SLOVENSKI STANDARD
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Industrijska komunikacijska omrežja - Specifikacije za procesna vodila - 4-11. del: Specifikacija protokola na ravni podatkovnih povezav - Elementi tipa 11 (IEC 61158 -4-11:2014)

Industrial communication networks - Fieldbus specifications - Part 4-11: Data-link layer protocol specification - Type 11 elements (IEC 61158-4-11:2014)

Industrielle Kommunikationsnetze - Feldbusse - Teil 4-11: Protokollspezifikation des Data Link Layer (Sicherungsschicht) - Typ 11- Elemente (IEC 61158-4-11:2014)

Réseaux de communication industriels - Spécifications des bus de terrain - Partie 4-11: Spécification du protocole de la couche liaison de données - Eléments de type 11 (CEI 61158-4-11:2014)

Ta slovenski standard je istoveten z: **EN 61158-4-11:2014**

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35.100.20	Podatkovni povezovalni sloj	Data link layer
35.110	Omreževanje	Networking

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Industrielle Kommunikationsnetze - Feldbusse - Teil 4-11: Protokollspezifikation des Data Link Layer (Sicherungsschicht) - Typ 11- Elemente (IEC 61158-4-11:2014)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 65C/762/FDIS, future edition 3 of IEC 61158-4-11, prepared by SC 65C “Industrial networks” of IEC/TC 65 “Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61158-4-11:2014.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-06-19
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-09-19

This document supersedes EN 61158-4-11:2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC 61158-4-11:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61784-1	NOTE	Harmonised as EN 61784-1
IEC 61784-2	NOTE	Harmonised as EN 61784-2

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 61158-3-11	2007	Industrial communication networks - Fieldbus specifications Part 3-11: Data-link layer service definition - Type 11 elements	EN 61158-3-11	2008
IEC 61158-5-11	2007	Industrial communication networks - Fieldbus specifications Part 5-11: Application layer service definition - Type 11 elements	EN 61158-5-11	2008
ISO/IEC 7498-1	-	Information technology - Open Systems Interconnection - Basic reference model: The basic model	-	-
ISO/IEC 7498-3	-	Information technology - Open Systems Interconnection - Basic reference model: Naming and addressing	-	-
ISO/IEC 8802-3	2000	Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications	-	-
ISO/IEC 10731	-	Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services	-	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Industrial communication networks – Fieldbus specifications – Part 4-11: Data-link layer protocol specification – Type 11 elements

Réseaux de communication industriels – Spécifications des bus de terrain – Partie 4-11: Spécification du protocole de la couche liaison de données – Eléments de type 11

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 4-11: Data-link layer protocol specification – Type 11 elements

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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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NOTE Combinations of protocol types are specified in IEC 61784-1 and IEC 61784-2.

International Standard IEC 61158-4-11 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

This third edition cancels and replaces the second edition published in 2010. This edition constitutes a technical revision.

The main changes with respect to the previous edition are addition in the loop (ring)-architecture. More details:

– Subclauses 4.6.1, 4.6.4 and 5.4.6, Clause 6 and 7.2 for the loop-architecture are modified to cover the additional specifications for the higher data rate in the loop-architecture;

– specifications for existing star-architecture are maintained as they are.

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

FDIS	Report on voting
65C/762/FDIS	65C/772/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 ISO/IEC Directives, Part 2.

A list of all the parts of the IEC 61158 series, published under the general title *Industrial communication networks – Fieldbus specifications*, can be found on the IEC web site.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

INTRODUCTION

This part of IEC 61158 is one of a series produced to facilitate the interconnection of automation system components. It is related to other standards in the set as defined by the "three-layer" fieldbus reference model described in IEC 61158-1.

The data-link protocol provides the data-link service by making use of the services available from the physical layer. The primary aim of this standard is to provide a set of rules for communication expressed in terms of the procedures to be carried out by peer data-link entities (DLEs) at the time of communication. These rules for communication are intended to provide a sound basis for development in order to serve a variety of purposes:

a) as a guide for implementors and designers;

b) for use in the testing and procurement of equipment;

c) as part of an agreement for the admittance of systems into the open systems environment;

d) as a refinement to the understanding of time-critical communications within OSI.

This standard is concerned, in particular, with the communication and interworking of sensors, effectors and other automation devices. By using this standard together with other standards positioned within the OSI or fieldbus reference models, otherwise incompatible systems may work together in any combination.

Attention is drawn to the fact that use of some of the associated protocol types is restricted by their intellectual-property-right holders. In all cases, the commitment to limited release of intellectual-property-rights made by the holders of those rights permits a particular data-link layer protocol type to be used with physical layer and application layer protocols in Type combinations as specified explicitly in the profile parts. Use of the various protocol types in other combinations may require permission from their respective intellectual-property-right holders.

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents concerning Type 11 elements and possibly other types given in 4.2, 4.4, 4.5, 5.4, 6.2 to 6.10, 7.1 and 7.2 as follows:

AU 2007320662(B2) [TO] Double ring network system, communication control method thereof, transmission station, and communication control program of double ring network system

ZL 200780042584.7 [TO] Double ring network system, communication control method thereof, transmission station, and communication control program of double ring network system

JP 4991254(B2) [TO] Control method for double-ring network, initializing method for double-ring network, transmission station of double-ring network, restructuring method for abnormality occurrence of double-ring network, network system, control method for network system, transmission station, and program of transmission station

KR 101149837(B1) [TO] Double ring network system, communication control method thereof, transmission station, and communication control program of double ring network system

RU 2420899(C2) [TO] Double-ring network system and method of controlling communication in said network, transmission station and programme for transmission stations

US 8411559(B2 [TO] Double ring network system and communication control method thereof, and transmission station, and program for transmission stations