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**Električne naprave za odkrivanje ogljikovega monoksida v gospodinjstvih - 2. del:  
Električne naprave za stalno delovanje v nepremičnih inštalacijah na rekreacijskih  
vozilih in na sorodnih področjih, vključno na rekreacijskih plovilih - Dodatne  
preskusne metode in zahtevane lastnosti**

Electrical apparatus for the detection of carbon monoxide in domestic premises - Part 2:  
Electrical apparatus for continuous operation in a fixed installation in recreational  
vehicles and similar premises including recreational craft - Additional test methods and  
performance requirements

(standards.iteh.ai)

Elektrische Geräte für die Detektion von Kohlenmonoxid in Wohnhäusern - Teil 2:  
Ortsfeste elektrische Geräte zum kontinuierlichen Betrieb in Freizeitfahrzeugen und  
ähnlichen Umgebungen einschließlich Sportbooten - Ergänzende Prüfverfahren und  
Anforderungen an das Betriebsverhalten

Appareils électriques pour la détection de monoxyde de carbone dans les locaux à  
usage domestique - Partie 2: Appareils électriques en fonctionnement continu et en  
installation fixe dans les véhicules de loisir et locaux similaires incluant les embarcations  
de loisir - Méthodes d'essai supplémentaires et exigences d'aptitude à la fonction

**Ta slovenski standard je istoveten z: EN 50291-2:2019**

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**ICS:**

13.320 Alarmni in opozorilni sistemi Alarm and warning systems

**SIST EN 50291-2:2019**

**en**

**iTeh STANDARD PREVIEW**  
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EUROPEAN STANDARD

EN 50291-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2019

ICS 13.320

Supersedes EN 50291-2:2010 and all of its amendments  
and corrigenda (if any)

English Version

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

Appareils électriques pour la détection de monoxyde de  
carbone dans les locaux à usage domestique - Partie 2:  
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Wohnhäusern - Teil 2: Ortsfeste elektrische Geräte zum  
kontinuierlichen Betrieb in Freizeitfahrzeugen und ähnlichen  
Umgebungen einschließlich Sportbooten - Ergänzende  
Prüfverfahren und Anforderungen an das Betriebsverhalten

**ITeH STANDARD PREVIEW**  
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This European Standard was approved by CENELEC on 2019-04-26. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

EN 50291-2:2019 (E)

## European foreword

This document (EN 50291-2:2019) 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) 2020-04-26
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2022-04-26

This document supersedes EN 50291-2:2010 and all of its amendments and corrigenda (if any).

This Part 2 is to be used in conjunction with EN 50291-1:2018.

This Part 2 supplements or modifies the corresponding clauses of EN 50291-1:2018. Where this Part 2 states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

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SIST EN 50291-2:2019

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## 1 Scope

This document specifies general requirements for the construction, testing and performance of electrically operated carbon monoxide gas detection apparatus, designed for continuous operation in a fixed installation in recreational vehicles and similar premises including recreational craft.

NOTE For caravan holiday homes EN 50291-1 applies.

This document specifies apparatus designed to operate in the event of an escape of carbon monoxide and to provide a visual and audible alarms only (Type B of EN 50291-1), or to provide visual and audible alarms 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 50291-1).

This document excludes apparatus

- for the detection of combustible gases, other than carbon monoxide itself (see EN 50194-1),
- for the detection of CO in industrial installations (see EN 45544-1, EN 45544-2 and EN 45544-3) or commercial premises,
- for CO measurement for smoke and fire detection.

## 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 50270:2015, *Electromagnetic compatibility — Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen*

EN 50291-1:2018, *Gas detectors — Electrical apparatus for the detection of carbon monoxide in domestic premises — Part 1: Test methods and performance requirements*

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: 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)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

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)*

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

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

**EN 50291-2:2019 (E)****3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 50291-1 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>

**3.1****recreational vehicle**

recreational vehicles considered by this European 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 European Standard.

**3.2****recreational craft**

boat of a minimum length of 2,5 m and a maximum length of 24 m as specified in Directive 2013/53/EU, which is intended for sports or leisure purposes

Note 1 to entry: For the purposes of this European Standard the word 'boat' should be taken with the meaning 'recreational craft'.

**3.3****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 EN 50291-1:2018, Definition 3.5.

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**3.4****control unit**

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

**3.5****vehicle supply powered apparatus**

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

**3.6****caravan**

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

[SOURCE: EN 13878:2003]

**3.7****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 13878:2003]

### 3.8

#### 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 13878:2003]

## 4 Symbols and abbreviations

This sub-clause of EN 50291-1 is applicable.

## 5 Design requirements

### 5.1 General requirements

This sub-clause of EN 50291-1 is applicable, with the following addition:

In this European 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 1 When the vehicle is not in use the apparatus may be switched off in order to save the vehicle's 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 carbon monoxide.

NOTE 2 Sensors or apparatus designed according EN 50291-1 may be used as apparatus or as component of it, if the additional requirements of this European Standard are complied with.

The apparatus shall reliably detect the presence of carbon monoxide in recreational vehicles under the stated application conditions, shall produce an alarm and Type A apparatus 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 50291-1, where applicable, with the construction requirements of 5.2 and the test and performance requirements of Clause 6.

### 5.2 Construction

This sub-clause of EN 50291-1 is applicable, with the following addition:

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 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.

### 5.4 Alarms

This sub-clause of EN 50291-1 is applicable, with the following addition:

#### 5.4.4 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.

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**5.6 Fault Warnings**

This sub-clause of EN 50291-1 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.

**5.9 Transmittable output signal (applicable for type A apparatus only)**

This sub-clause of EN 50291-1 is applicable, with the following addition:

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.

**5.11 Labelling**

**5.11.1** This sub-clause of EN 50291-1 is applicable, with the following additions:

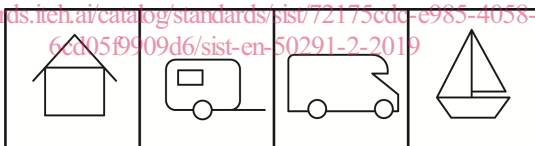
The manufacturer shall declare for which of the following application(s) the device is approved:

- domestic premises;
- caravans;
- motor caravans;
- boats.

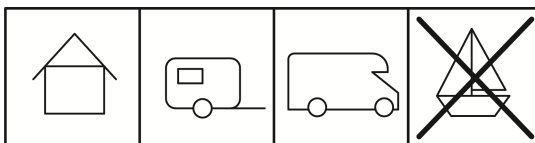
This shall be noted on a label on the device or fixed to the device with a more detailed explanation in the manual (see Figure 1).

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 applications. [SIST EN 50291-2:2019](https://standards.iteh.ai/catalog/standards/sist/72175cdc-e985-4058-ab53-6cd05f9909d6/sist-en-50291-2-2019)

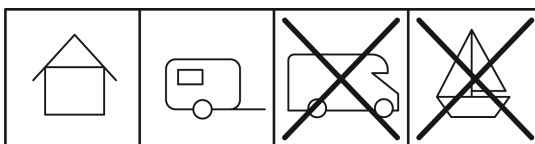
<https://standards.iteh.ai/catalog/standards/sist/72175cdc-e985-4058-ab53-6cd05f9909d6/sist-en-50291-2-2019>



- a) **Appropriate for domestic premises (caravan holiday homes), caravans, motor caravans and boats**



- b) **Appropriate for domestic premises (caravan holiday homes), caravans and motor caravans – Not appropriate for boats**



- c) **Appropriate for domestic premises (caravan holiday homes) and caravans – Not appropriate for motor caravans and boats**

Figure 1 — Examples for marking



**5.11.2** This sub-clause of EN 50291-1 is applicable, with the following additions:

The following is applicable to recreational craft only:

i) 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.

## 6 Test and performance requirements

### 6.3 Test methods and performance requirements

In addition to the tests of EN 50291-1 the following tests shall be carried out, where applicable. Some tests are applicable to recreational craft only. The numbers of the sub-clauses from 6.3.1 to 6.3.23 are identical with EN 50291-1. The additional sub-clauses, numbered from 6.3.101 on, are added at the end of 6.3.

Where a sub-clause of EN 50291-1 shall be replaced by one of the following sub-clauses this is noted below the headline. Sub-clauses of 6.3 of EN 50291-1:2018 which apply without modification, e.g. 6.3.2, are not referenced in this European Standard.

#### 6.3.1 General

This sub-clause of EN 50291-1 is applicable, with the following additions:

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

#### 6.3.11 Electromagnetic compatibility

This sub-clause of EN 50291-1 is replaced by 6.3.103 and 6.3.104 of this European Standard.

#### 6.3.101 Degree of protection (additional requirements)

Remote sensors shall provide protection of at least IP44 and the control unit shall provide protection of at least IP42 as defined in EN 60529:1991.

NOTE The degree of protection may be achieved by the provision of attachable splashproof/weatherproof fittings.

#### 6.3.102 Mechanical environment

##### 6.3.102.1 Vibration

##### 6.3.102.1.1 Test

The apparatus shall be subjected to a sinusoidal vibration frequency sweep carried out in accordance with EN 60068-2-6 using a vibration test machine having the characteristics specified in EN 60068-2-6:

Excursion:	$\pm 1,5 \text{ mm} \pm 10 \%$
Frequency range:	2 Hz to 13,2 Hz
Acceleration amplitude:	2 g or higher if declared by the manufacturer
Frequency range:	10 Hz to 100 Hz
Sweep rate:	1 octave per min
Number of sweep cycles:	10
Number of axes:	3, mutually perpendicular

The apparatus shall be mounted in its normal operating position and the power switched on.

##### 6.3.102.1.1 Performance requirement

After the test specified in 6.3.102.1.1, the apparatus shall be subjected to the test gas as described in EN 50291-1:2018, 6.3.2. When exposed to CO - air mixtures, the alarm shall operate according to the conditions in EN 50291-1:2018, Table 5. Recovery from the alarm state shall take place, after manual resetting if necessary, within 6 min when exposed to clean air.