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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 14048.21-2013

Low-voltage switchgear and controlgear - Part 5-9: Control circuit devices and switching elements - Flow rate switches

低压开关设备和控制设备 第5-9部分：控制电路电器和开关元件 流量开关

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1.1 Scope and object

The part lays down the following for flow rate switches: definitions; classification; characteristics; product information; normal service, mounting and transport conditions; constructional and performance requirements; and tests for the verification of rated performance.

It applies to flow rate switches used to detect the flow rate of gases, liquids or granular solids. If the preset flow rate of the flow rate switch is exceeded, the switch changes its output state.

These flow rate switches are self-contained, have semiconductor switching elements, and are intended for connection to circuits with a rated voltage not exceeding 250 V alternating current at 50/60 Hz, or 300 V direct current.

The part does not lay down the additional measures needed for flow rate switches used together with explosive detected materials and/or located in explosive atmospheres.

The part does not apply to devices with an analogue output.

1.2 Normative references

The following documents are indispensable for the application of the document. For dated references, only the edition cited applies; for undated references, the latest edition, including all amendments, applies.

Chinese documents cited: GB 4824-2004 (industrial, scientific and medical (ISM) radio-frequency equipment - electromagnetic disturbance characteristics - limits and methods of measurement, IEC/CISPR 11:2003, IDT); GB 7947-2010 (basic and safety principles for man-machine interface, marking and identification - identification of

conductors by colours or alphanumerics, IEC 60446:2007, IDT); GB/T 14048.10-2008 (low-voltage switchgear and controlgear - Part 5-2: control circuit devices and switching elements - proximity switches, IEC 60947-5-2:2004, IDT); GB/T 17045-2008 (protection against electric shock - common aspects for installation and equipment, IEC 61140:2001, IDT); GB 17625.2-2007 (electromagnetic compatibility - limits - limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current not greater than 16 A per phase and not subject to conditional connection, IEC 61000-3-3:2005, IDT); GB/T 17626.2-2006, GB/T 17626.4-2008, GB/T 17626.6-2008, GB/T 17626.8-2006, GB/T 17626.11-2008 and GB/T 17626.13-2006, covering respectively electrostatic discharge immunity, electrical fast transient/burst immunity, immunity to conducted disturbances induced by radio-frequency fields, power-frequency magnetic field immunity, voltage dips, short interruptions and voltage variations immunity, and immunity to harmonics, interharmonics and mains signalling at the a.c. power port.

International documents cited: IEC 60947-1:2011 (Low-voltage switchgear and controlgear - Part 1: General rules); IEC 61000-3-2:2005 (Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions, equipment input current not greater than 16 A per phase); IEC 61000-4-3:2006 (Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test); IEC 61558-2-6 (Safety of power transformers, power supply units and similar - Part 2: Particular requirements for safety isolating transformers for general use).

2 Terms and definitions

The terms and definitions defined in IEC 60947-1:2011 and GB/T 14048.10-2008, together with the following terms and definitions, apply to the document.

The clause opens with an alphabetical index of the defined terms, each entry pointing to the subclause where the term is defined: active zone 2.2.1; adjuster (for a flow rate switch) 2.2.4; flow direction 2.1.6; flow rate sensor 2.1.2; flow rate switch 2.1.1; homogenization zone 2.1.7; hysteresis 2.2.8; maximum temperature gradient 2.2.9; medium 2.1.4; reference medium 2.1.5; repeat accuracy 2.2.7.

The index continues beyond the pages examined, and the definitions themselves have not been read.

Note Relationship to the international standard

The foreword states that the part is Part 21 of the GB 14048 series 'Low-voltage switchgear and controlgear', that it was drafted according to the rules given in GB/T 1.1-2009, and that it adopts IEC 60947-5-9:2006 identically, by the translation method.

The foreword lists the Chinese documents that correspond consistently to the international

documents normatively referenced in the part: GB 14048.1-2012 (IEC 60947-1:2011, MOD); GB 17625.1-2003 (IEC 61000-3-2:2001, IDT); GB/T 17626.3-2006 (IEC 61000-4-3:2002, IDT); GB 19212.7-2006 (IEC 61558-2-6:1997, MOD).

One editorial modification is recorded: following the table numbering of GB/T 14048.10-2008, the reference in 8.3.3.4.3 was changed from 'Table 6' to 'Table 9'.

The part was proposed by the China Electrical Equipment Industry Association and is under the jurisdiction of the National Technical Committee on Low-voltage Apparatus of Standardization Administration (SAC/TC 189).