

SLOVENSKI STANDARD
oSIST prHD 60364-7-719:2010
01-april-2010

Nizkonapetostne električne inštalacije - 7-719. del: Zahteve za posebne inštalacije ali lokacije - Inštalacije za razsvetljavo oglasnih tabel z naznačeno napetostjo, ki ne presega 1000 V in je izvedena s fluorescenčnimi sijalkami z vročo katodo, svetlečimi razelektritvenimi cevni sijalkami (neonskimi cevmi), induktivnimi razelektritvenimi sijalkami, svetlečimi diodami (LED) in/ali moduli svetlečih diod

Low-voltage installations -- Part 7-719: Requirements for special installations or locations - Lighting installations for advertising signs with a rated output voltage not exceeding 1 000 V, which are illuminated by hot-cathode fluorescent-lamps, luminous-discharge tubes (neon-tubes), inductive discharge lamps, light emitting diodes (LED) and/or LED modules

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Errichten von Niederspannungsanlagen -- Teil 7-719: Anforderungen für Betriebsstätten, Räume und Anlagen besonderer Art - Lichtwerbeanlagen mit einer Bemessungsausgangs-Leerlaufspannung bis 1 000 V, die mit Heißkathoden-Leuchtstofflampen, Leuchtröhren (Neonröhren), Induktions-Entladungslampen, Leuchtdioden (LED) und/oder Leuchtdioden-Modulen aus-, oder beleuchtet sind

Ta slovenski standard je istoveten z: prHD 60364-7-719:2010

ICS:

29.140.50	Instalacijski sistemi za razsvetljavo	Lighting installation systems
91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

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HARMONIZATION DOCUMENT
DOCUMENT D'HARMONISATION
HARMONISIERUNGSDOKUMENT

DRAFT
prHD 60364-7-719

February 2010

ICS 91.140.50

English version

**Low-voltage installations -
Part 7-719: Requirements for special installations or locations -
Lighting installations for advertising signs with a rated output voltage
not exceeding 1 000 V, which are illuminated by hot-cathode-fluorescent-lamps,
luminous-discharge tubes (neon-tubes), inductive discharge lamps,
light emitting diodes (LED) and/or LED modules**

Installations électriques à basse tension -
Partie 7-719: Exigences pour les installations et
emplacements spéciaux -
Installations d'éclairage à des fins publicitaire avec
tension de sortie à vide assignée ne dépassant
pas 1 000 V, étant illuminées avec lampes
fluorescentes, tubes lumineux à décharge (néon),
lampes d'induction, diodes émettant de la lumière
(DEL) et/ou modules DEL

Errichten von Niederspannungsanlagen -
Teil 7-719: Anforderungen für Betriebsstätten,
Räume und Anlagen besonderer Art -
Lichtwerbeanlagen mit einer Bemessungs-
Ausgangs-Leerlaufspannung bis 1 000 V, die mit
Heißkathoden-Leuchtstofflampen, Leuchtröhren
(Neonröhren), Induktions-Entladungslampen,
Leuchtdioden (LED) und/oder Leuchtdioden-
Modulen aus-, oder beleuchtet sind

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This draft Harmonization Document is submitted to CENELEC members for CENELEC enquiry.
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It has been drawn up by CENELEC TC 64.

If this draft becomes a Harmonization Document, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

This draft Harmonization Document was established by CENELEC in three official versions (English, French, German).

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

1

Foreword

2 This draft Harmonization Document was prepared by the Technical Committee CENELEC TC 64, Electrical
3 installations and protection against electric shock, based on BT/DE0246/NOT. It is submitted to CENELEC
4 enquiry.

5

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6

Contents

7	Introduction	4
8	719 Lighting installations for advertising signs with a rated output voltage not exceeding	
9	1 000 V, which are illuminated by hot-cathode-fluorescent-lamps, luminous-discharge tubes	
10	(neon-tubes), inductive discharge lamps, light emitting diodes (LED) and/or LED modules	5
11	719.1 Scope and normative references.....	5
12	719.2 Terms and definitions	6
13	719.4 Protection for safety.....	9
14	719.41 Protection against electric shock.....	9
15	719.42 Protection against thermal effects	10
16	719.421 General requirements.....	10
17	719.482 Protection against fire for extra-low voltage installations where particular risks or dangers exist	11
18	719.51 Selection and erection of electrical equipment.....	11
19	719.514 Identification.....	12
20	719.52 Wiring systems	12
21	719.521 Types of wiring systems	12
22	719.522 Selection and erection of wiring systems in relation to external influences	13
23	719.525 Voltage drop in consumer's LED installations.....	13
24	719.526 Electrical connections.....	14
25	719.55 Other equipment and light sources	14
26	719.6 Verification..... kSIST.FprHD.60364-7-719:2018	17
27	Bibliography https://standards.iteh.ai/catalog/standards/sist/06c0287a-3788-4656-9523-90c29f56ee82/ksist-prhd-60364-7-719-2018	26
28		
29	Figures	
30	Figure 1 – Example of an arrangement within an internally illuminated letter/sign box	18
31	Figure 2 – Example of an arrangement of a surface-mounted tube with the electrodes passing through a	
32	metal panel.....	19
33	Figure 3 – Example of an arrangement within an internally illuminated letter/sign box – Clearances and	
34	creepage distances	20
35	Figure 4 – Circuit diagram for constant LED voltage.....	21
36	Figure 5 – Circuit diagram for constant LED current	22
37	Figure 6 – Circuit diagram for constant LED module current	23
38	Figure 7 – Example of an arrangement within an internally with LED illuminated letter/sign box.....	24
39	Figure 8 – Example of an arrangement of a letter / sign box internally illuminated with LED	25
40		
41	Tables	
42	Table 1 – Clearances and creepage distances for installation-wiring (excluding transformers, converters,	
43	inverters and ballast).....	10
44	Table 2 – Maximum distance between the luminous-discharge tube supports.....	12
45	Table 3 – Cross-sectional areas of conductors	13
46		

47 Introduction

48 The requirements of this part of HD 60364 supplement, modify or replace certain of the general requirements
49 of the other parts of HD 60364.

50 The clause numbering of Part 719 follows the pattern and corresponding references of HD 60364.
51 The numbers following the particular number of Part 719 are those of the corresponding parts or clauses of
52 HD 60364.

53 The absence of reference to a part, a clause or a subclause means that the corresponding general
54 requirements of HD 60364 are applicable.

55

56 CLC/TC 64 Secretariat's note

57 *At the end of October 2008 the Technical Committee of the Netherlands recommended that*

- 58 • *this standard should be a product and not an installation standard, and*
59 • *it should not be a part of HD 60364, but should become a separate standard in the EN 50000 series.*

60 *In 2008, CLC/TC 64 officers already contacted CLC/TC 34Z officers and proposed them to transfer this*
61 *project under CLC/TC 34Z duty. CLC/TC 34Z officers were of the opinion that this project should fall under*
62 *the responsibility of CLC/TC 64.* (standards.iteh.ai)

63 *At the meeting of the CLC/TC 64 on 31st March 2009 – 2nd April 2009 in Oslo, Norway, the members*
64 *discussed details of this standard and also the recommendation of the Netherlands. Still some members of*
65 *CLC/TC 64 explained that this project contains both installation rules and product requirements.*

66 *Therefore the national Technical Committees are asked to comment, whether this standard should be an*
67 *installation standard and remain HD 60364-7-719, or should be a product standard and proposed again to*
68 *CLC/TC 34Z for inclusion in a EN 50000 series, for instance as a new Part 3 to EN 50107, or any other*
69 *suitable solution.*

- 70 **719** **Lighting installations for advertising signs with a rated output voltage not exceeding 1 000 V,**
 71 **which are illuminated by hot-cathode-fluorescent-lamps, luminous-discharge tubes**
 72 **(neon-tubes), inductive discharge lamps, light emitting diodes (LED) and/or LED modules**
- 73 **719.1** **Scope and normative references**
- 74 **719.1.11** **Scope**
- 75 This standard specifies the requirements for the installation and testing of all kinds and sizes of illuminated
 76 signs with a no-load rated output-voltage up to 1 000 V, including the electrical components and wiring.
- 77 This standard covers installations used for signs, light-artworks and decorative purposes. These installations
 78 may be either fixed or portable, supplied from a low-voltage or extra-low-voltage source by means of a
 79 transformer, inverter, converter ballast or similar equipment.
- 80 NOTE In general, hot-cathode-fluorescent-lamps, luminous-discharge tubes (neon-tubes), inductive discharge lamps, light emitting
 81 diodes (LED) and LED modules are used as light-sources.
- 82 **719.1.12** **Normative references**
- 83 The following referenced documents are indispensable for the application of this document. For dated
 84 references, only the edition cited applies. For undated references, the latest edition of the referenced
 85 document (including any amendments) applies.
- 86 EN 50107-1:2002, *Signs and luminous-discharge-tube installations operating from a no-load rated output*
 87 *voltage exceeding 1 kV but not exceeding 10 kV – Part 1: General requirements*
 (standards.iteh.ai)
- 88 EN 50107-2, *Signs and luminous-discharge-tube installations operating from a no-load rated output voltage*
 89 *exceeding 1 kV but not exceeding 10 kV – Part 2: Requirements for earth-leakage and open-circuit*
 90 *protective devices*
<https://standards.iteh.ai/catalog/standards/sist/06c0287a-3788-4656-9523-0020f56e827a/prHD-60364-7-719-2018>
- 91 EN 60081, *Double-capped fluorescent lamps – Performance specifications* (IEC 60081)
- 92 EN 60529:1991 + corr. May 1993 + A1:2000, *Degrees of protection provided by enclosures (IP Code)*
 93 (IEC 60529:1989 + A1:1999)
- 94 EN 60598-1:2008 + A11:2009, *Luminaires – Part 1: General requirements and tests*
 95 (IEC 60598-1:2008, mod.)
- 96 EN 60598-2-23:1996, *Luminaires – Part 2-23: Particular requirements – Extra low-voltage lighting systems*
 97 *for filament lamps* (IEC 60598-2-23:1996)
- 98 EN 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles,*
 99 *requirements and tests* (IEC 60664-1:2007)
- 100 EN 60901, *Single-capped fluorescent lamps – Performance specifications* (IEC 60901)
- 101 EN 60921, *Ballasts for tubular fluorescent lamps – Performance requirements* (IEC 60921)
- 102 EN 60929, *AC-supplied electronic ballasts for tubular fluorescent lamps – Performance requirements*
 103 (IEC 60929)
- 104 EN 61050, *Transformers for tubular discharge lamps having a no-load output voltage exceeding 1 kV*
 105 *(generally called neon-transformers) – General and safety requirements* (IEC 61050)
- 106 EN 61195, *Double-capped fluorescent lamps – Safety specifications* (IEC 61195)
- 107 EN 61199, *Single-capped fluorescent lamps – Safety specifications* (IEC 61199)

- 108 EN 61347-1:2008, *Lamp controlgear – Part 1: General and safety requirements* (IEC 61347-1:2007)
- 109 EN 61347-2-2:2001 + corr. Jul. 2003 + A1:2006 + corr. Nov. 2006 + A2:2006, *Lamp controlgear –*
 110 *Part 2-2: Particular requirements for d.c. or a.c. supplied electronic step-down converters for filament lamps*
 111 (IEC 61347-2-2:2000 + A1:2005 + A2:2006)
- 112 EN 61347-2-3, *Lamp controlgear – Part 2-3: Particular requirements for a.c. supplied electronic ballasts for*
 113 *fluorescent lamps* (IEC 61347-2-3)
- 114 EN 61347-2-8, *Lamp controlgear – Part 2-8: Particular requirements for ballasts for fluorescent lamps*
 115 (IEC 61347-2-8)
- 116 EN 61347-2-10:2001, *Lamp controlgear – Part 2-10: Particular requirements for electronic invertors and*
 117 *convertors for high-frequency operation of cold start tubular discharge lamps (neon tubes)*
 118 (IEC 61347-2-10:2000)
- 119 EN 61347-2-13:2006, *Lamp controlgear – Part 2-13: Particular requirements for d.c. or a.c. supplied*
 120 *electronic controlgear for LED modules* (IEC 61347-2-13:2006)
- 121 EN 62031:2008, *LED modules for general lighting – Safety specifications* (IEC 62031:2008)
- 122 EN 62384, *DC or AC supplied electronic control gear for LED modules – Performance requirements*
 123 (IEC 62384)
- 124 EN 62532 ¹⁾, *Fluorescent induction lamps – Safety specifications* (IEC 62532)
- 125 HD 384/60364 series, *Electrical installations of buildings / Low-voltage electrical installations*
 126 (IEC 60364 series)
- 127 HD 60364-7-715:2005, *Electrical installations of buildings – Part 7-715: Requirements for special*
 128 *installations or locations – Extra-low-voltage lighting installations* (IEC 60364-7-715:1999, mod.),
 kSIST PrHD 60364-7-719:2018
 90c29f56ee82/ksist-prhd-60364-7-719-2018
- 129 IEC 60050-826, *International Electrotechnical Vocabulary – Part 826: Electrical installations*
 90c29f56ee82/ksist-prhd-60364-7-719-2018
- 130 **719.2 Terms and definitions**
- 131 For the purposes of this document, the terms and definitions given in IEC 60050-826 (IEV) and the following
 132 apply.
- 133 **719.2.1 General**
- 134 **719.2.1.1**
 135 **no-load rated output voltage**
 136 maximum rated voltage between the output terminals(s) of the transformer, inverter, converter, ballast or
 137 power supplies connected to the rated supply voltage at rated frequency, with no load on the output circuit
- 138 NOTE 1 For output circuits supplied by transformers, it is the peak value divided by the square root of 2 (see EN 61050).
- 139 NOTE 2 For inverters or converters with sinusoidal waveform, it is the maximum rated voltage between the output terminals (see
 140 EN 61347-2-10). For other waveforms it is the r.m.s. value or the equivalent value deduced from the peak value, obtained by
 141 mathematical calculation.
- 142 (from EN 50107-1:2002)
- 143 **719.2.1.2**
 144 **creepage distance**
 145 shortest distance along the surface of a solid installation material between two conductive parts
 146 [EN 60664-1:2007, 3.3]

¹⁾ At draft stage. The current IEC document bears the number 34A/1370/CDV.

- 147 **719.2.1.3**
148 **clearance**
149 shortest distance in air between two conductive parts
150 [EN 60664-1:2007, 3.2]
- 151 **719.2.1.4**
152 **insulating sleeve**
153 insulation designed to be placed over the exposed output-voltage connections at tube electrodes or over
154 cable-end insulators
- 155 **719.2.1.5**
156 **electrical skilled person for illuminated signs**
157 person qualified in sign installation practice who has knowledge and experience in the production,
158 installation, testing and maintenance of all kind of illuminated signs and who takes responsibility for the
159 installation and its testing in accordance with the standards
- 160 **719.2.1.6**
161 **output circuit**
162 that part of the device or installation between the output terminals of control gear including the light sources
163 and cables
164 [EN 50107-1:2002, 3.14, mod.]
- 165 **719.2.2 Light sources**
- 166 **719.2.2.1**
167 **hot-cathode-fluorescent lamp**
168 low-pressure discharge lamp with or without mercury, utilising electrodes operating by thermo-ionic emission
169 of electrons, and in which most of the light is emitted by one or several layers of phosphors excited by the
170 ultra-violet radiation from the discharge
171 [IEV 845-07-26, mod.] (from EN 60081) [ksIST FprHD 60364-7-719:2018](https://standards.iteh.ai/catalog/standards/sist/06c0287a-3788-4656-9523-90c29f56ee82/ksist-prhd-60364-7-719-2018)
<https://standards.iteh.ai/catalog/standards/sist/06c0287a-3788-4656-9523-90c29f56ee82/ksist-prhd-60364-7-719-2018>
- 172 **719.2.2.2**
173 **luminous-discharge tube**
174 tube, or other vessel or device, which is constructed of translucent material, hermetically sealed, and
175 designed for the emission of light arising from the passage of an electric current through a gas or vapour
176 contained within it
177 NOTE The tube may be with or without an internal fluorescent coating.
178 [EN 50107-1:2002, 3.1, mod.]
- 179 **719.2.2.3**
180 **Light-Emitting Diode (LED)**
181 solid state device embodying a p-n junction, emitting optical radiation when excited by an electric current
182 [IEV 845-04-40 and EN 62031:2008, 3.1]
- 183 **719.2.2.4**
184 **LED module**
185 unit supplied as a light source. In addition to one or more LED it may contain further components, e.g.
186 optical, mechanical, electrical and electronic, but excluding the control gear
187 [EN 62031:2008, 3.2]
- 188 **719.2.2.5**
189 **induction lamp**
190 assembly of a low pressure mercury discharge vessel and an inductive power coupler
191 [EN 62532:200X, 1.3.1]

192 **719.2.3 Control gear**193 **719.2.3.1**194 **power transformer**

195 static piece of apparatus with two or more windings which, by electromagnetic induction, transforms a
196 system of alternating voltage and current into another system of voltage and current usually of different
197 values and at the same frequency for the purpose of transmitting electrical power

198 NOTE The high output impedance of most transformers designed for cold-cathode discharge tubes allows the characteristics of
199 transformer and current-limiting components to be combined in one unit.

200 [IEV 421-01-01]

201 **719.2.3.2**202 **lamp control gear**

203 one or more components between the supply and one or more lamps which may serve to transform the
204 supply voltage, limit the current of the lamp(s) to the required value, provide starting voltage and preheating
205 current, prevent cold starting, correct power factor or reduce radio interference

206 NOTE This is the most comprehensive description of a device for operating lamps. It can be either electronic (ECG) or electro-
207 magnetic (copper-iron type).

208 (from EN 61347-1:2008)

209 **719.2.3.3**210 **ballast**

211 unit inserted between the supply and one or more discharge lamps which by means of inductance,
212 capacitance, or a combination of inductance and capacitance, serves mainly to limit the current of the
213 lamp(s) to the required value

214 NOTE It may also include means for transforming the supply voltage and arrangements which help provide starting voltage and
215 pre-heating current (from EN 61347-1:2008). This definition concerns electro-magnetic (copper-iron) types. The expression, however, is
216 often used colloquially for any type).

217 **719.2.3.4**218 **inverter**

219 electric energy transducer that converts direct current to alternating current

220 [EN 61347-2-10:2001, 3.3]

221 **719.2.3.5**222 **electronic step down converter**

223 unit inserted between the supply and one or more incandescent lamps, which serves to supply the lamp(s)
224 with its (their) rated voltage, generally at high frequency. The unit may consist of one or more separate
225 components and may include means for dimming, correcting the power factor and suppressing radio
226 interference

227 (from EN 61347-2-2:2001)

228 **719.2.3.6**229 **electronic control gear for LED modules**

230 unit inserted between the supply and one or more LED modules which serves to supply the LED module(s)
231 with their rated voltage or rated current. The unit may consist of one or more separate components and may
232 include means for dimming, correcting the power factor and suppressing radio interference

233 [EN 61347-2-13:2006, 3.1]

234 NOTE Further definitions are given in EN 61347-2-13 and in EN 62384.

235 **719.2.3.7**236 **earth-leakage protective device**

237 device which will remove the output power from one or more transformer(s), inverter(s) or converter(s) in the
238 event of a short circuit between any relevant part of the output circuit and earth

239 [EN 50107-1:2002, 3.10, mod.]

240 NOTE Another further definition of an earth-leakage protective device is in EN 61347-2-10:2001, 3.5.

- 241 **719.2.3.8**
 242 **illuminated sign**
 243 system with light sources which is intended for advertising signs, light-artworks, and/or decorative purposes
 244 for indoor and outdoor installation, consisting of a combination of some apparatus, devices and components
 245 which are assembled and/or installed by an installer on the site
- 246 **719.2.3.9**
 247 **flasher**
 248 device for automatically switching one or more output circuits on and off continuously
- 249 NOTE The sequence of switching of the various output circuits may be suitably arranged to provide the impression of movement and
 250 other animated effects.
- 251 [EN 50107-1:2002, 3.20, mod.]
- 252 **719.2.3.10**
 253 **dimmer**
 254 device in the electric circuit for varying the luminous flux from light sources
 255 [IEV 845-08-37, mod.: "light-sources" instead of "lamps"]
- 256 **719.4 Protection for safety**
- 257 **719.41 Protection against electric shock**
- 258 **719.41.A Provisions for basic protection (protection against direct contact)**
- 259 **719.41.A.2 Barriers or enclosures**
- 260 **719.41.A.2.1** Additional mechanical protection shall consist of an enclosure or other means of protection
 261 conforming to the following.
- 262 a) It shall provide a degree of protection corresponding to at least IP2X as specified in EN 60529:1991,
 263 Table I.
<https://standards.iteh.ai/catalog/standards/sist/06c0287a-3788-4656-9523-90c29f56ee82/ksist-prhd-60364-7-719-2010>
- 264 NOTE 1 The requirements for protection against ingress of solid objects, specified in EN 60529:1991, Table II, do not apply.
- 265 b) If it is constructed from metal parts, these shall be earthed in accordance with EN 50107-1:2002,
 266 Clause 8.
- 267 NOTE 2 Good practice is to install a RCD in the mains supply.
- 268 c) If it is constructed from other materials, these shall be materials that have been certified by the supplier
 269 as suitable for use in the environment existing close to a tube electrode, LED-modules or any type of
 270 lamps. The installer shall obtain from the supplier a guarantee for the materials covering the expected
 271 lifetime of the installation.
- 272 NOTE 3 Suppliers of such materials should be informed of the temperature, ultraviolet (UV) radiation, ozone and other conditions
 273 existing near a tube electrode, LED-modules or any type of lamps. They should also be informed that such materials might be
 274 used in exterior situations.
- 275 d) Access to the interior of an enclosure shall be by means of a tool, e.g. a screwdriver.
- 276 NOTE 4 Other means of additional protection may be permanent, e.g. it may have to be cut away using a knife.
- 277 NOTE 5 A fully enclosed sign letter or box sign is considered to be a suitable enclosure for this purpose.
- 278 **719.41.A.2.2 Additional requirement**
- 279 In the case of an illuminated sign with discharge tubes, the connections of the electrodes shall be covered
 280 with insulating sleeves or heat shrinkable tubes. These insulating sleeves or shrinkable tubes shall be made
 281 of a suitable insulating material which is resistant to the operating voltage, an operating temperature of not
 282 less than 180 °C, UV radiation and ozone.
- 283 NOTE 1 This requirement is intended to prevent a person from touching a live electrode with a test probe, should the discharge tube
 284 be broken.
- 285 NOTE 2 Figures 1 and 2 show the cross-sections of different letter and sign boxes.