



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

GB/T 14048.4-2020

**Low-voltage switchgear and controlgear - Part 4-1: Contactors
and motor-starters - Electromechanical contactors and
motor-starters(Including motor protector)**

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Foreword

GB/T 14048 "Low-voltage switchgear and controlgear" consists of the following parts.

- Part 1.General rules;
- Part 2.Circuit-breakers;
- Part 3.Switches, disconnectors, switch-disconnectors and fuse-combination units;
- Part 4-1.Contactors and motor-starters - Electromechanical contactors and motor-starters (Including motor protector);
- Part 4-2.Contactors and motor-starters - AC semiconductor motor controllers and starters (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 element - Electromechanical control circuit devices;
- Part 5-2.Control circuit appliances and switching elements - Proximity switches;
- Part 5-3.Control circuit devices and switching elements - Requirements for proximity devices with defined behaviour under fault conditions (PDDB);

- Part 5-4.Control circuit devices and switching elements - Method of assessing the performance of low-energy contacts - Special tests;
- Part 5-5.Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function;
- Part 5-6.Control circuit devices and switching elements - DC interface for proximity sensors and switching amplifiers (NAMUR);
- Part 5-7.Control circuit devices and switching elements - Requirements for proximity devices with analogue output;
- Part 5-8.Control circuit devices and switching elements - Three-position enabling switches;
- Part 5-9.Control circuit devices and switching elements - Flow rate switches;
- Part 6-1.Multiple function equipment - Transfer switching equipment;
- Section 6-2.Multiple function equipment control and protective switching devices (or equipment) (CPS);
- Part 7-1.Ancillary equipment - Terminal blocks for copper conductors;
- Part 7-2.Ancillary equipment - Protective conductor terminal blocks for copper conductors;
- Part 7-3.Ancillary equipment - Safety requirements for fuse terminal blocks;
- Part 7-4.Ancillary equipment - PCB terminal blocks for copper conductors;
- Part 8.Control units for built-in thermal protection (PTC) for rotating electrical machines.

This Part is Part 4-1 of GB/T 14048.

This Part is drafted in accordance with the rules given in GB/T 1.1-2009.

This Part replaces GB/T 14048.4-2010 "Low-voltage switchgear and control gear - Part 4-1.Contactors and motor-starters - Electromechanical contactors and motor-starters (Including motor protector)". Compared with GB/T 14048.4-2010, the main technical changes in this Part are as follows.

- Modify the definition of reversing starter.

- Add relevant requirements and tests for motor protective switching device MPSD.
- Add some requirements concerning safety aspects, including.
 - ? General;
 - ? Circuits sourced from limited energy sources;
 - ? Electronic circuits;
 - ? Assessment procedure for electromechanical overload protection device used in safety applications (see Annex L).
- In order to adapt to the use conditions of motors with higher energy efficiency, add the relevant regulations for high locked rotor current.
- Add requirements for special wiring accessories.
- Add measurement of pick-up power consumption.
- Be consistent with the latest content of IEC 60947-1A2:2014.
- Add relevant DC requirements for PV applications (see Annex M).
- Add the content of load monitoring (see Annex O).
- Add the co-ordination under short-circuit conditions between a MPSD and another short-circuit protective device in the same circuit (see Annex Q).
- Delete the previous Annex J - Communication function of electronic overload relay.

This Part uses the redraft law to modify and adopt IEC 60947-4-1:2018 "Low-voltage switchgear and controlgear - Part 4-1. Contactors and motor-starters - Electromechanical contactors and motor-starters".

The technical differences between this Part and IEC 60947-4-1:2018 and their reasons are as follows.

- As for the normative references, this Part has made adjustments with technical differences, to adapt to the technical conditions of China. The adjustments are mainly reflected in Clause 2 "Normative references". The specific adjustments are as follows.

? Replace IEC 60034-1:2017 with GB/T 755-2019 which is identical to the international standard;

- ? Replace IEC 60034-12.2016 with GB/T 21210-2016 which is identical to the international standard;
- ? Replace IEC 60034-30-1 with GB/T 32891.1 which is identical to the international standard;
- ? Replace IEC 60038 with GB/T 156 which modifies and adopts the international standard;
- ? Replace IEC 60068-2-14.2009 with GB/T 2423.22-2012 which is identical to the international standard;
- ? Replace IEC 60079-14 with GB/T 3836.15-2017 which modifies and adopts the international standard;
- ? Replace IEC 60085.2007 with GB/T 11021-2014 which is identical to the international standard;
- ? Replace IEC 60364-1.2005 with GB/T 16895.1-2008 which is identical to the international standard;
- ? Replace IEC 60364-7-712 with GB/T 16895.32 which is identical to the international standard;
- ? Replace IEC 60730-1 with GB/T 14536.1 which is identical to the international standard;
- ? Replace IEC 60947-1.2007+AMD1.2010 with GB/T 14048.1-2012 which modifies and adopts the international standard;
- ? Replace IEC 60947-2.2019 with GB/T 14048.2-2020 which modifies and adopts the international standard;
- ? Replace IEC 60947-5-1.2016 with GB/T 14048.5-2017 which modifies and adopts the international standard;
- ? Replace IEC 61051-2 with GB/T 10194 which is identical to the international standard;
- ? Replace IEC 61140.2016 with GB/T 17045-2008 which is identical to the international standard;