

Traffic signal controllers — Functional safety requirements

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National foreword

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- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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This standard contains a number of performance criteria which are defined by the selection of a class. This procedure has been adopted to enable European members to select a class that meets the regulatory requirements of the member.

Performance classes for application in the UK are contained in “Traffic Signs Regulations and General Directions” (TSRG), published by The Stationery Office. Advice should be sought from The Department of the Environment, Transport and the Regions when selecting classes.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 16, an inside back cover and a back cover.

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Steuergeräte für Lichtsignalanlagen —
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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 226, Road equipment, the Secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2001, and conflicting national standards shall be withdrawn at the latest by April 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The objective of this European Standard is to specify the functional safety requirements of equipment used for the control of traffic signals. It relates to the control of signals to traffic, and any associated signalled traffic movements. The primary concern is to safeguard persons and objects against hazards due to conflicting signals to traffic.

The hazards to be considered include, but are not limited to, the following types of possible signal failures:

- a) the failure to display a red signal to traffic;
- b) the display of a green signal to conflicting traffic;
- c) the failure to display the correct signal sequence to traffic;
- d) the failure to provide the correct timing of all signals.

Persons to be safeguarded are:

- a) users of traffic signals, drivers and passengers of vehicles (including public transport), pedestrians, cyclists and equestrians, persons with physical disabilities;
- b) maintenance and inspection personnel.

1 Scope

This European Standard specifies the functional safety requirements for traffic signal controllers. It is applicable to traffic signal control equipment permanently and temporarily installed, but excludes portable traffic control equipment. Traffic signal controllers, as defined by this European Standard, are required to control conflicting traffic, both vehicular and pedestrian, e.g. junction signals, pedestrian crossings, shuttle signals, public transport signals, in a safe manner.

The electrical safety requirements and additional traffic safety requirements, the interfacing with external equipment and the test methods for verifying compliance with this European Standard, are contained in HD 638.

NOTE: National requirements may specify special conditions for public transport signals (PT) and for any other signal that is not specified in a European Standard.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 12368, *Traffic control equipment — Signal heads and poles*.

HD 638:1999, *Road traffic signal systems*.

3 Definitions

For the purposes of this European Standard, the following definitions apply.

3.1

absent signal

intended signal the luminous intensity of which does not comply with the signal “ON” requirements as specified in HD 638:1999

3.2

bicycle signal

traffic signal for the exclusive purpose of directing bicycle traffic at signalized locations

3.3

central control

system for co-ordinating and monitoring a network or group of traffic signals using a central computer, or equivalent device, and transmission systems

3.4

conflicting green (green/green conflict)

simultaneous display of green signals allowing conflicting traffic movements

3.5

conflicting signal groups

two or more signal groups that will cause conflicting traffic movements if operated concurrently

3.6

failure mode

non-operational state of the traffic signal controller in which, as a result of a major fault, the normal operation mode is replaced with a flashing yellow or a signals off condition

3.7

green signal

signal that is displayed to traffic having the colour "green" as specified in EN 12368

3.8

major fault

fault the occurrence of which has the effect that the safe operation of the signal traffic system cannot be guaranteed as defined in the national requirements

3.9

manual operation mode

operational state of the traffic signal controller in which the state of the signals to traffic is controlled manually by an operator

3.10

memory device

means of storing information in a manner permitting its retrieval

3.11

minor faults

fault as defined in the national requirements, other than a major fault, that is capable of being identified and recorded

3.12

mode

specific condition of a traffic signal controller used to control the signals to traffic. Examples are:

- standby operation mode;
- manual operation mode;
- normal operation mode;
- failure mode.

3.13

monitoring

method of collecting information about the traffic signal controller including diagnostic checks used to detect a fault condition

3.14

national signal regulation

order and appearance of signal aspects, displayed to traffic, that are prescribed in national requirements

3.15

national signal sequence

sequential order and appearance of signals, to traffic, to satisfy a specific national condition and/or application (e.g. signal start-up sequence)