SLOVENSKI STANDARD
oSIST prEN IEC 63494-2-1:2024

01-oktober-2024

Sistemi razsvetljave - Elektromehanski vmesniki - 2. del: Štiripolni elv vmesnik z zasukom tipa zb18

Lighting systems - Electro-mechanical interfaces - Part 2-1: Four-pin elv twist-lock interface type zb18

Systèmes d'éclairage - Interfaces électromécaniques - Partie 2-1: Interface tbt à verrouillage rotatif (twist-lock) à quatre broches de type zb18

Ta slovenski standard je istoveten z: **prEN IEC 63494-2-1:2024**

ICS:

35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment
91.160.01	Razsvetljava na splošno	Lighting in general

oSIST prEN IEC 63494-2-1:2024 **en**

34/1207/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 63494-2-1 ED1**	
DATE OF CIRCULATION: **2024-08-30**	CLOSING DATE FOR VOTING: **2024-11-22**
SUPERSEDES DOCUMENTS: **34/1096/CD, 34/1192A/CC**	

IEC TC 34 : LIGHTING	
SECRETARIAT: United Kingdom	SECRETARY: Mr Petar Luzajic
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 23	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

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.

The CENELEC members are invited to vote through the CENELEC online voting system.

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.

Recipients of this document are invited to submit, with their comments, notification of any relevant “In Some Countries” clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Lighting systems - Electro-mechanical interfaces - Part 2-1: Four-pin ELV twist-lock interface Type ZB18

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

To support particular requirements for interchangeability performance and safety of the Zhaga Book 18 Edition 2.0 interface, TC 34 has approved the IEC 63494-2-1 project. Specifications for this interface can be found in IEC PAS 63421:2022. The following manuscript for this proposed standard has been prepared by TC 34/WG 14 experts.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Lighting systems – Electro-mechanical interfaces – Part 2-1: Four-pin ELV twist-lock interface Type ZB18

FOREWORD

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International Standard IEC 63494-2-1 has been prepared by IEC technical committee 34: Lighting

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

FDIS	Report on voting
XX/XXX/FDIS	XX/XXX/RVD

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

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

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

The National Committees are requested to note that for this publication the stability data is 20XX.

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

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Lighting systems – Electro-mechanical interfaces – Part 2-1: Four-pin ELV twist-lock interface Type ZB18

1 Scope

This document of the IEC 63494-2 series specifies the interchangeability requirements of an electro-mechanical interface with four-pin ELV twist-lock interface – type ZB18 for use in lighting systems. This twist-lock interface has four electrical contacts that are suitable for ELV voltages. Two connections are intended for supply power and two are intended for digital communication. The document specifies interchangeability related requirements for mechanical, electrical, ambient conditions, positional orientation, communication protocol and pin assignments for the interface. Specific requirements for the devices that can utilize the interface such as sensors, communication modules, cameras, etc. are out of scope for this document. The document does not specify the following aspects:

- The lighting technology
- The illumination performance
- Electromagnetic compatibility (EMC)

2 Normative references

The following referenced documents are indispensable for the application 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 60050 series, *International Electrical Vocabulary*

IEC 63105 *Lighting systems and related equipment - Vocabulary*

IEC 60664-1:2020 *Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests*

IEC 62262:2002+A1:2021 *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

IEC 62504 *Terms and definitions for LEDs and LED modules in general lighting*

IEC PAS 63421 *Zhaga Interface Specification Book 18 including Book 1 – Outdoor Luminaire Extension Interface*

IEC 63494-1:202x *Lighting systems – Electro-mechanical interfaces – Part 1: Safety*

NOTE: A future standard IEC 63494-1:202x is in preparation to support this reference.

DiiA specification – DALI Part 351 – *Luminaire-mounted Control Devices*, Version 1.0, October 2019.

NOTE: A future standard IEC 62386-351 is in preparation to replace this reference.

3 Terms and definitions

For the purposes of this document, the terms and definitions in IEC 60050 (IEV), IEC 63105, IEC 62504 and IEC 63494-1 apply.

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

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

3.1 luminaire extension base plate (LEX-BP)

device-side interface for use with a mating receptacle designed to mate with LEX-R

NOTE TO ENTRY: The base plate may be an integral or separable part of the luminaire extension module.

3.2 luminaire extension receptacle

(LEX-R)

luminaire-side interface mounted on an exterior surface designed to mate with a LEX-BP or a LEX-C

NOTE TO ENTRY: The luminaire extension receptacle (LEX-R) can be a built-in part or integral part of the luminaire.

3.3 luminaire extension module

(LEX-M)

device having a LEX-BP, intended to be mounted on a luminaire having a LEX-R

3.4 luminaire extension cap

(LEX-C)

cap having no electrical contacts and designed to mate with a LEX-R

3.5 luminaire bus

(L-B)

electrical bus within a luminaire and its mounting pole (if applicable)

4 Overview and common information

4.1 General

Electro-mechanical interface components specified in this document shall comply with IEC 63494-1:202x. The product marking requirements of IEC 63494-1:202x, clause 5 apply. Clause 5 of this document specifies requirements for the luminaire electro-mechanical interface. Clauses 6 through 9 parallel the safety requirements in IEC 63494-1:202x.

Unless otherwise specified, mechanical dimensions refer to a temperature of (25 ± 5) °C.

All lengths that omit an explicit unit indication are in millimetres.

5 Luminaire electro-mechanical interface

5.1 Overview

Figure 1 gives an overview of a luminaire with luminaire extension receptacle, a luminaire extension cap and a luminaire extension module with a luminaire extension base plate. The luminaire extension receptacle is typically mounted on the exterior of the luminaire but can also be mounted on the interior of the luminaire and the contacts of this receptacle are typically connected to the luminaire internal electronics.

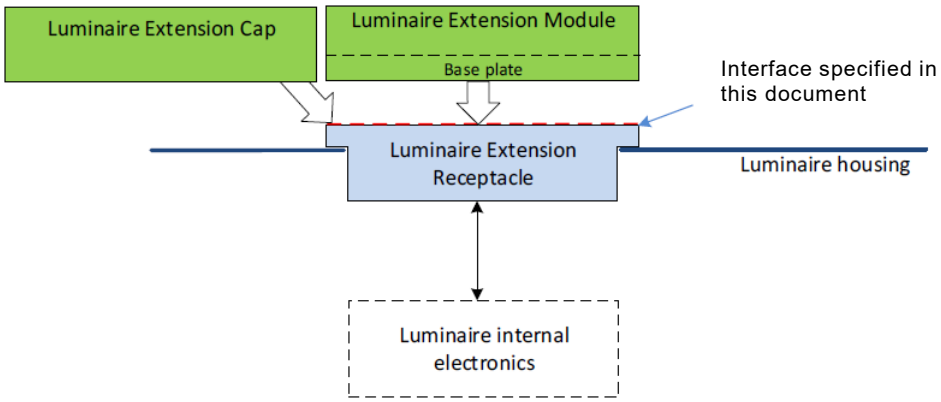

Figure 1 – Luminaire extension module, cap and receptacle in a system

The luminaire extension module is a separate unit which can easily be attached to the luminaire extension receptacle by means of a twist-lock. Typically, it holds additional functionality to extend the functionality of the total system.

The luminaire extension cap is a separate unit which can also easily be attached to the luminaire extension receptacle by means of a twist-lock. The functionality is to cover and protect the luminaire extension receptacle in case no LEX-M is used.

The following interfaces are specified in this document:

- The mechanical interface between the LEX-R and the LEX-BP.
- The mechanical interface between the LEX-R and the LEX-C.
- The inclusion limit zone of the LEX-M.
- The exclusion limit zone of the luminaire to allow mounting of the LEX-M or LEX-C.
- The electrical and communication interface between the LEX-R(s) of the luminaire and one or two LEX-Ms.

5.2 Mechanical interface

5.2.1 Luminaire extension base plate

The luminaire extension base plate (LEX-BP) shall comply with the specifications in Figure 2, Figure 3, Figure 4, Figure 5 and Figure 6. Unless indicated otherwise, the tolerance on linear dimensions is ±0,12 mm and the tolerance on angular dimensions is ±1,0º.

The outer diameter of the LEX-BP shall be less than or equal to 89 mm.

The sealing surface shall be free of obstacles that can prevent mating.

Compliance shall be by optical measurement or tactile techniques.

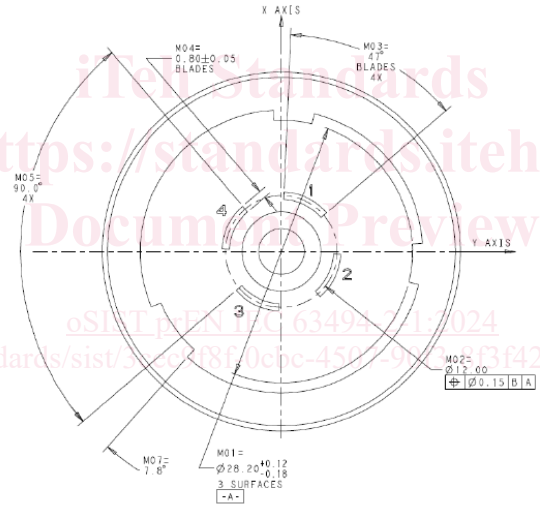

Figure 2 – Mechanical interface of the LEX-BP: View 1

Note to Figure 2: X-axis and Y-axis coincide with centerline of locking points as specified in Figure 5. The position of the electrical contacts may be found starting from the angle M07 referenced from the centerline of the locking points.