

TÖÖSTUSOTSTARBELISED PISTIKUD, KOHTKINDLAD
VÕI KANTAVAD PISTIKUPESAD JA SEADISTE SISESTID.
OSA 4: LÜLITIGA PISTIKUPESAD JA PISTIKLIITMIKUD
RIIVISTUSEGA JA ILMA

Plugs, fixed or portable socket-outlets and appliance
inlets for industrial purposes - Part 4: Switched
socket-outlets with or without interlock



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 60309-4:2022 sisaldab Euroopa standardi EN IEC 60309-4:2022 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60309-4:2022 consists of the English text of the European standard EN IEC 60309-4:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 17.06.2022.	Date of Availability of the European standard is 17.06.2022.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.120.30

Standardite reproduutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele
Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation
No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation:
Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 60309-4

June 2022

ICS 29.120.30

Supersedes EN 60309-4:2007 + A1:2012

English Version

Plugs, fixed or portable socket-outlets and appliance inlets for
industrial purposes - Part 4: Switched socket-outlets with or
without interlock
(IEC 60309-4:2021)

Fiches, socles fixes de prise de courant, prises mobiles et
socles de connecteur pour usages industriels - Partie 4:
Socles de prise de courant avec interrupteur, avec ou sans
dispositif de verrouillage
(IEC 60309-4:2021)

Stecker, ortsfeste oder ortsveränderliche Steckdosen und
Gerätestecker für industrielle Anwendungen - Teil 4:
Abschaltbare Steckdosen mit oder ohne Verriegelung
(IEC 60309-4:2021)

This European Standard was approved by CENELEC on 2021-09-08. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 23H/482/FDIS, future edition 2 of IEC 60309-4, prepared by SC 23H "Plugs, Socket-outlets and Couplers for industrial and similar applications, and for Electric Vehicles" of IEC/TC 23 "Electrical accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60309-4:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-12-17
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-06-17

This document supersedes EN 60309-4:2007 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document is read in conjunction with EN IEC 60309-1:2022 and with EN IEC 60309-2:2022.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60309-4:2021 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Clause 2 of EN IEC 60309-1:2022 applies except as follows:

Add the following references:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60073	-	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators	EN 60073	-
IEC 60309-1	2021	Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes - Part 1: General requirements	EN IEC 60309-1	2022
IEC 60309-2	2021	Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes - Part 2: Dimensional compatibility requirements for pin and contact-tube accessories	EN IEC 60309-2	2022
IEC 60617	-	Standard data element types with associated classification scheme for electric components - Part 4: IEC reference collection fo standard data element types and component classes	-	-
IEC 60947-1	2020	Low-voltage switchgear and controlgear - Part 1: General rules	EN IEC 60947-1	2021
IEC 60947-3	-	Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units	EN IEC 60947-3	-
IEC 60947-4-1	-	Low-voltage switchgear and controlgear - Part 4-1: Contactors and motorstarters - Electromechanical contactors and motor-starters	EN IEC 60947-4-1	-
IEC 60947-5-1	-	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	-
IEC 61058-1	-	Switches for appliances - Part 1: General requirements	EN IEC 61058-1	-

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes –

Part 4: Switched socket-outlets with or without interlock

Fiches, socles fixes de prise de courant, prises mobiles et socles de connecteur pour usages industriels –

Partie 4: Socles de prise de courant avec interrupteur, avec ou sans dispositif de verrouillage





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2021 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembé
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 online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. 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 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC online collection - oc.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.



IEC 60309-4

Edition 2.0 2021-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes –

Part 4: Switched socket-outlets with or without interlock

Fiches, socles fixes de prise de courant, prises mobiles et socles de connecteur pour usages industriels –

Partie 4: Socles de prise de courant avec interrupteur, avec ou sans dispositif de verrouillage

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.30

ISBN 978-2-8322-9847-3

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

Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

FOREWORD	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 General	7
5 Standard ratings	8
6 Classification of accessories.....	8
7 Marking	9
8 Dimensions.....	10
9 Protection against electric shock	11
10 Provision for earthing	12
11 Terminals and terminations.....	12
12 Interlocks, switches and their components.....	12
13 Resistance to ageing of rubber and thermoplastic material	17
14 Construction	17
15 Construction of fixed socket-outlets	17
16 Construction of plugs and portable socket-outlets.....	17
17 Construction of appliance inlets	17
18 Degrees of protection	17
19 Insulation resistance and dielectric strength	18
20 Breaking capacity	18
21 Normal operation	18
22 Temperature rise	18
23 Flexible cables and their connection	20
24 Mechanical strength	20
25 Screws, current-carrying parts and connections.....	21
26 Creepage distances, clearances and distances through sealing compound.....	21
27 Resistance to heat, to fire and to tracking.....	21
28 Corrosion and resistance to rusting	22
29 Conditional short-circuit current withstand test.....	22
30 Electromagnetic compatibility	22
Figure 401 – Example of apparatus for checking the withdrawal force.....	15
Figure 402 – Actuator applied force F	21
Table 401 – Withdrawal force with respect to ratings	14
Table 11 – Temperature rise test	19
Table 402 – Actuator test force F	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PLUGS, FIXED OR PORTABLE SOCKET-OUTLETS AND
APPLIANCE INLETS FOR INDUSTRIAL PURPOSES –****Part 4: Switched socket-outlets
with or without interlock****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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60309-4 has been prepared by subcommittee 23H: Plugs, socket-outlets and couplers for industrial and similar applications, and for electric vehicles, of IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 2006 and Amendment 1:2012. This edition constitutes a technical revision.

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

- updated in order to take into account the technical revisions to IEC 60309-1 and to IEC 60309-2.

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

FDIS	Report on voting
23H/482/FDIS	23H/488/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.

This document is to be read in conjunction with IEC 60309-1:2021 and with IEC 60309-2:2021.

In this document, the following print types are used:

- requirements proper: in roman type;
- *test specifications*: in italic type;
- notes: in smaller roman type.

IEC 60309-1:2021 deals with general requirements and comprises all clauses of a general character.

Subsequent parts deal with the requirements of particular types of accessories. The clauses of these particular requirements supplement or modify the corresponding clauses of IEC 60309-1:2021 or of IEC 60309-2:2021.

Clauses, subclauses, figures, tables and notes which are additional to those of IEC 60309-1:2021 or of IEC 60309-2:2021 are numbered starting from 401.

A list of all parts in the IEC 60309 series, published under the general title *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes*, 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.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

PLUGS, FIXED OR PORTABLE SOCKET-OUTLETS AND APPLIANCE INLETS FOR INDUSTRIAL PURPOSES –

Part 4: Switched socket-outlets with or without interlock

1 Scope

Clause 1 of IEC 60309-1:2021 or of IEC 60309-2:2021 applies as follows:

Replace the first two paragraphs by the following:

This part of IEC 60309 applies to self-contained products primarily intended for industrial use, either indoors or outdoors that combine the following items within a single enclosure:

- a fixed or portable socket-outlet according to IEC 60309-1 or IEC 60309-2 with a rated operating voltage not exceeding 1 000 V DC or 1 000 V AC with a frequency not exceeding 500 Hz and a rated current not exceeding 800 A;
- a switching device.

These products can incorporate an interlock and/or protective devices.

These accessories are intended to be installed by instructed persons or skilled persons only.

2 Normative references

Clause 2 of IEC 60309-1:2021 applies except as follows:

Additional normative references:

IEC 60073, *Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators*

IEC 60309-1:2021, *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes – Part 1: General requirements*

IEC 60309-2:2021, *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes – Part 2: Dimensional compatibility requirements for pin and contact-tube accessories*

IEC 60617, *Graphical symbols for diagrams* (available at <http://std.iec.ch/iec60617>)

IEC 60947-1:2020, *Low-voltage switchgear and controlgear – Part 1: General rules*

IEC 60947-3, *Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units*

IEC 60947-4-1, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters*

IEC 60947-5-1, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

IEC 61058-1, *Switches for appliances – Part 1: General requirements*

3 Terms and definitions

Clause 3 of IEC 60309-1:2021 or of IEC 60309-2:2021 applies except as follows:

Terms and definitions 3.6 to 3.9 do not apply.

Add the following terms and definitions:

3.401

switched socket-outlet

product (interlocked or non-interlocked) containing in a single enclosure a switching device and a socket-outlet, intended to be used in combination

3.402

interlocked socket-outlet

socket-outlet associated with an interlock

3.403

switching device

device designated to make or break the current in one or more electric circuits

[SOURCE IEC 60050-441:1984, 441-14-01]

3.403.1

mechanical switching device

switching device designed to close and open one or more electric circuits by means of separable contacts

[SOURCE: IEC 60050-441:1984, 441-14-02, modified – The note has been omitted.]

3.403.1.1

(mechanical) switch

mechanical switching device capable of making, carrying and breaking currents under normal circuit conditions which may include specified operating overload conditions and also carrying for a specified time currents under specified abnormal circuit conditions such as those of short-circuit

Note 1 to entry: A switch may be capable of making, but not breaking short-circuit currents.

[SOURCE: IEC 60050-411:1984, 441-14-10]

3.403.1.2

switch-disconnector

switch which, in the open position, complies with the requirements specified for the isolating function

[SOURCE: IEC 60050-411:1984, 441-14-12, modified – Reference made to the isolating function instead of to the requirements specified for a disconnector.]