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**Električne inštalacije za razsvetljavo in radijske javljalnike na letališčih - 1-2. del:  
Posebne zahteve za zaporedna vezja**

Electrical installations for lighting and beaconing of aerodromes - Part 1-2: Particular requirements for series circuits

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Installations électriques pour l'éclairage et le balisage des aérodromes  
Exigences particulières relatives aux circuits série

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**Ta slovenski standard je istoveten z: prEN IEC 61820-2:2023**

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**ICS:**

29.140.50	Instalacijski sistemi za razsvetljavo	Lighting installation systems
49.100	Oprema za servis in vzdrževanje na tleh	Ground service and maintenance equipment
93.120	Gradnja letališč	Construction of airports

**oSIST prEN IEC 61820-2:2023**

**en**





97/252/CDV

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SECRETARIAT: Spain	SECRETARY: Mrs Carmen Martín Marino
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input checked="" type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
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TITLE:

**Electrical installations for lighting and beaconing of aerodromes <br />****Part 1-2: Particular requirements for series circuits**

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:

According to the decision made at the meeting held in Barcelona on 2019-10-04 (see 97/212/RM item 7), the new number of this project shall be IEC 61820-1-2.

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**Electrical installations for lighting and beaconing of aerodromes****Part 1-2: Particular requirements for series circuits**

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International Standard IEC 61820-1-2 has been prepared by IEC technical committee 97: Electrical installations for lighting and beaconing of aerodromes.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

112

113 Full information on the voting for the approval of this International Standard can be found in the  
114 report on voting indicated in the above table.

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

116 The committee has decided that the contents of this document will remain unchanged until the  
117 stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to  
118 the specific document. At this date, the document will be

- 119 • Reconfirmed,
- 120 • Withdrawn,
- 121 • Replaced by a revised edition, or
- 122 • Amended.

123

124 The National Committees are requested to note that for this document the stability date  
125 is 2028.

126 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED  
127 AT THE PUBLICATION STAGE.

128

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129

## INTRODUCTION

130 This document is a part of a multipart standard that describes the minimum requirements for  
131 the lifecycle of an Aeronautical Ground Lighting system including design, installation,  
132 commissioning, maintenance, decommissioning and disposal.

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

141 People involved in work on AGL electrical systems shall be knowledgeable of the specific risks  
142 and the safety procedures involved in the work related to the applied system design. It is  
143 strongly recommended to do a work safety risk analysis considering all local circumstances to  
144 define safe work procedures and training to the personnel.

145 Note 1: For specifications on SELV/PELV power supplies for AGL systems, see IEC 62870.

146 Note 2: Local/national regulations can be different to these standard provisions.

147

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# 149 ELECTRICAL INSTALLATIONS FOR LIGHTING AND BEACONING OF AERODROMES

## 150 Part 1-2: Particular requirements for series circuits

151

152

### 153 1 Scope

154 This part describes requirements based on the IEC 61820-1, complemented with series circuit  
155 specific topics.

### 156 2 Normative references

157 The following documents are referred to in the text in such a way that some or all of their content  
158 constitutes requirements of this document. For dated references, only the edition cited applies.  
159 For undated references, the latest edition of the referenced document (including any  
160 amendments) applies.

161 This clause of Part 1 is applicable, with additions:

162 IEC 61820-1: Electrical installations for lighting and beaconing of aerodromes – Part 1: Fundamental  
163 Principles

164 IEC 61821: Electrical installations for lighting and beaconing of aerodromes - Maintenance of  
165 aeronautical ground lighting constant current series circuits

166 IEC 61820-3-2: Electrical installations for lighting and beaconing of aerodromes – Particular  
167 requirements for series circuit power supplies

168 IEC 61823: Electrical installations for lighting and beaconing of aerodromes – AGL series transformers

169 IEC 62870: Electrical installations for lighting and beaconing of aerodromes –Safety secondary  
170 circuits in series circuits – General safety requirements

171 IEC TS 61827: Electrical installations for lighting and beaconing of aerodromes –Characteristics  
172 of inset and elevated light fixtures used on aerodromes and heliports

173 IEC TS 62100: Electrical installations for lighting and beaconing of aerodromes – Cables for  
174 aeronautical ground lighting primary circuits

175 IEC 63067 Electrical installations for lighting and beaconing of aerodromes - Connecting  
176 devices - General requirements and tests.

177 IEC 61557 (series) Electrical safety in low voltage distribution systems up to 1 000 V AC and 1  
178 500 V DC - Equipment for testing, measuring or monitoring of protective measures.

179 IEC 60060 (series) High-voltage test techniques

### 180 3 Terms and definitions

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

182 This clause of Part 1 is applicable, with additions:

183

#### 184 3.1

#### 185 AGL System

186 A functional aeronautical ground lighting entity consisting of interoperable components such as power  
187 supply, transformers, light fixtures, and other loads etc.

188 The general categories for AGL systems are:

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

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

194 - **Category 3:** The communication-controlled system. An AGL system wherein the luminosity levels are  
195 controlled independently of the series circuit effective current, e.g., via power line communication or by  
196 other means of information transmission.

197 Note 1: An AGL component may belong to more than one category. All category 1 AGL components  
198 shall be interoperable in any category 1 AGL system installation. AGL components in categories 2 or 3  
199 may be noninteroperable with AGL components in the same category.

200

## 201 **3.2**

### 202 **Series circuit power supply**

203 A series circuit power supply is an apparatus which produces a selectable constant current  
204 output and automatically adjusts the voltage for variations in the loads, input voltage and service  
205 conditions as specified.

206 Note 1: For 6,6A series circuit power supplies see IEC 61820-3-2 (Particular requirements for series  
207 circuit power supplies).

## 208 **3.3**

### 209 **Series circuit transformers**

210 Series circuit transformers provide power to light fixtures or other loads from their secondary  
211 circuits. The series circuit transformer provides continuity of the primary series circuit in the  
212 event of a loss of the load, and electrical separation between the primary circuit and the  
213 secondary circuit.

214 Note 1: For specifications on series circuits transformers see IEC 61823.

215 Note 2: Devices other than transformers meeting the requirements of IEC 61823 may be used  
216 to provide continuity and electrical separation.

## 217 **3.4**

### 218 **Primary series cable**

219 A primary series cable is a screened or unscreened solid or multi-stranded single core cable  
220 used to link series transformers and the CCR in the primary circuits of series systems for lighting  
221 and beaconing of airports.

222 Note 1: For specifications on series cable, see IEC TS 62100.

223 Note 2: Some countries may have national standards for series circuit cables.

## 224 **3.5**

### 225 **Primary cable connecting devices**

226 Single pole connecting devices in accordance with IEC 63067 used to interconnect the different  
227 elements in a primary circuit.

## 228 **3.6**

### 229 **Secondary cable connecting devices**

230 Multipole connecting devices in accordance with IEC 63067 used to interconnect loads with  
231 series transformers.

## 232 **3.7**

### 233 **Series loads**

234 Series loads are electrical devices designed to be fed by constant current series circuits, as  
235 (not exclusively) light fixtures, signs, detection loops, PAPI, etc.

236 **3.8**  
237 **Light fixture**

238 Apparatus which distributes, filters or transforms the light transmitted from one or more light  
239 sources. This includes the light source, all the parts necessary for fixing and protecting the light  
240 source and, where necessary, circuit auxiliaries together with the means for connecting them  
241 to the electrical supply.

242  
243 Note: Where the terms “voltage” and “current” are used in this document, they refer to RMS  
244 values unless otherwise specified.

245

246 **4 Requirements**

247 **4.1 General**

248 A series circuit shall be designed as one continuous primary loop connected to the output of the series  
249 circuit power supply.

250 The output of the series circuit power supply shall be galvanically separated from the input (e.g.  
251 the mains). All live conductors in the primary series circuits shall be insulated from earth.

252 A primary series circuit may feed multiple secondary circuits according to IEC 61820-1 to supply  
253 the light fixtures or other loads. Each individual secondary circuit shall be separated from the  
254 primary circuit by a series circuit transformers according IEC 61823 or any other method  
255 providing the level of separation as required in IEC 62870.

256 **4.2 Series Circuit Power Supply**

257 Series circuit power supplies shall be compliant with basic requirements contained within this  
258 standard.

259

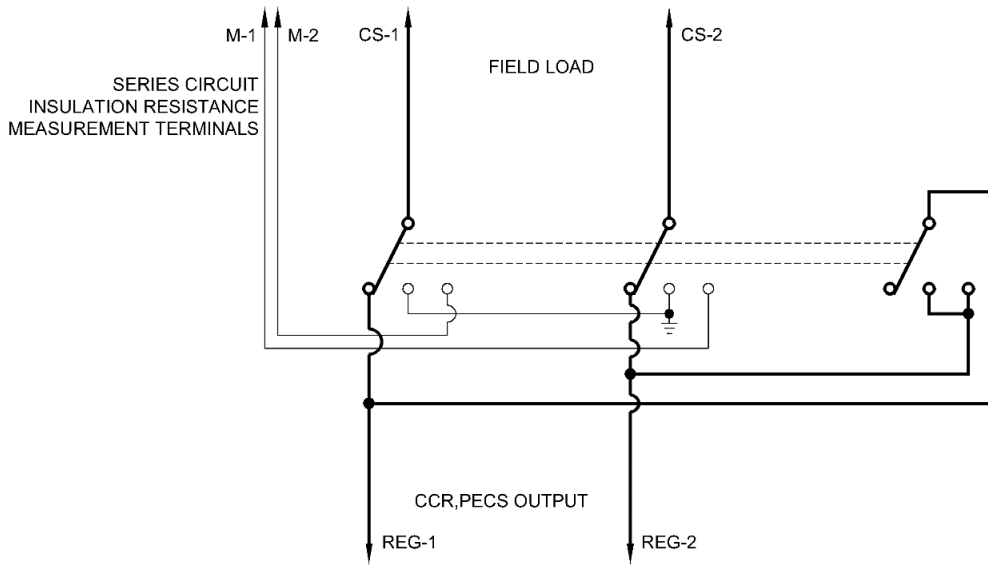
260 **4.3 Isolation of Field Circuit**

261 When required, the primary series circuit shall be disconnected from any power supply using an  
262 appropriate disconnecting device as indicated in IEC 61820-3-2. The conductors at the open ends of  
263 the primary series circuit shall be shorted together and connected to earth for circuit maintenance or  
264 open for insulation resistance to earth testing purposes.

265 When the circuit is earthed for maintenance purposes, the device shall be capable of being locked in  
266 either the ‘isolated’ or earthed’ position to prevent harm to maintenance personnel. The different modes  
267 of operation of a field isolator device are shown in Diagram 1.

268 The field circuit isolator may be installed within the series circuit power supply or as a standalone  
269 external unit.

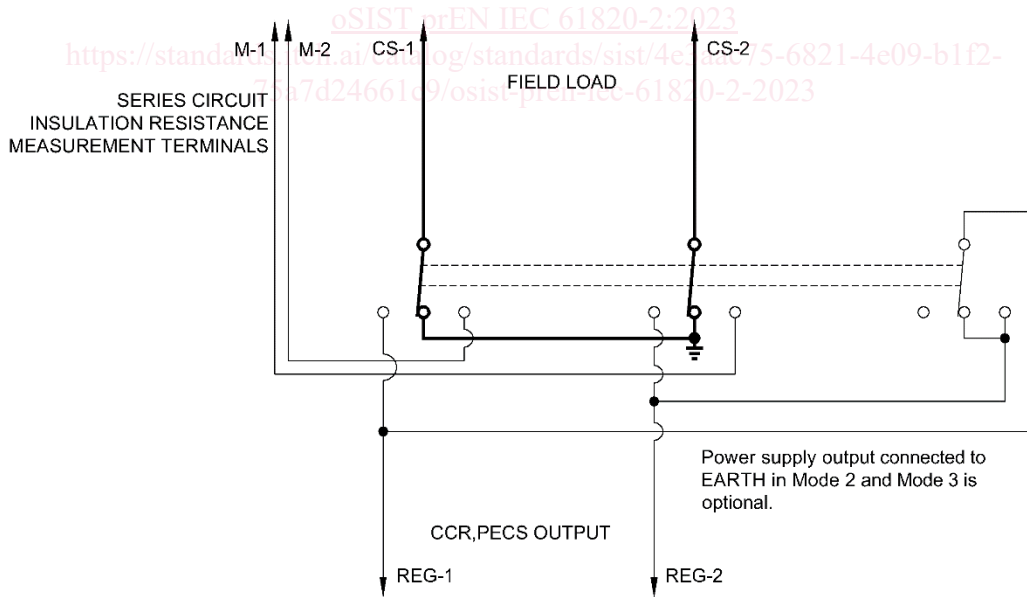
270



**MODE 1:** WORKING MODE, LOAD ENERGIZED.

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**MODE 2:** MAINTENANCE MODE, FIELD CIRCUIT IS EARTHED.

272