



SLOVENSKI STANDARD

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Industrijska komunikacijska omrežja - Profili - 3-8. del: Funkcijska varnost procesnih vodil - Dodatne specifikacije za CPF 8 (IEC 61784-3-8:2016)

Industrial communication networks - Profiles - Part 3-8: Functional safety fieldbuses - Additional specifications for CPF 8 (IEC 61784-3-8:2016)

Industrielle Kommunikationsnetze - Profile - Teil 3-8: Funktionale sichere Übertragung bei Feldbussen - Zusätzliche Festlegungen für die Kommunikationsprofilfamilie 8 (IEC 61784-3-8:2016)

Réseaux de communication industriels - Profils - Partie 3-8: Bus de terrain de sécurité fonctionnelle - Spécification supplémentaire pour CPF 8 (IEC 61784-3-8:2016)

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**Industrial communication networks - Profiles - Part 3-8:
Functional safety fieldbuses - Additional specifications for CPF 8
(IEC 61784-3-8:2016)**

Réseaux de communication industriels - Profils - Partie 3-8:
Bus de terrain de sécurité fonctionnelle - Spécification
supplémentaire pour CPF 8
(IEC 61784-3-8:2016)

Industrielle Kommunikationsnetze - Profile - Teil 3-8:
Funktional sichere Übertragung bei Feldbussen -
Zusätzliche Festlegungen für die
Kommunikationsprofilfamilie 8
(IEC 61784-3-8:2016)

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EN 61784-3-8:2017 (E)

European foreword

The text of document 65C/851/FDIS, future edition 2 of IEC 61784-3-8:2016, 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 61784-3-8:2017.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-06-01
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2020-12-01

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

IEC 61000-6-7	NOTE Harmonized as EN 61000-6-7
IEC 61131-6	NOTE Harmonized as EN 61131-6
IEC 61496 (all parts)	NOTE Harmonized as EN 61496 (all parts)
IEC 61508-1:2010	NOTE Harmonized as EN 61508-1:2010 (not modified).
IEC 61508-4:2010	NOTE Harmonized as EN 61508-4:2010 (not modified).
IEC 61508-5:2010	NOTE Harmonized as EN 61508-5:2010 (not modified).
IEC 61784-2	NOTE Harmonized as EN 61784-2
IEC 61784-5 (all parts)	NOTE Harmonized as EN 61784-5 (all parts)
IEC 61800-5-2	NOTE Harmonized as EN 61800-5-2
IEC 61918	NOTE Harmonized as EN 61918
IEC 62443 (all parts)	NOTE Harmonized as prEN 62443 (all parts)
IEC/TR 62685	NOTE Harmonized as CLC/TR 62685
ISO 10218-1	NOTE Harmonized as EN ISO 10218-1
ISO 12100	NOTE Harmonized as EN ISO 12100
ISO 13849-1	NOTE Harmonized as EN ISO 13849-1
ISO 13849-2	NOTE Harmonized as EN ISO 13849-2

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 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>
IEC 60204-1	-	Safety of machinery - Electrical equipment - of machines - Part 1: General requirements	-	-
IEC 61131-2	2007	Programmable controllers -- Part 2: Equipment requirements and tests	EN 61131-2	2007
IEC 61158	series	Industrial communication networks - Fieldbus specifications - Part 1: Overview and guidance for the IEC 61158 and IEC 61784 series	EN 61158	series
IEC 61158-2	-	Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition	EN 61158-2	-
IEC 61158-3-18	-	Industrial communication networks - Fieldbus specifications - Part 3-18: Data-link layer service definition - Type 18 elements	EN 61158-3-18	-
IEC 61158-4-18	-	Industrial communication networks - Fieldbus specifications -- Part 4-18: Data-link layer protocol specification - Type 18 elements	EN 61158-4-18	-
IEC 61158-5-18	-	Industrial communication networks - Fieldbus specifications -- Part 5-18: Application layer service definition - Type 18 elements	EN 61158-5-18	-
IEC 61158-5-23	-	Industrial communication networks - Fieldbus specifications - Part 5-23: Application layer service definition - Type 23 elements	EN 61158-5-23	-
IEC 61158-6-18	-	Industrial communication networks - Fieldbus specifications - Part 6-18: Application layer protocol specification - Type 18 elements	EN 61158-6-18	-
IEC 61158-6-23	-	Industrial communication networks - Fieldbus specifications - Part 6-23: Application layer protocol specification - Type 23 elements	EN 61158-6-23	-
IEC 61326-3-1	-	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) - General industrial applications	EN 61326-3-1	-

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IEC 61326-3-2	-	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-2: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) - Industrial applications with specified electromagnetic environment	-	-
IEC 61508	series	Functional safety of electrical/electronic/programmable electronic safety-related systems -- Part 1: General requirements	EN 61508	series
IEC 61511	series	Functional safety - Safety instrumented systems for the process industry sector - Part 1: Framework, definitions, system, hardware and application programming requirements	EN 61511	series
IEC 61784-1	-	Industrial communication networks - Profiles - Part 1: Fieldbus profiles	EN 61784-1	-
IEC 61784-2	-	Industrial communication networks - Profiles - Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC 8802-3	EN 61784-2	-
IEC 61784-3	-	Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses - General rules and profile definitions	EN 61784-3	-
IEC 62061	-	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems	EN 62061	-
IEEE 802.3	-	IEEE Standard for Information technology -- Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications	-	-

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NORME INTERNATIONALE



**Industrial communication networks – Profiles –
Part 3-8: Functional safety fieldbuses – Additional specifications for CPF 8**

**Réseaux de communication industriels – Profils –
Partie 3-8: Bus de terrain de sécurité fonctionnelle – Spécifications
supplémentaires pour CPF 8**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS –
PROFILES –**
**Part 3-8: Functional safety fieldbuses –
Additional specifications for CPF 8**
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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International Standard IEC 61784-3-8 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 2010. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

- Added FSCP 8/2;
- Added FSCP 8/2 Clause 12;
- Added content for FSCP 8/2 to Clauses 1 to 3 (scope, references, terms);
- Moved previous FSCP 8/1 to Clause 11 (demoting all old heading levels by one);
- Restructured old Clauses 4 to 10 to point to appropriate subclauses as appropriate.

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

FDIS	Report on voting
65C/851/FDIS	65C/854/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 parts of the IEC 61784-3 series, published under the general title *Industrial communication networks – Profiles – Functional safety fieldbuses*, 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,
- withdrawn,
- replaced by a revised edition, or
- amended.

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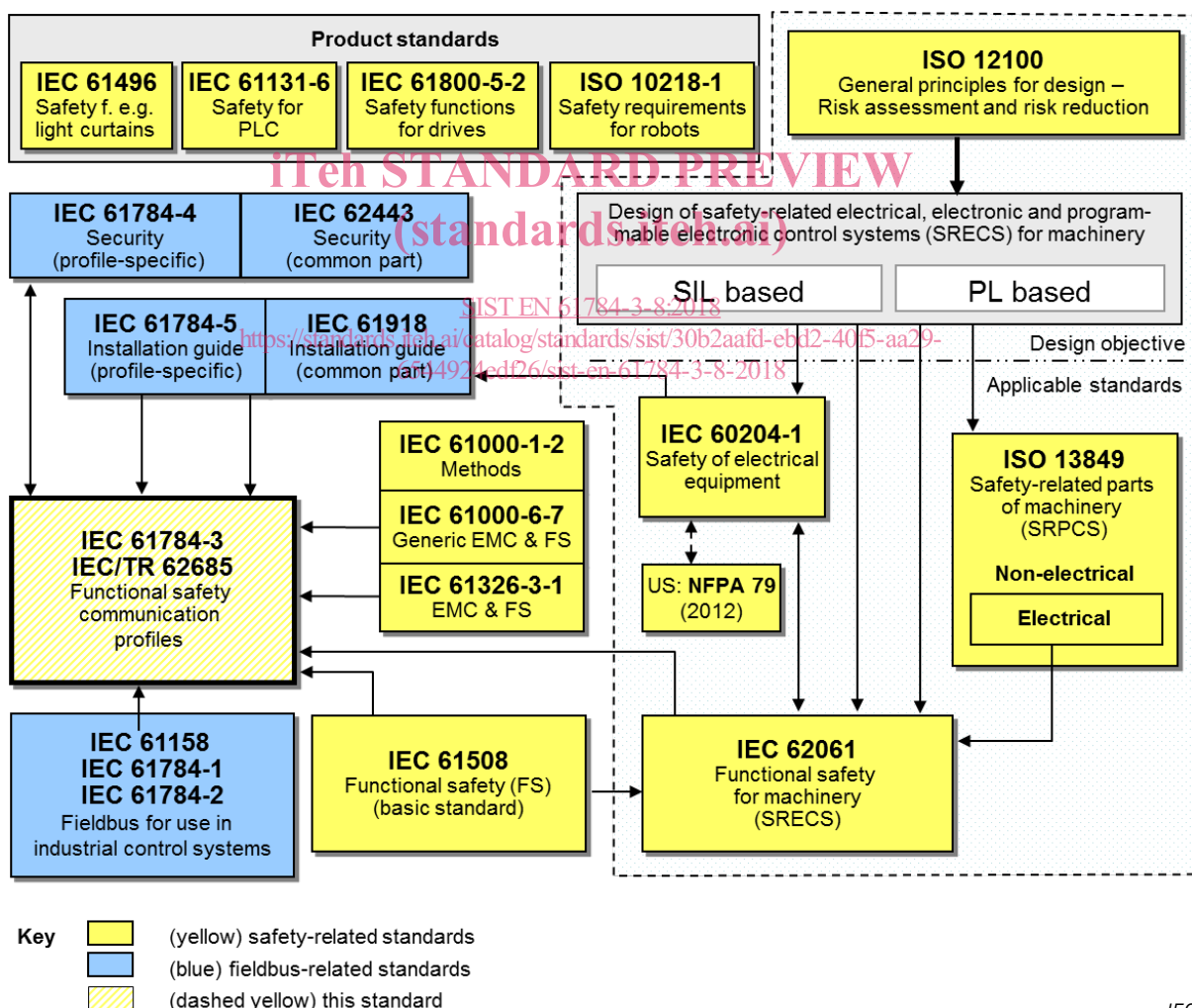
0 Introduction

0.1 General

The IEC 61158 fieldbus standard together with its companion standards IEC 61784-1 and IEC 61784-2 defines a set of communication protocols that enable distributed control of automation applications. Fieldbus technology is now considered well accepted and well proven. Thus fieldbus enhancements continue to emerge, addressing applications for areas such as real time, safety-related and security-related applications.

This standard explains the relevant principles for functional safety communications with reference to IEC 61508 series and specifies several safety communication layers (profiles and corresponding protocols) based on the communication profiles and protocol layers of IEC 61784-1, IEC 61784-2 and the IEC 61158 series. It does not cover electrical safety and intrinsic safety aspects.

Figure 1 shows the relationships between this standard and relevant safety and fieldbus standards in a machinery environment.



NOTE Subclauses 6.7.6.4 (high complexity) and 6.7.8.1.6 (low complexity) of IEC 62061 specify the relationship between PL (Category) and SIL.

Figure 1 – Relationships of IEC 61784-3 with other standards (machinery)

Figure 2 shows the relationships between this standard and relevant safety and fieldbus standards in a process environment.