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English Version

Lighting Applications - Adaptive Emergency Escape Lighting Systems

Éclairagisme - Systèmes d'éclairage de sécurité
adaptatifs

Angewandte Lichttechnik - Adaptive
Sicherheitsbeleuchtungsanlagen

This Technical Specification (CEN/TS) was approved by CEN on 8 January 2024 for provisional application.

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European foreword

This document (CEN/TS 17951:2024) has been prepared by Technical Committee CEN/TC 169, "Light and Lighting".

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Introduction

Emergency lighting is provided for use when the power supply to the normal lighting fails and is therefore powered from a source independent of that supplying the normal lighting. Whilst the supply to the normal lighting is present, emergency lighting can operate in non-maintained or in maintained mode.

In particular, the objective of escape route lighting is to assist the safe exit from a location for occupants by providing appropriate visual conditions and direction finding on escape routes by means of a combination of luminaires and signs designed to meet predetermined conditions.

Adaptive Emergency Escape Lighting Systems (AEELS) can be used to revise the escape routing and increase the conspicuity of emergency signage depending upon the location of a particular hazard, by using directional exit signs that can be controlled to change routing information and to direct occupants away from an exit route that has become unusable.

Adaptive Emergency Escape Lighting Systems can operate in two ways, where signage is changed at the start of the evacuation procedure only, or alternatively where the information displayed by the signs can be changed during the evacuation as circumstances dictate. In this second mode, during an evolving incident, escape routing can be revised using AEELS by using directional exit signs that can be controlled to change routing information directing occupants away from an exit route that has become unusable.

To improve the conspicuity of emergency signage AEELS could, for example, introduce a time-varying component to the sign such as a flashing or sequentially activated directional arrow.

In case of failure of the AEELS control unit making it impossible to provide control signals to the Emergency Lighting System (ELS), luminaires of the ELS would remain in the last known condition or revert to the original condition in accordance with the EN 1838 design requirements depending on risk assessment. It is essential, that in all cases the consistency between all escape signage is preserved.

For the purposes of this technical specification, Adaptive Emergency Escape Lighting Systems are regarded as a generic term of which there are a number of specific forms, depending upon the configuration and available system inputs as shown in Figure 1.

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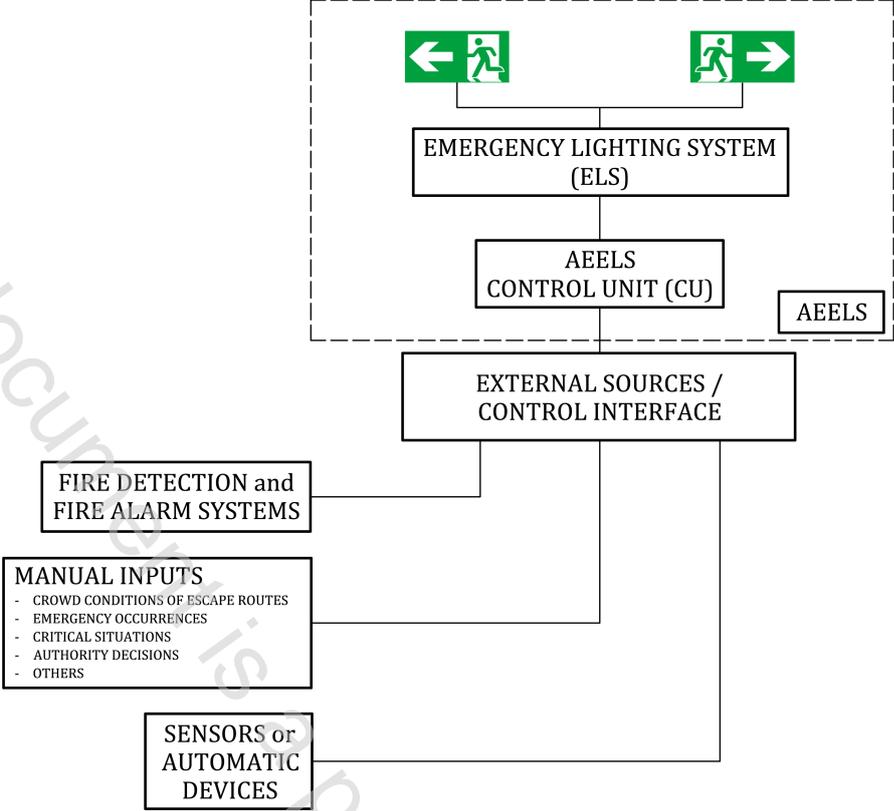


Figure 1 — Example of AEELS configuration

1 Scope

This document specifies the lighting and operating requirements for the application of adaptive emergency escape lighting systems that can interact with management and control systems or be provided with functionality to modify the operation of emergency escape lighting according to situational requirements, in terms of luminous flux output, escape directions and the characteristics and meaning of emergency escape lighting.

The situational requirements can require the involvement and interaction with components and systems other than emergency escape lighting systems. Requirements for these components or systems are not part of this document.

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.

EN 1838, *Lighting applications - Emergency lighting for buildings*

EN 50172, *Emergency escape lighting systems*

EN 60598-2-22, *Luminaires - Part 2-22: Particular requirements - Luminaires for emergency lighting*

EN 62034, *Automatic test systems for battery powered emergency escape lighting*

EN ISO 7010, *Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1838 and the following apply.

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

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

3.1

emergency lighting

lighting provided for use when the power supply to the normal lighting fails

[SOURCE: EN 12665:2024, 3.5.6]

3.2

escape route

designated route used to evacuate, in case of an emergency, to a place of safety