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

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61162-401:2003 sisaldab Euroopa standardi EN 61162-401:2002 ingliskeelset teksti.	This Estonian standard EVS-EN 61162-401:2003 consists of the English text of the European standard EN 61162-401:2002.
Standard on kinnitatud Eesti Standardikeskuse 15.01.2003 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 15.01.2003 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 08.02.2002.	Date of Availability of the European standard text 08.02.2002.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 47.020.70

EUROPEAN STANDARD **EN 61162-401**

NORME EUROPÉENNE

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English version

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

(IEC 61162-401:2001)

Matériels et systèmes de navigation et de radiocommunications maritimes - Interfaces numériques
Partie 401: Emetteurs multiples et récepteurs multiples – Interconnexion des systèmes embarqués – Couche application
(CEI 61162-401:2001)

Navigations- und Funkkommunikationsgeräte und -systeme für die Seeschifffahrt – Digitale Schnittstellen
Teil 401: Mehrere Datensender und mehrere Datenempfänger - Schiffssystemzusammenschaltung - Anwendungsprofil
(IEC 61162-401:2001)

This European Standard was approved by CENELEC on 2002-02-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Ref. No. EN 61162-401:2002 E

Foreword

The text of document 80/310/FDIS, future edition 1 of IEC 61162-401, 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 61162-401 on 2002-02-01.

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) 2002-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-02-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A, B, C, and ZA are normative and annex D is informative.
Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61162-401:2001 was approved by CENELEC as a European Standard without any modification.

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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.

Publication	Year	Title	EN/HD	Year
IEC 61162-400	- [1)]	Maritime navigation and radiocommunication equipment and systems - Digital interfaces Part 400: Multiple talkers and multiple listeners - Ship systems interconnection - Introduction and general principles	EN 61162-400	- [1)]
IEC 61162-410	- [1)]	Part 410: Multiple talkers and multiple listeners - Ship systems interconnection - Transport profile requirements and basic transport profile	EN 61162-410	- [1)]
IEC 61162-420	- [1)]	Part 420: Multiple talkers and multiple listeners - Ship systems interconnection - Companion standard requirements and basic companion standards	EN 61162-420	- [1)]
IEEE 754	- [1)]	IEEE Standard for Binary Floating-Point Arithmetic	-	-
ISO/IEC 8859-1	- [1)]	Information technology - 8-bit single-byte coded graphic character sets Part 1: Latin alphabet No.1	-	-
ISO/IEC 10646-1	- [1)]	Information technology - Universal Multiple-Octet Coded Character set (UCS) - Part 1: Architecture and Basic Multilingual Plane	-	-
RFC 2500	1999	Inernet Official Protocol Standards - Internet Activities Board standard	-	-

[1)] Undated reference.

INTERNATIONAL STANDARD

IEC 61162-401

First edition
2001-11

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

**Part 401:
Multiple talkers and multiple listeners –
Ship systems interconnection –
Application profile**

Reference number
IEC 61162-401:2001(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.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site (www.iec.ch)**

- **Catalogue of IEC publications**

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International Electrotechnical Commission 3, rue de Varembé Geneva, Switzerland
Telefax: +41 22 919 0300 e-mail: inmail@iec.ch IEC web site http://www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 401: Multiple talkers and multiple listeners – Ship systems interconnection – Application profile

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.

2) The formal decisions or agreements of the 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 National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61162-401 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
80/310/FDIS	80/325/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 IEC 61162-400, annex A.

Annexes A, B and C form an integral part of this standard. Annex D 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 IEC 61162-400 series. A full reference to part 4 can be found in IEC 61162-400, clause 4.

This part of the standard, IEC 61162-401: A-profile specification, defines the application functionality and its implementation in an application layer protocol.

Relationship with the other parts of the IEC 61162 series of standards is defined in annex B to IEC 61162-400.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 401: Multiple talkers and multiple listeners – Ship systems interconnection – Application profile

1 Scope

1.1 General

IEC 61162-4 series specifies a communication system for use in integrated ship control systems.

IEC 61162-400 defines the overall functional scope for the communication system.

1.2 Application profile

This part of IEC 61162 describes the application profile (A-profile – corresponding to ISO-OSI layers 5 to 7 [ISO 7498]) of the communication protocol which is the basis for the communication system. It relies on the realization of layers 1 to 4 (the T-profile) as described in part 410.

The description of the A-profile is in terms of services offered to the application using the protocol and of message contents and sequences used to realize these services.

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 61162-400, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 400: Multiple talkers and multiple listeners – Ship systems interconnection – Introduction and general principles*

IEC 61162-410, *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*

IEEE 754: *IEEE Standard for Binary Floating-Point Arithmetic*

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

ISO/IEC 10646-1, *Information Technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and Basic Multilingual Plane*

RFC 2500:1999, *Internet Official Protocol Standards – Internet Activities Board standard*

NOTE RFC (request for comments) is a document issued by the Internet engineering task force (IETF), the International standardization body for the Internet, that describes a part of the Internet protocol. Some RFCs are accepted as official Internet standards and listed in the "Internet Official Protocol Standards" itself an RFC.

3 Definitions

This clause is divided into definition of terms (terms), definition of abbreviations (abbreviations), definitions of nomenclature (conventions), definition of data types (data types) and definition of literal formats. Other definitions valid for this part of IEC 61162 are contained in part 400 of this standard.

3.1 Terms

For the purpose of this part of IEC 61162, the following terms apply:

3.1.1
anonymous broadcast (ABC)
a broadcast service where the sender does not know to which MAU it is sending data. Similarly the listener may not know which sender it should listen for

3.1.2
array
a linear indexed sequence of identical data types. The index runs from zero and upwards. Arrays can have variable lengths (with a fixed upper limit) or fixed lengths. The difference between these two types is normally only visible during transmission between modules where the real length of a variable length array is transmitted as an attribute

3.1.3
bit order
this standard numbers bits in an octet from zero to seven. Bit seven is the most significant bit; bit zero the least significant

3.1.4
character
this standard provides two mechanisms for the transmission of characters:

a) an 8-bit character based on ISO/IEC 8859-1 (also called ISO Latin-1). This set covers most national alphabets based on the Latin letters;

b) a 16-bit character based on ISO/IEC 10646-1. This standard specifies the use of the 16-bit form Universal Character Set 2 (UCS-2) which covers most of the commonly used character sets in the world

NOTE 1 Later revisions of the standard may also support 32-bit characters.

NOTE 2 Any reference to *character* in this standard implies the 8-bit character if not otherwise stated.

3.1.5
companion standard
these are the mechanisms to define and describe how the A-profile services are used to implement some application functions and interfaces (see IEC 61162-420)

3.1.6
connection
an association between two interfaces or two MCPs, one each on a server and a client MAU. A connection must be established before transactions can be activated