IEC 62386-104

Edition 1.0 2019-05

INTERNATIONAL STANDARD

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Digital addressable lighting interface –
Part 104: General requirements – Wireless and alternative wired system components

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Interface d'éclairage adressable numérique –
Partie 104: Exigences générales – Composants de système à connexion alternative ou sans fil

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IEC 62386-104:2019-05(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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DIGITAL ADDRESSABLE LIGHTING INTERFACE –

Part 104: General requirements – Wireless and alternative wired system components

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International Standard IEC IEC62386-104 has been prepared by IEC technical committee 34: Lamps and related equipment.

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

FDIS	Report on voting
34/600/FDIS	34/611/RVD

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.

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

This Part 104 of IEC 62386 is intended to be used in conjunction with:

- Part 101, which contains general requirements for system components;
- Part 102, which contains general requirements for the relevant product type (control gear), and with the appropriate Parts 2xx (particular requirements for control gear);
- Part 103, which contains general requirements for the relevant product type (control devices), and the appropriate Parts 3xx (particular requirements for control devices).

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

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INTRODUCTION

IEC 62386 contains several parts, referred to as series. The IEC 62386-1xx series includes the basic specifications. Part 101 contains general requirements for system components, Part 102 extends this information with general requirements for control gear and Part 103 extends it further with general requirements for control devices.

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

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

This first edition of IEC 62386-104 is intended to be used in conjunction with IEC 62386-101, IEC 62386-102 and the various parts that make up the IEC 62386-2xx series for control gear, and with IEC 62386-103 and the various parts that make up the IEC 62386-3xx series of particular requirements for control devices. The division into separately published parts provides for ease of future amendments and revisions. Additional requirements will be added as and when a need for them is recognised.

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

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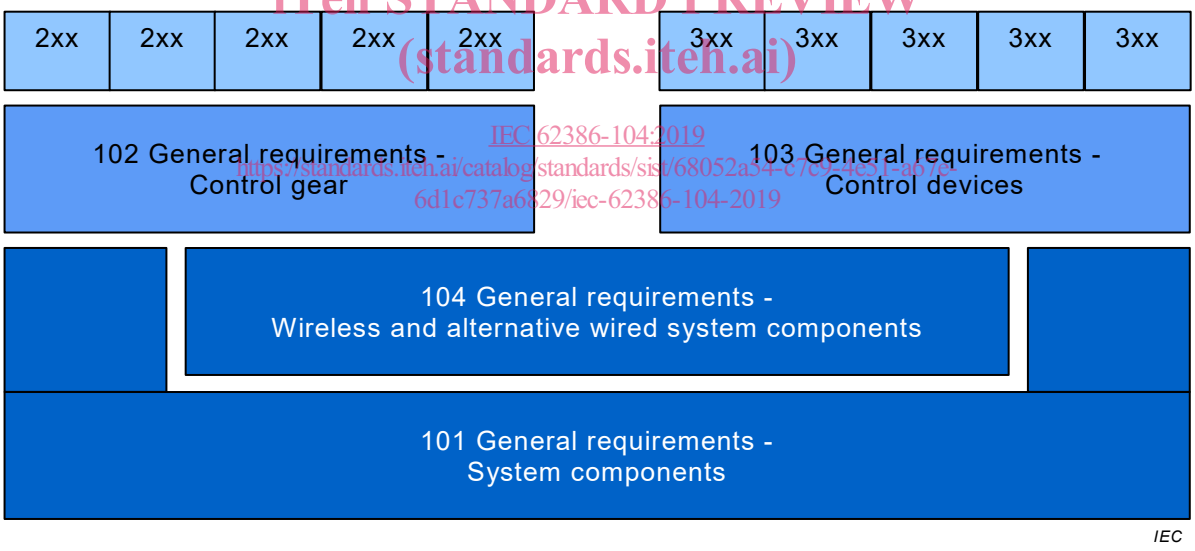

Figure 1 – IEC 62386 graphical overview

When this part of IEC 62386 refers to any of the clauses of the other parts of the IEC 62386-1xx series, the extent to which such a clause is applicable and the order in which the tests are to be performed are specified. The other parts also include additional requirements, as necessary.

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

The following typographic expressions are used:

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

Range of values: [lowest, highest]

Command: “COMMAND NAME”

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DIGITAL ADDRESSABLE LIGHTING INTERFACE –

Part 104: General requirements – Wireless and alternative wired system components

1 Scope

The IEC 62386 series specifies a bus system for control by digital signals of electronic lighting equipment. This part of IEC 62386 applies to a system with wireless or alternative wired communication between its units, instead of a wired bus system, where the meaning of "wireless or alternative wired communication", or in short "telecommunication", is any type of communication network different from the wired system described in IEC 62386-101.

Where the electronic lighting equipment is covered by the scope of IEC 61347 (all parts), it is in line with the requirements of IEC 61347 (all parts), with the addition of DC supplies.

NOTE the definition of "telecommunication" applies only to this document and differs from the IEC Electropedia term in IEC 60050-701:1988, 701-01-05.

2 Normative references

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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.

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IEC 62386-101:2014, *Digital addressable lighting interface – Part 101: General requirements – System components*
IEC 62386-101:2014/AMD1:2018

IEC 62386-102:2014, *Digital addressable lighting interface – Part 102: General requirements – Control gear*
IEC 62386-102:2014/AMD1:2018

IEC 62386-103:2014, *Digital addressable lighting interface – Part 103: General requirements – Control devices*
IEC 62386-103:2014/AMD1:2018

3 Terms and definitions

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

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

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
telecommunication
communication method that may or may not require connection by wires, excluding the communication system described in IEC 62386-101

3.2
telecommunication unit
logical unit or combination of logical units, containing one telecommunication interface

3.3
telecommunication interface
physical transmitter or transceiver for communication

3.4
telecommunication system
two or more telecommunication units using the same underlying telecommunication protocol, configured with the same system address if available, and so able to communicate with each other

3.5
control gear
device that receives commands according to IEC 62386-102, but with a telecommunication interface described in IEC 62386-104, instead of a wired interface as described in IEC 62386-101

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3.6
control device
device that sends commands according to IEC 62386-103, but with a telecommunication interface described in IEC 62386-104, instead of a wired interface as described in IEC 62386-101

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3.7
application controller
control device according to IEC 62386-103, but with a telecommunication interface described in IEC 62386-104, instead of a wired interface as described in IEC 62386-101

3.8
input device
control device according to IEC 62386-103, but with a telecommunication interface described in IEC 62386-104, instead of a wired interface as described in IEC 62386-101

3.9
system failure
loss of communications described in the underlying telecommunication protocol

Note 1 to entry: See Annex B.

3.10
underlying telecommunication protocol
protocol for encapsulation and transportation of frames

Note 1 to entry: The protocol is described in Annex B and the frames in Clause 7.

4 General

4.1 Purpose

The standardization of the digital addressable lighting interface is intended to achieve interoperable multi-vendor operation below the level of building management systems.

EN 50491 and ISO 14672 are not applicable for the purposes of this document.

IEC 62386-101:2014, 4.1 applies.

4.2 Version number

The requirements of IEC 62386-101:2014 and IEC 62386-101:2014/AMD1:2018, 4.2 apply, except “101” shall be replaced by “104”.

4.3 System structure and architecture

A system shall consist of the components listed in Table 1.

Table 1 – System components

Component	Quantity	For detailed information see
control gear	≥ 0	IEC 62386-102
application controller	≥ 1	IEC 62386-103
input devices	≥ 0	IEC 62386-103

Where in IEC 62386-102, IEC 62386-103, the IEC 62386-2xx or IEC 62386-3xx series, reference is made to IEC 62386-101:2014 and IEC 62386-101:2014/AMD1:2018, the reference shall instead be redirected to the respective clauses of this document.

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All telecommunication units within the same telecommunication system shall be capable of transmitting and receiving through their telecommunication interface.

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NOTE As a consequence of the above, every frame is visible to all control gear and control devices in the same telecommunication system.

If there are several co-located systems, such as within the same RF reception range or on the same PLC line, the frames of one telecommunication system shall be visible only by the telecommunication interfaces of that specific system.

Figure 2 shows an example of a telecommunication system structure.

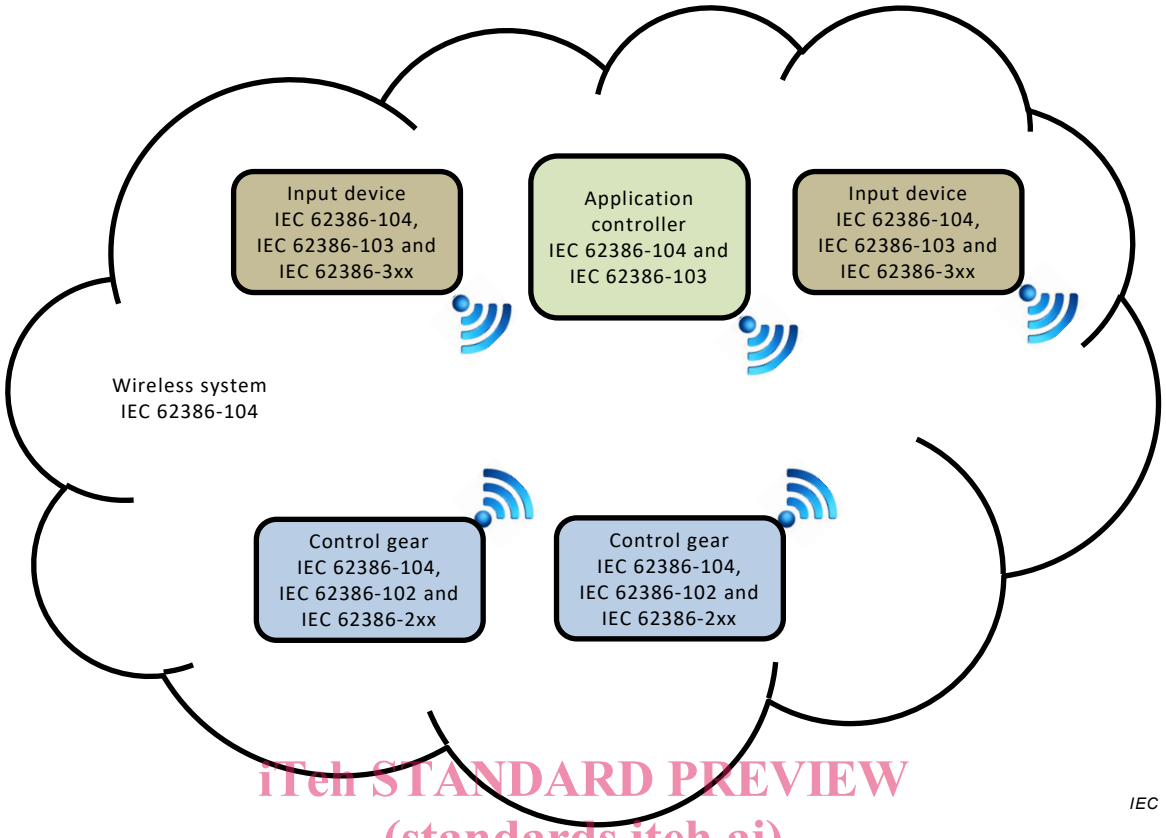

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Figure 2 – Telecommunication system structure example

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See Annex D for information on possible telecommunication system architectures.

NOTE The interface of all the telecommunication system units in Figure 2 uses the same underlying telecommunication protocol, as defined in 3.4.

4.4 System information flow

Figure 3 shows the different frame types that are used for communication between the telecommunication units in a telecommunication system. A backward frame is only ever transmitted in response to a forward frame.