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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Low-voltage switchgear and controlgear – Part 8: Control units for built-in thermal protection (PTC) for rotating electrical machines

Appareillage à basse tension – Partie 8: Unités de commande pour la protection thermique incorporée (CTP) aux machines électriques tournantes

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 8: Control units for built-in thermal protection (PTC) for rotating electrical machines

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IEC 60947-8 has been prepared by subcommittee 121A: Low voltage switchgear and controlgear, of IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage. It is an International Standard.

This second edition cancels and replaces the first edition published in 2003, Amendment 1:2006 and Amendment 2:2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) safety aspects related to:
   - general aspects;
   - limited energy circuits;
   - electronic circuits;
b) alignment to IEC 60947-1:2020;

c) wire break detection function;

d) the term detector is replaced by thermistor;

e) reference to IEC 60738-1-4.

The provisions of the general rules dealt with IEC 60947-1 are applicable to this part of IEC 60947 series where specifically called for. Clauses and subclauses, tables, figures and annexes of the general rules thus applicable are identified by reference to IEC 60947-1:2020.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
121A/424/FDIS	121A/436/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all the parts in the IEC 60947 series, under the general title *Low-voltage switchgear and controlgear*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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INTRODUCTION

Thermal protection systems which are based on the principle of monitoring the temperature of the protected parts constitute a simple and effective means of protecting rotating electrical machines, called also electric motors, against excessive temperature rises, including those caused by faults in the cooling system, or excessively high ambient temperature, whereas systems of protection based only on monitoring the current absorbed do not ensure this type of protection in every circumstances.

Since the operating temperature and response times of thermal protection systems are fixed in advance, they are not often adjusted in relation to the conditions of use of the machine and, hence, they are not completely effective for all fault conditions, or improper use of the machine.

A thermal protection system in accordance with this document can consist of a characteristic change thermal detector which has an associated control unit to convert a point on the characteristic of the detector to a switching function. A very large number of thermal protection systems are in use and, in all cases, the machine manufacturer will fit the detectors in the machine. The machine manufacturer will either supply the control unit with the machine or specify particulars of the control unit to be used.

It is also customary for the control units to be considered as part of the control system and not necessarily supplied with the machine. For this reason, it is considered useful to have an interchangeable system, where the characteristics of association between the detector and the control unit are specified. This particular system is not considered superior in any way to other systems complying with the requirements of this document, but in some fields the practice is likely to be that this interchangeable system will be used, as indicated by the designation “Mark A”.