

SLOVENSKI STANDARD SIST EN IEC 61158-3-4:2019

01-november-2019

Nadomešča:

SIST EN 61158-3-4:2015

Industrijska komunikacijska omrežja - Specifikacije za procesna vodila - 3-4. del: Definicija opravil na ravni podatkovnih povezav - Elementi tipa 4 (IEC 61158-3-4:2019)

Industrial communication networks - Fieldbus specifications - Part 3-4: Data-link layer service definition - Type 4 elements (IEC 61158-3-4:2019)

iTeh STANDARD PREVIEW
Industrielle Kommunikationsnetze - Feldbusse - Teil 3-4: Dienstfestlegungen des Data Link Layer (Sicherungsschicht) - Typ 4-Elemente (IEO 61158-3-4:2019)

Réseaux de communication industriels - Spécifications des bus de terrain - Partie 3-4: Définition des services de la couche liaison de données - Eléments de type 4 (IEC 61158 -3-4:2019)

Ta slovenski standard je istoveten z: EN IEC 61158-3-4:2019

ICS:

25.040.40 Merjenje in krmiljenje Industrial process

> industrijskih postopkov measurement and control

Podatkovni povezovalni sloj 35.100.20 Data link layer 35.110 Omreževanje Networking

SIST EN IEC 61158-3-4:2019 en,fr,de SIST EN IEC 61158-3-4:2019

iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN IEC 61158-3-4;2019</u> https://standards.iteh.ai/catalog/standards/sist/15e809ed-fdcd-4308-aa8f-3cf167d226a9/sist-en-iec-61158-3-4-2019

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN IEC 61158-3-4

June 2019

ICS 25.040.40; 35.100.20; 35.110

Supersedes EN 61158-3-4:2014

English Version

Industrial communication networks - Fieldbus specifications - Part 3-4: Data-link layer service definition - Type 4 elements (IEC 61158-3-4:2019)

Réseaux de communication industriels - Spécifications des bus de terrain - Partie 3-4: Définition des services de la couche liaison de données - Eléments de type 4 (IEC 61158-3-4:2019) Industrielle Kommunikationsnetze - Feldbusse - Teil 3-4: Dienstfestlegungen des Data Link Layer (Sicherungsschicht) - Typ 4-Elemente (IEC 61158-3-4:2019)

This European Standard was approved by CENELEC on 2019-05-29. 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.

SIST EN IEC 61158-3-4:2019

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



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61158-3-4:2019 (E)

European foreword

The text of document 65C/945/FDIS, future edition 3 of IEC 61158-3-4, 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 IEC 61158-3-4:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2020-02-29 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the document have to be withdrawn

This document supersedes EN 61158-3-4:2014.

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

iTeh STEndorsement notice EVIEW (standards.iteh.ai)

The text of the International Standard IEC 61158-3-4:2019 was approved by CENELEC as a European Standard without any modification.

https://standards.iteh.avcatalog/standards/sist/15e809ed-fdcd-4308-aa8f-

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

IEC 61158-1:2019 NOTE Harmonized as EN IEC 61158-1:2019 (not modified)
IEC 61158-2 NOTE Harmonized as EN 61158-2

IEC 61158-4-4:2019 NOTE Harmonized as EN IEC 61158-4-4:2019 (not modified) IEC 61158-5-4:2019 NOTE Harmonized as EN IEC 61158-5-4:2019 (not modified)

IEC 61784-1:2019 NOTE Harmonized as EN IEC 61784-1:2019 (not modified)

IEC 61784-2:2019 NOTE Harmonized as EN IEC 61784-2:2019 (not modified)

EN IEC 61158-3-4:2019 (E)

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where 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	<u>Title</u>	EN/HD	Year
ISO/IEC 7498-1	-	Information technology - Open	Systems-	-
		Interconnection - Basic Reference	e Model:	
		The Basic Model		
ISO/IEC 7498-3	-	Information technology - Open	Systems-	-
	iT	Interconnection - Basic Reference	e⊣Model;	
		Naming and addressing		
ISO/IEC 10731	1994	Information technology - Open		-
		Interconnection - Basic Reference	Model -	
		Conventions for the definition	of OSI	
	1 // .	services SIST EN IEC 61158-3-42019		
	https://sta	andards.iteh.ai/catalog/standards/sist/15e809	ed-fdcd-4308-aa8f-	
		3cf167d226a9/sist-en-iec-61158-3-4	-2019	

SIST EN IEC 61158-3-4:2019

iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN IEC 61158-3-4;2019</u> https://standards.iteh.ai/catalog/standards/sist/15e809ed-fdcd-4308-aa8f-3cf167d226a9/sist-en-iec-61158-3-4-2019



IEC 61158-3-4

Edition 3.0 2019-04

INTERNATIONAL STANDARD

Industrial communication networks 4 Fieldbus specifications – Part 3-4: Data-link layer service definition – Type 4 elements

<u>SIST EN IEC 61158-3-4:2019</u> https://standards.iteh.ai/catalog/standards/sist/15e809ed-fdcd-4308-aa8f-3cf167d226a9/sist-en-iec-61158-3-4-2019

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 25.040.40; 35.100.20; 35.110

ISBN 978-2-8322-6786-8

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

F(DREWC)RD	4		
IN	TRODU	JCTION	6		
1	Scop	pe	7		
	1.1	General	7		
	1.2	Specifications			
	1.3	Conformance	7		
2	Norn	native references	8		
3	Terms, definitions, symbols, abbreviations and conventions				
	3.1	Reference model terms and definitions	8		
	3.2	Service convention terms and definitions	9		
	3.3	Data-link service terms and definitions	10		
	3.4	S.4 Symbols and abbreviations			
	3.5	Conventions	13		
4	Data	-link service and concepts	14		
	4.1	Overview	14		
	4.1.1	General	14		
	4.1.2	Overview of DL-naming (addressing)	14		
	4.2	Types and classes of data-link service	15		
	4.3	Types and classes of data-link servicePREVIEW	15		
	4.4	Facilities of the connectionless-mode data-link service	15		
	4.5	Model of the connectionless-mode data-link service	15		
	4.5.1	DIDI DI (IDO OTTO O IDO)			
	4.5.2	Unconfirmed requesti/catalog/standards/sist/15e809ed-fdcd-4308-aa8f-	15		
	4.5.3	•			
	4.6	Sequence of primitives			
	4.6.1	- '			
	4.6.2	! !			
	4.6.3	•			
	4.7	Connectionless-mode data transfer functions			
	4.7.1				
	4.7.2	71 1			
5	DL-n	nanagement service			
	5.1	Scope and inheritance			
	5.2	Facilities of the DL-management service			
	5.3	Model of the DL-management service			
	5.4 Constraints on sequence of primitives				
	5.5	Set			
	5.5.1				
	5.5.2	71			
	5.6	Get			
	5.6.1				
	5.6.2	21			
	5.7 5.7.1	Action Function			
	5.7.1				
	5.7.2	21			
	5.7.3	, coquence of primitives	4		

5.8	Event	24
5.8.1	Function	24
5.8.2	Types of parameters	24
Bibliograp	hy	25
Figure 1 –	Relationship of PhE, DLE and DLS-users	14
Figure 2 -	Confirmed and unconfirmed UNITDATA request time-sequence diagram	17
Figure 3 -	Repeated confirmed request time-sequence diagram	17
Figure 4 -	State transition diagram for sequences of primitives at one DLSAP	18
Figure 5 -	- Sequence of primitives for the DLM action service	21
Table 1 –	Summary of DL-connectionless-mode primitives and parameters	17
Table 2 –	Unitdata transfer primitives and parameters	18
Table 3 –	Control-status error codes	20
Table 4 –	Summary of DL-management primitives and parameters	21
Table 5 –	DLM-Set primitive and parameters	22
Table 6 – DLM-Get primitive and parameters		
Table 7 – DLM-Action primitive and parameters		
	DLM-Event primitive and parameters R.D. P.R.E.V.IE.W.	
	(standards.iteh.ai)	

<u>SIST EN IEC 61158-3-4:2019</u> https://standards.iteh.ai/catalog/standards/sist/15e809ed-fdcd-4308-aa8f-3cf167d226a9/sist-en-iec-61158-3-4-2019

IEC 61158-3-4:2019 © IEC 2019

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 3-4: Data-link layer service definition – Type 4 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.
- 2) The formal decisions or agreements of 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 IEC National Committees. A NID A DID INTEREST.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity. IEC (National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 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.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

Attention is drawn to the fact that the use of the associated protocol type is restricted by its 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 layer protocol type to be used with other layer protocols of the same type, or in other type combinations explicitly authorized by its intellectual-property-right holders.

NOTE Combinations of protocol Types are specified in IEC 61784-1 and IEC 61784-2.

International Standard IEC 61158-3-4 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 2014. This edition constitutes a technical revision.

_ 1 _

IEC 61158-3-4:2019 © IEC 2019

- 5 -

This edition includes the following significant technical changes with respect to the previous edition:

- a) additional user parameters to services;
- b) additional services to support distributed objects;
- c) additional secure services;

The text of this International Standard is based on the following documents:

FDIS	Report on voting
65C/945/FDIS	65C/954/RVD

Full information on the voting for the approval of this International 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 website.

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,

(standards.iteh.ai)

- · withdrawn.
- replaced by a revised edition, o<u>SIST EN IEC 61158-3-4:2019</u>
- amended. https://standards.iteh.ai/catalog/standards/sist/15e809ed-fdcd-4308-aa8f-3cf167d226a9/sist-en-iec-61158-3-4-2019

A bilingual version of this publication may be issued at a later date.

IEC 61158-3-4:2019 © IEC 2019

INTRODUCTION

This document 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.

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 document is a conceptual architectural service, independent of administrative and implementation divisions.

iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN IEC 61158-3-4:2019</u> https://standards.iteh.ai/catalog/standards/sist/15e809ed-fdcd-4308-aa8f-3cf167d226a9/sist-en-iec-61158-3-4-2019

-6-