

Maritime navigation and radiocommunication equipment and systems - Digital interfaces - Part 400: Multiple talkers and multiple listeners - Ship systems interconnection - Introduction and general principles

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61162-400:2003 sisaldab Euroopa standardi EN 61162-400:2002 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 05.02.2003 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 17.05.2002.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 61162-400:2003 consists of the English text of the European standard EN 61162-400:2002.

This standard is ratified with the order of Estonian Centre for Standardisation dated 05.02.2003 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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ICS 47.020.70

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EUROPEAN STANDARD

EN 61162-400

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2002

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English version

**Maritime navigation and radiocommunication equipment and systems -
Digital interfaces**

**Part 400: Multiple talkers and multiple listeners -
Ship systems interconnection -
Introduction and general principles
(IEC 61162-400:2001)**

Matériels et systèmes de navigation
et de radiocommunication maritime -
Interfaces numériques -
Partie 400: Émetteurs multiples et
récepteurs multiples -
Interconnexion des systèmes des navires -
Introduction et principes généraux
(CEI 61162-400:2001)

Navigations- und Funkkommunikations-
geräte und -systeme für die Seeschifffahrt -
Digitale Schnittstellen
Teil 400: Mehrere Datensender und
mehrere Datenempfänger -
Schiffssystemzusammenschaltung -
Einleitung und allgemeine Prinzipien
(IEC 61162-400:2001)

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 80/309/FDIS, future edition 1 of IEC 61162-400, prepared by IEC TC 80, Maritime navigation and radiocommunication equipment and systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61162-400 on 2002-03-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2002-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-03-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A and ZA are normative and annex B is informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61162-400:2001 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61162-1	2000	Maritime navigation and radiocommunication equipment and systems - Digital interfaces Part 1: Single talker and multiple listeners	EN 61162-1	2000
IEC 61162-2	1998	Part 2: Single talker and multiple listeners, high-speed transmission	EN 61162-2	1998
IEC 61162-3	- ¹⁾	Part 3: Multiple talkers and multiple listeners - Serial data instrument network	-	-
IEC 61162-401	- ²⁾	Part 401: Multiple talkers and multiple listeners - Ship systems interconnection - Application profile	EN 61162-401	2002 ³⁾
IEC 61162-410	- ²⁾	Part 410: Multiple talkers and multiple listeners - Ship systems interconnection - Transport profile requirements and basic transport profile	EN 61162-410	2002 ³⁾
IEC 61162-420	- ²⁾	Part 420: Multiple talkers and multiple listeners - Ship systems interconnection - Companion standard requirements and basic companion standards	EN 61162-420	2002 ³⁾
ISO/IEC 7498	Series	Information technology - Open systems interconnection - Basic reference model	-	-
ISO/IEC 8859-1	1998	Information technology - 8-bit single-byte coded graphic character sets Part 1: Latin alphabet No.1	-	-

1) To be published.

2) Undated reference.

3) Valid edition at date of issue.

INTERNATIONAL STANDARD

IEC
61162-400

First edition
2001-11

**Maritime navigation and radiocommunication
equipment and systems –
Digital interfaces –**

**Part 400:
Multiple talkers and multiple listeners –
Ship systems interconnection –
Introduction and general principles**



Reference number
IEC 61162-400:2001(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

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INTERNATIONAL STANDARD

IEC
61162-400

First edition
2001-11

**Maritime navigation and radiocommunication
equipment and systems –
Digital interfaces –**

**Part 400:
Multiple talkers and multiple listeners –
Ship systems interconnection –
Introduction and general principles**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 400: Multiple talkers and multiple listeners – Ship systems interconnection – Introduction and general principles

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61162-400 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

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

FDIS	Report on voting
80/309/FDIS	80/324/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

The special typographical conventions and nomenclature used in this standard are defined in annex A, which forms an integral part of this standard. Annex B is for information only.

The committee has decided that the contents of this publication will remain unchanged until June 2005. At this date, the publication will be

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

INTRODUCTION

International Standard IEC 61162 is a four-part standard which specifies four digital interfaces for applications in marine navigation, radiocommunication and system integration.

The four parts are :

IEC 61162-1 Single talker and multiple listeners

IEC 61162-2 Single talker and multiple listeners, high speed transmission

IEC 61162-3 Multiple talkers and multiple listeners – Serial data instrument network

IEC 61162-4 Multiple talkers and multiple listeners – Ship systems interconnection

Part 4 of the standard is sub-divided into a number of individual standards with part numbers in the 400 series. This part of the standard, 400: Introduction and general principles, is the first part.

Relationship with the other parts of the IEC 61162 series of standards is defined in Annex B of the present standard.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 400: Multiple talkers and multiple listeners – Ship systems interconnection – Introduction and general principles

1 Scope

1.1 General

This standard series, IEC 61162-400 and upwards, specifies a communication protocol for use in interconnected maritime systems. It also specifies an interface description language for use together with the protocol, a set of rules for the use of this language and a set of standard interfaces described in the language. Finally, it also provides a test plan and list of required documents for equipment using this standard.

This part of IEC 61162 gives a general overview of the functionality of the protocol and provides definitions common to the other fragments of the standard.

1.2 Application area

This protocol is intended for use on the system level of an interconnected maritime navigation and radiocommunication system. It is designed to integrate various relatively large functional components, for example RADAR, ECDIS or conning display. As such, it complements other protocols on the instrument level (IEC 61162-1, IEC 61162-2 and IEC 61162-3 as referred to in annex B) and on the administrative level (mainly proprietary or de facto standard protocols).

Although this standard covers navigation and radiocommunication equipment on the system level, it is not limited to that. It could also find application on lower levels (process level) and in other application areas (general automation).

1.3 Safety implications of using this protocol

This standard does not define any safety related attributes that can be applied in the verification of the safety properties of a system using this protocol. The system safety properties will depend on many factors, such as

- a) the protocol specification (this standard);
- b) the T-profile in use (may be specified by this standard);
- c) the protocol implementation (dependent on manufacturer);
- d) how the protocol is used by individual components (dependent on manufacturer);
- e) how the system uses the protocol (dependent on manufacturers and system integrators);
- f) maintenance and supervision of the system.

These items are only examples and do not constitute a complete list. The relevant authorities and the class societies will prescribe more detailed rules for the use of this protocol in integrated control systems.

1.4 Components of this standard

This standard consists of a number of documents (parts). This introduction contains a general description of the functionality of the standard and guidelines for the use of the other documents. The relationship between documents is indicated in the figure below.

Although this set of standard documents is collectively referred to as IEC 61162-4, the actual part numbers are in the 400-series. The part numbers are shown in the figure below.

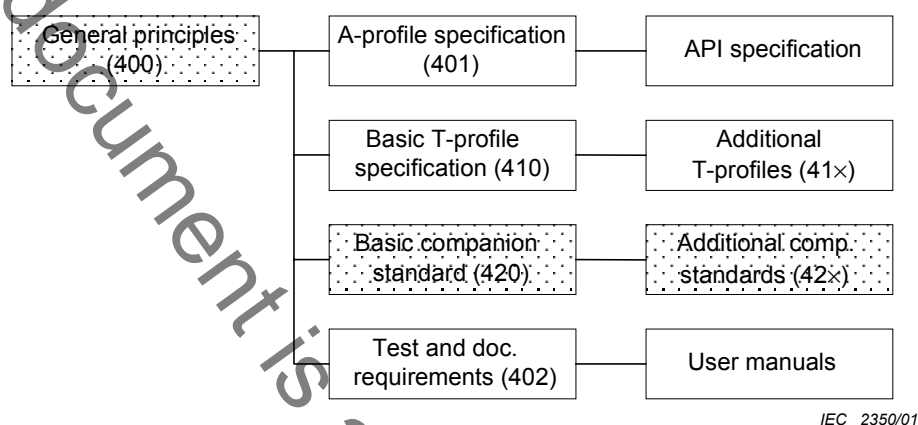


Figure 1 – Relationship between standard documents

The documents marked with a diagonal line pattern are not part of the standard. They are required programmer or operator manuals provided by manufacturers of equipment or components using this standard.

The non-shaded documents give documentation required for designers of communication libraries implementing this standard. They are not required for manufacturers of equipment using existing communication libraries.

The companion standards documents (shaded) are required reading for designers and integrators of equipment using this standard. They are also of interest to those who specify equipment for ships.

The general principles are required reading for all users of the standard. The general principles give a high level of explanations to the various parts as shown in the table below.

Table 1 – Parts of general principles document

Clause	Contents	Required for part
Scope	Purpose and overview	All
Overview and general principles	General description of application area and usage	All
A-profile functionality	General description of functionality of application level protocol	IEC 61162-420 Companion standard general principles IEC 61162-401 A-profile
T-profile functionality	General description of requirements for implementation of this protocol on top of specific transport service	IEC 61162-401 A-profile IEC 61162-410 T-profile
Companion standard functionality	General description of purpose and functionality of companion standards	Companion standards, application descriptions
System configuration services	Requirements for integrating systems using this protocol	IEC 61162-401 A-profile IEC 61162-410 T-profile

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61162. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61162 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 61162-1:2000, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners*

IEC 61162-2:1998, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 2: Single talker and multiple listeners, high speed transmission*

IEC 61162-3, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 3: Multiple talkers and multiple listeners – Serial data instrument network*¹

IEC 61162-401, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 401: Multiple talkers and multiple listeners – Ship systems interconnection – Application profile*

IEC 61162-410, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 410: Multiple talkers and multiple listeners – Ship systems interconnection – Transport profile requirements and basic transport profile*

IEC 61162-420, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 420: Multiple talkers and multiple listeners – Ship systems interconnection – Companion standard requirements and basic companion standards*

ISO/IEC 7498, *Information processing systems – Open Systems interconnection – Basic Reference Model*

ISO/IEC 8859-1:1998, *Information technology – 8-bit single-byte coded graphic character sets – Part 1: Latin alphabet No. 1*

3 Definitions

For the purpose of this part of IEC 61162 the following definitions apply:

3.1

A-profile

communication protocol supplying application services (see OSI 5 to 7)

3.2

ABC – anonymous broadcast (MAU)

a mechanism by which a MAU can send or receive data with no defined peer or group of peers

¹ To be published.