

INTERNATIONAL STANDARD

Railway applications – Direct current signalling monostable relays –
Part 2: Spring type relays
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IEC 62912-2:2019

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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RAILWAY APPLICATIONS – DIRECT CURRENT SIGNALLING MONOSTABLE RELAYS –

Part 2: Spring type relays

FOREWORD

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International Standard IEC 62912-2 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

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

FDIS	Report on voting
9/2513/FDIS	9/2532/RVD

Full information on the voting for the approval of this International Standard 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.

The existing IEC 62912 will be renumbered as IEC 62912-1 on the occasion of its next revision.

A list of all parts in the IEC 62912 series, published under the general title *Railway applications – Direct current signalling monostable relays*, 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 "<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- withdrawn,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
- amended.

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

This document gives a set of generic and specific requirements for non-proved direct current signalling relays of the spring type.

This document introduces a set of recommendations and requirements for signalling relay characteristics, construction, magnetic system, contacts and insulation. Requirements are coordinated with current International Standards on all-or-nothing relays.

This document is in addition to IEC 62912:2015. IEC 62912-2 describes the non-proved spring type relay.

All signalling relays are expected to fulfil the requirements of IEC 62425:2007 and their characteristics are given by IEC 62425:2007, Annex C.7.22 which lists two types of physical properties to provide return forces for stability. Of these properties IEC 62912-2 considers only relays with a spring return force alone.

Meeting all the requirements in IEC 62912-2 is sufficient to ensure that further compliance to IEC 62425:2007 need not be evaluated.

IEC 62912-2 has been developed as a standard independent from IEC 62912:2015. It uses the same structure as IEC 62912:2015. IEC 62912-2 does not refer to the IEC 61810 series because the relays defined in it are exclusively used in the signalling system, unlike the electromagnetic type elementary relays defined by IEC 61810.

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RAILWAY APPLICATIONS – DIRECT CURRENT SIGNALLING MONOSTABLE RELAYS –

Part 2: Spring type relays

1 Scope

This document gives requirements for direct current relays intended for safety-related applications in railway signalling installations.

This document is applicable to non-proved signalling monostable relays of the spring type, whose return force is generated by elasticity of spring.

The return force can be provided either from a separate spring and/or from the contact springs themselves.

NOTE “Non-proved” means the feature of relays fulfilling all the safety conditions without the aid of other relays or without control of operations in the circuit.

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 62425:2007, *Railway applications – Communication, signalling and processing systems – Safety related electronic systems for signalling*

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

IEC 62498-3:2010, *Railway applications – Environmental conditions for equipment – Part 3: Equipment for signalling and telecommunications*

IEC 62912:2015, *Railways applications – Direct current signalling monostable relays of type N and type C*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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>

3.1

all-or-nothing relay

electrical relay, which is intended to be energised by a quantity, the value of which is either within its operative range or effectively zero

Note 1 to entry: “All-or-nothing relays” include both “elementary relays” and “time relays”.

[SOURCE: IEC 60050-444:2002, 444-01-02]

3.2**armature**

moveable part of a relay that controls contact members

[SOURCE: IEC 62912:2015, 3.2]

3.3**bounce time**

for a contact which is closing/opening its circuit, time interval between the instant when the contact circuit first closes/opens and the instant when the circuit is finally closed/opened

[SOURCE: IEC 60050-444:2002, 444-05-04]

3.4**break contact <for elementary relays>**

contact which is open when the relay is in its operate condition and which is closed when the relay is in its release condition

[SOURCE: IEC 60050-444:2002, 444-04-18]

3.5**change-over contact**

combination of two contact circuits with three contact members, one of which is common to the two contact circuits, such that when one of these contact circuits is open, the other is closed

[SOURCE: IEC 60050-444:2002, 444-04-19]

3.6**contact force**

force which two contact members exert against each other at their contact points in the closed position

[SOURCE: IEC 60050-444:2002, 444-04-10]

3.7**contact gap**

gap between the contact points when the contact circuit is open

[SOURCE: IEC 60050-444:2002, 444-04-09]

3.8**contact member <for elementary relays>**

conductive part designed to co-act with another to close or open the output circuit

[SOURCE: IEC 60050-444:2002, 444-04-05]

3.9**contact point**

part of a contact member at which the contact circuit closes or opens

[SOURCE: IEC 60050-444:2002, 444-04-06]

3.10**contact resistance**

resistance of a mated set of contacts under specified conditions

[SOURCE: IEC 60050-581:2008, 581-23-08]

3.11**contact wipe**

relative rubbing movement of contact points after they have touched

[SOURCE: IEC 60050-444:2002, 444-04-12]

3.12**drop-away current**

maximum current through the coil that, starting from the nominal current value, produces the opening of all the make contacts

[SOURCE: IEC 62912:2015, 3.12]

3.13**elementary relay**

all-or-nothing relay which operates and releases without any intentional time delay

[SOURCE: IEC 60050-444:2002, 444-01-03]

3.14**forcibly guided contacts**

combination of make contacts and break contacts designed in such a way that it is made sure by mechanical means that these make contacts and break contacts can never be in the closed position simultaneously

[SOURCE: IEC 60050-444:2002, 444-04-23]

3.15**maintenance test**

test carried out periodically on an item to verify that its performance remains within specified limits, after having made certain adjustments, if necessary

[SOURCE: IEC 60050-151:2001, 151-16-25]

3.16**make contact <for elementary relays>**

contact which is closed when the relay is in its operate condition and which is opened when the relay is in its release condition

[SOURCE: IEC 60050-444:2002, 444-04-17]

3.17**monostable relay**

electrical relay which, having responded to an energising quantity and having changed its condition, returns to its previous condition when that quantity is removed

[SOURCE: IEC 60050-444:2002, 444-01-07]

3.18**nominal current**

current passing through the coil of the relay when the coil is supplied with nominal voltage

[SOURCE: IEC 62912:2015, 3.17]