

INTERNATIONAL STANDARD

IEC 61162-1

Second edition
2000-07

Maritime navigation and radiocommunication equipment and systems – Digital interfaces –

Part 1: Single talker and multiple listeners

*Matériels et systèmes de navigation et
de radiocommunication maritimes –
Interfaces numériques –*

*Partie 1:
Émetteur unique et récepteurs multiples*

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International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE **XC**

For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 1: Single talker and multiple listeners

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 61162-1 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

This second edition cancels and replaces the first edition published in 1995, and constitutes a technical revision. This part of IEC 61162 is closely aligned with NMEA 0183 version 2.30.

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

FDIS	Report on voting
80/240/FDIS	80/264/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.

Annex C forms an integral part of this standard.

Annexes A and B are for information only.

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

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- withdrawn;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

Withdrawn

INTRODUCTION

IEC TC 80 interface standards are developed with input from manufacturers, private and government organisations and equipment operators. The information contained in this standard is intended to meet the needs of users at the time of publication, but users must recognise that as applications and technology change, interface standards must change as well. Users of this document are advised to immediately inform the IEC of any perceived inadequacies in this standard.

The following notes provide the background to changes introduced to the first edition of this standard.

NOTE 1 The sentences in IEC 61162-1:1995-11 which were indicated as “(to be further developed)” have now been developed. The sentences involved are:

DSC – Digital selective calling (DSC) (see also DSE, DSI and DSR)

DTM – Datum reference

ASD – Autopilot system data has been deleted and renamed in line with IMO definitions – see HTC and HTD below.

NOTE 2 New sentences have been added:

ACK	Acknowledge alarm
ALR	Set alarm state
DSE	Expanded digital selective calling
DSI	DSC transponder initiate
DSR	DSC transponder response
GNS	GNSS fix data
HMS	Heading monitor set
HMR	Heading monitor receive
HTC	Heading/track control command
HTD	Heading/track control data
MLA	GLONASS almanac data
MWD	Wind direction and speed
TLB	Target label
TXT	Text transmission

NOTE 3 The following sentences have been deleted, as the systems referred to are no longer in operation:

GXA – TRANSIT position, OLN – OMEGA lane numbers, TRF – TRANSIT fix data.

NOTE 4 Detailed modifications have been made to the following sentences:

FSI, GBS, GGA, GRS, MSK, MSS, OSD, RMA, RMB, RMC, SFI, TLL, TTM, VBW, XDR and ZDA.

Details of the changes are given in the relevant pages.

NOTE 5 A mode indicator character field “a” has been added as a new last data field to specific sentences, namely APB, BWC, BWP, GLL, RMA, RMB, RMC, VTG, WCV and XTE.

The mode indicator character “a” has been defined to include the following when used in the designated sentences:

A	= Autonomous mode
D	= Differential mode
E	= Estimated (dead reckoning) mode
M	= Manual input mode
S	= Simulator mode
N	= Data not valid

NOTE 6 A note has been added to sentences APB, GLL, RMA, RMB, RMC and XTE (which contain a status field “A”) as follows:

“Note: the mode indicator field supplements the status field (field n), the status field shall be set to V = Invalid for all values of mode indicator except for A = Autonomous and D = Differential.”

NOTE 7 A note has been added to all appropriate sentences to state that “the quality indicator, mode indicator, operating mode and status fields shall not be null fields.”

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS – DIGITAL INTERFACES –

Part 1: Single talker and multiple listeners

1 General

1.1 Scope

This part of IEC 61162 contains the requirements for data communication between maritime electronic instruments, navigation and radiocommunication equipment when interconnected via an appropriate system.

This standard is intended to support one-way serial data transmission from a single talker to one or more listeners. This data is in printable ASCII form and may include information such as position, speed, depth, frequency allocation, etc. Typical messages may be from about 20 to a maximum of 79 characters in length and generally require transmission no more rapidly than one message per second.

The electrical definitions in this standard are not intended to accommodate high-bandwidth applications such as radar or video imagery, or intensive database or file transfer applications. Since there is no provision for guaranteed delivery of messages and only limited error checking capability, this standard should be used with caution in all safety applications.

For applications where a faster transmission rate is necessary, reference should be made to IEC 61162-2.

Annex A contains a list of relevant International Maritime Organization (IMO) resolutions and International Telecommunication Union (ITU) recommendations to which this standard applies.

1.2 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 61162-2:1998, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 2: Single talker and multiple listeners, high-speed transmission*

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

ITU-R M.493-9:1997, *Digital selective-calling system for use in the maritime mobile service*

ITU-R M.821-1:1997, *Optional expansion of the digital selective-calling system for use in the maritime mobile service*

ITU-R M.825-3:1998, *Characteristics of a transponder system using digital selective calling techniques for use with vessel traffic services and ship-to-ship identification*

ITU-T X.27/V.11:1996, *Electrical characteristics for balanced double-current interchange circuits operating at data signalling rates up to 10 Mbit/s*

NMEA 0183:1998, *National Marine Electronics Association (USA) – Standard for interfacing marine electronic devices, version 2.30*

RTCM:1998, *RTCM (Radio Technical Commission for Maritime Services) SC-104 Recommended standards for differential GNSS (Global Navigation Satellite Systems) service, version 2.2*

IHO:1994, *Special publication No. 60, User's handbook on datum transformations involving WGS 84*

GLONASS:1995, *Interface control document*

Rockwell International Corporation ICD-GPS-200:1987, *Interface control document, Navstar GPS space segment/navigation user interface*

Withdrawn