



**SLOVENSKI STANDARD**  
**oSIST prEN ISO 25197:2019**  
**01-januar-2019**

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**Mala plovila - Električni/elektronski regulacijski sistem za krmarjenje, prestavljanje in pogon (ISO/DIS 25197:2018)**

Small Craft - Electrical/electronic control system for steering, shift and throttle (ISO/DIS 25197:2018)

Kleine Wasserfahrzeuge - Elektrische/elektronische Regelungssysteme für Steuerung, Schaltung und Antrieb (ISO/DIS 25197:2018)

Petits navires - Système électrique/électronique pour le contrôle de la direction, de l'inverseur et des gaz (ISO/DIS 25197:2018)

**Ta slovenski standard je istoveten z: prEN ISO 25197**

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**ICS:**

47.020.60	Električna oprema ladij in konstrukcij na morju	Electrical equipment of ships and of marine structures
47.080	Čolni	Small craft

**oSIST prEN ISO 25197:2019**

**en,fr,de**



# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 25197

ISO/TC 188/SC 2

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

*Petits navires — Système électrique/électronique pour le contrôle de la direction, de l'inverseur et des gaz*

ICS: 47.080

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## 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](http://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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 188, *Small craft*, Subcommittee SC 2, *Engines and propulsion systems*.

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:

- Terms and definitions has been subjected to a revision coherently to other standard definitions; new voices, such as input and output devices, have been introduced.
- Picture on different figures has been reviewed to clarify the concepts illustrated.
- Portable helms clauses has been reviewed in order to make them coherent when an electric propulsion motor is used.
- Sub [clause 9.1](#) has been reviewed in order to include the fail-safe mode and the alarm policy.
- On sub-clause [10.1](#) there is the major change on this standard: the request of using three different samples for all tests (except for EMC test) has been deleted because it would have involved in a great expense without having significant improvement. Only one sample is used for all test described on the next sub clauses.
- Life test on Joystick described on [10.4](#) has been reviewed and made closer to reality.
- [Table 1](#) on sub [clause 10.5.1](#) has been updated introducing the column “immersion” to handle test on immersed components.
- On [10.5.2](#), all ways to conduct the salt mist test have been equalized.
- On [10.7](#), shock test has been revised.
- On [10.8](#) free fall test has become drop test with the addition of the UV test.

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- UV test, described on sub [clause 10.9](#), has been clarified.
- On all [10.10](#) sub clause there are many changes due to the renewing of standard IEC 60533 and the forthcoming release of the standard IEC 62742; to avoid any direct link to those standards, all test previously required by IEC 60533 have been embedded and all standard mentioned has been added to 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](http://www.iso.org/members.html).

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

## 1 Scope

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

This International Standard excludes electric trolling motors

## 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.

ISO 4892, *Plastics — Methods of exposure to laboratory light sources*

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

ISO 8848, *Small craft — Remote steering systems*

ISO 10133, *Small craft — Electrical systems — Extra-low-voltage d.c. installations*

ISO 10240, *Small craft — Owner's manual*

ISO 10592, *Small craft — Hydraulic steering systems*

ISO 11591, *Small craft, engine-driven — Field of vision from helm position*

ISO 13297, *Small craft — Electrical systems — Alternating current installations*

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

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

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

IEC 60068-2-27, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock*

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

IEC 60092-507, *Electrical installations in ships — Part 507: Small vessels*

IEC 60945, *Maritime navigation and radiocommunication equipment and systems — General requirements — Methods of testing and required test results*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 2: Electrostatic discharge immunity test – Basic EMC publication*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 3: Radiated, radio frequency, electromagnetic field immunity test*

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IEC 61000-4-4, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 4: Electrical fast transient/burst immunity test – Basic EMC publication*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 5: Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 6: Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 8: Power frequency magnetic field immunity test – Basic EMC publication*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Section 11: Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-4, 16, *Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques – Test for immunity to conducted, common mode disturbance in the frequency range 0 Hz to 150 KHz*

**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:

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

**3.1 electric/electronic steering system**

all components, including CPU (central processing unit) and cable harnesses, from the manual steering input device up to and including the device (actuator or electrical motor) regulating the rudder or propulsion unit steering angle

Note 1 to entry: It includes the joystick and components, i.e. GPS antennas for dynamic positioning, if installed.

**3.2 dynamic-positioning system**

computer-controlled system to automatically maintain a craft's position and heading by using the craft's own propulsion systems with or without the assistance of bow or stern thrusters

**3.3 electrical/electronic shift and throttle system**

all components, including CPU (central processing unit) and cable harnesses, from the shift and throttle input device up to and including the device controlling the shift and speed of engines

**3.4 ignition-protected equipment**

electrical equipment designed and tested for use in explosive atmospheres without igniting surrounding flammable gases

**3.5 accessible**

capable of being reached for operation, inspection or maintenance without removal of permanent structure of the craft

**3.6 readily accessible**

capable of being reached without the use of tools

**3.7****nominal voltage(s)**

those commonly used voltages, such as 12 volts, 24 volts, or 36 volts DC

**3.8****manoeuvring mode**

reduced power mode for manoeuvring, determined by the manufacturer

**3.9****cruising mode**

power mode above manoeuvring mode up to full power, determined by the manufacturer

**3.10****X axis**

direction of a craft fore or aft, longitudinally

**3.11****Y axis**

direction of a craft port or starboard, transversely

**3.12****Z axis**

axis perpendicular to the X-Y plane

**3.13****input device**

device that transmits commands to a system

**3.14****output device**

device that operates from commands coming from an input device(s)

EXAMPLE electromechanical or electrohydraulic actuator.

**3.15****control head**

operator input device, other than a steering wheel, for the simultaneous control of steering and propulsion

EXAMPLE Joystick, track-ball or slide levers.

**3.16****control lever**

operator input device for the control of thrust and/or propulsion

**3.17****steering helm**

operator input device for the control of steering

**3.18****joystick**

operator input device for the simultaneous control of thrust, steering and propulsion

**3.19****helm station**

location from which steering, propulsion and thrust can be controlled

**3.20****multiple helm stations**

more than one location in the boat from which steering, propulsion and thrust can be controlled