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SIST EN 61784-3-18:2011/A2:2021

01-oktober-2021

Industrijska komunikacijska omrežja - Profili - 3-18. del: Funkcijska varnost procesnih vodil - Dodatne specifikacije za CPF 18 (IEC 61784-3-18:2011/AMD2:2021)

Industrial communication networks - Profiles - Part 3-18: Functional safety fieldbuses - Additional specifications for CPF 18 (IEC 61784-3-18:2011/AMD2:2021)

Industrielle Kommunikationsnetze - Profile - Teil 3-18: Funktional sichere Übertragung bei Feldbussen - Zusätzliche Festlegungen für die Kommunikationsprofilfamilie 18 (IEC 61784-3-18:2011/AMD2:2021)

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Réseaux de communication industriels - Profils - Partie 3-18: Bus de terrain de sécurité fonctionnelle - Spécifications supplémentaires pour CPF 18 (IEC 61784-3-18:2011/AMD2:2021)

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Ta slovenski standard je istoveten z: **EN 61784-3-18:2011/A2:2021**

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.100.05	Večslojne uporabniške rešitve	Multilayer applications

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EN 61784-3-18:2011/A2

June 2021

ICS 25.040.40; 35.100.05

English Version

Industrial communication networks - Profiles - Part 3-18: Functional safety fieldbuses - Additional specifications for CPF 18 (IEC 61784-3-18:2011/AMD2:2021)

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This amendment A2 modifies the European Standard EN 61784-3-18:2011; it was approved by CENELEC on 2021-06-04. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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European foreword

The text of document 65C/1083/FDIS, future IEC 61784-3-18/AMD2, 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 61784-3-18:2011/A2:2021.

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) 2022-03-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-06-04

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61784-3-18:2011/AMD2:2021 was approved by CENELEC as a European Standard without any modification.

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

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IEC 61000-1-2	NOTE	Harmonized as EN 61000-1-2
IEC 61000-6-7	NOTE	Harmonized as EN 61000-6-7
IEC 61010-2-201	NOTE	Harmonized as EN IEC 61010-2-201
IEC 61784-3	NOTE	Harmonized as EN IEC 61784-3
ISO 13849 (series)	NOTE	Harmonized as EN ISO 13849 (series)

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IEC 61784-3-18

Edition 1.0 2021-04

INTERNATIONAL STANDARD

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AMENDMENT 2
AMENDEMENT 2

Industrial communication networks – Profiles – Part 3-18: Functional safety fieldbuses – Additional specifications for CPF 18

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ICS 25.040.40; 35.100.05

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INDUSTRIAL COMMUNICATION NETWORKS – PROFILES –

Part 3-18: Functional safety fieldbuses – Additional specifications for CPF 18

AMENDMENT 2

FOREWORD

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Amendment 2 to IEC 61784-3-18:2011 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

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

FDIS	Report on voting
65C/1083/FDIS	65C/1087/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION to Amendment 2

This Amendment 2 introduces several editorial and informational corrections in the context of Edition 4 of IEC 61784-3.

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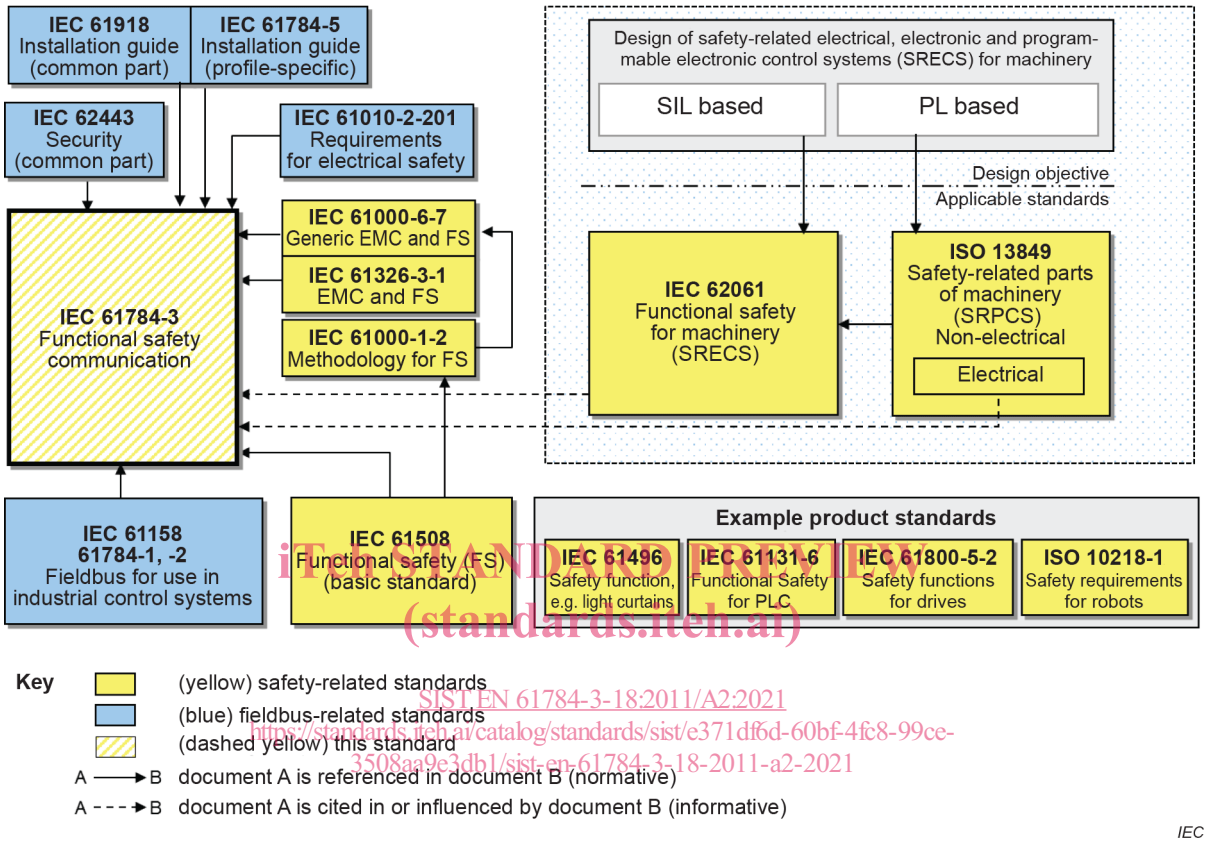
0 Introduction

0.1 General

Replace the existing Figure 1 by the following new figure:



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Replace the existing text of the NOTE below Figure 1 (before the title) by the following:

IEC 62061 specifies the relationship between PL (Category) and SIL.

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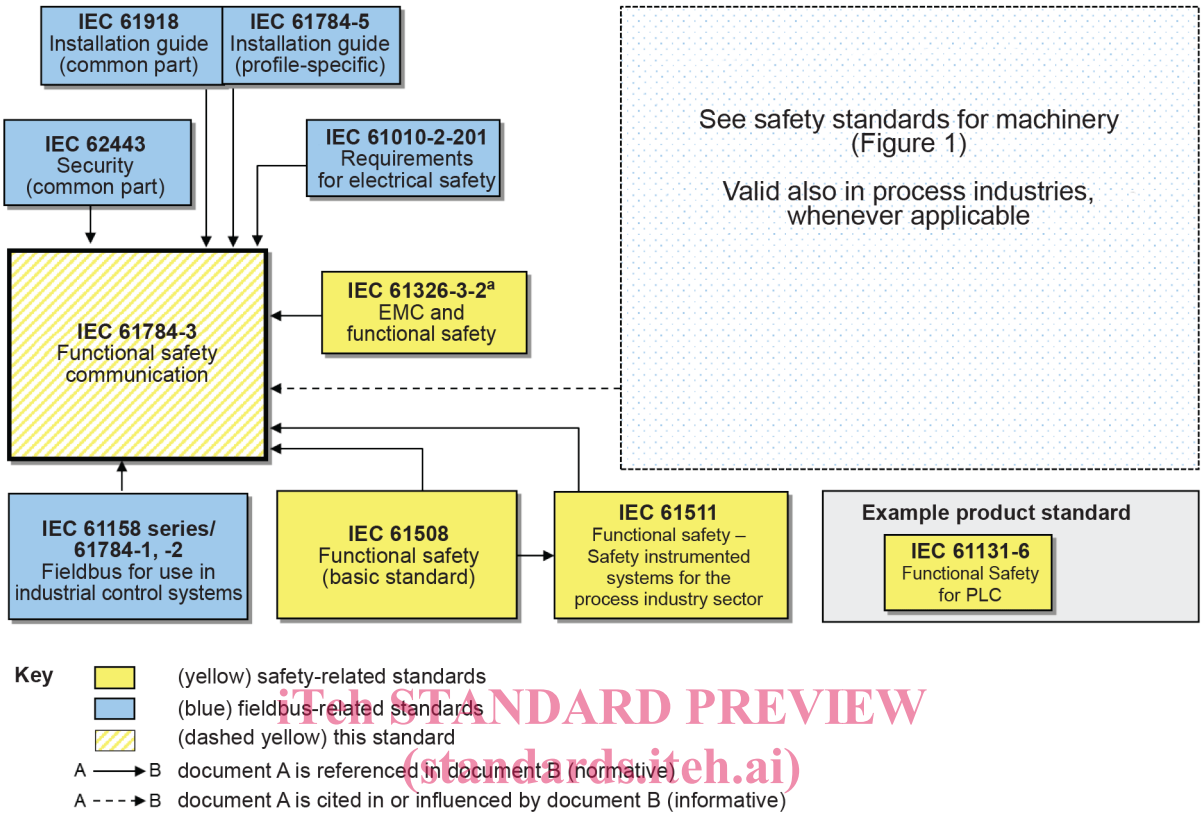
Replace the existing Figure 2 by the following new figure:



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Replace, below Figure 2, the existing text of figure footnote a by the following:

For specified electromagnetic environments; otherwise IEC 61326-3-1 or IEC 61000-6-7.

Delete, below Figure 2, figure footnote b.

5 General

5.1 External documents providing specifications for the profile

Replace the existing text by the following:

There is no additional external document used for FSCP 18/1.

7 Safety communication layer protocol

7.1.2.4 Safety data

Delete, at the end of second paragraph: "as proven in 9.5.2".

7.1.2.7 SPDO CRC

*Replace, in second paragraph: "*0x20044009*" with "*0x120044009*".*

SIST EN 61784-3-18:2011/A2:2021

*Replace, at the end of second paragraph: "*9.5.2*" with "*Clause A.1*".*

7.1.3.8 SHB CRC

*Replace, in second paragraph: "*0x20044009*" with "*0x120044009*".*

*Replace, at the end of second paragraph: "*9.5.2*" with "*Clause A.1*".*

9 System requirements

9.5 Constraints for calculation of system characteristics

Delete Subclause 9.5.2.

Annex A – Additional information for functional safety communication profiles of CPF 18

Delete the sentence: "There is no additional information for this FSCP. "

Add the following new Clauses A.1 and A.2.

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A.1 Hash function calculation

The 32-bit CRC used in this FSCP is 0x120044009. It is calculated by:

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$$G(x) = x32 + x29 + x18 + x14 + x3 + 1$$

Table A.1 contains the residual error probabilities for the used 32-bit polynomial for different code length and bit error probabilities in the range of 120 bits up to data lengths of 1 024 bits (128 octets) as specified in 9.5.1.4 including the CRC signature and incorporating the overall safety PDU structure as described in 7.1.

Table A.1 – Residual error probabilities for CRC32 Polynomial 0x120044009

Length *n* (bits)	P_{BER} = 0,000 1	P_{BER} = 0,001	P_{BER} = 0,01	$P_{BER} = 2/n$ ($2/n < 0{,}01$)	$P_{BER} = 4/n$ ($4/n < 0{,}01$)	$P_{BER} = 8/n$ ($8/n < 0{,}01$)
120	1,4236765E-22	1,2847875E-16	4,5824514E-11	-	-	-
128	1,5805978E-22	1,4161637E-16	4,6991099E-11	-	-	-
136	1,8162338E-22	1,6156082E-16	4,9874896E-11	-	-	-
144	2,0514920E-22	1,8117854E-16	5,2040784E-11	-	-	-
152	2,2863728E-22	2,0047350E-16	5,3582492E-11	-	-	-
160	2,5208766E-22	2,1944972E-16	5,4586144E-11	-	-	-
168	2,7550040E-22	2,3811128E-16	5,5130780E-11	-	-	-
176	2,9887554E-22	2,5646232E-16	5,5287180E-11	-	-	-
184	3,2221313E-22	2,7450668E-16	5,5112762E-11	-	-	-
192	3,4551322E-22	2,9224828E-16	5,4660017E-11	-	-	-
200	3,6877585E-22	3,0969120E-16	5,3978908E-11	-	-	-
208	3,9200108E-22	3,2683958E-16	5,3114126E-11	4,5363410E-11	-	-
216	4,1518896E-22	3,4369773E-16	5,2107322E-11	3,8340651E-11	-	-