

norm**NEN-EN 12675****Verkeersregelininstallaties - Functionele veiligheidseisen**

Publicatie uitsluitend voor commentaar

Traffic signal controllers - Functional safety requirements

mei 2015
ICS 93.080.30**Commentaar vóór 2015-06-26**

Zal vervangen NEN-EN 12675:2000

Als Europees normontwerp is gepubliceerd: prEN 12675:2015, IDT

Definitief vastgestelde normen zullen als Nederlandse norm gelden. Daarom wordt dit normontwerp in Nederland voor commentaar gepubliceerd. Op het ontwerp ingebracht commentaar zal aan de bevoegde normcommissie worden voorgelegd die hiermee rekening zal houden bij de bepaling van de Nederlandse stem. Indien er geen bezwaar bij NEN wordt gebracht, kan dat leiden tot ongewijzigde definitieve vaststelling van het ontwerp als norm.

Van Europese normen bestaan drie officiële versies: Engels, Frans en Duits. Voor Nederland zal de Engelse versie gelden. Daarnaast kan er gekozen worden voor een andere geautoriseerde versie in het Nederlands.

Beleidscommissie 353 "BC Bouw "Producten en materialen" (bc-B)

**THIS PUBLICATION IS COPYRIGHT PROTECTED****DEZE PUBLICATIE IS AUTEURSRECHTELIJK BESCHERMD**

Apart from exceptions provided by the law, nothing from this publication may be duplicated and/or published by means of photocopy, microfilm, storage in computer files or otherwise, which also applies to full or partial processing, without the written consent of the Netherlands Standardization Institute.

The Netherlands Standardization Institute shall, with the exclusion of any other beneficiary, collect payments owed by third parties for duplication and/or act in and out of law, where this authority is not transferred or falls by right to the Reproduction Rights Foundation.

Auteursrecht voorbehouden. Behoudens uitzondering door de wet gesteld mag zonder schriftelijke toestemming van het Nederlands Normalisatie-instituut niets uit deze uitgave worden verveelvoudigd en/of openbaar gemaakt door middel van fotokopie, microfilm, opslag in computerbestanden of anderszins, hetgeen ook van toepassing is op gehele of gedeeltelijke bewerking.

Het Nederlands Normalisatie-instituut is met uitsluiting van ieder ander gerechtigd de door derden verschuldigde vergoedingen voor verveelvoudiging te innen en/of daartoe in en buiten rechte op te treden, voor zover deze bevoegdheid niet is overgedragen c.q. rechtens toekomt aan de Stichting Reprerecht.

Although the utmost care has been taken with this publication, errors and omissions cannot be entirely excluded. The Netherlands Standardization Institute and/or the members of the committees therefore accept no liability, not even for direct or indirect damage, occurring due to or in relation with the application of publications issued by the Netherlands Standardization Institute.

Hoewel bij deze uitgave de uiterste zorg is nagestreefd, kunnen fouten en onvolledigheden niet geheel worden uitgesloten. Het Nederlands Normalisatie-instituut en/of de leden van de commissies aanvaarden derhalve geen enkele aansprakelijkheid, ook niet voor directe of indirecte schade, ontstaan door of verband houdend met toepassing van door het Nederlands Normalisatie-instituut gepubliceerde uitgaven.

Voorbeeld
Preview

March 2015

ICS 93.080.30

Will supersede EN 12675:2000

English Version

Traffic signal controllers - Functional safety requirements

Contrôleurs de feux d'intersection - Prescription de sécurité
fonctionnelle

Steuergeräte für Lichtsignalanlagen - Funktionale
Sicherheitsanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 226.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

	Page
Foreword.....	3
Introduction.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions.....	5
4 Functional safety requirements.....	9
4.1 General.....	9
4.2 Application of power.....	9
4.3 Diagnostic checks of traffic signal controller logic system.....	10
4.4 Classification of faults.....	10
4.5 Conflict faults.....	10
4.5.1 Signal group conflicts (unwanted signals).....	10
4.5.2 Signal group green/absent red conflict.....	11
4.5.3 Absent red/absent red conflicts.....	12
4.6 National signal regulations (unwanted signals).....	12
4.7 Absent signals.....	13
4.7.1 Absent signal group red signals.....	13
4.7.2 Absent signal groups, yellow or green signals.....	13
4.8 Compliance checking.....	14
4.9 Safety timings.....	14
4.10 National signal sequences.....	15
4.11 Faults of external inputs.....	15
5 Fault condition.....	15
5.1 General.....	15
5.2 Major faults.....	16
5.3 Minor faults.....	16
5.4 Storage of faults.....	16
6 User documentation.....	17
7 Marking and labelling.....	17
Annex A (informative) A-deviations.....	18

Foreword

This document (prEN 12675:2015) has been prepared by Technical Committee CEN/TC 226 "Road equipment", the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12675:2000.

The main changes in this revision are as follows:

- a) Scope: deleted the restriction of scope for portable traffic signal control equipment;
- b) Scope: clarified the handling of classes on national level;
- c) 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 light 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) reformulated the requirements for marking and labelling more general, to cover also onsite reprogrammable memory;
- r) Annex ZB: deleted deviations on National Regulations for Netherlands;
- s) some corrections in orthography and grammar.

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.

Copyright
Preview

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 capable of controlling only 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, 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 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 12368, *Traffic control equipment - Signal heads*

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 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

prEN 12675:2015 (E)

- 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
- 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:
- fixed time operation mode;
 - traffic dependent operation mode;
 - standby operation mode;
 - manual 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)

3.16**normal operation mode**

any operational state of the traffic signal controller, other than failure mode, especially the operational state in which the signals are in accordance with the national signal regulation

3.17**pedestrian signal**

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

3.18**portable traffic signal control equipment**

traffic signal control equipment designed for temporary applications and designed for easy transportation from one site to another

3.19**power supply**

power source providing energy to an active device or circuit

3.20**public transport signals (PT)**

traffic signal for the exclusive purpose of directing public transport vehicles at signalized locations

3.21**red signal**

signal that is displayed to traffic having a colour "red" as specified in EN 12368

3.22**safety timings**

time settings that, in the event of an error, can affect the safety of the traffic signal control equipment

3.23**shuttle signals**

set of traffic signals controlling a narrow section of road where traffic can only proceed in each direction alternatively

3.24**signal**

dynamic message supplied to road users

3.25**signal group**

group of signal heads that always receive identical signal light indications

3.26**signal head**

device which comprises one or more optical units, including the housing(s), together with all the mounting brackets, fixings, hoods, visors, cowls and background screens, whose task is to convey a visual message to road users

3.27**standby operation mode**

operational state of the traffic signal controller in which a flashing yellow signal, or signals off condition, is permitted by the national signal regulation

3.28**start-up sequence**

when requested under normal operation of the controller, it may be required to go through a controlled start up sequence to change from the display of either "all signals off" or "flashing yellow" to normal operation mode

Bestelformulier

NEN

Stuur naar:

NEN Standards Products & Services
t.a.v. afdeling Klantenservice
Antwoordnummer 10214
2600 WB Delft

NEN Standards Products & Services

Postbus 5059
2600 GB Delft

Vlinderweg 6
2623 AX Delft

T (015) 2 690 390
F (015) 2 690 271

www.nen.nl/normshop

Ja, ik bestel

__ ex. NEN-EN 12675:2015 Ontw. en Verkeersregelininstallaties - Functionele veiligheidseisen € 23.50

Wilt u deze norm in PDF-formaat? Deze bestelt u eenvoudig via www.nen.nl/normshop

Gratis e-mailnieuwsbrieven

Wilt u op de hoogte blijven van de laatste ontwikkelingen op het gebied van normen, normalisatie en regelgeving? Neem dan een gratis abonnement op een van onze e-mailnieuwsbrieven. www.nen.nl/nieuwsbrieven

Retourneren

Fax: (015) 2 690 271
E-mail: klantenservice@nen.nl
Post: NEN Standards Products & Services,
t.a.v. afdeling Klantenservice
Antwoordnummer 10214,
2600 WB Delft
(geen postzegel nodig).

Gegevens

Bedrijf / Instelling _____

T.a.v. _____ O M O V

E-mail _____

Klantnummer NEN _____

Uw ordernummer _____

BTW nummer _____

Postbus / Adres _____

Postcode _____

Plaats _____

Telefoon _____

Fax _____

Factuuradres (indien dit afwijkt van bovenstaand adres)

Postbus / Adres _____

Postcode _____

Plaats _____

Datum _____

Handtekening _____

Voorwaarden

- De prijzen zijn geldig tot 31 december 2016, tenzij anders aangegeven.
- Alle prijzen zijn excl. btw, verzend- en handelingskosten en onder voorbehoud bij o.m. ISO- en IEC-normen.
- Bestelt u via de normshop een pdf, dan betaalt u geen handeling en verzendkosten.
- Meer informatie: telefoon (015) 2 690 391, dagelijks van 8.30 tot 17.00 uur.
- Wijzigingen en typfouten in teksten en prijsinformatie voorbehouden.
- U kunt onze algemene voorwaarden terugvinden op: www.nen.nl/leveringsvoorwaarden.