

SLOVENSKI STANDARD SIST EN 61158-3-2:2015

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Nadomešča:

SIST EN 61158-3-2:2008

Industrijska komunikacijska omrežja - Specifikacije za procesna vodila - 3-2. del: Specifikacija protokola na ravni podatkovnih povezav - Elementi tipa 2 (IEC 61158-3-2:2014)

Industrial communication networks - Fieldbus specifications - Part 3-2: Data-link layer service definition - Type 2 elements (IEC 61158-3-2:2014)

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Industrielle Kommunikationsnetze - Feldbusse - Teil 3-2: Dienstfestlegungen des Data Link Layer (Sicherungsschicht) Typ 2-Elemente (IEC 61158-3-2:2014)

SIST EN 61158-3-2:2015

Réseaux de communication industriels Spécifications des bus de terrain - Partie 3-2: Définition des services de la couche liaison de données Eléments de type 2 (CEI 61158 -3-2:2014)

Ta slovenski standard je istoveten z: EN 61158-3-2:2014

ICS:

25.040.40 Merjenje in krmiljenje Industrial process

industrijskih postopkov measurement and control

35.100.20 Podatkovni povezovalni sloj Data link layer 35.110 Omreževanje Networking

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EUROPEAN STANDARD

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Industrial communication networks - Fieldbus specifications - Part 3-2: Data-link layer service definition - Type 2 elements (IEC 61158-3-2:2014)

Réseaux de communication industriels - Spécifications des bus de terrain - Partie 3-2: Définition des services de la couche liaison de données - Eléments de type 2 (CEI 61158-3-2:2014) Industrielle Kommunikationsnetze - Feldbusse - Teil 3-2: Dienstfestlegungen des Data Link Layer (Sicherungsschicht) - Typ 2-Elemente (IEC 61158-3-2:2014)

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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. N D A R D P R F V IF W

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.

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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/759/FDIS, future edition 2 of IEC 61158-3-2, 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 61158-3-2:2014.

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
- latest date by which the national standards conflicting with (dow) 2017-09-17 the document have to be withdrawn

This document supersedes EN 61158-3-2:2008.

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7b0 Endorsement notice 015

The text of the International Standard IEC 61158-3-2:2014 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 61158-1:2014	NOTE	Harmonized as EN 61158-1:2014 (not modified).
IEC 61158-2:2014	NOTE	Harmonized as EN 61158-2:2014 (not modified).
IEC 61158-5-2:2014	NOTE	Harmonized as EN 61158-5-2:2014 (not modified).
IEC 61158-6-2:2014	NOTE	Harmonized as EN 61158-6-2 1) (not modified).
IEC 61784-1:2014	NOTE	Harmonized as EN 61784-1 1) (not modified).
IEC 61784-2:2014	NOTE	Harmonized as EN 61784-2:2014 (not modified).

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¹⁾ To be published.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 61158-4-2	2014 iT	Industrial communication networks - Fieldbus specifications - Part 4-2: Data-link layer protocol specification - Type 2 elements	EN 61158-4-2	2)
ISO/IEC 7498-1	-	Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model SIST EN 61158-3-2:2015	-	-
ISO/IEC 7498-3	hīttps://sta	Information technology: Open Systems a-412 Interconnection Basic Reference Model: Naming and addressing	29-b160-	-
ISO/IEC 8886	-	Information technology - Open Systems Interconnection - Data link service definition	-	-
ISO/IEC 10731	1994	Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services	-	-

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²⁾ To be published.

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IEC 61158-3-2

Edition 2.0 2014-08

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NORME INTERNATIONALE

Industrial communication networks + Fieldbus specifications - Part 3-2: Data-link layer service definition + Type 2 elements

Réseaux de communication industriels 58-Spécifications des bus de terrain – Partie 3-2: Définition des services de la couche diaison de données – Eléments de type 2 7b0120f589e4/sist-en-61158-3-2-2015

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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CONTENTS

INT		JCTION	
1	Scope		
	1.1	General	7
	1.2	Specifications	7
	1.3	Conformance	7
2	Norm	native references	8
3	Term	s, definitions, symbols, abbreviations and conventions	8
	3.1	Reference model terms and definitions	8
	3.2	Service convention terms and definitions	10
	3.3	Common data-link service terms and definitions	11
	3.4	Additional Type 2 data-link specific definitions	12
	3.5	Common symbols and abbreviations	15
	3.6	Additional Type 2 symbols and abbreviations	15
	3.7	Common conventions	15
4	Conn	ection-mode and connectionless-mode data-link service	16
	4.1	Overview	16
	4.2	Facilities of the data-link service	20
	4.3	Facilities of the data-link service ARD PREVIEW Model of the data-link service	21
	4.4	Sequence of primitives standards.iteh.ai)	23
	4.5	Connection-mode data transfer	
	4.6	Connectionless-mode data transfer 1158-3-2:2015.	27
	4.7	Queue maintenancels.iteh.ai/catalog/standards/sist/e194ea4d-871a-4129-b160-	30
	4.8	Tag filter7b0120f589e4/sist-en-61158-3-2-2015	
5	DL-m	nanagement services	33
	5.1	Sequence of primitives	33
	5.2	Link synchronization	34
	5.3	Synchronized parameter change	35
	5.4	Event reports	37
	5.5	Bad FCS	39
	5.6	Current moderator	39
	5.7	Enable moderator	40
	5.8	Power-up and online	41
	5.9	Listen only	42
	5.10	Time distribution	43
Bib	liogra	phy	45
⊑ ;~-	uro 1	Polationships of DLSADs DLSAD addresses and group DL addresses	4.4
_		Relationships of DLSAPs, DLSAP-addresses and group DL-addressesNUT structure	
_			
_		Medium access during scheduled time	
_		Medium access during unscheduled time	
_		 Queue model for the peer and multipoint DLS, DLSAPs and their DLCEPs 	20
		Queue model of a multipoint DLS between a sending DLS-user and one or eiving DLS-users	22
		– DLS primitive time-sequence diagram	
9	ω. ∪ <i>'</i>	220 primare and objection diagram	27

Figure 6 – State transition diagram for sequences of DLS primitives at one DLSAP	20
Figure 9 – Sequence of primitives for a successful connection-mode transfer	27
Figure 10 – Sequence of primitives for an unsuccessful connection-mode transfer	27
Figure 11 – Sequence of primitives for a successful connectionless-mode transfer	30
Figure 12 – Sequence of primitives for an unsuccessful connectionless-mode transfer	30
Figure 13 – Sequence of primitives for a queue maintenance request	32
Figure 14 – Sequence of primitives for a tag filter request	33
Figure 15 – Sequence of primitives for a local link synchronization	35
Figure 16 – Sequence of primitives for a DLM-get/set parameters request	37
Figure 17 – Sequence of primitives for a DLM-tMinus change request	37
Figure 18 – Sequence of primitives for a DLM-event indication	39
Figure 19 – Sequence of primitives for a DLM-bad-FCS indication	39
Figure 20 – Sequence of primitives for a DLM-current-moderator indication	40
Figure 21 – Sequence of primitives for a DLM-enable-moderator request	41
Figure 22 – Sequence of primitives for a DLM-power-up indication	42
Figure 23 – Sequence of primitives for a DLM-online request	42
Figure 24 – Sequence of primitives for a DLM-listen-only request	42
Tob STANDARD PREVIEW	
Table 1 – Summary of connection-mode and connectionless-mode primitives and	
parameters (standards.iteh.ai)	24
Table 2 – DL-connection-mode transfer primitives and paraméters	
Table 3 – DL-connectionless-mode transfen primitives 2 and parameters	
Table 4 – Fixed tag services available to the DLS-user	29
Table 5 – DL-queue maintenance primitives and parameters	
Table 6 – DL-connectionless-mode tag filter primitives and parameters	
Table 7 – Summary of DL-management primitives and parameters	
Table 8 – Link synchronization primitives and parameters	
Table 9 – Synchronized parameter change primitives and parameters	
Table 10 – DLMS-configuration-data	
Table 11 – Event report primitives and parameters	
Table 12 – DLMS events being reported	
Table 13 – Bad FCS primitives and parameters	
Table 14 – Current moderator primitives and parameters	
Table 15 – Enable moderator primitives and parameters	
Table 16 – Power-up and online primitives and parameters	
Table 17 – Listen-only primitives and parameters	
Table 18 – DLMS time and time quality parameters	
Table 19 – Time distribution source quality	44

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 3-2: Data-link layer service definition – Type 2 elements

FOREWORD

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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 61158-3-2 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.

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- 5 -

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

- Correction of references for fixed tag usage in 4.6.3.6.
- Update of core bibliographic references (original source documents from consortium).
- · Miscellaneous editorial corrections.

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

FDIS	Report on voting
65C/759/FDIS	65C/769/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, 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 dateindicated 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.

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withdrawn,

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replaced by a revised edition, or

• amended.

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INTRODUCTION

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

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-6-

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 3-2: Data-link layer service definition – Type 2 elements

1 Scope

1.1 General

This part of IEC 61158 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 2 fieldbus data-link layer in terms of:

- a) the primitive actions and events of the service; **PREVIEW**
- b) the parameters associated with each primitive action and event, and the form which they take; and (Standards.iteh.al)
- c) the interrelationship between these actions and events, and their valid sequences. $\frac{\text{SIST EN 61158-3-2:2015}}{\text{SIST EN 61254-2:2015}}$

The purpose of this standard is to define the services provided to: 4129-b160-

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- the Type 2 fieldbus application layer at the boundary between the application and data-link layers of the fieldbus reference model;
- systems management at the boundary between the data-link layer and systems management of the fieldbus reference model.

Type 2 DL-service provides both a connected and a connectionless subset of those services specified in ISO/IEC 8886.

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 specification 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;
- 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 does it constrain the implementations of data-link entities within industrial automation systems.

– 8 –

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 1 data-link layer services defined in this standard.

2 Normative references

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 All parts of the IEC 61158 series, as well as IEC 61784-1 and IEC 61784-2 are maintained simultaneously. Cross-references to these documents within the text therefore refer to the editions as dated in this list of normative references.

IEC 61158-4-2:2014, Industrial communication networks – Fieldbus specifications – Part 4-2: Data-link layer protocol specification – Type 2 elements

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 8886, Information technology — Open Systems Interconnection — Data link service definition (standards.iteh.ai)

ISO/IEC 10731:1994, Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI-services https://standards.iteh.ai/catalog/standards/sist/e194ea4d-871a-4129-b160-7b0120f589e4/sist-en-61158-3-2-2015

3 Terms, definitions, symbols, abbreviations and conventions

For the purposes of this document, the following terms, definitions, symbols, abbreviations and conventions apply.

3.1 Reference model terms and definitions

This standard is based in part on the concepts developed in ISO/IEC 7498-1 and ISO/IEC 7498-3, and makes use of the following terms defined therein:

3.1.1	DL-address	[ISO/IEC 7498-3]
3.1.2	DL-address-mapping	[ISO/IEC 7498-1]
3.1.3	called-DL-address	[ISO/IEC 7498-3]
3.1.4	calling-DL-address	[ISO/IEC 7498-3]
3.1.5	centralized multi-end-point-connection	[ISO/IEC 7498-1]
3.1.6	DL-connection	[ISO/IEC 7498-1]
3.1.7	DL-connection-end-point	[ISO/IEC 7498-1]
3.1.8	DL-connection-end-point-identifier	[ISO/IEC 7498-1]
3.1.9	DL-connection-mode transmission	[ISO/IEC 7498-1]
3.1.10	DL-connectionless-mode transmission	[ISO/IEC 7498-1]

3.1.11	correspondent (N)-entities correspondent DL-entities (N=2) correspondent Ph-entities (N=1)	[ISO/IEC 7498-1]
3.1.12	DL-duplex-transmission	[ISO/IEC 7498-1]
3.1.13	(N)-entity DL-entity (N=2) Ph-entity (N=1)	[ISO/IEC 7498-1]
3.1.14	DL-facility	[ISO/IEC 7498-1]
3.1.15	flow control	[ISO/IEC 7498-1]
3.1.16	(N)-layer DL-layer (N=2) Ph-layer (N=1)	[ISO/IEC 7498-1]
3.1.17	layer-management	[ISO/IEC 7498-1]
3.1.18	DL-local-view	[ISO/IEC 7498-3]
3.1.19	DL-name	[ISO/IEC 7498-3]
3.1.20	naming-(addressing)-domain	[ISO/IEC 7498-3]
3.1.21	peer-entities Teh STANDARD PREVIEW	[ISO/IEC 7498-1]
3.1.22	primitive name (standards.iteh.ai)	[ISO/IEC 7498-3]
3.1.23	DL-protocol SIST EN 61158-3-2:2015	[ISO/IEC 7498-1]
3.1.24	DL-protocol-connection-identifier dards/sist/e194ea4d-871a-4129-b1 7b0120f589e4/sist-en-61158-3-2-2015	(ISO/IEC 7498-1]
3.1.25	DL-protocol-data-unit	[ISO/IEC 7498-1]
3.1.26	DL-relay	[ISO/IEC 7498-1]
3.1.27	reset	[ISO/IEC 7498-1]
3.1.28	responding-DL-address	[ISO/IEC 7498-3]
3.1.29	routing	[ISO/IEC 7498-1]
3.1.30	segmenting	[ISO/IEC 7498-1]
3.1.31	(N)-service DL-service (N=2) Ph-service (N=1)	[ISO/IEC 7498-1]
3.1.32	(N)-service-access-point DL-service-access-point (N=2) Ph-service-access-point (N=1)	[ISO/IEC 7498-1]
3.1.33	DL-service-access-point-address	[ISO/IEC 7498-3]
3.1.34	DL-service-connection-identifier	[ISO/IEC 7498-1]
3.1.35	DL-service-data-unit	[ISO/IEC 7498-1]
3.1.36	DL-simplex-transmission	[ISO/IEC 7498-1]
3.1.37	DL-subsystem	[ISO/IEC 7498-1]