

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Electromechanical elementary relays –  
Part 4: General and safety requirements for reed relays**

**Relais électromécaniques élémentaires –  
Partie 4: Exigences générales et de sécurité relatives aux relais à lames souples**



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**ELECTROMECHANICAL ELEMENTARY RELAYS –****Part 4: General and safety requirements for reed relays**

## FOREWORD

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International Standard IEC 61810-4 has been prepared by IEC technical committee 94: All-or-nothing electrical relays.

The text of this document is based on the following documents:

FDIS	Report on voting
94/482/FDIS	94/484/RVD

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 61810 series, published under the general title *Electromechanical elementary relays*, can be found on the IEC website.

This document is to be read in conjunction with IEC 61810-1.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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## INTRODUCTION

Reed relays have been used in wide fields such as household and similar appliances, security control systems for appliances, measuring instruments, medical equipment, semiconductor and chip test equipment, information and communication equipment, power distribution facilities and transit vehicles, etc.

IEC 61810-4 provides technical deviations/additions to IEC 61810-1 in order to specify general and safety requirements for reed relays, as a result of component safety standards for relevant systems.

The reed switches are used as the switching contacts of the reed relays, all the requirements for reed contacts (reed switches) within the reed relay are read in conjunction with IEC 62246 (all parts).

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## ELECTROMECHANICAL ELEMENTARY RELAYS –

### Part 4: General and safety requirements for reed relays

#### 1 Scope

This part of IEC 61810 applies to electromechanical elementary relays with reed switches (reed contacts) incorporated into general control circuits. It defines the basic functional and safety requirements in all areas of electrical engineering or electronics in accordance with the parts of IEC 61810 series and IEC 62246 series.

This document defines technical deviations/additions to IEC 61810-1. It specifies type tests, routine tests, special tests and environmental tests to confirm the service conditions for applications.

NOTE The terms reed switch(es) and reed contact(s) are both in use for the description of the contact set in reed relays.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-17:1994, *Basic environmental testing procedures – Part 2-17: Tests – Test Q: Sealing*

IEC 60077-1:2017, *Railway applications – Electric equipment for rolling stock – Part 1: General service conditions and general rules*

IEC 60077-2:2017, *Railway applications – Electric equipment for rolling stock – Part 2: Electrotechnical components – General rules*

IEC 60571:2012, *Railway applications – Electric equipment used on rolling stock*

IEC 61373:2010, *Railway applications – Rolling stock equipment – Shock and vibration tests*

IEC 61810-1:2015, *Electromechanical elementary relays – Part 1: General and safety requirements*

IEC 61810-1:2015/AMD1:2019

IEC 61810-2:2017, *Electromechanical elementary relays – Part 2: Reliability*

IEC 61810-2-1:2017, *Electromechanical elementary relays – Part 2-1: Reliability – Procedure for the verification of  $B_{10}$  values*

IEC 61810-7:2006, *Electromechanical elementary relays – Part 7: Test and measurement procedures*

IEC 61810-10:2019, *Electromechanical elementary relays – Part 10: Additional functional aspects and safety requirements for high-capacity relays*

IEC 62246-1:2015, *Reed switches – Part 1: Generic specification*

IEC 62246-1-1:2018, *Reed switches – Part 1-1: Generic specification – Blank detail specification*

IEC 62497-1:2010, *Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment*  
IEC 62497-1:2010/AMD1:2013

IEC 62498-1:2010, *Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61810-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.2 Terms and definitions of relay types

3.2 of IEC 61810-1:2015 is applicable with the following addition:

##### 3.2.7 reed relay

electromechanical control circuit devices with connecting terminals, consisting of reed switch sets (reed contact sets) and coil fitting with/without a housing which could be plastic or metal

Note 1 to entry: See Figure A.1.

#### 3.4 Terms and definitions of operating values

3.4 of IEC 61810-1:2015 is applicable with the following addition:

##### 3.4.7 magnetic interference

tendency of a relay to be influenced by the magnetic field from an adjacent energized relay or any other surrounding solenoid

Note 1 to entry: This influence can result in depression or elevation of the operate and release voltage of the affected relay, possibly causing them to fall outside their specification.

Note 2 to entry: Magnetic interference can be minimized by alternating the polarity of adjacent relay coils, by magnetic shielding, or by placing two relays at right angles to each other.

#### 3.8 Terms and definitions related to high frequency characteristics

##### 3.8.1 frequency range

<of an equipment> set of frequencies over which an equipment can be adjusted to operate satisfactorily

Note 1 to entry: The frequency range of a relay can be subdivided into switched subranges which may or may not be contiguous.