

SLOVENSKI STANDARD

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Nadomešča:

SIST EN 61158-4-12:2008

**Industrijska komunikacijska omrežja - Specifikacije za procesna vodila - 4-12. del:
Specifikacija protokola na nivoju podatkovnih povezav - Elementi tipa 12 (IEC
61158-4-12:2010)**

Industrial communication networks - Fieldbus specifications - Part 4-12: Data-link layer
protocol specification - Type 12 elements (IEC 61158-4-12:2010)

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Industrielle Kommunikationsnetze - Feldbusse - Teil 4-12: Protokollspezifikation des
Data Link Layer (Sicherheitsschicht) - Typ 12-Elemente (IEC 61158-4-12:2010)

[SIST EN 61158-4-12:2012](#)

Réseaux de communication industriels - Spécifications de bus de terrain - Partie 4-12:
Spécification du protocole de couche de liaison de données - Eléments de Type 12 (CEI
61158-4-12:2010)

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English version

**Industrial communication networks -
Fieldbus specifications -
Part 4-12: Data-link layer protocol specification -
Type 12 elements
(IEC 61158-4-12:2010)**

Réseaux de communication industriels -
Spécifications de bus de terrain -
Partie 4-12: Spécification du protocole de
couche de liaison de données -
Éléments de Type 12
(CEI 61158-4-12:2010)

Industrielle Kommunikationsnetze -
Feldbusse -
Teil 4-12: Protokollspezifikation des Data
Link Layer (Sicherungsschicht) -
Typ 12-Elemente
(IEC 61158-4-12:2010)

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 65C/605/FDIS, future edition 2 of IEC 61158-4-12, 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 61158-4-12:2012.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-03-28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 61158-4-12:2008.

EN 61158-4-12:2012 includes the following significant technical changes with respect to EN 61158-4-12:2008:

- bug fixes and
- editorial improvements.

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Endorsement notice

The text of the International Standard IEC 61158-4-12:2010 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 61131-2	NOTE Harmonized as EN 61131-2.
IEC 61131-3	NOTE Harmonized as EN 61131-3.
IEC/TR 61158-1	NOTE Harmonized as CLC/TR 61158-1.
IEC 61158-5-12:2010	NOTE Harmonized as EN 61158-5-12:2012 (not modified).
IEC 61158-6-12	NOTE Harmonized as EN 61158-6-12.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61158-2	2010	Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition	EN 61158-2	2010
IEC 61158-3-12	-	Industrial communication networks - Fieldbus specifications - Part 3-12: Data-link layer service definition - Type 12 elements	EN 61158-3-12	-
IEC 61588	-	Precision clock synchronization protocol for networked measurement and control systems	-	-
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 8802-3	2000	Information technology - Telecommunications - and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications	-	-
ISO/IEC 9899	-	Programming languages - C	-	-
ISO/IEC 10731	-	Information technology - Open Systems Interconnection - Basic reference model - Conventions for the definition of OSI services	-	-
IETF RFC 791	-	Internet Protocol - DARPA Internet Program Protocol Specification	-	-
IETF RFC 768	-	User Datagram Protocol	-	-
IEEE 802.1Q	-	IEEE Standard for Local and Metropolitan Area Networks - Virtual Bridged Local Area Networks	-	-

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INTERNATIONAL STANDARD



**Industrial communication networks – Fieldbus specifications –
Part 4-12: Data-link layer protocol specification – Type 12 elements**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS –
FIELD BUS SPECIFICATIONS –**
**Part 4-12: Data-link layer protocol specification –
Type 12 elements**

FOREWORD

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International Standard IEC 61158-4-12 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:

- bug fixes and
- editorial improvements.

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

FDIS	Report on voting
65C/605/FDIS	65C/619/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, 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 The revision of this standard will be synchronized with the other parts of the IEC 61158 series.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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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.

The data-link protocol provides the data-link service by making use of the services available from the physical layer. The primary aim of this standard is to provide a set of rules for communication expressed in terms of the procedures to be carried out by peer data-link entities (DLEs) at the time of communication. These rules for communication are intended to provide a sound basis for development in order to serve a variety of purposes:

- a) as a guide for implementors and designers;
- b) for use in the testing and procurement of equipment;
- c) as part of an agreement for the admittance of systems into the open systems environment;
- d) as a refinement to the understanding of time-critical communications within OSI.

This standard is concerned, in particular, with the communication and interworking of sensors, effectors and other automation devices. By using this standard together with other standards positioned within the OSI or fieldbus reference models, otherwise incompatible systems may work together in any combination.

NOTE 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 from their respective intellectual-property-right holders.

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents concerning Type 12 elements and possibly other types given as follows:

EP 1 590 927 B1	[BE] Koppler für ein Netzwerk mit Ringtopologie und ein auf Ethernet basierten Netzwerk
EP 1 789 857 B1	[BE] Datenübertragungsverfahren und automatisierungssystem zum Einsatz eines solchen Datenübertragungsverfahrens
DE 102007017835.4	[BE] Paketvermittlungsvorrichtung und lokales Kommunikationsnetz mit einer solchen Paketvermittlungsvorrichtung
EP 1 456 722 B1	[BE] Datenübertragungsverfahren, serielles Bussystem und Anschalteinheit für einen passiven Busteilnehmer

IEC takes no position concerning the evidence, validity and scope of these patent rights.

The holder of these patent rights has assured the IEC that he/she is willing to negotiate licences either free of charge or under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of these patent rights is registered with IEC. Information may be obtained from:

[BE]: Beckhoff Automation GmbH
Eiserstraße 5
33415 Verl,
Germany

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