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Industrial communication networks - Fieldbus specifications - Part 3-24: Data-link layer service definition - Type-24 elements

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/15

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English Version

**Industrial communication networks - Fieldbus specifications -
Part 3-24: Data-link layer service definition - Type-24 elements
(IEC 61158-3-24:2014)**

Réseaux de communication industriels - Spécifications des
bus de terrain - Partie 3-24: Définition des services de la
couche liaison de données - Éléments de type 24
(CEI 61158-3-24:2014)

Industrielle Kommunikationsnetze - Feldbusse - Teil 3-24:
Dienstfestlegungen des Data Link Layer
(Sicherheitsschicht) - Typ 24-Elemente
(IEC 61158-3-24:2014)

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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 1 of IEC 61158-3-24, 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 61158-3-24:2014.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-09-17

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

IEC 61158-1	NOTE	Harmonized as EN 61158-1.
IEC 61784-1	NOTE	Harmonized as EN 61784-1.
IEC 61784-2	NOTE	Harmonized as EN 61784-2.

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>	<u>EN/HD</u>	<u>Year</u>
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	-	-
ISO/IEC 19501	2005	Information technology - Open Distributed Processing - Unified Modeling Language (UML)	-	-



INTERNATIONAL STANDARD

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Part 3-24: Data-link layer service definition – Type-24 elements**

**Réseaux de communication industriels – Spécifications des bus de terrain –
Partie 3-24: Définition des services de la couche liaison de données – Éléments
de type 24**

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
1.1 General.....	7
1.2 Specifications.....	7
1.3 Conformance.....	7
2 Normative references.....	8
3 Terms, definitions, symbols, abbreviations and conventions.....	8
3.1 Reference model terms and definitions.....	8
3.2 Service convention terms and definitions.....	9
3.3 Additional Type 24 data-link specific definitions.....	9
3.4 Common symbols and abbreviations.....	12
3.5 Additional type 24 symbols and abbreviations.....	12
3.6 Common conventions.....	13
3.7 Additional Type 24 conventions.....	14
4 Data-link service and concepts.....	14
4.1 Overview.....	14
4.2 DLS-user services.....	15
4.3 Overview of interactions.....	16
4.4 Detailed specification of services and interactions.....	18
5 DL-management service.....	22
5.1 Overview.....	22
5.2 Overview of interactions.....	23
5.3 Detailed specification of services and interactions.....	25
Bibliography.....	37
Figure 1 – Sequence of primitive for set data and read data service.....	17
Figure 2 – Sequence of primitive for send data with acknowledge service.....	17
Figure 3 – Sequence of primitive for send data with no-acknowledge service.....	18
Figure 4 – Sequence of primitives for event service.....	18
Figure 5 – Sequence of primitives for Reset service.....	24
Figure 6 – Sequence of primitives for Set/get value service.....	24
Figure 7 – Sequence of primitives for Evaluate delay service.....	24
Figure 8 – Sequence of primitives for Start communication service.....	25
Figure 9 – Sequence of primitives for Event and Clear error status service.....	25
Table 1 – The list of DLS service primitives and parameters.....	16
Table 2 – Write data primitives and parameters.....	18
Table 3 – Values of result for write data service.....	19
Table 4 – Read data primitives and parameters.....	19
Table 5 – Values of result for read data service.....	19
Table 6 – SDA primitives and parameters.....	20
Table 7 – Values of result for SDA service.....	20

Table 8 – SDN primitives and parameters	21
Table 9 – Values of result for SDN service	21
Table 10 – Event primitives and parameters	22
Table 11 – Values of Event_ID for event service	22
Table 12 – The list of DLMS service primitives and parameters	23
Table 13 – Set value primitive and parameters	26
Table 14 – The list of parameter Var_ID of Set value request	26
Table 15 – Data type and range of variables	26
Table 16 – List of the values of variable Cyc_sel	27
Table 17 – List of the values of variable Tunit	28
Table 18 – Structure example of the each element of variable IO_Map	28
Table 19 – Data type and range of the each element	29
Table 20 – Values of result for Set value service	29
Table 21 – Get value primitive and parameters	29
Table 22 –The list of parameter Var_ID of Get value request	30
Table 23 – Data type and range of variables	30
Table 24 – Error factor assign.....	31
Table 25 – Values of result for Get value service	31
Table 26 – Evaluate delay primitive and parameters	32
Table 27 – Values of result for Set value service	32
Table 28 – Set communication mode primitives and parameters	33
Table 29 – Range of Tunit.....	34
Table 30 – Values of result for set communication mode service.....	34
Table 31 – Start communication service primitives and parameter	34
Table 32 – Values of result for start communication service	34
Table 33 – Clear error primitive and parameters	35
Table 34 – Values of result for clear error service	35
Table 35 – DLM error event primitive and parameters	36
Table 36 – Value and definition of Err_Event_ID	36

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS –
FIELDBUS SPECIFICATIONS –****Part 3-24: Data-link layer service definition –
Type-24 elements**

FOREWORD

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

International Standard IEC 61158-3-24 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

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 the 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 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,
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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 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 3-24: Data-link layer service definition – Type-24 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 24 fieldbus data-link layer in terms of

- a) the primitive actions and events of the service;
- b) the interrelationship between these actions and events, and their valid sequences;
- c) the parameters associated with each primitive action and event, and the form which they take.

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

- the Type 24 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.

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, 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 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 24 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.

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*

ISO/IEC 19501:2005, *Information technology – Open Distributed Processing – Unified Modeling Language (UML) Version 1.4.2*

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