Road traffic signal systems

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50556:2011 sisaldab Euroopa standardi EN 50556:2011 ingliskeelset teksti.	This Estonian standard EVS-EN 50556:2011 consists of the English text of the European standard EN 50556:2011.
Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 25.02.2011.	Date of Availability of the European standard text 25.02.2011.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 93.080.30

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50556

February 2011

ICS 93.080.30

Supersedes HD 638 S1:2001 + A1:2006

English version

Road traffic signal systems

Systèmes de signaux de circulation routière

Straßenverkehrs-Signalanlagen

This European Standard was approved by CENELEC on 2011-01-02. CENELEC 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 Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by CENELEC Task Force BTTF 69-3, Road traffic signal systems.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50556 on 2011-01-02.

This document supersedes HD 638 S1:2001 + A1:2006.

The main changes with respect to HD 638 S1:2001 + A1:2006 are the following:

- update of the normative-references;
- editorial revision;
- reduction of the classes;
- adaptation to the level of technology.

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

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-01-02
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-02

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Introduction

To satisfy the legal and regulatory requirements and specific provisions of each CENELEC country, certain characteristics in this standard contain a range which is defined by a number of discrete classes. The class to be used in the country will be selected by the Standards Authority of the CENELEC member of that country from the range specified.

Thus this European Standard contains the essential electrotechnical requirements of all CENELEC countries and permits through the class selection procedure, countries to incorporate their own requirements.

It is believed that this first step will allow, over a period of time, a gradual alignment of Road Traffic Signal Systems in Europe.

1 Scope

This European Standard specifies requirements for Road Traffic Signal Systems, including their development, design, testing, installation and maintenance.

In particular, it forms the electrotechnical part of the following two standards issued by CEN:

- EN 12368, *Traffic control equipment — Signal heads*
- EN 12675, *Traffic signal controllers — Functional safety requirements*

Each of these standards above should be used with this standard either singly or together to define an operational equipment or system. This should be achieved by using the electrotechnical methods and testing defined in this standard.

Where Road Traffic Signal Systems are to be used with other systems, e.g. public lighting or railway signalling and communication, this standard should comply with the other respective standard to ensure that overall safety is not compromised.

Only permanently or temporarily installed Road Traffic Signal Systems are included in this standard. Central office and portable signalling systems are not covered.

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.

EN 12368	Traffic control equipment - Signal heads
EN 12675:2000	Traffic signal controllers - Functional safety requirements
EN 50102	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)
EN 50110-1	Operation of electrical installations
EN 50129	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
EN 50293	Electromagnetic compatibility - Road traffic signal systems - Product standard
EN 60529	Degrees of protection provided by enclosures (IP Code) (IEC 60529)
EN 60950-1:2006	Information technology equipment - Safety - Part 1: General requirements (IEC 60950-1:2005, mod.)
EN 61008 series	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) (IEC 61008 series)
EN 61009 series	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's) (IEC 61009 series)
EN ISO 9001:2008	Quality management systems - Requirements (ISO 9001:2008)
HD 384.4 series	Electrical installations of buildings - Part 4: Protection for safety (IEC 60364-4 series)
HD 60364-5-54	Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors (IEC 60364-5-54)
EN 60068-2-1	Environmental testing - Part 2-1: Tests - Test A: Cold (IEC 60068-2-1)
EN 60068-2-2	Environmental testing - Part 2-2: Tests - Test B: Dry heat (IEC 60068-2-2)
EN 60068-2-5	Environmental testing - Part 2: Tests - Test Sa: Simulated solar radiation at ground level (IEC 60068-2-5)

EN 60068-2-14	Environmental testing - Part 2-14: Tests - Test N: Change of temperature (IEC 60068-2-14)
EN 60068-2-30	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) (IEC 60068-2-30)
EN 60068-2-64	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance (IEC 60068-2-64)
EN 61140	Protection against electric shock - Common aspects for installation and equipment (IEC 61140)
CLC/TS 50509	Use of LED signal heads in road traffic signal systems
IEC 60050-191	International Electrotechnical Vocabulary - Chapter 191: Dependability and quality of service
IEC 60050-826	International Electrotechnical Vocabulary - Part 826: Electrical installations
IEC 60183	Guide to the selection of high-voltage cables
IEC 60417 (database)	Graphical symbols for use on equipment

3 Terms and definitions

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

3.1 General

3.1.1
Road Traffic Signal Systems
include systems and devices, provided they are affiliated to them in terms of circuitry

NOTE They may consist of the following elements which is not in itself a complete list:

- Controllers;
- Signal heads, signalling devices and traffic signs
  e.g. signal heads for traffic signals;
  acoustic signal generators;
  mechanical signal generators;
  traffic signs connected to the Road Traffic Signal System;
- Traffic sensors and detectors
  e.g. request push buttons;
  vehicle detectors / Pedestrian Detectors;
- Monitoring equipment
  e.g. photographic monitoring devices;
- Equipment Enclosures;
- Electrical Supply;
- Cables;
- Interconnections;
- Supports.

3.1.2
Failure Mode Analysis
means of examining all failure modes to ensure that signal states endangering the road users and/or risk of electrical hazard cannot occur during normal conditions of operation of a Road Traffic Signal System or if they do occur as a result of or whilst a failure (failure mode) exists that they signal states endangering the road users are detected and prevented from continuing

3.1.3
Signal Safeguarding Facility
facilities intended to prevent states of signals endangering the traffic