SVENSK STANDARD

SS-EN 50194-1, utg 2:2024

| Fastställd | Sida | Ansvarig kommitté |
|---|---|---|
| 2024-06-19 | 1 (38) | SEK TK 31 |



# Elektriska apparater för detektering av brännbara gaser i hemmiljö (gasvarnare) – Del 1: Fordringar och provning

*Electrical apparatus for the detection of combustible gases in domestic premises – Part 1: Test methods and performance requirements*

Som svensk standard gäller europastandarden EN 50194-1:2023. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50194-1:2023.

## Nationellt förord

Tidigare fastställd svensk standard SS-EN 50194-1, utg 1:2009 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2026-08-14.

ICS 13.320.00

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: www.elstandard.se

## *Standarder underlättar utvecklingen och höjer elsäkerheten*

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

## *SEK är Sveriges röst i standardiseringsarbetet inom elområdet*

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

## *Stora delar av arbetet sker internationellt*

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

## *Var med och påverka!*

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 50194-1

October 2023

ICS 13.320

Supersedes EN 50194-1:2009

English Version

# Electrical apparatus for the detection of flammable gases in household premises - Part 1: Test methods and performance requirements

Matériels électriques pour la détection des gaz inflammables dans les locaux à usage domestique - Partie 1: Méthodes d'essai et exigences d'aptitude à la fonction

Elektrische Geräte für die Detektion von brennbaren Gasen in Wohnhäusern - Teil 1: Prüfverfahren und Anforderungen an das Betriebsverhalten

This European Standard was approved by CENELEC on 2023-08-14. 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.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.


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**



Ref. No. EN 50194-1:2023 E

SEK Svensk Elstandard

SS-EN 50194-1, utg 2:2024

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# European foreword

This document (EN 50194-1:2023) has been prepared by CLC/TC 216 “Gas detectors”, the secretariat of which is held by BSI.

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) 2024-08-14
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2026-08-14

This document supersedes EN 50194-1:2009 and all of its amendments and corrigenda (if any).

EN 50194-1:2023 includes the following significant technical changes with respect to EN 50194-1:2009:

| Description | Clause |
|---|---|
| This document has been completely revised following the structure of EN 50291-1:2018 | All |
| End of Life indicator has been made mandatory and shall include an audible and visible warning | 5.5 |
| Guidance has been added for assessing battery capacity and expected life | 8.2 |
| Requirements for mains powered alarms with back-up supply have been added | 8.5 |
| The number of potential interference gases has been increased | |
| Tests have been added for an optional alarm silence facility | |
| Requirements have been added for apparatus using radio links | Clause 7 |
| Added requirements for the use of batteries | 5.10 |
| Annex B has been added | Annex B |
| New requirement to comply with EN 50271 Standard for software | 5.8 |
| Defined type C apparatus for refrigerant gases | Clause 1 |
| Bibliography has been added | |
| Annex C “A-deviations” has been removed | |
| Tests for stability in high humidity (non-condensing) and low humidity for Type C apparatus has been added | 6.3.19 and 6.3.20 |
| Ignition test for Hydrogen and Type C apparatus has been added | 6.3.14 |
| Tests for refrigerant poisoning and oil spray for Type C apparatus has been added | 6.3.15 |
| Revision of the Normative references | Clause 2 |

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.

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

# Introduction

This document defines test methods and performance requirements for all electrical gas detection apparatus used in residential and household premises by means of measurement of one or more threshold alarm levels. It is addressed to the manufacturers of such apparatus and test laboratories which validate it.

This document is an updated revision of the previous EN 50194-1 issued in 2009 and includes some new concepts of detection:

The term of “domestic” has been implemented in “household premises” in order to include further applications, i.e. shops, offices, hotel rooms, residential premises and in general where household appliances are installed (as defined in IEC/EN 60335-1).

This document implements a new range of the flammable gases to be detected. In the premises within the scope of this document, also flammable refrigerant gases, R-717 (Ammonia) at LFL level and Hydrogen in fuel cells applications may be present and are thus necessary to consider.

Finally, the document structure has been completely revised in order to align this revision with the similar standard EN 50291-1:2018 for Carbon Monoxide and other new standards concerning digital and software technologies.

# 1 Scope

This document specifies general requirements for the construction, testing and performance of electrically operated apparatus for the detection of flammable gases, designed for continuous operation in a fixed installation in household premises. The apparatus can be mains or battery powered.

Additional requirements for apparatus to be used in recreational vehicles and similar premises are specified in EN 50194-2.

NOTE For caravan holiday homes EN 50194-1 applies.

This document specifies four types of apparatus to warn and/or alarm in the event of an escape of town gas, natural gas or liquefied petroleum gas (LPG), Hydrogen and flammable refrigerant gases:

— Type A apparatus – provides 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 in the event of an escape of town gas, natural gas (LNG) liquefied petroleum gas (LPG) and Hydrogen gases;

— Type B apparatus – same as Type A but provides a visual and audible alarm only;

— Type C apparatus – provides 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 in the event of an escape of flammable refrigerant gas A2L, A2 or A3 as classified in other International Standards, e.g. ISO 817;

— Type D apparatus – intended to be installed where there can be a source of danger to the public, designed for continuous operation in fixed installations in non-classified explosive atmosphere premises (where the requirements for electrical Ex-safety are not requested). Intended for any flammable gases.

  Typically Type D apparatus are available with analogue or digital output, designed as detection system. These systems are regularly maintained by competent persons and/or have a protection of IP44 or higher.

  For type D apparatus, EN 60079-29-1 is applied.

See Annex C for further clarification on the apparatus types and their application.

NOTE Apparatus complying with this document is not considered suitable for installation in potentially explosive atmospheres, in which case the EN 60079 series applies.

NOTE Apparatus complying with EN 60079-29-1 will not necessarily comply with this document.

This document does not apply to any of the following:

— apparatus intended for the detection of dusts or mists in air;

— scientific or laboratory-based apparatus used only for analysis or measurement;

— apparatus used exclusively for process measurement purposes;

— apparatus for medical purposes;

— apparatus used for breath alcohol measurement;

— apparatus intended for the direct measurement of automotive exhaust gases;

— apparatus intended for use in industrial environments.

## 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 437:2021, *Test gases. Test pressures. Appliance categories*

EN 1775, *Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations*

EN 50244:2016, *Electrical apparatus for the detection of combustible gases in domestic premises - Guide on the selection, installation, use and maintenance*

EN 50270, *Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen*

EN 50271, *Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen -Requirements and tests for apparatus using software and/or digital technologies*

EN 60335-1:2002, *Household and similar electrical appliances - Safety - Part 1: General requirements*

EN 60335-1:2012, *Household and similar electrical appliances – Safety - Part 1: General requirements*

IEC 60335-2-40:2022, *Household and similar electrical appliances. Safety - Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers*

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

EN 60704-1:2010, *Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 1: General requirements (IEC 60704-1:2010)*