-2 has been prepared by IEC technical committee 97: Electrical installations for lighting and beaconing of aerodromes. It is an International Standard.

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

Draft	Report on voting
97/267/FDIS	97/268/RVD

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

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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/publications.

A list of all parts in the IEC 61820 series, published under the general title *Electrical installations for lighting and beaconing of aerodromes*, 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, or
- revised.

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INTRODUCTION

This document is a part of the IEC 61820 series that describes the minimum requirements for the lifecycle of an aeronautical ground lighting (AGL) system including design, installation, commissioning, maintenance, decommissioning and disposal.

The series circuit normally operates with a constant current and a load dependent variable voltage. The protective measures for series circuits according to this document are adapted to that supply concept and the extreme long cables in the field. They are based in principle on an IT supply concept (floating and separated from ground) and the protection against direct contact to any live part at least for the primary circuit and safety extra low voltage (SELV) or protective extra low voltage (PELV) power supply feeding the light fixtures or other loads of the series circuit. In recognition of possible aviation hazards, an automatic disconnection of the AGL system in case of an electrical failure is not required in general (see details in IEC 61820-1).

People involved in work on AGL electrical systems are knowledgeable of the specific risks and the safety procedures involved in the work related to the applied system design. It is strongly recommended to do a work safety risk analysis considering all local circumstances to define safe work procedures and training to the personnel. Training regarding the hazards of series circuits should be provided to non-electricians (e.g. grass cutters, snow plow operators, etc.)

NOTE 1 For specifications on SELV/PELV power supplies for AGL systems, see IEC 61820-3-4.

NOTE 2 Local/national regulations can be different to these standard provisions.

NOTE 3 In case the power supply is not compliant to SELV or PELV, appropriate measures can be implemented.

NOTE 4 Where the terms "voltage" and "current" are used in this document, they refer to RMS values unless otherwise specified.

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ELECTRICAL INSTALLATIONS FOR LIGHTING AND BEACONING OF AERODROMES –

Part 1-2: Fundamental principles – Particular requirements for series circuits

1 Scope

This part of IEC 61820 describes requirements for AGL systems including power supplies, transformation of energy, cables, and any electrical component utilized to produce the light intended to be used as a visual aid for air and ground navigation based on IEC 61820-1, complemented with series circuit specific topics.

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 60060 (all parts), *High-voltage test techniques*

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 61000 (all parts), *Electromagnetic compatibility (EMC)*

IEC 61557 (all parts), *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures*

IEC 61820-1:2019, *Electrical installations for aeronautical ground lighting at aerodromes – Part 1: Fundamental principles*

IEC 61820-3-2, *Electrical installations for lighting and beaconing of aerodromes – Part 3-2: Requirements for power supplies – Particular requirements for series circuit*

IEC 61820-3-4, *Electrical installations for lighting and beaconing of aerodromes – Safety secondary circuits in series circuits – General safety requirements*

IEC 61823, *Electrical installations for lighting and beaconing of aerodromes – AGL series transformers*

IEC 63067, *Electrical installations for lighting and beaconing of aerodromes – Connecting devices – General requirements and tests*

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

This clause of IEC 61820-1:2019 is applicable, with the following additions:

3.1
AGL system
functional aeronautical ground lighting entity consisting of interoperable components such as power supply, transformers, light fixtures, and other loads, etc.

Note 1 to entry: The general categories for AGL systems are:

– Category 1: The 6,6 A system. An AGL system with a maximum current of 6,6 A at 50/60 Hz utilizing the effective current steps as defined in 61820-3-2.

– Category 2: The current controlled system. An AGL system with current amplitude control similar to the 6,6 A system, but without predefined series circuit effective current steps or waveform characteristics.

– Category 3: The communication-controlled system. An AGL system wherein the luminosity levels are controlled independently of the series circuit effective current, for example via power line communication or by other means of information transmission.

Note 2 to entry: An AGL component can belong to more than one category. All category 1 AGL components are interoperable in any category 1 AGL system installation. AGL components in category 2 or category 3 can be noninteroperable with AGL components in the same category.

3.2
series circuit power supply
apparatus which produces a selectable constant current output and automatically adjusts the voltage for variations in the loads, input voltage and service conditions as specified

Note 1 to entry: For 6,6 A series circuit power supplies, see IEC 61820-3-2 (particular requirements for series circuit power supplies).

3.3
series circuit transformer
apparatus which provides power to light fixtures or other loads from their secondary circuits

Note 1 to entry: The series circuit transformer provides continuity of the primary series circuit in the event of a loss of the load, and electrical separation between the primary circuit and the secondary circuit.

Note 2 to entry: For specifications on series circuits transformers, see IEC 61823. Devices other than transformers meeting the requirements of IEC 61823 can be used to provide continuity and electrical separation.

3.4
primary series cable
screened or unscreened solid or multi-stranded single core cable used to link series transformers and the constant current regulator (CCR) in the primary circuits of series systems for lighting and beaconing of airports

Note 1 to entry: For specifications on 6,6 A AGL system cables, see IEC TS 62100.

Note 2 to entry: Some countries can have national standards for series circuit cables.

3.5
primary cable connecting device
single pole connecting device in accordance with IEC 63067 used to interconnect the different elements in a primary circuit

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