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

GB/T 14048.13-2017

**Low-voltage switchgear and controlgear -- Part 5-3: Control circuit
devices and switching elements -- Requirements for proximity devices
with defined behaviour under fault conditions (PDDB)**

(English Translation)

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Foreword

"Low-voltage switchgear and control equipment" consists of the following components.

- Part 1. General principles;
- Part 2. Circuit breakers;
- Part 3. Switches, isolators, disconnectors and fuse combinations;
- Part 4-1. Contactors and Motor Starters Electromechanical contactors and motor starters (including motor protectors);
- Part 4-2. Contactors and Motor Starters Semiconductor Controllers and Starters for AC Motors (Including Soft Starters);
- Part 4-3. Contactors and motor starters AC semiconductor controllers and contactors for non-motor loads;
- Part 5-1. Control circuit devices and switching elements Electromechanical control circuit devices;
- Part 5-2. Control circuit appliances and switching elements proximity switch;
- Part 5-3. Control circuit devices and switching elements Proximity switch (PDDb) with defined function under fault conditions Claim;

- Part 5-4. Control circuit devices and switching elements small capacity contact performance evaluation method special test;
- Part 5-5 part of the control circuit electrical and switching elements with electrical mechanical locking latch emergency braking device;
- Part 5-6. DC link control circuit (NAMUR) for electrical and switching element proximity sensors and switching amplifiers;
- Part 5-7. Control circuit devices and switching elements for analog devices with the analog output requirements;
- Part 5-8. Control circuit electrical and switching elements three enable switch;
- Part 5-9. Control circuit electrical and switching components flow switch;
- Part 6-1. Multifunction electrical switch electrical appliances;
- Part 6-2. Multifunction Electrical Equipment (Equipment) Control and Protection Switching Equipment (CPS);
- Part 7-1. Auxiliary device copper conductor terminal block;
- Part 7-2. Auxiliary device copper conductor protective conductor terminal block;
- Part 7-3. Auxiliary fuses terminal block safety requirements;
- Part 8. Rotating motor with thermal protection (PTC) control unit.

This section is "low-voltage switchgear and control equipment," Part 5-3.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This Part replaces GB/T 14048.13-2006 "Low-voltage switchgear and control equipment Part 5-3. Control circuit devices and switches Elements with Proximity Switches (PDF) Requirements Under Fault Conditions ".

This section compared with GB/T 14048.13-2006 main technical changes are as follows.

- Added terms and definitions related to failure, level of safety performance and structural limitations, etc., deleting terms related to integrated circuits;
- Added functional safety related specifications and usage information, and added performance to PDDb's ECM compatibility requirements Criteria and other aspects (see Chapter 7);
- Deleted the control and monitoring device design requirements (see 7.1);
- Deleted 8.7 "verification of determination of fault conditions" and 8.8 "Evaluation of programmable or composite integrated circuits" (see 8 chapters);
- Added "amendment" chapter (see Chapter 9);

--- Standard full text is no longer related to integrated circuits and programming requirements, also deleted the original Appendix A "applied by the shadow of 8.7 and 8.8 LIST PDF Single Failure List of Electrical Equipment ", replace it with a new Appendix A (informative) " IEC 61511 compliant Column standard simple control system example. " this section uses the translation method identical with IEC 60947-5-3:2013 "low-voltage switchgear and control equipment Part 5-3. Control of electricity Road electrical appliances and switching elements in the fault conditions have determined the function of the proximity switch (PDDb) requirements. " the documents of our country that are consistent with the corresponding international documents that are normative references in this section are as follows.

--- GB/T 14048.1-2012 low-voltage switchgear and control equipment Part 1. General (IEC 60947-1:2011, MOD);

--- GB/T 14048.5-2008 Low-voltage switchgear and control equipment Part 5-1. Control circuit devices and switching elements Electromechanical control circuit appliances (IEC 60947-5-1:2003, MOD);

Electromagnetic compatibility test and measurement techniques Electrostatic discharge immunity test (IEC 61000-4-2).

2001, IDT);

--- GB/T 17626.3-2006 Electromagnetic compatibility test and measurement techniques RF electromagnetic field radiation immunity test (IEC 61000-4-3:2002, IDT);

--- GB/T 17626.4-2008 Electromagnetic compatibility test and measurement techniques Fast transient impulse group immunity test (IEC 61000-4-4:2004, IDT);

--- GB/T 17626.6-2008 electromagnetic compatibility test and measurement techniques RF field induced conduction disturbances immunity (IEC 61000-4-6:2006, IDT);

Electromagnetic compatibility (EMC) - Testing and measurement techniques - Power frequency magnetic field immunity test (IEC 61000-4-8).

2001, IDT);

--- GB/T 20438.1-2006 Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1. General Seeking (IEC 61508-1:1998, IDT);

--- GB/T 20438.2-2006 Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 2. Electrical /Requirements for electronic/programmable electronic safety related systems (IEC 61508-2:2000, IDT);

--- GB/T 20438.3-2006 Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 3. Software requirements Seeking (IEC 61508-3:1998, IDT);

--- GB 28526-2012 Mechanical and Electrical Safety Safety Functional Safety of Electrical,

Electronic and Programmable Electronic Control Systems (IEC 62061:2005, IDT).

This part made the following editorial changes according to the specific conditions of our country.

--- Removed the terms and definitions of the index, and correction of article references the definition of article number.

--- Removed 2.2.28 Central Plains Note 2, its content is only related to the choice of words in other language versions of different, has nothing to do with our country.

This part is proposed by China Electrical Equipment Industry Association.

This part of the National Standardization Technical Committee of low-voltage electrical (SAC/TC189) centralized.

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1.1 Scope

This section of "Low-voltage switchgear and control equipment" is a supplement to GB/T 14048.10, provides a certain function of proximity to open Off (PDDB) Performance requirements under fault conditions. This section does not specify any other features required for a particular purpose.

This section does not include proximity switches with analog output.

This section does not address specific noise-related requirements, because the control circuit electrical appliances and switching noise can be regarded as non-hazardous.

If the PDDB is used in some cases to meet the additional requirements specified in other standards, the requirements of the relevant standards apply.

Compliance with this section does not guarantee the safety-related specific features. Moreover, this section does not specify the behavior of the PDDB or for subtraction Requirements for devices that interfere with each other, such as coded markings, with small switches. Therefore, in addition to the requirements of this section, the need to consider these and other needles Requirements for a specific purpose.

Note 1: PDDB can also be used as an interlock (see ISO 14119) in view of its function under fault conditions.

Note 2: The IEC 61496 series of standards give the requirements for electro-sensitive protective equipment for personnel testing.