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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 15322.1-2019

Replacing GB 15322.1-2003

**Combustible gas detectors - Part 1: Point-type combustible gas
detectors for industrial and commercial use**

可燃气体探测器 第1部分：工业及商业用途点型可燃气体探测器

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Standardization Administration of China**

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1 Scope

Part 1 of China's mandatory series on combustible gas detectors, covering the point-type detector for industrial and commercial use - the fixed head mounted on a wall or a gantry in a boiler house, a plant room, a kitchen, a compressor station or a car park, wired back to a control panel, which is the commonest gas detection device in existence. This part specifies the classification, the requirements, the tests, the inspection rules and the marking of point-type combustible gas detectors for industrial and commercial use. What a gas detector is judged on is not that it responds to gas but that it responds at the right concentration, quickly enough to matter, and that it goes on doing so for years in a place nobody visits. The requirements therefore centre on the response: the alarm set points expressed as a fraction of the lower explosive limit, the accuracy of the indication, the response and recovery times, the repeatability, and the drift of the zero and of the span over time, which is what actually ends a detector's useful life. Around them sits the environment the head has to survive - temperature and humidity extremes, air velocity, pressure and orientation, vibration and mechanical shock, corrosion and long term exposure - and the poisons and interfering gases that silently blind a catalytic sensor. To those are added the electrical safety, the explosion protection required in a hazardous area,

the fault and warning signals that must tell the panel a detector has stopped detecting, and the marking. The series continues with the household detectors, the portable detectors of Part 3 and the line-type optical beam detectors of Part 4. Issued on 14 October 2019 and in force since 1 November 2020, it replaces GB 15322.1-2003; a new edition, GB 15322.1-2026, has since been issued.

This Part of GB 15322 specifies the classification, requirements, tests, inspection rules and marking of point-type combustible gas detectors for industrial and commercial use. This Part is applicable to point-type combustible gas detectors installed and used in industrial and commercial places for the detection of hydrocarbons, ethers, esters, alcohols, carbon monoxide, hydrogen and other combustible gases and vapors (hereinafter referred to as the "detectors"). For point-type combustible gas detectors with special properties used in industrial and commercial places, this Part may also be implemented, unless special requirements are otherwise specified by relevant standards.

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Notes and Explanations

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2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 3836.1-2010 Explosive Atmospheres - Part 1: Equipment - General Requirements

GB/T 9969 General Principles for Preparation of Instructions for Use of Industrial Products

GB 12978 Rules for Test of Fire Electronic Products

GB/T 16838 Environmental Test Methods and Severities for Fire Electronic Products

GB/T 17626.2-2018 Electromagnetic Compatibility - Testing and Measurement Techniques - Electrostatic Discharge Immunity Test

GB/T 17626.3-2016 Electromagnetic Compatibility - Testing and Measurement Techniques - Radiated, Radio-frequency, Electromagnetic Field Immunity Test

GB/T 17626.4-2018 Electromagnetic Compatibility - Testing and Measurement Techniques - Electrical Fast Transient / Burst Immunity Test

GB/T 17626.5-2008 Electromagnetic Compatibility - Testing and Measurement Techniques - Surge Immunity Test

GB/T 17626.6-2017 Electromagnetic Compatibility - Testing and Measurement Techniques - Immunity to Conducted Disturbances, Induced by Radio-frequency Fields have no obvious scratches, cracks, burrs and other mechanical damages, and no loosening of fastening parts.

4.3.1 General requirements

4.3.1.1 Operations, such as: zero-setting, calibration and parameter changes, of the detectors under power-on conditions shall not change the integrity of their enclosure.

4.3.1.2 The systematic detectors shall be powered by a DC voltage of 36 V or below, and the independent detectors shall be powered by an AC voltage of 220 V. The detectors powered by DC voltage shall have protection measures against reversed polarity.

4.3.1.3 The free-diffusion detectors and air-breathing detectors shall have independent working status indicator lights to respectively indicate their normal monitoring, fault and alarm working status. If the on-site detection components of the optical fiber sensing detectors do not have independent working status indicator lights, then, the control and indicating equipment connected to them shall have independent working status indicator lights to respectively indicate the working status of each detection component. The normal monitoring status indication shall be green, the fault status indication shall be yellow, and the alarm status indication shall be red. The low limit and high limit alarm status indications shall be clearly distinguishable. The indicator lights shall have Chinese function annotations. Under the illumination condition of 5 lx ~ 500 lx, and 5 m directly in front, the status of the indicator lights shall be clearly visible. NOTE: the normal monitoring status refers to the status when the detectors are powered on and normally working, without issuing an alarm signal or fault signal.

4.3.1.4 When the combustible gas concentration in the monitored area reaches the alarm set value, the detectors shall be able to issue an alarm signal. Then, place the detectors in a normal environment, within 30 seconds, they shall be able to automatically (or manually) return to the normal monitoring status.

4.3.1.5 The independent detectors shall have an alarm output interface. The type and capacity of the detectors' alarm output interface shall match the supporting products or executive components specified by the manufacturer and shall be indicated in the