



SLOVENSKI STANDARD

SIST EN 50194-2:2007

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Electrical apparatus for the detection of combustible gases in domestic premises - Part 2:
Electrical apparatus for continuous operation in a fixed installation in recreational
vehicles and similar premises - Additional test methods and performance requirements
(standards.iteh.ai)

Elektrische Geräte für die Detektion von brennbaren Gasen in Wohnhäusern - Teil 2:
Ortsfeste elektrische Geräte zum kontinuierlichen Betrieb in Freizeifahrzeugen oder
ähnlichen Umgebungen - Ergänzende Prüfverfahren und Anforderungen an das
Betriebsverhalten

Matériels électriques pour la détection des gaz combustibles dans les locaux à usage
domestique - Partie 2: Matériels électriques en fonctionnement continu et en installation
fixe dans les véhicules de loisir et locaux similaires - Méthodes d'essai supplémentaires
et exigences de qualité de fonctionnement

Ta slovenski standard je istoveten z: EN 50194-2:2006

ICS:

13.320 Alarmni in opozorilni sistemi Alarm and warning systems

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EUROPEAN STANDARD

EN 50194-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2006

ICS 13.320

English version

**Electrical apparatus for the detection
of combustible gases in domestic premises
Part 2: Electrical apparatus for continuous operation
in a fixed installation in recreational vehicles and similar premises -
Additional test methods and performance requirements**

Matériels électriques pour la détection
des gaz combustibles dans les locaux
à usage domestique
Partie 2: Matériels électriques en
fonctionnement continu et en installation
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Elektrische Geräte für die Detektion von
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This European Standard was approved by CENELEC on 2006-03-01. 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, 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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by WG 4 of the Technical Committee CENELEC TC 216, Gas detectors. The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50194-2 on 2006-03-01.

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) 2007-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-03-01

This Part 2 is intended to be used in conjunction with EN 50194:2000. This European Standard supplements or modifies the corresponding clauses of EN 50194; where it states “addition”, “modification” or “replacement” the relevant text of EN 50194 is to be adapted accordingly.

Subclauses, tables and notes that are numbered starting from 101 are additional to those in Part 1.

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1 Scope

This Clause of EN 50194 is replaced by:

This European Standard specifies test methods and performance requirements for electrical apparatus for the detection of combustible gases designed for continuous operation in a fixed installation in recreational vehicles and similar premises.

NOTE 1 For caravan holiday homes EN 50194 applies.

This standard specifies apparatus designed to operate in the event of an escape of liquefied petroleum gas (LPG) and/or petrol (gasoline) vapour and to provide a visual and audible alarm and an executive action in the form of an output signal that can actuate directly or indirectly a shut-off device and/or other ancillary device (Type A of EN 50194).

The standard excludes apparatus for the detection of toxic gases such as carbon monoxide (see EN 50291).

Apparatus complying with this standard is not considered suitable for industrial or commercial installations for which EN 61779-1 and EN 61779-4 apply.

NOTE 2 Apparatus tested in accordance with the EN 61779 series of standards will not necessarily comply with this standard.

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.

DIN 51361	Mineral spirits – Special boiling point spirits – Requirements
EN 437:2003	Test gases – Test pressures – Appliance categories
EN 13878:2003	Leisure accommodation vehicles – Terms and definitions
EN 50194:2000 ¹⁾	Electrical apparatus for the detection of combustible gases in domestic premises – Test methods and performance requirements
EN 50018:2000	Electrical apparatus for potentially explosive atmospheres - Flameproof enclosure 'd'
EN 50270:2006	Electromagnetic compatibility – Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen
EN 60068-2-6	Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal) (IEC 60068-2-6)
EN 60068-2-7	Environmental testing – Part 2-7: Tests – Test Ga: Acceleration, steady state (IEC 60068-2-7)
EN 60068-2-27	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock (IEC 60068-2-27)

¹⁾ Will be replaced by EN 50194-1, presently under consideration.

EN 60068-2-52	Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution) (IEC 60068-2-52)
EN 60529	Degrees of protection provided by enclosures (IP Code) (IEC 60529)
EN 60721-3-6:1993	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 6: Ship environment (IEC 60721-3-6:1987 + A1:1991)
EN 60945:2002	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results (IEC 60945:2002)
EN 61779-1	Electrical apparatus for the detection and measurement of flammable gases - Part 1: General requirements and test methods (IEC 61779-1)
EN 61779-4	Electrical apparatus for the detection and measurement of flammable gases - Part 4: Performance requirements for group II apparatus indicating a volume fraction up to 100 % lower explosive limit (IEC 61779-4)
EN ISO 10239:2000 EN ISO 10239:2000/ AC:2002	Small craft – Liquefied petroleum gas (LPG) systems (ISO 10239:2000 + corrigendum 2001)
ISO 7637-1:2002	Road vehicles - Electrical disturbances from conduction and coupling - Part 1: Definitions and general considerations
ISO 7637-2:2004	Road vehicles - Electrical disturbances from conduction and coupling - Part 2: Electrical transient conduction along supply lines only

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3 Definitions

The definitions of EN 50194 apply, with the following additions:

3.19.

recreational vehicle

recreational vehicles considered by this standard include recreational craft, caravans and motor caravans

NOTE Other motorised vehicles like trucks are known to have residential accommodation. They are not recreational vehicles but are considered as similar premises in respect of this standard.

3.20

caravan holiday home

transportable leisure accommodation vehicle that does not meet requirements for construction and use of road vehicles, that retains means for mobility and that is for temporary or seasonal occupation

[EN 13878]

3.21

recreational craft

boat of a minimum length of 2,5 m and a maximum length of 24 m as specified in Directive 94/25/EC, which is intended for sports or leisure purposes

NOTE For the purposes of this standard the word 'boat' should be taken with the meaning 'recreational craft'.

3.22**remote sensor**

sensor assembly that is mounted in a separate location from the control unit

NOTE This definition should be read in conjunction with Definition 3.12 of EN 50194.

3.23**control unit**

unit that may contain the power supply, signal processing, alarm circuits and indicators

3.24**vehicle supply powered apparatus**

apparatus designed to be powered by the vehicle's electrical supply

3.25**caravan**

trailer leisure accommodation vehicle that meets requirements for construction and use of road vehicles

[EN 13878]

3.26**motor caravan**

self-propelled leisure accommodation vehicle that meets requirements for construction and use of road vehicles

It contains at least:

- seats and table,
- sleeping accommodation which may be converted from the seats,
- cooking facilities, and
- storage facilities

[EN 13878]

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4 General requirements**4.1 General**

This subclause of EN 50194 is applicable with the following additions:

This standard also includes apparatus for detecting petrol vapour in applications such as the bilges of boats, where petrol is used as fuel. It is not applicable for the detection of vapour of diesel fuel.

NOTE 101 Due to the low vapour pressure leaks of diesel fuel do not cause the risk of an explosion at ambient temperatures.

The requirements for flammable gas detection as defined in EN 50194 apply equally to petrol vapour detectors.

In this standard there are requirements that cover all apparatus. Additional application specific requirements apply to certain groups of recreational vehicles, such as boats. An apparatus which complies with the requirements for recreational craft will automatically comply with the requirements for motor caravans and caravans. An apparatus which complies with the requirements for motor caravans will automatically comply with the requirements for caravans. The apparatus are designed for continuous operation.

NOTE 102 When the vehicle is not in use the apparatus may be switched off in order to save the vehicles power supply or the internal batteries.

The apparatus may consist of one or more sensor(s) and a control unit. Sensors (integrated into the apparatus or remote) shall be designed to detect LPG and/or petrol vapour.

NOTE 103 Sensors or apparatus designed according EN 50194 may be used as apparatus or as component of it, if the additional requirements of this standard are complied with.

The apparatus shall reliably detect the presence of combustible gas in recreational vehicles under the stated application conditions, shall produce an alarm and shall be able to initiate executive actions whenever the level exceeds the alarm set point.

The apparatus, electrical assemblies and components shall comply with EN 50194, where applicable, with the construction requirements of 4.2 to 4.6 and the test and performance requirements of Clause 5.

4.2 Construction

This subclause of EN 50194 is applicable with the following additions:

Each sensor shall be constructed of materials that will not corrode in the environment where it is designed for, e.g. in the presence of a salt-laden atmosphere as exists in a marine environment, or be affected by the gases and vapours that may be expected to be present in a bilge of a recreational craft.

Adequate means shall be provided to mount the remote sensor(s), pointing vertically downwards, securely to the vehicle's substructure.

The control unit shall be constructed of materials that are suitable for use in the intended application e.g. in the cabin or below deck area of a recreational craft.

4.3 Indicators and alarms

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This subclause of EN 50194 is applicable with the following additions:

4.3.3 Addition:

If more than one sensor is connected to a control unit, the control unit shall indicate the alarm condition of the different sensors individually.

4.4 Fault signals

This subclause of EN 50194 is replaced by:

The apparatus shall provide a visual and audible fault signal in the event of interruption of communication between control unit and the remote sensor(s).

The audible fault signal shall be clearly identified and different from a gas alarm.

4.5 Output signal

This subclause of EN 50194 is replaced by:

The output signal of the apparatus shall operate under the same conditions as the visual and audible alarm. For triggering an output signal, there shall be no built-in delay.

4.6 Labelling and instructions

This subclause of EN 50194 is applicable with the following additions:

The manufacturer shall declare for which of the following application(s) and for which gas(es) the device is approved:

- domestic premises;
- caravans;
- motor caravans;
- boats;
- gas(es) to be measured.

This shall be noted on a label on the device or fixed at the device and shall be pointed out more detailed in the manual.

If one instruction manual is used for different types of devices it shall be explicitly noted which type is related to which of the above mentioned application and to which gas.

4.6.1 Labelling

This subclause of EN 50194 is applicable with the following additions:

The following is applicable to recreational craft only:

j) The classification of the environmental condition as defined in EN 60721-3-6:

- remote sensor(s): 6K3/6B1/6S1/6M3,
- control unit: 6K2/6B1//6S1/6M3.

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4.6.2 Cautions <https://standards.iteh.ai/catalog/standards/sist/a38ec578-7d0e-46d8-a310-d8f73f5298c2/sist-en-50194-2-2007>

This subclause of EN 50194 is applicable.

4.6.3 Instruction booklet

This subclause of EN 50194 is applicable with the following additions:

- p) Power consumption;
- q) The correct operating voltage, fuse-rating, if any, and method of connection to the vehicle's power system;
- r) A list of materials that may be expected to be found in recreational vehicles that may produce vapours or gases, e.g. oils, cleaning fluids, polishes, paints, greases, cooking operations, etc. which may affect the reliability of the apparatus in the short or long term;
- s) Recommendation that the gas installation should comply with the requirements of 5.5 of Annex 1 of Directive 94/25/EC (EN ISO 10239:2000) (applicable for recreational craft only);
- t) The expected lifetime for the control unit and sensors except for sensors to be installed in the bilge of boats (4.6.101 applies);
- u) A note stating the working temperature and humidity range for control unit and remote sensors;
- v) The gas volume ratios at which the alarm threshold has to be triggered, specified for LPG and/or petrol vapour.

4.6.4 Packaging

This subclause of EN 50194 is applicable.

Addition:

4.6.101 Restrictions (applicable for recreational craft only)

For remote sensors to be installed in the bilge of boats the manufacturer shall provide means for performing a functional test to verify correct operation of the remote sensor in the field.

The manufacturer shall provide additional information to explain the conditions that apply to sensors placed in the bilge. A maximum interval between checks shall be specified in the manual.

NOTE Small bottles containing silica gel saturated with a combustible liquid e.g. iso-propanol have been found suitable for such checks.

5 Test and performance requirements

5.1 General requirements for tests

This subclause of EN 50194 is applicable.

5.2 Normal conditions for tests

5.2.1 General

This subclause of EN 50194 is applicable.

5.2.2 Test gases for alarm testing

This subclause of EN 50194 is replaced by:

For apparatus intended for sensing LPG the air gas mixture to be used for all tests shall utilize butane of composition G30. This gas composition shall be as defined in EN 437.

For apparatus intended for sensing petrol vapour the air vapour mixture to be used for all tests shall utilize test petrol according to DIN 51631/I with an LEL of 1,1 % (V/V).

Acceptable alternatives to petrol vapour are air vapour mixtures of hexane or heptane appropriate to the LEL of 1,1 % (V/V) for petrol vapour.

5.2.3 Test gas volume ratios

For the test in 5.3.4.1 and 5.3.12.1 of EN 50194, the test gas volume ratio shall be $(3 \pm 0,3)$ % LEL above and below the volume ratios declared by the manufacturer. The test gas concentrations shall not exceed the overall band of (3 to 20) % LEL.

The test gas shall be applied for 5 min.

For all other tests, unless otherwise specified, the test gas volume ratio shall be $(6 \pm 0,6)$ % LEL above and below the volume ratio declared by the manufacturer. The test gas concentration shall not exceed the overall band of (3 to 20) % LEL.

The test gas shall be applied for 5 min.