



SLOVENSKI STANDARD
oSIST prEN IEC 62386-306:2023
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Digitalni naslovljivi vmesnik za razsvetljavo - 306. del: Posebne zahteve - Vhodne naprave - Senzor za splošno uporabo

Digital addressable lighting interface - Part 306: Particular requirements - Input devices - General purpose sensor

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Ta slovenski standard je istoveten z: prEN IEC 62386-306:2022

ICS:

29.140.50	Instalacijski sistemi za razsvetljavo	Lighting installation systems
35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment

oSIST prEN IEC 62386-306:2023 **en**



34/991/CDV

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SECRETARIAT: United Kingdom	SECRETARY: Mr Petar Luzajic
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 type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING
<p>Attention IEC-CENELEC parallel voting</p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p>	

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TITLE:

Digital addressable lighting interface - Part 306: Particular requirements - Input devices - General purpose sensor

PROPOSED STABILITY DATE: 2026

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL ADDRESSABLE LIGHTING INTERFACE –

Part 306: Particular requirements – Input devices – General purpose sensor

FOREWORD

- 123 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising
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152 indispensable for the correct application of this publication.
- 153 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent
154 rights. IEC shall not be held responsible for identifying any or all such patent rights.

155 International Standard IEC 62386-306 has been prepared by IEC technical committee 34:
156 Lighting. It is an International Standard.

157 The text of this standard is based on the following documents:

FDIS	Report on voting
-	-

158
159 Full information on the voting for the approval of this International Standard can be found in the
160 report on voting indicated in the above table.

161 The language used for the development of this International Standard is English.

162 This document has been drafted in accordance with the ISO/IEC Directives, Part 2, and
163 developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC
164 Supplement, available at www.iec.ch/members_experts/refdocs. The main document types
165 developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

166 This Part 306 of IEC 62386 is intended to be used in conjunction with:

- 167 • Part 101, which contains general requirements for system components.
168 • Part 103, which contains general requirements for control devices.

169 A list of all parts in the IEC 62386 series, published under the general title: *Digital addressable*
170 *lighting interface*, can be found on the IEC website.

171 The committee has decided that the contents of this document will remain unchanged until the
172 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
173 specific document. At this date, the document will be

- 174 • reconfirmed,
175 • withdrawn,
176 • replaced by a revised edition, or
177 • amended.

178

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181

INTRODUCTION

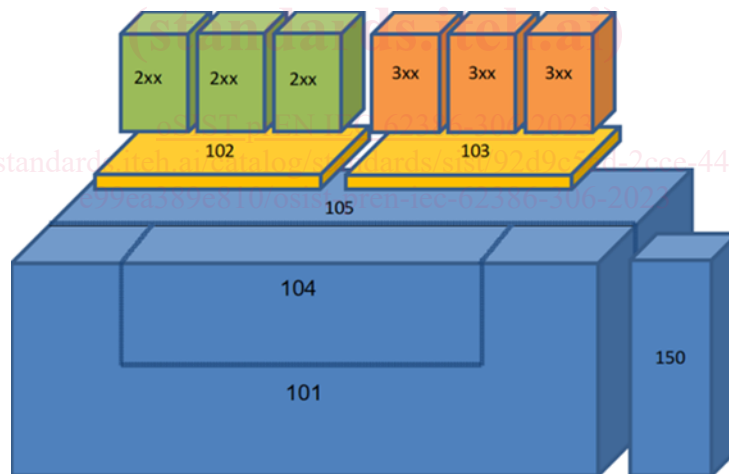
182 IEC 62386 contains several parts, referred to as a series. The IEC 62386 series specifies a bus
 183 system for control by digital signals of electronic lighting equipment. The IEC 62386-1xx series
 184 includes the basic specifications. Part 101 contains general requirements for system
 185 components, Part 102 extends this information with general requirements for control gear and
 186 Part 103 extends it further with general requirements for control devices. Parts 104 and 105
 187 can be applied to control gear or control devices. Part 104 gives requirements for wireless and
 188 alternative wired system components. Part 105 describes firmware transfer. Part 150 gives
 189 requirements for an auxiliary power supply which can be stand-alone, or built-into control gear
 190 or control devices.

191 The IEC 62386-2xx series extends the general requirements for control gear with lamp specific
 192 extensions (mainly for backward compatibility with Edition 1 of IEC 62386) and with control gear
 193 specific features.

194 The IEC 62386-3xx series extends the general requirements for control devices with input
 195 device specific extensions describing the instance types as well as some common features that
 196 can be combined with multiple instance types.

197 This first edition of IEC 62386-306 is intended to be used in conjunction with IEC 62386-101
 198 and IEC 62386-103. The division into separately published parts provides for ease of future
 199 amendments and revisions. Additional requirements will be added as and when a need for them
 200 is recognised.

201 The setup of the standards is graphically represented in Figure 1 below.



202

203

Figure 1 - IEC 62386 graphical overview

204 When this part of IEC 62386 refers to any of the clauses of the parts of the IEC 62386-1xx
 205 series, the extent to which such a clause is applicable is specified. The other parts also include
 206 additional requirements, as necessary.

207 All numbers used in this document are decimal numbers unless otherwise noted. Hexadecimal
 208 numbers are given in the format 0xVV, where VV is the value. Binary numbers are given in the
 209 format XXXXXXXXb or in the format XXXX XXXX, where X is 0 or 1, "x" in binary numbers
 210 means "don't care". Where a variable is referred to by a bit number, bit 0 is the least significant
 211 bit.

212 The following typographic expressions are used:

213 Variables: "*variableName*" or "*variableName*[3:0]", giving only bits 3 to 0 of "*variableName*";

214 Range of values: [lowest, highest];

215 Command: "COMMAND NAME".

216

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DIGITAL ADDRESSABLE LIGHTING INTERFACE –

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Part 306: Particular requirements – Input devices – General purpose sensor

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224 1 Scope

225 This part of IEC 62386 is applicable to input devices that provide sensor information or
226 measurements to the lighting control system.

227 This document is only applicable to input devices complying with IEC 62386-103.

228 2 Normative references

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

233 IEC 62386-101:–, *Digital addressable lighting interface – Part 101: General requirements –*
234 *System components*

235 IEC 62386-103:–, *Digital addressable lighting interface – Part 103: General requirements –*
236 *Control devices*

237 IEC 62386-333:2018, *Digital addressable lighting interface – Part 333: Particular requirements*
238 *for control devices – Manual configuration (feature type 33)*

239 3 Terms and definitions

240 For the purposes of this document, the terms and definitions given in IEC 62386-101 and
241 IEC 62386-103 and the following apply.

242 ISO and IEC maintain terminological databases for use in standardization at the following
243 addresses:

- 244 • IEC electropedia: available at <http://www.electropedia.org/>
- 245 • ISO online browsing platform: available at <http://www.iso.org/obp>

246 3.1

247 instance

248 measured value signal processing unit of an input device

249 [SOURCE: IEC 62386-101:–, 3.29, modified — addition of "measured value"]

250 3.2

251 strictly monotonic

252 either entirely increasing or decreasing without repeating values

253 **3.3**
254 **measured value**
255 value obtained by measurement of the input signal

256 Note 1 to entry: A sensor detecting a temperature of 26 degrees Celsius could have a measured value of 26.

257 **3.4**
258 **unit of measurement**

259 real scalar quantity, defined and adopted by convention, with which any other quantity of the
260 same kind can be compared to express the ratio of the second quantity to the first one as a
261 number

262 Note 1 to entry: A sensor detecting a temperature of 26 degrees Celsius would have a unit of measurement
263 designated as degrees Celsius.

264 [SOURCE: IEC Electropedia, 112-01-14, modified – Note 2 to entry replaces source notes 2, 3
265 and 4 to entry]

266 **3.5**
267 **quantity name**

268 term designating a property of a phenomenon, body, or substance, where the property has a
269 magnitude that can be expressed by means of a number and a reference

270 Note 1 to entry: A sensor detecting a temperature of 26 degrees Celsius would have a quantity name defined as
271 temperature.

272 [SOURCE: IEC Electropedia, 112-01-01/112-01-02, modified — addition of quantity definition
273 and notes to entry have been replaced]

274 **4 General**

275 **4.1 General**

276 The requirements of IEC 62386-103:–, Clause 4 apply, with the restrictions, changes and
277 additions identified below.

278 **4.2 Version number**

279 In 4.2 of IEC 62386-103:–, “103” shall be replaced by “306”, “version number” shall be replaced
280 by “extended version number” and “*versionNumber*” shall be replaced by
281 “*extendedVersionNumber*”.

282 **4.3 Insulation**

283 According to IEC 61347-1 it might be required that the input device has at least supplementary
284 insulation. This depends on the connected components. In this case special attention should
285 be paid with respect to the sensor(s) being used.

286 NOTE IEC 62386-103:– requires system components to have at least basic insulation.

287 **5 Electrical specification**

288 The requirements of IEC 62386-103:–, Clause 5 apply.

289 **6 Interface power supply**

290 The requirements of IEC 62386-103:–, Clause 6 apply.

291 7 Transmission protocol structure

292 The requirements of IEC 62386-103:–, Clause 7 apply.

293 NOTE Subclause 9.4 provides detailed event information applicable to instances.

294 8 Timing

295 The requirements of IEC 62386-103:–, Clause 8 apply.

296 9 Method of operation

297 9.1 General

298 The requirements of IEC 62386-103:–, Clause 9 apply, with the following restrictions and
299 additions.

300 9.2 Instance type

301 The instance type (“*instanceType*”) shall be equal to 6.

302 9.3 Input signal and value

303 9.3.1 Input value

304 The measured input signal shall be scaled and an offset applied for bipolar inputs, with
305 “*measuredValue*” containing the result with a precision of “*resolution*” bits. “*measuredValue*” shall
306 be encoded in “*inputValue*” as described in IEC 62386-103.

307 NOTE 1 “*measuredValue*” has “*resolution*” bits, whereas “*inputValue*” has a multiple of 8 bits. For example if
308 “*resolution*”=27 then “*measuredValue*” will be a 27-bit value and “*inputValue*” will be a 32-bit value.

309 The input signal shall be scaled by the variable “*magnitude*”:

$$310 \quad \text{scaled input signal} = \text{input signal} / 10^{\text{“}i\text{magnitude}\text{”}-127}$$

311 An offset, *K*, is added to the scaled input signal, depending on the range of the input signal (see
312 9.3.3). *K* shall be calculated as follows:

- 313 • For bipolar input signals: $K = 2^{\text{“}i\text{resolution}\text{”}-1} - 1$,
- 314 • In all other cases: $K = 0$.

315 This gives:

$$316 \quad \text{“}i\text{measuredValue}\text{”} = \text{input signal} / 10^{\text{“}i\text{magnitude}\text{”}-127} + K$$

317 The resulting “*measuredValue*” shall be a strictly monotonic function of the input signal. Units of
318 measure are listed in A.1, and quantity names are listed in A.2.

319 NOTE 2 Measured value may be a relative value dependent on the quantity and unit of measure.

320 EXAMPLE The following example demonstrates the encoding: A sensor has “*resolution*” = 5,
321 “*magnitude*” = 128 and measures input voltages that can extend to negative values. An input signal of -50 V is
322 measured. Scaled input signal = $-50 / 10^{128-127} = -50$. Offset *K* = 15 is added to this, giving a “*measuredValue*” of 10
323 (01010b). This has a resolution of 5, so these 5 bits make up the top 5 bits of the 1-byte “*inputValue*” and are repeated
324 in the 3 least significant bits of “*inputValue*”, resulting in 82 (01010010b). When encoding into a 9-bit measurement
325 event (Table 1), this will be encoded as 512+165 (1010100101b) (Bit 9 = 1 indicating a measurement event.)