

INTERNATIONAL STANDARD

CONSOLIDATED VERSION

**Electromechanical telecom elementary relays of assessed quality -
Part 1: Generic specification and blank detail specification**

(<https://standards.iteh.ai>)
Document Preview

IEC 61811-1:2015

<https://standards.iteh.ai/catalog/standards/iec/9ef070e2-c79e-487a-a838-fc65d6e91d67/iec-61811-1-2015>



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2025 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

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

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

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search -

webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

[IEC 61811-1:2015](https://standards.iteh.ai/catalog/standards/iec/9ef070e2-c79e-487a-a838-fc65d6e91d67/iec-61811-1-2015)

<https://standards.iteh.ai/catalog/standards/iec/9ef070e2-c79e-487a-a838-fc65d6e91d67/iec-61811-1-2015>

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
3.1 Type of relays	7
3.2 Types of contacts.....	7
3.3 Contact fault and contact failure	7
3.4 Relay malfunction, relay failure.....	8
3.5 Relay construction types	8
3.6 Inspection level and sample size	8
4 Rated values	9
4.1 General.....	9
4.2 Rated coil voltages.....	9
4.3 Contact-circuit resistance	9
4.4 Dielectric test.....	9
4.5 Impulse voltage test	9
4.6 Insulation resistance	9
4.7 Number of operations determining electrical endurance	9
4.8 Contact failure rate for test evaluation purposes	9
5 Marking and documentation	10
5.1 General.....	10
5.2 Marking of the relay	10
5.3 Marking of the package	10
5.4 Coded date of manufacture	10
6 Preparation of blank detail and detail specifications.....	10
7 Quality assessment procedures	11
7.1 Primary stage of manufacture	11
7.2 Structurally similar relays	12
7.3 Qualification approval procedures.....	12
7.4 Quality conformance inspection	12
7.4.1 Grouping of tests	12
7.4.2 Resubmission of rejected lots.....	13
7.4.3 Delivery of relays subjected to destructive tests or non-destructive tests	13
7.4.4 Delayed delivery	13
7.4.5 Supplementary procedure for deliveries.....	13
7.4.6 Unchecked parameters	13
7.4.7 Release for delivery before completion of group B tests	13
7.4.8 Screening procedures	14
7.4.9 Formation of inspection lots.....	14
7.4.10 Periodic inspection.....	14
7.5 Periodic inspection / Intervals between tests.....	14
8 Test schedule	14
8.1 Test sequence	14
8.2 Types of relays, based upon environmental protection (relay technology (RT))	14
8.3 Categories of application of contacts	15

8.4	Order of tests	15
8.5	Test groups and subgroups	15
9	Tests	20
9.1	Standard conditions for testing	20
9.2	Mounting of test specimens during the test	20
9.3	General conditions for testing	20
10	Ordering information	20
Annex A	(informative) Relay reliability – Failure rate data	21
A.1	General	21
A.2	Scope	21
A.3	Description of the relay	21
A.3.1	Identification	21
A.3.2	Ratings	21
A.4	Fault and failure data	22
A.4.1	Fault and failure definition	22
A.4.2	Fault application	22
A.4.3	Failure definition	22
A.4.4	Failure application	22
A.5	Source of data	22
A.6	Weibull approach	22
A.7	WeiBayes approach	23
A.7.1	Description	23
A.7.2	Method	23
A.7.3	WeiBayes without failures	23
A.7.4	WeiBayes with failures	23
A.7.5	WeiBayes case study	24
Annex B	(informative) Characteristic values of the relay	26
B.1	General data	26
B.2	Coil data	27
B.3	Contact data	27
B.3.1	Electrical endurance and switching frequency	27
B.3.2	Static contact-circuit resistance	27
B.3.3	Mechanical endurance	27
B.3.4	Timing (without suppression device)	28
B.4	Mounting	28
B.5	Environmental data	28
B.6	Package of relays for automatic handling (if applicable)	28
Annex C	(informative) Blank detail and detail specification	29
C.1	Examples for front pages	29
C.1.1	General	29
C.1.2	Type 0 – Non-standardized types and construction	29
C.1.3	Type 1 – Two change-over contacts, 20 mm × 10 mm base	30
C.1.4	Type 2 – Two change-over contacts, 14 mm × 9 mm base	31
C.1.5	Type 3 – Two change-over contacts, 15 mm × 7,5 mm base	32
C.1.6	Type 4 – Two change-over contacts, 11 mm × 7,5 mm (max.) base	33
C.1.7	Key to front page	34
C.2	Qualification approval procedures	34
C.3	Quality conformance inspection	34

C.4 Formation of inspection lots.....	35
Annex D (informative) Definition of subgroups	53
Bibliography	54
Figure A.1 – New compressor design WeiBayes versus old design	25
Table 1 – Group A	16
Table 2 – Group B	17
Table 3 – Group C	18
Table B.1 – Dielectric test voltages	26
Table B.2 – Impulse test voltages.....	26
Table B.3 – Coil data	27
Table B.4 – Loads, contact-circuit resistance limits, switching cycles and frequencies for electrical endurance and overload tests.....	27
Table C.1 – Quality conformance inspection	35
Table C.2 – Qualification approval.....	50
Table C.3 – Industrial qualification	52

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[IEC 61811-1:2015](https://standards.itih.ai/catalog/standards/iec/9ef070e2-c79e-487a-a838-fc65d6e91d67/iec-61811-1-2015)

<https://standards.itih.ai/catalog/standards/iec/9ef070e2-c79e-487a-a838-fc65d6e91d67/iec-61811-1-2015>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Electromechanical telecom elementary relays of assessed quality -
Part 1: Generic specification and blank detail specification**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61811-1 edition 2.1 contains the second edition (2015-01) [documents 94/379/FDIS and 94/383/RVD] and its amendment 1 (2025-12) [documents 94/1172/FDIS and 94/1180/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 61811-1 has been prepared by IEC technical committee 94: All-or-nothing electrical relays.

This second edition of IEC 61811-1 cancels and replaces

- IEC 61811-1 published in 1999,
- IEC 61811-10 published in 2002,
- IEC 61811-11 published in 2002,
- IEC 61811-50 published in 2002,
- IEC 61811-51 published in 2002,
- IEC 61811-52 published in 2002,
- IEC 61811-53 published in 2002,
- IEC 61811-54 published in 2002,
- IEC 61811-55 published in 2002,

and constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous editions:

- a) to get one document for telecom relays;
- b) update all relevant references;

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

FDIS	Report on voting
94/379/FDIS	94/383/RVD

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

A list of all parts in the IEC 61811 series, published under the general title *Electromechanical telecom elementary relays of assessed quality*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

This publication was drafted in accordance with ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document and its amendment 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

- reconfirmed,
- withdrawn, or
- revised.