INTERNATIONAL STANDARD

IEC 61779-6

First edition
1999-06

Electrical apparatus for the detection and measurement of flammable gases –

Part 6: Guide for the selection, installation, use and maintenance of apparatus for the detection and measurement of flammable gases

Appareils électriques de détection et de mesure des gaz combustibles –

Partie 6: Directives pour le choix, l'installation, l'utilisation et l'entretien des appareils électriques de détection et de mesure de gaz inflammables

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL APPARATUS FOR THE DETECTION AND MEASUREMENT OF FLAMMABLE GASES -–

Part 6: Guide for the selection, installation, use and maintenance of apparatus for the detection and measurement of flammable gases

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
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International Standard IEC 61779-6 has been prepared by subcommittee 31L: Electrical apparatus for the detection of flammable gases, of IEC technical committee 31: Electrical apparatus for explosive atmospheres.

The text of this standard is based on the following documents:

FDIS	Report on voting
31L/60/FDIS	31L/61/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A, B, C and D are for information only.

A bilingual version of this standard may be issued at a later date.

INTRODUCTION

Flammable gas detection apparatus may be used whenever there is the possibility of a hazard to life or property caused by the accumulation of a flammable gas-air mixture. Such apparatus can provide a means of reducing the hazard by detecting the presence of the flammable gas and issuing suitable audible or visual warnings. Gas detectors may also be used to initiate specific precautions (for example plant shutdown, evacuation, operation of fire extinguishing procedures).

Apparatus may be used to monitor a gas atmosphere below the lower flammable limit in circumstances where accumulation of gas may result in a concentration of the gas/air mixture to potentially explosive levels.

ELECTRICAL APPARATUS FOR THE DETECTION AND MEASUREMENT OF FLAMMABLE GASES –

Part 6: Guide for the selection, installation, use and maintenance of apparatus for the detection and measurement of flammable gases

1 General

1.1 Scope

1.1.1 This part of IEC 61779 gives guidance on the selection, installation, use and maintenance of electrically operated group II apparatus for the detection and measurement of flammable gases complying with the requirements of IEC 61779-1 to IEC 61779-5. It is a compilation of practical knowledge to assist the user, and applies to apparatus, instruments and systems that indicate the presence of a flammable or potentially explosive mixture of gas or vapour with air by using an electrical signal from a gas sensor to produce a meter reading, to activate a visual or audible pre-set alarm or other device, or any combination of these.

NOTE – When in classified areas, the apparatus should be so installed and used that it is not capable of itself igniting a combustible gas-air mixture. It should therefore comply with the requirements of IEC 60079-10.

For the purpose of this standard, flammable gases shall include flammable vapours.

1.1.2 This standard applies only to group II apparatus intended for use in industrial and commercial safety applications, involving areas classified in accordance with IEC 60079-10.

For the purpose of this standard, apparatus includes

a) fixed apparatus;

b) transportable apparatus; and

c) portable apparatus.

1.1.3 This standard is not intended to cover the following:

a) apparatus intended only for the detection of non-flammable toxic gases;

b) apparatus of laboratory or scientific type intended only for analysis or measurement purposes;

c) apparatus intended for underground mining applications;

d) apparatus intended for applications in explosives processing and manufacture;

e) apparatus intended only for process control applications;

f) apparatus intended for the detection of a potentially flammable atmosphere resulting from dust or mist in air.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61779. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61779 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(426):1990, *International Electrotechnical Vocabulary (IEV) – Chapter 426: Electrical apparatus for explosive atmospheres*

IEC 60079 (al parts), *Electrical apparatus for explosive gas atmospheres*

IEC 60079-0:1998, *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements*

IEC 60079-10:1995, *Electrical apparatus for explosive gas atmospheres – Part 10: Classification of hazardous areas*

IEC 60079-19:1993, *Electrical apparatus for explosive gas atmospheres – Part 19: Repair and overhaul for apparatus used in explosive atmospheres (other than mines or explosives)*

IEC 60079-20:1996, *Electrical apparatus for explosive gas atmospheres – Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus*

IEC 61779-1:1998, *Electrical apparatus for the detection and measurement of flammable gases – Part 1: General requirements and test methods*

IEC 61779-2:1998, *Electrical apparatus for the detection and measurement of flammable gases – Part 2: Performance requirements for group I apparatus indicating up to 5 % methane in air*

IEC 61779-3:1998, *Electrical apparatus for the detection and measurement of flammable gases – Part 3: Performance requirements for group I apparatus indicating a volume fraction up to 100 % methane in air*

IEC 61779-4:1998, *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 61779-5:1998, *Electrical apparatus for the detection and measurement of flammable gases – Part 5: Performance requirements for group II apparatus indicating a volume fraction up to 100 % gas*

2 Definitions

For the purpose of this part of IEC 61779, the following definitions apply.

2.1
aspirated apparatus
combustible gas detecting apparatus that obtains the gas by drawing it to the gas sensor – for example by means of a hand-operated or electric pump

2.2
catalytic sensor
sensor, the operation of which depends upon the oxidation of gases on an electrically heated catalytic element

2.3
clean air
air that is free of flammable gases and interfering or contaminating substances