



SLOVENSKI STANDARD

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**Industrijska komunikacijska omrežja - Specifikacije za procesna vodila - 4-19. del:
Specifikacija protokola na nivoju podatkovnih povezav - Elementi tipa 19 (IEC
61158-4-19:2010)**

Industrial communication networks - Fieldbus specifications - Part 4-19: Data-link layer
protocol specification - Type 19 elements (IEC 61158-4-19:2010)

iTeh STANDARD PREVIEW

Industrielle Kommunikationsnetze - Feldbusse - Teil 4-19: Protokollspezifikation des
Data Link Layer (Sicherungsschicht) - Typ 19-Elemente (IEC 61158-4-19:2010)

[SIST EN 61158-4-19:2012](#)

Réseaux de communication industriels - Spécifications de bus de terrain - Partie 4-19:
Spécification du protocole de couche de liaison de données - Eléments de Type 19 (CEI
61158-4-19:2010)

Ta slovenski standard je istoveten z: **EN 61158-4-19:2012**

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| 35.100.20 | Podatkovni povezovalni sloj | Data link layer |
| 35.110 | Omreževanje | Networking |

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**EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM**

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May 2012

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Supersedes EN 61158-4-19:2008

English version

**Industrial communication networks -
Fieldbus specifications -
Part 4-19: Data-link layer protocol specification -
Type 19 elements
(IEC 61158-4-19:2010)**

Réseaux de communication industriels -
Spécifications de bus de terrain -
Partie 4-19: Spécification du protocole de
couche de liaison de données -
Eléments de Type 19
(CEI 61158-4-19:2010)

Industrielle Kommunikationsnetze -
Feldbusse -
Teil 4-19: Protokollspezifikation des Data
Link Layer (Sicherungsschicht) -
Typ 19-Elemente
(IEC 61158-4-19:2010)

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 65C/605/FDIS, future edition 2 of IEC 61158-4-19, 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 61158-4-19:2012.

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) 2012-12-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-03-28

This document supersedes EN 61158-4-19:2008.

EN 61158-4-19:2012 includes the following significant technical changes with respect to EN 61158-4-19:2008:

- increasing the number of supported devices (511 instead of 254);
- introducing a communication version identification;
- adding a mechanism for remote address allocation;
- introducing enhanced parameter addressing (32 bit instead of 16 bit);
- restructuring control and status word;
- improving the redundancy and hotplug features; [SIST EN 61158-4-19:2012](#)
~~http://www.iec.ch/standards/sist/000e961a-0210-483f-9f3f-e55b5111c5e2/sist-en-61158-4-19-2012~~
- improving the error handling;
- adding a multiplexing protocol (SMP: Type 19 Messaging Protocol).

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.

Endorsement notice

The text of the International Standard IEC 61158-4-19:2010 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 61131 series | NOTE Harmonized in EN 61131 series. |
| IEC/TR 61158-1:2010 | NOTE Harmonized as CLC/TR 61158-1:2010 (not modified). |
| IEC 61158-3-19:2010 | NOTE Harmonized as EN 61158-3-19:2012 (not modified). |
| IEC 61158-5-16:2007 | NOTE Harmonized as EN 61158-5-16:2008 (not modified). |
| IEC 61158-5-19:2010 | NOTE Harmonized as EN 61158-5-19:2012 (not modified). |
| IEC 61158-6-16:2007 | NOTE Harmonized as EN 61158-6-16:2008 (not modified). |
| IEC 61158-6-19:2010 | NOTE Harmonized as EN 61158-6-19:2012 (not modified). |
| IEC 61800-7-20x series | NOTE Harmonized in EN 61800-7-20x series. |

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 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 61158-4-16 | 2007 | Industrial communication networks - Fieldbus specifications - Part 4-16: Data-link layer protocol specification - Type 16 elements | EN 61158-4-16 | 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 | - | 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 8601 | 2004 | Data elements and interchange formats - Information interchange - Representation of dates and times | - | - |

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Part 4-19: Data-link layer protocol specification – Type 19 elements
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS –
FIELDBUS SPECIFICATIONS –****Part 4-19: Data-link layer protocol specification –
Type 19 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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- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

International Standard IEC 61158-4-19 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- increasing the number of supported devices (511 instead of 254);
- introducing a communication version identification;
- adding a mechanism for remote address allocation;
- introducing enhanced parameter addressing (32 bit instead of 16 bit);
- restructuring control and status word;
- improving the redundancy and hotplug features;

- improving the error handling;
- adding a multiplexing protocol (SMP: Type 19 Messaging Protocol).

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

| FDIS | Report on voting |
|--------------|------------------|
| 65C/605/FDIS | 65C/619/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.

iTeh STANDARD PREVIEW
NOTE The revision of this standard will be synchronized with the other parts of the IEC 61158 series.
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IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it
contains colours which are considered to be useful for the correct understanding of its
contents. Users should therefore print this document using a colour printer.

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/TR 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.

NOTE 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 19 elements and possibly other types given in this document as follows:

| | | |
|-------------------------|------|---|
| DE 102 37 097 | [RI] | Korrektur von Signallaufzeiten in verteilten Kommunikationssystemen |
| DE 102 00 405 0416.4-42 | [RI] | Verfahren zur Synchronisation in einem redundanten Kommunikationssystem |
| DE 102 00 502 4759.8-32 | [RI] | Verfahren zur Laufzeitkorrektur in einer Kommunikationsstruktur |
| DE 102 00 4056364.0-31 | [RI] | Verfahren zum Betreiben eines Netzwerks mit Ringtopologie |
| DE 103 12 907.3-31 | [RI] | Kommunikationssystem mit redundanter Kommunikation |

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