

# SLOVENSKI STANDARD

## SIST EN 50194-2:2019

01-julij-2019

Nadomešča:

SIST EN 50194-2:2007

SIST EN 50194-2:2007/A1:2016

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**Električne naprave za zaznavanje vnetljivega plina v gospodinjstvih - 2. del:  
Električne naprave za neprekinjeno delovanje v inštalacijah, vgrajenih v vozilih za  
rekreacijo, in na sorodnih področjih - Dodatne preskusne metode in zahteve za  
delovanje**

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

Elektrische Geräte für die Detektion von brennbaren Gasen in Wohnhäusern - Teil 2: Ortsfeste elektrische Geräte zum kontinuierlichen Betrieb in Freizeitfahrzeugen 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 supplé

**Ta slovenski standard je istoveten z: EN 50194-2:2019**

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**ICS:**

|        |                               |                           |
|--------|-------------------------------|---------------------------|
| 13.120 | Varnost na domu               | Domestic safety           |
| 13.320 | Alarmni in opozorilni sistemi | Alarm and warning systems |

**SIST EN 50194-2:2019**

**en**

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EUROPEAN STANDARD

EN 50194-2

NORME EUROPÉENNE

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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 dans une installation fixe dans les véhicules de loisirs et locaux similaires - Méthodes d'essai supplémentaires et exigences de performance

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

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## Contents

|   |    |
|---|----|
| European foreword .....   | 3  |
| 1 Scope .....   | 4  |
| 2 Normative references .....  | 4  |
| 3 Terms and definitions .....   | 5  |
| 4 General requirements .....  | 6  |
| 4.1 General .....   | 6  |
| 4.2 Construction .....  | 6  |
| 4.3 Indicators and alarms .....   | 7  |
| 4.4 Fault signals .....   | 7  |
| 4.5 Output signal .....   | 7  |
| 4.6 Labelling and instructions .....  | 7  |
| 4.6.1 Labelling .....   | 7  |
| 4.6.2 Cautions .....  | 7  |
| 4.6.3 Instruction booklet .....   | 8  |
| 4.6.4 Packaging .....   | 8  |
| 5 Test and performance requirements .....   | 8  |
| 5.1 General requirements for tests .....  | 8  |
| 5.2 Normal conditions for tests .....   | 8  |
| 5.2.1 General .....   | 8  |
| 5.2.2 Test gases for alarm testing .....  | 8  |
| 5.2.3 Test gas volume ratios .....  | 9  |
| 5.2.4 Speed of test gases .....   | 9  |
| 5.2.5 Power supply .....  | 9  |
| 5.2.6 Temperature .....   | 9  |
| 5.2.7 Humidity .....  | 9  |
| 5.2.8 Pressure .....  | 9  |
| 5.2.9 Removable parts .....   | 9  |
| 5.3 Test methods and performance requirements .....   | 9  |
| 5.3.1 General .....   | 9  |
| 6 Self-contained battery powered apparatus .....  | 15 |
| Annex A (informative) Location of the apparatus and sensors – Guide for writing the instruction booklet ..... | 16 |
| Annex B (informative) Emergency procedures – Leakage of gas or petrol .....                                   | 17 |
| Bibliography .....  | 18 |

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## European foreword

This document (EN 50194-2:2019) has been prepared by CLC/TC 216 “Gas detectors”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-03-18
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2022-03-18

This document supersedes EN 50194-2:2006.

This Part 2 is intended to be used in conjunction with EN 50194-1:2009.

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.

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

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**EN 50194-2:2019 (E)****1 Scope**

*This Clause of EN 50194-1 is replaced by:*

This document 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 50194-1 applies.

This document 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 50194-1).

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

Apparatus complying with this document is not considered suitable for industrial or commercial installations for which EN 60079-29-1 apply.

NOTE 2 Apparatus tested in accordance with EN 60079-29-1 will not necessarily comply with this standard.

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 437:2003, *Test gases – Test pressures – Appliance categories*

EN 13878:2003, *Leisure accommodation vehicles – Terms and definitions*

EN 50194-1:2009, *Electrical apparatus for the detection of combustible gases in domestic premises - Part 1: Test methods and performance requirements*

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EN 60079-1, *Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"*

EN 50270:2015, *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)*

EN 60068-2-7, *Environmental testing - Part 2: Tests - Test Ga: Acceleration, steady state*

EN 60068-2-27, *Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock*

EN 60068-2-52, *Environmental testing - Part 2: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

EN 60721-3-6:1993, *Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 6: Ship environment*

EN 60945:2002, *Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results*

ISO 7637-2:2011, *Road vehicles — Electrical disturbances from conduction and coupling — Part 2: Electrical transient conduction along supply lines only*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions of EN 50194-1:2009 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.21

##### **recreational vehicle**

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

Note 1 to entry: 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.

#### 3.22

##### **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

[SOURCE: EN 13878]

#### 3.23

##### **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 1 to entry: For the purposes of this standard the word 'boat' should be taken with the meaning 'recreational craft'.

#### 3.24

##### **remote sensor**

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

Note 1 to entry: This definition should be read in conjunction with Definition 3.12 of EN 50194-1.

#### 3.25

##### **control unit**

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

#### 3.26

##### **vehicle supply powered apparatus**

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

#### 3.27

##### **caravan**

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

[SOURCE: EN 13878]

**EN 50194-2:2019 (E)****3.28****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

[SOURCE: EN 13878]

**4 General requirements****4.1 General**

*This subclause of EN 50194-1 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 50194-1 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 50194-1 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 50194-1, 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 50194-1 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

*This subclause of EN 50194-1 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 50194-1 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 50194-1 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 50194-1 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.

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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 50194-1 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.

#### 4.6.2 Cautions

*This subclause of EN 50194-1 is applicable.*

**EN 50194-2:2019 (E)****4.6.3 Instruction booklet**

*This subclause of EN 50194-1 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 2013/53/EU (EN ISO 10239:2014) (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 50194-1 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 50194-1 is applicable.*

**5.2 Normal conditions for tests****5.2.1 General**

*This subclause of EN 50194-1 is applicable.*

**5.2.2 Test gases for alarm testing**

*This subclause of EN 50194-1 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 50194-1:2009, 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.

### 5.2.4 Speed of test gases

*This subclause of EN 50194-1 is applicable.*

### 5.2.5 Power supply

*This subclause of EN 50194-1 is applicable.*

### 5.2.6 Temperature

*This subclause of EN 50194-1 is applicable.*

### 5.2.7 Humidity

*This subclause of EN 50194-1 is applicable.*

### 5.2.8 Pressure

*This subclause of EN 50194-1 is applicable.*

### 5.2.9 Removable parts

*This subclause of EN 50194-1 is applicable.*

## 5.3 Test methods and performance requirements

In addition to the tests of EN 50194-1 the following tests shall be carried out, where applicable. Some tests are applicable to recreational craft only.

Where a subclause of EN 50194-1 shall be replaced by one of the following subclauses this is noted below the headline. Subclauses of 5.3 of EN 50194-1:2009 which apply without modification, e.g. 5.3.2, are not referenced in this standard.

### 5.3.1 General

*This subclause of EN 50194-1 is replaced by:*

The apparatus shall comply with all the requirements under the specified test conditions. Unless otherwise stated, each test condition shall be separately varied while the others remain normal as defined in 5.2.

When the apparatus is switched on, a warm-up time not exceeding 15 min is acceptable.

The following sequence of tests shall be adhered to after carrying out the tests of EN 50194-1 with the described modifications and, unless otherwise stated, they shall be carried out in clean air or the test air gas mixture, as appropriate.

### 5.3.5 Alarm test during warm-up time

*This subclause of EN 50194-1 is applicable with the following additions:*

#### 5.3.5.1 Test

For apparatus intended to measure LPG repeat the test with 100 % Vol. Butane of composition G 30.

For apparatus intended to measure petrol vapours repeat the test with a saturated mixture of Hexane in air at  $(20 \pm 2)$  °C.