SLOVENSKI STANDARD
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SIST EN 61158-3-19:2008

Industrijska komunikacijska omrežja - Specifikacije za procesna vodila - 3-19. del: Definicija opravil na nivoju podatkovnih povezav - Elementi tipa 19 (IEC 61158-3-19:2010)

Industrial communication networks - Fieldbus specifications - Part 3-19: Data-link layer service definition - Type 19 elements (IEC 61158-3-19:2010)

Industrielle Kommunikationsnetze - Feldbusse - Teil 3-19: Dienstfestlegungen des Data Link Layer (Sicherungsschicht) - Typ 19-Elemente (IEC 61158-3-19:2010)

Réseaux de communication industriels - Spécifications des bus de terrain - Partie 3-19: Définition des services de couche liaison de données - Éléments de type 19 (CEI 61158-3-19:2010)

Ta slovenski standard je istoveten z: EN 61158-3-19:2012

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35.100.20	Podatkovni povezovalni sloj	Data link layer
35.110	Omreževanje	Networking

SIST EN 61158-3-19:2012   **en**

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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 61158-3-19

May 2012

ICS 25.040.40; 35.100.20; 35.110

Supersedes EN 61158-3-19:2008

English version

Industrial communication networks -
Fieldbus specifications -
Part 3-19: Data-link layer service definition -
Type 19 elements
(IEC 61158-3-19:2010)

Réseaux de communication industriels -
Spécifications des bus de terrain -
Partie 3-19: Définition des services de
couche liaison de données -
Eléments de type 19
(CEI 61158-3-19:2010)

Industrielle Kommunikationsnetze -
Feldbusse -
Teil 3-19: Dienstfestlegungen des Data
Link Layer (Sicherungsschicht) -
Typ 19-Elemente
(IEC 61158-3-19:2010)

This European Standard was approved by CENELEC on 2012-03-28. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61158-3-19:2012 E

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Foreword

The text of document 65C/604/FDIS, future edition 2 of IEC 61158-3-19, 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 61158-3-19:2012.

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 61158-3-19:2008.

EN 61158-3-19:2012 includes the following significant technical changes with respect to EN 61158-3-19:2008:

• 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;

• 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.

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The text of the International Standard IEC 61158-3-19:2010 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/TR 61158-1:2010	NOTE	Harmonized as CLC/TR 61158-1:2010 (not modified).
IEC 61158-4-19:2010	NOTE	Harmonized as EN 61158-4-19:2012 (not modified).
IEC 61158-5-19:2010	NOTE	Harmonized as EN 61158-5-19:2012 (not modified).
IEC 61158-6-19:2010	NOTE	Harmonized as EN 61158-6-19:2012 (not modified).
IEC 61784-1:2010	NOTE	Harmonized as EN 61784-1:2010 (not modified).
IEC 61784-2:2010	NOTE	Harmonized as EN 61784-2:2010 (not modified).

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.

Publication	Year	Title	EN/HD	Year
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 10731	-	Information technology - Open Systems Interconnection - Basic reference model - Conventions for the definition of OSI services	-	-

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IEC 61158-3-19

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INTERNATIONAL
STANDARD

Industrial communication networks – Fieldbus specifications –
Part 3-19: Data-link layer service definition – Type 19 elements

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ICS 25.04.40; 35.100.20; 35.110

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INTERNATIONAL ELECTROTECHNICAL COMMISSION
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INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 3-19: Data-link layer service definition – Type 19 elements

FOREWORD

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NOTE 1   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 of their respective intellectual-property-right holders.

International Standard IEC 61158-3-19 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/604/FDIS	65C/618/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 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.

NOTE 2   The revision of this standard will be synchronized with the other parts of the IEC 61158 series.

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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.

Throughout the set of fieldbus standards, the term "service" refers to the abstract capability provided by one layer of the OSI Basic Reference Model to the layer immediately above. Thus, the data-link layer service defined in this standard is a conceptual architectural service, independent of administrative and implementation divisions.

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INDUSTRIAL COMMUNICATION NETWORKS –
FIELDBUS SPECIFICATIONS –

Part 3-19: Data-link layer service definition –
Type 19 elements

1 Scope

1.1 Overview

This standard provides common elements for basic time-critical messaging communications between devices in an automation environment. The term "time-critical" is used to represent the presence of a time-window, within which one or more specified actions are required to be completed with some defined level of certainty. Failure to complete specified actions within the time window risks failure of the applications requesting the actions, with attendant risk to equipment, plant and possibly human life.

This standard defines in an abstract way the externally visible service provided by the Type 19 fieldbus data-link layer in terms of

a) the primitive actions and events of the service;

b) the parameters associated with each primitive action and event, and the form which they take; and

c) the interrelationship between these actions and events, and their valid sequences.

The purpose of this standard is to define the services provided to

• the Type 19 fieldbus application layer at the boundary between the application and data-link layers of the fieldbus reference model, and

• systems management at the boundary between the data-link layer and systems management of the fieldbus reference model.

1.2 Specifications

The principal objective of this standard is to specify the characteristics of conceptual data-link layer services suitable for time-critical communications, and thus supplement the OSI Basic Reference Model in guiding the development of data-link protocols for time-critical communications. A secondary objective is to provide migration paths from previously-existing industrial communications protocols.

This standard may be used as the basis for formal DL-Programming-Interfaces. Nevertheless, it is not a formal programming interface, and any such interface will need to address implementation issues not covered by this specification, including:

a) the sizes and octet ordering of various multi-octet service parameters, and

b) the correlation of paired request and confirm, or indication and response, primitives.

1.3 Conformance

This standard does not specify individual implementations or products, nor do they constrain the implementations of data-link entities within industrial automation systems.

There is no conformance of equipment to this data-link layer service definition standard. Instead, conformance is achieved through implementation of the corresponding data-link protocol that fulfills the Type 19 data-link layer services defined in this standard.