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Electrical installations for lighting and beaconing of aerodromes - Part 3-2: Requirements for power supplies - Particular requirements for series circuits

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/24

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EUROPEAN STANDARD

EN IEC 61820-3-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2023

ICS 29.140.50; 93.120

Supersedes EN 61822:2009

English Version

**Electrical installations for lighting and beaconing of aerodromes -
Part 3-2: Requirements for power supplies - Particular
requirements for series circuits
(IEC 61820-3-2:2023)**

Installations électriques pour l'éclairage et le balisage des
aérodromes - Partie 3-2 : Exigences relatives aux
alimentations électriques - Exigences particulières relatives
aux circuits série
(IEC 61820-3-2:2023)

Elektrische Anlagen für die Beleuchtung und Befeuerung
von Flugplätzen - Besondere Anforderungen an
Serienkreisstromversorgungen
(IEC 61820-3-2:2023)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61820-3-2:2023 (E)**European foreword**

The text of document 97/264/FDIS, future edition 1 of IEC 61820-3-2, 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 61820-3-2:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2024-08-14 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2026-11-14 document have to be withdrawn

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

IEC 60099-4:2014	NOTE	Approved as EN 60099-4:2014 (not modified)
IEC 60529	NOTE	Approved as EN 60529
IEC 60664-1:2020	NOTE	Approved as EN IEC 60664-1:2020 (not modified)
IEC 60721-3-3	NOTE	Approved as EN IEC 60721-3-3
IEC 61000-3-2	NOTE	Approved as EN IEC 61000-3-2
IEC 61000-3-12	NOTE	Approved as EN 61000-3-12
IEC 61140	NOTE	Approved as EN 61140
IEC 61557-8	NOTE	Approved as EN 61557-8
IEC 61558 series	NOTE	Approved as EN 61558 series
IEC 61643-12	NOTE	Approved as CLC/TS 61643-12
IEC 61820-3-4	NOTE	Approved as EN IEC 61820-3-4
IEC 61822:2009	NOTE	Approved as EN 61822:2009 (not modified)
IEC 62305-1	NOTE	Approved as EN 62305-1
IEC 62305-2	NOTE	Approved as EN 62305-2
IEC 62305-3	NOTE	Approved as EN 62305-3
IEC 62443-4-2	NOTE	Approved as EN IEC 62443-4-2

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60038	-	IEC standard voltages	EN 60038	-
IEC 60076-11	-	Power transformers - Part 11: Dry-type transformers	EN IEC 60076-11	-
IEC 61000-6-4	-	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN IEC 61000-6-4	-
IEC 61000-6-5	-	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment	EN 61000-6-5	-
IEC 61439-1	-	Low-voltage switchgear and controlgear assemblies - Part 1: General rules	EN IEC 61439-1	-
IEC 61439-2	-	Low-voltage switchgear and controlgear assemblies - Part 2: Power switchgear and controlgear assemblies	EN IEC 61439-2	-
IEC 61508	series	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements	EN 61508	series
IEC 61820-1	2019	Electrical installations for aeronautical ground lighting at aerodromes - Part 1: Fundamental principles	EN IEC 61820-1	2019
IEC 62477-1	2022	Safety requirements for power electronic converter systems and equipment - Part 1: General	EN IEC 62477-1	2023
IEC 62477-2	2018	Safety requirements for power electronic converter systems and equipment - Part 2: Power electronic converters from 1 000 V AC or 1 500 V DC up to 36 kV AC or 54 kV DC	EN IEC 62477-2	2018

EN IEC 61820-3-2:2023 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CISPR 11	-	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	-
CISPR 32	-	Electromagnetic compatibility of multimedia equipment - Emission requirements	-	-



IEC 61820-3-2

Edition 1.0 2023-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Installations électriques pour l'éclairage et le balisage des aérodromes –
Partie 3-2 : Exigences relatives aux alimentations électriques – Exigences
particulières relatives aux circuits série**

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Edition 1.0 2023-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Installations électriques pour l'éclairage et le balisage des aérodromes –
Partie 3-2 : Exigences relatives aux alimentations électriques – Exigences
particulières relatives aux circuits série**

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
4 Classification.....	9
4.1 Base classes	9
4.2 Voltage classes.....	9
4.3 Construction classes.....	10
5 Requirements	10
5.1 General.....	10
5.2 Environmental requirements	10
5.2.1 General	10
5.2.2 Environmental conditions.....	10
5.2.3 Electromagnetic compatibility (EMC)	11
5.3 Functional requirements.....	11
5.3.1 Input voltage.....	11
5.3.2 Power ratings	11
5.3.3 Brightness level control	11
5.3.4 Remote interface communication	12
5.3.5 Field circuit isolator	13
5.3.6 Output performance and regulation.....	13
5.3.7 Protective functions	15
5.3.8 Optional functional requirements	16
5.4 Performance requirements.....	18
5.4.1 Efficiency.....	18
5.4.2 Input power factor.....	18
5.4.3 Output voltage limitation specific to 6,6 A CCRs	18
5.4.4 Output voltage limitation specific to general PECS for AGL systems	18
5.4.5 Output current waveform specific to 6,6 A CCRs.....	18
5.4.6 Dynamic response specific to 6,6 A CCRs	18
5.5 Design requirements.....	19
5.5.1 General	19
5.5.2 Local control.....	19
5.5.3 Local indication	19
5.5.4 Mechanical design	19
5.5.5 Electrical design	20
5.5.6 Information and markings	21
5.6 Protection against hazards.....	23
5.6.1 General	23
5.6.2 SPD monitoring	23
5.6.3 Specific considerations for the series circuit	23
5.6.4 Functional safety	23
5.6.5 Cyber security	23
6 Type and routine tests.....	24
6.1 General.....	24

6.2	Type tests	24
6.3	Routine tests	25
6.4	Test descriptions	25
6.4.1	General	25
6.4.2	Visual inspection	25
6.4.3	Test of protective functions	25
6.4.4	Operation test	27
6.4.5	Performance tests	28
6.4.6	Mechanical operation test	30
6.4.7	Electromagnetic compatibility (EMC)	30
6.4.8	Environmental tests	31
6.4.9	Optional accessories	32
	Bibliography	33
	Figure 1 – Nameplate	22
	Figure 2 – Open circuit test schematic diagram	26
	Table 1 – Remote control and monitoring functions	12
	Table 2 – Standard 6,6 A CCR output current step pre-settings	14
	Table 3 – Lamp failure indicator	17
	Table 4 – Type and routine tests	24
	Table 5 – Resistive loading test	28
	Table 6 – Reactive loading test	28

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL INSTALLATIONS FOR LIGHTING
AND BEACONING OF AERODROMES –****Part 3-2: Requirements for power supplies –
Particular requirements for series circuits**

FOREWORD

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IEC 61820-3-2 has been prepared by IEC technical committee 97: Electrical installations for lighting and beaconing of aerodromes. It is an International Standard.

This first edition cancels and replaces IEC 61822 published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 61822:2009:

- a) introduction of power electronic converter systems (PECS) to be used in the aeronautical ground lighting systems other than the 6,6 A aeronautical ground lighting systems;
- b) introduction of classification for different device types;

- c) introduction of IEC 62477-1:2022 and IEC 62477-2:2018 as the basis for safety related requirements.

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

Draft	Report on voting
97/264/FDIS	97/265/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/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.

Future documents in this series will carry the new general title as cited above. Titles of existing documents in this series will be updated at the time of the next edition.

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.

INTRODUCTION

This document introduces an open specification for power electronic converter systems (PECS) to be used in aeronautical ground lighting (AGL) series circuit systems. The aim of this open specification is to enable various technologies to be used within AGL systems while ensuring the safe operation and function of the AGL system based on specific items in a series circuit topology.

This document also includes updated requirements for 6,6 A constant current regulators (CCR), previously defined in IEC 61822:2009.

The PECS defined in this document are power supplies for AGL circuits with a series circuit topology. It is possible that a PECS is not interoperable with AGL devices designed for the 6,6 A system. It is also possible that a PECS is not interoperable with AGL devices from other PECS-driven AGL systems. Special care should be taken to ensure the interoperability of the AGL components unless they are specifically designed to be operated together.

To clarify the distinction between different series circuit power supplies, a new classification system is introduced in Clause 4. A base class divides the power supplies into PECS and CCRs. In this document the term PECS refers to series circuit power supplies belonging to the class "General PECS for AGL systems" and the term CCR refers to series circuit power supplies belonging to the class "CCR for 6,6 A systems". The term PECS/CCR refers to both device classes. The class "CCR for 6,6 A AGL systems" corresponds to the traditional series circuit power supplies as defined by IEC 61822:2009.

In addition to the base class, classes for voltage ranges and construction mechanics are introduced. Where a part of this document only refers to one or more specific AGL systems, the systems in question will be clearly indicated.

Meanwhile this updated edition can be partially applicable to PECS dedicated to converting power from a mains supply to power suited for AGL other than series circuit topology. The maintenance work of IEC 61822:2009 into IEC 61820-3-2 started before the writing of the related subparts IEC 61820-3-1 and IEC 61820-3-3 had started. This updated version can therefore be partially applicable to PECS dedicated to converting power from a mains supply to power suited for AGL systems with other than series circuit topology.

ELECTRICAL INSTALLATIONS FOR LIGHTING AND BEACONING OF AERODROMES –

Part 3-2: Requirements for power supplies – Particular requirements for series circuits

1 Scope

This part of IEC 61820 specifies the requirements for power electronic converter systems (PECS) dedicated to powering aeronautical ground lighting (AGL) circuits with series circuit topology. An example of a traditional implementation is an AGL circuit with 6,6 A RMS nominal current, powered by a constant current regulator (CCR). In addition to revising the requirements for 6,6 A CCR setups, this document introduces requirements for general PECS for new AGL systems including systems specifically designed for LED based luminaires.

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 60038, *IEC standard voltages*

IEC 60076-11, *Power transformers – Part 11: Dry-type transformers*

IEC 61000-6-4, *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments*

IEC 61000-6-5, *Electromagnetic compatibility (EMC) – Part 6-5: Generic standards – Immunity for equipment used in power station and substation environment*

IEC 61439-1, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*

IEC 61439-2, *Low-voltage switchgear and controlgear assemblies – Part 2: Power switchgear and controlgear assemblies*

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*

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

IEC 62477-1:2022, *Safety requirements for power electronic converter systems and equipment – Part 1: General*

IEC 62477-2:2018, *Safety requirements for power electronic converter systems and equipment – Part 2: Power electronic converters from 1 000 V AC or 1 500 V DC up to 36 kV AC or 54 kV DC*

CISPR 11, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

CISPR 32, *Electromagnetic compatibility of multimedia equipment – Emission requirements*

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