Traffic signal controllers - Functional safety requirements

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN 12675:2017 sisaldab Euroopa standardi EN 12675:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 12675:2017 consists of the English text of the European standard EN 12675:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.08.2017.	Date of Availability of the European standard is 23.08.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Traffic signal controllers - Functional safety requirements

Contrôleurs de signaux de circulation routière - Exigences de sécurité fonctionnelle

Steuergeräte für Lichtsignalanlagen - Funktionale Sicherheitsanforderungen

This European Standard was approved by CEN on 19 June 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 12675:2017) 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 February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12675:2000.

The main changes in this revision are as follows:

a) Clause 1, Scope: deleted the restriction of scope for portable traffic signal control equipment;

b) Clause 1, Scope: clarified the handling of classes on national level;

c) Clause 2, Update of references to standard EN 50556;

d) 3.9: deleted the restriction of manual operation mode to an operator;

e) 3.12: renamed and reordered the operation modes of a traffic signal controller;

f) 3.29: invented the definition for time base frequency;

g) 3.32: extended the definition of traffic signal controller by the function of monitoring;

h) 3.34: invented the definition of traffic signal controller logic;

i) 4.2: generalized the requirement on power up self-test;

j) 4.3: generalized the requirement on continuous diagnostic checks;

k) 4.7.1 Class CB1: deleted the restriction to vehicular signal groups;

l) 4.9: clarified the requirements to safety relevant timings;

m) 5.2: deleted the requirement for ongoing operation of master clock and maintenance facilities in the case of a major fault;

n) 5.4: renumbered and corrected the list of faults necessary to be recorded;

o) 6: restricted necessary user documentation to needs for safe operation and service;

p) 6 f): replaced means of programming by tools;

q) 7. Reformulated the requirements for marking and labelling more general, to cover also onsite reprogrammable memory;

r) Annex A: deleted deviations on National Regulations for Netherlands;

s) Some corrections in orthography and grammar.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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:

e) users of traffic signals, drivers and passengers of vehicles (including public transport), pedestrians, cyclists and equestrians, persons with physical disabilities;

f) 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, and portable traffic control equipment, with the exception of portable traffic signal equipment only capable of controlling alternate / shuttle working lanes (as further defined in 3.37), without the control of crossing vehicular or pedestrian movements. Traffic signal controllers, as defined by this European Standard, are required to control conflicting traffic, both vehicular and pedestrian in a safe manner. Examples are junction signals, pedestrian crossings, shuttle signals, public transport signals.

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 EN 50556.

For a full applicability of this European Standard as well as of the EN 50556 the national standardization bodies are requested to define the set of classes relevant for their national requirements.

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

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50556:2011, *Road traffic signal systems*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
absent signal
intended signal the luminous intensity of which does not comply with the signal “ON” requirements

Note 1 to entry: “ON” requirements as specified in EN 50556

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