
**Ships and marine technology —
Vocabulary related to autonomous
ship systems**

Navires et technologie marine — Vocabulaire relatif aux systèmes de navires autonomes



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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 General terms.....	1
3.2 Terms related to autonomous ship system components.....	3
3.3 Terms related to operations.....	4
3.4 Terms related to operator control modes.....	5
Annex A (informative) The components and context of the autonomous ship system	6
Annex B (informative) Operational envelope and system control tasks	10
Bibliography	13

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).

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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 *Ships and marine technology*, ISO/TC 8.

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.

Introduction

Highly automated ships, including fully uncrewed and/or autonomous ships, are part of complex systems that have properties that are very different from conventional ships. This area is still under development and will remain so for many years to come. This means that there is a need for a harmonized and as consistent as possible vocabulary and related definitions for the concepts and objects that are used in the research on, design of and the eventual use of highly automated ships. It is the intention of this document to provide this. Recognizing that the area is developing, this document is published as a technical specification rather than an international standard.

[Clause 3](#) contains the definitions of the vocabulary and is divided into the following parts.

[3.1](#), General terms: the main concepts related to autonomous ship systems.

[3.2](#), Terms related to autonomous ship system components: defining the main components of the autonomous ship system, including required off-ship support. [Annex A](#) gives a more extensive and informal overview of these components as well as other entities that the autonomous ship system may have to interact with. Note that the Remote Control Centre (RCC) is also part of the autonomous ship system components, but is defined in [3.1](#).

[3.3](#), Terms related to operations: this subclause contains vocabulary that can be used to describe aspects of the ship's operational strategies, division of responsibilities between humans and automation, and corresponding system designs requirements. [Annex B](#) gives a more extensive and informative overview of some of these concepts.

[3.4](#), Terms related to operator control modes: defining specific modes for operator control mode ([3.3.2](#)).

Ships and marine technology — Vocabulary related to autonomous ship systems

1 Scope

This document defines terminology related to autonomous ship systems, which includes ships that can be classified as a “Maritime Autonomous Surface Ship” (MASS) according to the preliminary definitions from the International Maritime Organization (IMO). Autonomous ship system can also be applied to similar ship types for use on inland waterways.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

3.1 General terms

3.1.1

automatic

process or equipment that, under specified conditions, can function without human control

Note 1 to entry: See Annex B.1 for an explanation of the difference between *automation* (3.1.2) and *autonomy* (3.1.3).

[SOURCE: IEC 60050-351^[4], modified – “can function” instead of “functions”, added Note 1 to entry]

3.1.2

automation

implementation of processes by automatic means

[SOURCE: ISO/TR 11065^[3]]

3.1.3

autonomy

processes or equipment in a ship system which, under certain conditions, are designed and verified to be controlled by automation, without human assistance

Note 1 to entry: Autonomy is implemented by automation but emerges when automation is designed and verified to allow operation without human assistance.

Note 2 to entry: This definition qualifies autonomy by giving it a temporal (the period when conditions are satisfied) and a process (one or more processes or equipment) dimension. The term “autonomy” on its own should be avoided unless sufficiently qualified with respect to what processes, period, or conditions it refers to.

Note 3 to entry: See Annex B.1 for an explanation of the difference between *automation* (3.1.2) and *autonomy* (3.1.3).