



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 62386-305:2023**  
**01-januar-2023**

---

**Digitalni naslovljivi vmesnik za razsvetljavo - 305. del: Posebne zahteve - Vhodne naprave - Barvni senzor**

Digital addressable lighting interface - Part 305: Particular requirements - Input devices - Colour sensor

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **prEN IEC 62386-305:2022**

**ICS:**

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

**oSIST prEN IEC 62386-305:2023**      **en**





# 34/981/CDV

## COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:  
**IEC 62386-305 ED1**

DATE OF CIRCULATION:  
**2022-11-04**

CLOSING DATE FOR VOTING:  
**2023-01-27**

SUPERSEDES DOCUMENTS:  
**34/733/CD, 34/791A/CC**

IEC TC 34 : LIGHTING	
SECRETARIAT: United Kingdom	SECRETARY: Mr Petar Luzajic
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 23	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><b>Attention IEC-CENELEC parallel voting</b></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>	

This document is still under study and subject to change. It should not be used for reference purposes.

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

TITLE:

**Digital addressable lighting interface – Part 305: Particular requirements – Input devices – Colour sensor**

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

**Copyright © 2022 International Electrotechnical Commission, IEC.** All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

## CONTENTS

1		
2		
3	FOREWORD.....	4
4	INTRODUCTION.....	6
5	1 Scope.....	8
6	2 Normative references.....	8
7	3 Terms and definitions .....	8
8	4 General .....	9
9	4.1 General.....	9
10	4.2 Version number.....	9
11	4.3 Insulation .....	9
12	5 Electrical specification .....	9
13	6 Interface power supply.....	9
14	7 Transmission protocol structure .....	9
15	8 Timing .....	9
16	9 Method of operation.....	9
17	9.1 General.....	9
18	9.2 Instance type .....	10
19	9.3 Input signal and value .....	10
20	9.3.1 General .....	10
21	9.3.2 Input value encoding.....	10
22	9.4 Events .....	10
23	9.4.1 Priority use .....	10
24	9.4.2 Bus usage .....	10
25	9.4.3 Encoding .....	11
26	9.4.4 Event configuration .....	11
27	9.4.5 Event generation.....	12
28	9.5 Configuring the input device .....	12
29	9.5.1 Using the report timer .....	12
30	9.5.2 Using the deadtime timer.....	13
31	9.5.3 Setting the timers.....	13
32	9.5.4 Setting the hysteresis.....	13
33	9.5.5 Manual configuration.....	14
34	9.6 Exception handling .....	14
35	9.6.1 Physical sensor failure .....	14
36	9.6.2 Manufacturer specific errors .....	14
37	9.6.3 Error value.....	14
38	10 Declaration of variables .....	15
39	11 Definition of commands .....	16
40	11.1 General.....	16
41	11.2 Overview sheets .....	16
42	11.2.1 General .....	16
43	11.2.2 Standard commands .....	16
44	11.3 Event messages.....	17
45	11.3.1 INPUT NOTIFICATION ( <i>device/instance, event</i> ).....	17
46	11.3.2 POWER NOTIFICATION ( <i>device</i> ).....	17
47	11.4 Device control instructions.....	17
48	11.5 Device configuration instructions .....	17

49	11.6	Device queries .....	17
50	11.7	Instance control instructions .....	17
51	11.8	Instance configuration instructions .....	17
52	11.8.1	General .....	17
53	11.8.2	SET EVENT FILTER ( <i>DTR0</i> ) .....	17
54	11.8.3	SET REPORT TIMER ( <i>DTR0</i> ) .....	17
55	11.8.4	SET HYSTERESIS ( <i>DTR0</i> ) .....	17
56	11.8.5	SET DEADTIME TIMER ( <i>DTR0</i> ) .....	18
57	11.8.6	SET HYSTERESIS MIN ( <i>DTR0</i> ) .....	18
58	11.9	Instance queries .....	18
59	11.9.1	General .....	18
60	11.9.2	QUERY COLOUR SENSOR ( <i>DTR0</i> ) .....	18
61	11.9.3	QUERY DEADTIME TIMER .....	19
62	11.9.4	QUERY INSTANCE ERROR .....	19
63	11.9.5	QUERY REPORT TIMER .....	19
64	11.9.6	QUERY HYSTERESIS .....	20
65	11.9.7	QUERY HYSTERESIS MIN .....	20
66	11.10	Special commands .....	20
67	Annex A (informative)	Background information on colour sensors .....	21
68	A.1	Explanation of radiometric parameters .....	21
69	Bibliography .....		23
70			
71	Figure 1 - IEC 62386 graphical overview .....		6
72	Figure 2 - Example sensor sensitivity .....		21
73			
74	Table 1 – Input Value encoding .....		10
75	Table 2 – Colour value events .....		11
76	Table 3 – Colour Report .....		11
77	Table 4 – Event filter .....		11
78	Table 5 – Event timer setting .....		13
79	Table 6 – “ <i>manualCapabilityInstance3xx</i> ” values .....		14
80	Table 7 – “ <i>instanceErrorByte</i> ” values .....		15
81	Table 8 – Declaration of device variables .....		15
82	Table 9 – Restrictions to instance variables defined in IEC 62386-103:— .....		15
83	Table 11 – Declaration of instance variables .....		16
84	Table 12 – Standard commands .....		16
85	Table 13 – DTR Reference .....		19
86	Table 14 - Example answers to QUERY COLOUR SENSOR ( <i>DTR0</i> ) .....		22
87			
88			

89  
90  
91  
92  
93  
94  
95  
96  
97

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### DIGITAL ADDRESSABLE LIGHTING INTERFACE –

#### Part 305: Particular requirements – Input devices – Colour sensor

#### FOREWORD

- 98 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising  
99 all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international  
100 co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and  
101 in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports,  
102 Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their  
103 preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with  
104 may participate in this preparatory work. International, governmental and non-governmental organizations liaising  
105 with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for  
106 Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 107 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international  
108 consensus of opinion on the relevant subjects since each technical committee has representation from all  
109 interested IEC National Committees.
- 110 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National  
111 Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC  
112 Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any  
113 misinterpretation by any end user.
- 114 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications  
115 transparently to the maximum extent possible in their national and regional publications. Any divergence between  
116 any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 117 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity  
118 assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any  
119 services carried out by independent certification bodies.
- 120 6) All users should ensure that they have the latest edition of this publication.
- 121 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and  
122 members of its technical committees and IEC National Committees for any personal injury, property damage or  
123 other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and  
124 expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC  
125 Publications.
- 126 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is  
127 indispensable for the correct application of this publication.
- 128 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent  
129 rights. IEC shall not be held responsible for identifying any or all such patent rights.

130 International Standard IEC 62386-305 has been prepared by IEC technical committee 34:  
131 Lighting. It is an International Standard.

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

FDIS	Report on voting
-	-

133  
134  
135

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

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

137 This document has been drafted in accordance with the ISO/IEC Directives, Part 2, and  
138 developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC

139 Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types  
140 developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

141 This Part 305 of IEC 62386 is intended to be used in conjunction with:

- 142 • Part 101, which contains general requirements for system components;
- 143 • Part 103, which contains general requirements for control devices.

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

146 The committee has decided that the contents of this document will remain unchanged until the  
147 stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the  
148 specific document. At this date, the document will be

- 149 • reconfirmed,
- 150 • withdrawn,
- 151 • replaced by a revised edition, or
- 152 • amended.

153

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

154

155

<https://standards.iteh.ai/catalog/standards/sist/4edd0e9f-43f5-411d-920e-020226806828/osist-pren-iec-62386-305-2023>

156

## INTRODUCTION

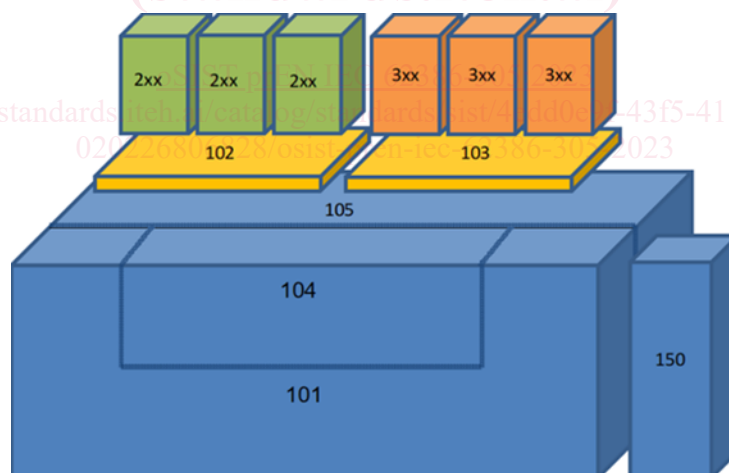
157 IEC 62386 contains several parts, referred to as series. The IEC 62386 series specifies a bus  
 158 system for control by digital signals of electronic lighting equipment. The IEC 62386-1xx series  
 159 includes the basic specifications. Part 101 contains general requirements for system  
 160 components, Part 102 extends this information with general requirements for control gear and  
 161 Part 103 extends it further with general requirements for control devices. Part 104 and Part 105  
 162 can be applied to control gear or control devices. Part 104 gives requirements for wireless and  
 163 alternative wired system components. Part 105 describes firmware transfer. Part 150 gives  
 164 requirements for an auxiliary power supply which can be stand-alone, or built into control gear  
 165 or control devices.

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

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

172 This first edition of IEC 62386-305 is intended to be used in conjunction with IEC 62386-101,  
 173 and IEC 62386-103. The division into separately published parts provides for ease of future  
 174 amendments and revisions. Additional requirements will be added as and when a need for them  
 175 is recognized.

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



177

178

**Figure 1 - IEC 62386 graphical overview**

179 When this part of IEC 62386 refers to any of the clauses of the other parts of the IEC 62386-  
 180 1xx series, the extent to which such a clause is applicable is specified. The other parts also  
 181 include additional requirements, as necessary.

182 Where the requirements of any of the clauses of IEC 62386-1XX are referred to in this document  
 183 by the sentence "The requirements of IEC 62386-1XX, Clause "n" apply", this sentence is to be  
 184 interpreted as meaning that all requirements of the clause in question of Part 1XX apply, except  
 185 any which are clearly inapplicable.

186 The standardization of the control interface for control devices is intended to achieve compatible  
 187 coexistence and multi-master operation between electronic control gear and lighting control  
 188 devices, below the level of building management systems. This document describes a method  
 189 of implementing colour sensors.



190 All numbers used in this document are decimal numbers unless otherwise noted. Hexadecimal  
191 numbers are given in the format 0xVV, where VV is the value. Binary numbers are given in the  
192 format XXXXXXXXb or in the format XXXX XXXX, where X is 0 or 1; “x” in binary numbers  
193 means “don't care”.

194 The following typographic expressions are used:

195 Variables: “*variableName*” or “*variableName[3:0]*”, giving only bits 3 to 0 of “*variableName*”.

196 Range of values: [lowest, highest]

197 Command: “COMMAND NAME”

198

199

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN IEC 62386-305:2023](https://standards.iteh.ai/catalog/standards/sist/4edd0e9f-43f5-411d-920e-020226806828/osist-pren-iec-62386-305-2023)

<https://standards.iteh.ai/catalog/standards/sist/4edd0e9f-43f5-411d-920e-020226806828/osist-pren-iec-62386-305-2023>

200 **DIGITAL ADDRESSABLE LIGHTING INTERFACE –**  
 201  
 202 **Part 305: Particular requirements – Input devices –**  
 203 **Colour sensor**  
 204  
 205  
 206

207 **1 Scope**

208 This part of IEC 62386 specifies a bus system for control by digital signals of electronic lighting  
 209 equipment.

210 This document is only applicable to IEC 62386-103 input devices that deliver colour information  
 211 to the lighting control system through colour sensing.

212 **2 Normative references**

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

217 IEC 62386-101:—<sup>1</sup>, *Digital addressable lighting interface – Part 101: General requirements –*  
 218 *System components*

219 IEC 62386-103:—<sup>2</sup>, *Digital addressable lighting interface – Part 103: General requirements –*  
 220 *Control devices*

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

223 **3 Terms and definitions**

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

226 ISO and IEC maintain terminological databases for use in standardization at the following  
 227 addresses:

- 228 • IEC Electropedia: available at <http://www.electropedia.org/>
- 229 • ISO Online browsing platform: available at <http://www.iso.org/obp>

230 **3.1**

231 **instance**

232 observed colour signal processing unit of an input device

233 [SOURCE: IEC 62386-101:—, 3.29, modified — addition of "observed colour"]

<sup>1</sup> Under preparation. Stage at the time of publication: IEC FDIS 62386-101:—.

<sup>2</sup> Under preparation. Stage at the time of publication: IEC FDIS 62386-103:—.

234 **3.2**  
235 **strictly monotonic**  
236 either entirely increasing or decreasing without repeating values

237 **3.3**  
238 **observed colour**  
239 colour as detected by physical sensor on input device

## 240 **4 General**

### 241 **4.1 General**

242 The requirements of IEC 62386-103:—, Clause 4 apply, with the restrictions, changes and  
243 additions identified below.

### 244 **4.2 Version number**

245 In 4.2 of IEC 62386-103:—, “103” shall be replaced by “305”, “version number” shall be replaced  
246 by “extended version number” and “*versionNumber*” shall be replaced by  
247 “*extendedVersionNumber*”.

### 248 **4.3 Insulation**

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

252 NOTE IEC-62386-101:— requires the interface of system components to have at least basic insulation.

## 253 **5 Electrical specification**

254 The requirements of IEC 62386-103:—, Clause 5 apply.

## 255 **6 Interface power supply**

256 The requirements of IEC 62386-103:—, Clause 6 apply.

## 257 **7 Transmission protocol structure**

258 The requirements of IEC 62386-103:—, Clause 7 apply.

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

## 260 **8 Timing**

261 The requirements of IEC 62386-103:—, Clause 8 apply.

## 262 **9 Method of operation**

### 263 **9.1 General**

264 The requirements of IEC 62386-103:—, Clause 9 apply, with the following restrictions and  
265 additions.