SLOVENSKI STANDARD
SIST EN 61158-3-2:2015

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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)

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

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

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.100.20	Podatkovni povezovalni sloj	Data link layer
35.110	Omreževanje	Networking

SIST EN 61158-3-2:2015 **en,fr,de**

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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61158-3-2

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English Version

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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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 (dop) 2015-06-17
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-09-17

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

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 61158-3-2:2014 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).

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.

Publication	Year	Title	EN/HD	Year
IEC 61158-4-2	2014	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	-	-
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	-	-
ISO/IEC 10731	1994	Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services	-	-

2) To be published.

IEC 61158-3-2

Edition 2.0 2014-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

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

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- withdrawn,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

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.

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;

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 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.

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*

ISO/IEC 10731:1994, *Information technology – Open Systems Interconnection – Basic Reference Model – Conventions for the definition of OSI services*

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** [ISO/IEC 7498-1]
correspondent DL-entities (N=2)
correspondent Ph-entities (N=1)

3.1.12 **DL-duplex-transmission** [ISO/IEC 7498-1]

3.1.13 **(N)-entity** [ISO/IEC 7498-1]
DL-entity (N=2)
Ph-entity (N=1)

3.1.14 **DL-facility** [ISO/IEC 7498-1]

3.1.15 **flow control** [ISO/IEC 7498-1]

3.1.16 **(N)-layer** [ISO/IEC 7498-1]
DL-layer (N=2)
Ph-layer (N=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** [ISO/IEC 7498-1]

3.1.22 **primitive name** [ISO/IEC 7498-3]

3.1.23 **DL-protocol** [ISO/IEC 7498-1]

3.1.24 **DL-protocol-connection-identifier** [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** [ISO/IEC 7498-1]
DL-service (N=2)
Ph-service (N=1)

3.1.32 **(N)-service-access-point** [ISO/IEC 7498-1]
DL-service-access-point (N=2)
Ph-service-access-point (N=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]