

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Digital addressable lighting interface –
Part 250: Particular requirements – Integrated power supply (device type 49)**

**Interface d'éclairage adressable numérique –
Partie 250: Exigences particulières – Alimentation électrique intégrée (type de
dispositif 49)**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL ADDRESSABLE LIGHTING INTERFACE –**Part 250: Particular requirements –
Integrated power supply (device type 49)**

FOREWORD

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IEC 62386-250 has been prepared by IEC technical committee 34: Lighting. It is an International Standard.

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

Draft	Report on voting
34/1018/FDIS	34/1039/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

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

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

This Part 250 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 control gear.

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.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

IEC 62386 contains several parts, referred to as series. The IEC 62386 series specifies a bus system for control by digital signals of electronic lighting equipment. 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. Part 104 and Part 105 can be applied to control gear or control devices. Part 104 gives requirements for wireless and alternative wired system components. Part 105 describes firmware transfer. Part 150 gives requirements for an auxiliary power supply which can be stand-alone, or built into control gear or 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 62386-250 is intended to be used in conjunction with IEC 62386-101:2022 and IEC 62386-102:2022. The division of IEC 62386 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 recognized.

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

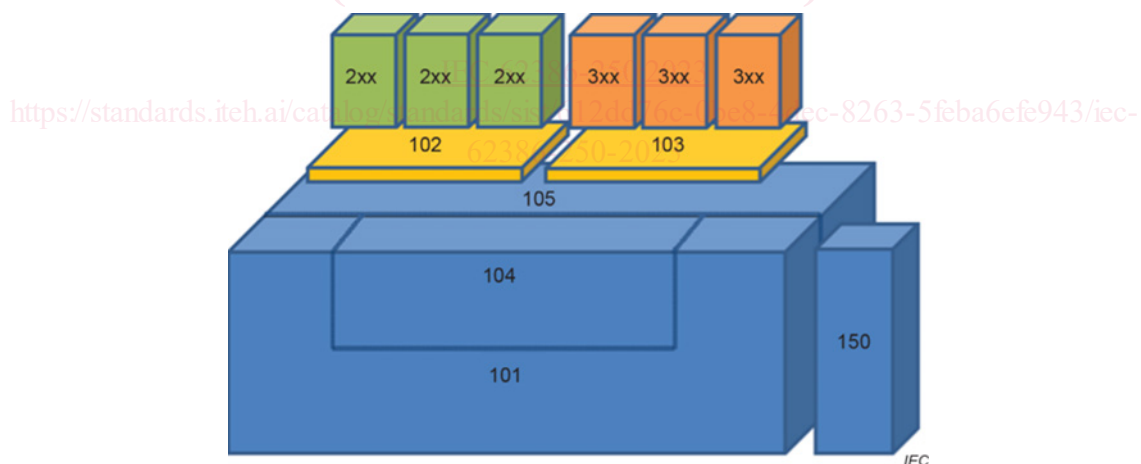


Figure 1 – IEC 62386 graphical overview

When this part of IEC 62386 refers to any of the clauses of the IEC 62386-1xx series, the extent to which such a clause is applicable is 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 250: Particular requirements – Integrated power supply (device type 49)

1 Scope

This part of IEC 62386 specifies the characteristics of a bus power supply integrated in a control gear. This document builds on the digital addressable lighting interface as specified in the IEC 62386 series.

This document is only applicable to control gear complying with IEC 62386-102.

2 Normative references

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.

IEC 62386-101:2022, *Digital addressable lighting interface – Part 101: General requirements – System components*

IEC 62386-102:2022, *Digital addressable lighting interface – Part 102: General requirements – Control gear*

IEC 62386-150:2023, *Digital addressable lighting interface – Part 150: Particular requirements – Auxiliary power supply*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62386-102 apply.

ISO and IEC maintain terminology 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>

4 General

4.1 General

The requirements of IEC 62386-102:2022, Clause 4 apply, with the restrictions, changes and additions identified below.

4.2 Version number

In IEC 62386-102:2022, 4.2, "102" shall be replaced by "250", "version number" shall be replaced by "extended version number" and "*versionNumber*" shall be replaced by "*extendedVersionNumber*", where "*extendedVersionNumber*" is defined in Table 2.

5 Electrical specification

The requirements of IEC 62386-102:2022, Clause 5 apply.

6 Bus power supply

6.1 General

The requirements of IEC 62386-102:2022, Clause 6 apply with the following additions and changes.

The requirements in this document shall be met even if "DA-" is connected to ground of an integrated auxiliary power supply as specified in IEC 62386-150.

6.2 Bus power supply current rating

A bus power supply adhering to this document shall have a guaranteed supply current of at least 50 mA when "bus power supply status" is on (bank 201 location 0x06).

NOTE Multiple bus power supplies can be connected in a system, provided the total of the maximum supply current is no more than 250 mA. For example, a maximum of four control gear with device type 49 and integrated bus power supplies, each with a maximum output current of 62,5 mA, can be connected to the bus without exceeding the 250 mA total of maximum supply currents.

6.3 Bus power supply status

Memory bank 201 location 0x06 is used to configure and indicate the bus power supply status. If a new value is written, then this new value shall be available immediately for memory reads or queries, and the bus power supply output on the interface shall be enabled or disabled no more than 500 ms after the value has been changed.

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7 Transmission protocol structure

The requirements of IEC 62386-102:2022, Clause 7 apply.

8 Timing

The requirements of IEC 62386-102:2022, Clause 8 apply.

9 Method of operation

9.1 Capabilities and configuration

The capabilities and configuration of the integrated bus power supply are given and set via parameters in memory bank 201, see 9.2.3.

9.2 Memory banks

9.2.1 General

The requirements of IEC 62386-102:2022, 9.10 apply with the following additions and changes.

9.2.2 Memory bank writing

All writable memory locations other than location 0x02 shall be lockable.

9.2.3 Memory bank 201

Memory bank 201 contains device information about the integrated bus power supply, as shown in Table 1. Memory bank 201 shall be implemented in all logical units and shall be common across all logical units. A change of value in any location in this bank shall result in the same value in the same location of this bank in all logical units.

Table 1 – Memory bank 201, device identification (mandatory)

Address	Description	Default value (factory)	Reset value ^a	Memory type
0x00	Address of last accessible memory location	0x06	No change	ROM
0x01	Indicator byte	Manufacturer-specific	Manufacturer-specific	Manufacturer-specific
0x02	Lock byte Lockable bytes in the memory bank shall be read-only while the lock byte has a value different from 0x55.	0xFF	0xFF ^b	RAM-RW
0x03	Version of the memory bank	0x01	No change	ROM
0x04	Guaranteed supply current of integrated bus power supply (in mA); Range: [0x32, maximum supply current]	Manufacturer-specific	No change	ROM
0x05	Maximum supply current of integrated bus power supply (in mA); Range [Guaranteed supply current, 0xFA]	Manufacturer-specific	No change	ROM
0x06	Bus power supply status (on = 0x01, off = 0x00); Range: [0x00, 0x01]	Manufacturer-specific	No change	NVM-RW (protectable) ^c

^a Reset value after "RESET MEMORY BANK".

^b Also used as power on value.

^c This field is write protectable.

To ensure that all configuration data is written as expected, it is recommended that a mechanism is implemented to safely disable or enable an integrated bus power supply. For example, a configuration tool can include a bus power supply and/or the configuration tool can determine when to disable the integrated bus power supply after all configuration data has been written.

10 Declaration of variables

The requirements of IEC 62386-102:2022, Clause 10 apply, with the following additional variables for this device type, as indicated in Table 2.

Table 2 – Declaration of variables

Variable	Default value (factory)	Reset value	Power on value	Range of validity	Memory type
"extendedversionNumber"	2.0	no change	no change	00001000b	ROM
"deviceType"	49	no change	no change	49	ROM