BSI Standards Publication

Small craft — Electrical/electronic control systems for steering, shift and throttle

National foreword

This British Standard is the UK implementation of EN ISO 25197:2020+A12:2026. It is identical to ISO 25197:2020, incorporating amendment 1:2022. It supersedes BS EN ISO 25197:2020+A11:2023, which is withdrawn.

The start and finish of text introduced or altered by amendment A11 is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A11 is indicated by ▌A11⟩ ⟨A11▐.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by ▌A1⟩ ⟨A1▐.

The UK participation in its preparation was entrusted to Technical Committee GME/33, Small craft.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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For the Great Britain market (England, Scotland and Wales), if UK Government has designated this publication for conformity with UKCA marking (or similar) legislation, it may contain an additional National Annex. Where such a National Annex exists, it shows the correlation between this publication and the relevant UK legislation. If there is no National Annex of this kind, the relevant Annex ZA or ZZ in the body of the European text will indicate the relationship to UK regulation applicable in Great Britain. References to EU legislation may need to be read in accordance with the UK designation and the applicable UK law. Further information on designated standards can be found at www.bsigroup.com/standardsandregulation.

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Annex ZA/ZZ in the European text, and references to EU legislation, are still valid for this market.

UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of www.gov.uk.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments/corrigenda issued since publication

Date	Text affected
30 November 2022	Implementation of ISO amendment 1:2022 with CEN endorsement A1:2022
31 July 2023	Implementation of CEN amendment A11:2023
30 April 2026	Implementation of CEN amendment A12:2026

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2026

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Supersedes EN ISO 25197:2018

English Version

Small craft - Electrical/electronic control systems for steering, shift and throttle (ISO 25197:2020)

Petits navires - Systèmes électriques/ électroniques pour le contrôle de la direction, de l'inverseur et des gaz (ISO 25197:2020)

Kleine Wasserfahrzeuge - Elektrische/ elektronische Regelungssysteme für Steuerung, Schaltung und Antrieb (ISO 25197:2020)

This European Standard was approved by CEN on 7 March 2020.

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Ref. No. EN ISO 25197:2020: E

This document (EN ISO 25197:2020) has been prepared by Technical Committee ISO/TC 188 "Small craft" in collaboration with CCMC.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

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This document supersedes EN ISO 25197:2018.

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Endorsement notice

The text of ISO 25197:2020 has been approved by CEN as EN ISO 25197:2020 without any modification.

European foreword to Amendment 1

This document (EN ISO 25197:2020/A1:2022) has been prepared by Technical Committee ISO/TC 188 "Small craft" in collaboration with Technical Committee CEN/TC 464 “Small Craft” the secretariat of which is held by SIS.

This Amendment to the European Standard EN ISO 25197:2020 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2023, and conflicting national standards shall be withdrawn at the latest by May 2023.

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Endorsement notice

The text of ISO 25197:2020/Amd 1:2022 has been approved by CEN as EN ISO 25197:2020/A1:2022 without any modification.

European foreword to Amendment A11

This document (EN ISO 25197:2020/A11:2023) has been prepared by Technical Committee CEN/TC 464 “Small Craft” the secretariat of which is held by SIS.

This Amendment to the European Standard EN ISO 25197:2020 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2023, and conflicting national standards shall be withdrawn at the latest by October 2023.

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This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For the relationship with EU Directive(s) see informative Annex ZA, which is an integral part of this document.

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European foreword to Amendment A12

This document (EN ISO 25197:2020/A12:2026) has been prepared by Technical Committee CEN/TC 464 “Small Craft” the secretariat of which is held by SIS.

This Amendment to the European Standard EN ISO 25197:2020 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2026, and conflicting national standards shall be withdrawn at the latest by September 2026.

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

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

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A12 Annex ZA
(informative)

Relationship between this European Standard and the essential requirements of Directive 2013/53/EU aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/542/C(2015) 8736 final to provide one voluntary means of conforming to essential requirements of Directive 2013/53/EU.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Annex I and II of Directive 2013/53/EU

Essential Requirements of Directive 2013/53/EU	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
Annex I, sub clause 2.5 Owner's manual	4.7,4.11,12	These clauses specify the information to be included in the owner's manual.
Annex I, 5.4 Steering system 5.4.1 General	10.2	In respect of transmission of steering loads in all foreseeable conditions.
Annex I, 5.4 Steering system 5.4.2 Emergency arrangements	9.1.4	In respect of single engine non-sailing craft with remote rudder steering only.
Annex II (3) - Steering wheels, steering mechanisms and cable assemblies	10.2	In respect of the transmission of steering loads in for electric/electronic steering systems supplied as components only

Table ZA.2 — Normative references from Clause 2 of this document and their corresponding European publications

Column 1 Reference in Clause 2	Column 2 International Standard Edition	Column 3 Title	Column 4 Corresponding European Standard Edition
ISO 4892-1:2016	ISO 4892-1:2024	Plastics — Methods of exposure to laboratory light sources Part 1: General guidance and requirements	For applicable standard edition see column 2
ISO 4892-2:2013	ISO 4892-2:2013 ISO 4892-2:2013/Amd 1:2021	Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps - Amendment 1: Classification of daylight filters	For applicable standard edition see column 2
ISO 4892-3:2016	ISO 4892-3:2024	Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps	For applicable standard edition see column 2
ISO 4892-4:2013	ISO 4892-4:2024	Plastics — Methods of exposure to laboratory light sources Part 4: Open-flame carbon-arc lamps	For applicable standard edition see column 2
ISO 8846:1990	ISO 8846:2025	Small craft — Electrical devices — Protection against ignition of surrounding flammable gases	EN ISO 8846
ISO 8848:2022	ISO 8848:2022	Small craft — Remote steering systems	EN ISO 8848:2022
ISO 10133:2012	ISO 13297:2020	Small craft — Electrical systems — Extra-low-voltage d.c. installations	EN ISO 13297:2021 EN ISO 13297:2021/A1:2022 EN ISO 13297:2021/A11:2023
ISO	ISO 10240:2022	Small craft — Owner's	EN ISO 10240:2024

10240:2004/Amd1 : 2015		manual	EN ISO 10240/A11:2026
ISO 10592:2022	ISO 10592:2022	Small craft — Hydraulic steering system	EN ISO 10592:2022
ISO 11591:2019	ISO 11591:2020 ISO 11591:2020/Amd 1:2022	Small craft — Field of vision from the steering position	EN ISO 11591:2020 EN ISO 11591:2020/A1:2023
ISO 13297:2020	ISO 13297:2020 ISO 13297:2020/Amd 1:2022	Small craft — Electrical systems — Alternating current installations	EN ISO 13297:2021 EN ISO 13297:2021/A1:2022
ISO 16750-2:2012	ISO 16750-2:2023	Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 2: Electrical loads	For applicable standard edition see column 2
ISO 16750-3:2012	ISO 16750-3:2023	Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 3: Mechanical loads	For applicable standard edition see column 2
ISO 16750-4:2010	ISO 16750-4:2023	Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 4: Climatic loads	For applicable standard edition see column 2
ASTM B117:2016	-NONE	Practice for operating salt spray (fog) apparatus	-NONE
IEC 60068-2-27:2008	IEC 60068-2-27:2008	Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock	EN 60068-2-27:2009
IEC 60068-2-52:2017	IEC 60068-2-52:2017	Environmental testing — Part 2-52: Tests — Test Kb: Salt mist, cyclic (sodium chloride solution)	EN IEC 60068-2-52:2018
IEC 60945:2002	IEC 60945:2002	Maritime navigation and radiocommunication equipment and systems — General requirements — Methods of testing and required test results	EN 60945:2002

IEC 61000-4-2:2008	IEC 61000-4-2:2008	Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 2: Electrostatic discharge immunity test — Basic EMC publication	EN 61000-4-2:2009
IEC 61000-4-3:2020	IEC 61000-4-3:2020	Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques —Radiated, radio frequency, electromagnetic field immunity test	EN IEC 61000-4-3:2020
IEC 61000-4-4:2012	IEC 610004-4:2012	Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 4: Electrical fast transient/burst immunity test — Basic EMC publication	EN 61000-4-4:2012
IEC 61000-4-5:2014 IEC 61000-4-5:2014+Amd1:2017	IEC 61000-4-5:2014 IEC 61000-4-5:2014+Amd1:2017	Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 5: Surge immunity test	EN 61000-4-5:2014 EN 61000-4-5:2014/A1:2017
IEC 61000-4-6:2013	IEC 61000-4-6:2013	Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques – Section 6: Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6:2014
IEC 61000-4-11:2020	IEC 61000-4-11:2020	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase	EN IEC 61000-4-11:2020 EN IEC 61000-4-11:2020/AC:2022-10 EN IEC 61000-4-11:2020/AC:2020-06
IEC 61000-4-	IEC 610004-16:2015	Electromagnetic compatibility (EMC) —	EN 61000-4-16:2016

16:2015		Part 4-16: Testing and measurement techniques — Test for immunity to conducted, common mode disturbance in the frequency range 0 Hz to 150 KHz	

The documents listed in the Column 1 of Table ZA.2, in whole or in part, are normatively referenced in this document, i.e. are indispensable for its application. The achievement of the presumption of conformity is subject to the application of the edition of Standards as listed in Column 4 or, if no European Standard Edition exists, the International Standard Edition given in Column 2 of Table ZA.2.

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard. 〈A12〉

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 188, *Small craft.*

This second edition cancels and replaces the first edition (ISO 25197:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the terms and definitions have been revised to give coherency with other standard definitions; new terms, such as input device and output device, have been introduced;

— the figures have been revised to clarify the concepts illustrated;

— 7.2, on portable helms, has been revised to make it coherent when an electric propulsion motor is used;

— 9.1 has been revised to include the fail-safe mode and the alarm policy;

— the main change is in 10.1: the request to use three different samples for all tests (except for EMC test) has been deleted because it would have involved a great expense without having significant improvement; only one sample is used for all tests described on the subsequent subclauses;

— the durability test on joystick described in 10.4 has been made an operational test;

— Table 1 in 10.5.1 has been updated introducing the column “immersion” to handle test on immerged components;

— in 10.5.2, all ways to conduct the salt mist test, based on different standards, have been homogenized;

— in 10.7, the shock test has been revised;

— in 10.8, the free fall test has become the drop test with the addiction of the UV test;

— the UV test, described in 10.9, has been clarified;

— in 10.10, there are many changes due to the revision of IEC 60533 and the forthcoming release of IEC 62742; to avoid any direct link to those standards, all tests previously required by IEC 60533 have been embedded and all standards cited have been added to the normative reference list.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Small craft – Electrical/electronic control systems for steering, shift and throttle

1 Scope

This document establishes the requirements for the design, construction and testing of electrical/electronic steering, shift and throttle systems and dynamic positioning control systems, or combinations thereof, on small craft of up to 24 m length of hull.

This document does not apply to electric trolling motors and autopilot systems on sailing craft.

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.

〈A1〉 ISO 4892-1:2016, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance*

ISO 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 4892-3:2016, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 4892-4:2013, *Plastics — Methods of exposure to laboratory light sources — Part 4: Open-flame carbon-arc lamps*

ISO 8846:1990, *Small craft — Electrical devices — Protection against ignition of surrounding flammable gases*

ISO 8848:2022, *Small craft — Remote mechanical steering systems*

ISO 10592:2022, *Small craft — Remote hydraulic steering systems*

ISO 13297:2020, *Small craft — Electrical systems — Alternating and direct current installations*

ISO 13297:2020/Amd 1:2022, *Small craft — Electrical systems — Alternating and direct current installations — Amendment 1*

ISO 16750-2:2012, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 2: Electrical loads*

ISO 16750-3:2012, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 3: Mechanical loads*

ISO 16750-4:2010, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 4: Climatic loads*

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IEC 60068-2-52:2017, *Environmental testing — Part 2-52: Tests — Test Kb: Salt mist, cyclic (sodium chloride solution)*