# IEC 61784-5-3

Edition 4.0 2018-08

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

colour inside

## Industrial communication networks – Profiles – Part 5-3: Installation of fieldbuses – Installation profiles for CPF 3

## Réseaux de communication industriels – Profils – Partie 5-3: Installation des bus de terrain – Profils d'installation pour CPF 3

IEC 61784-5-3:2018-08(en-fr)

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# INDUSTRIAL COMMUNICATION NETWORKS – PROFILES –

## Part 5-3: Installation of fieldbuses – Installation profiles for CPF 3

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International Standard IEC 61784-5-3 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

This fourth edition cancels and replaces the third edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) an addition of 4-pair cabling (see C.4.4.1.2.1and C.5.3.2);
b) an addition of the connector M12 X-Coding (see C.4.4.2.2);
c) an addition of the definition of End-to-end links (see C.4.4.3.1);

d) a revision of Table C.17 (see C.5.2.1);

e) a formula for the NEXT limits of End-to-end links (see C.6.3.2.1.2).

This standard is to be used in conjunction with IEC 61918:2018

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

| FDIS | Report on voting |
|---|---|
| 65C/924/FDIS | 65C/925/RVD |

Full information on the voting for the approval of this international standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 61784-5 series, under the general title *Industrial communication networks – Profiles – Installation of 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 web site 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- withdrawn,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
- amended.

**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.**

# INTRODUCTION

This International Standard is one of a series produced to facilitate the use of communication networks in industrial control systems.

IEC 61918:2018 provides the common requirements for the installation of communication networks in industrial control systems. This installation profile standard provides the installation profiles of the communication profiles (CP) of a specific communication profile family (CPF) by stating which requirements of IEC 61918 fully apply and, where necessary, by supplementing, modifying, or replacing the other requirements (see Figure 1).

For general background on fieldbuses, their profiles, and relationship between the installation profiles specified in this document, see IEC 61158-1.

Each CP installation profile is specified in a separate annex of this document. Each annex is structured exactly as the reference standard IEC 61918 for the benefit of the persons representing the roles in the fieldbus installation process as defined in IEC 61918 (planner, installer, verification personnel, validation personnel, maintenance personnel, administration personnel). By reading the installation profile in conjunction with IEC 61918, these persons immediately know which requirements are common for the installation of all CPs and which are modified or replaced. The conventions used to draft this document are defined in Clause 5.

The provision of the installation profiles in one standard for each CPF (for example IEC 61784-5-3 for CPF 3), allows readers to work with standards of a convenient size.

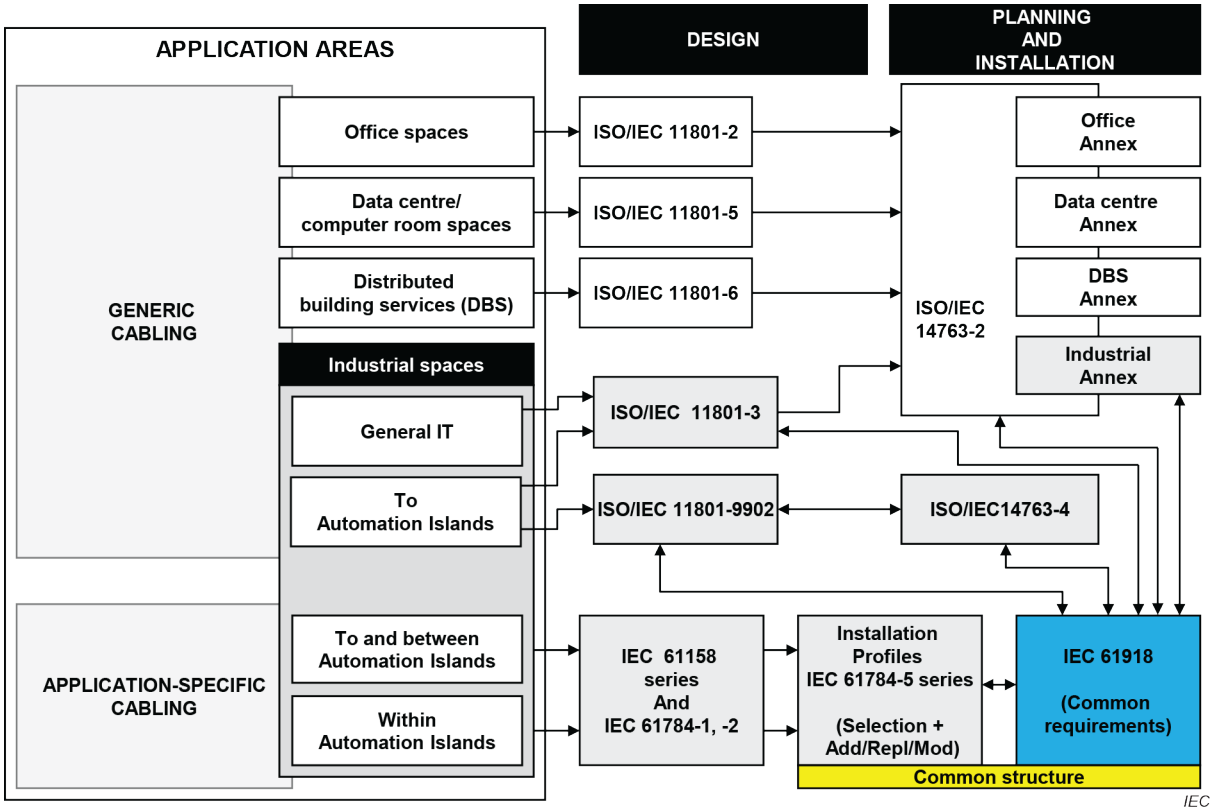


**Figure 1 – Standards relationships**

# INDUSTRIAL COMMUNICATION NETWORKS – PROFILES –

## Part 5-3: Installation of fieldbuses – Installation profiles for CPF 3

## 1 Scope

This part of IEC 61784-5 specifies the installation profiles for CPF 3 (PROFIBUS/PROFINET)[1].

The installation profiles are specified in the annexes. These annexes are read in conjunction with IEC 61918:2018.

## 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.

IEC 61918:2018, *Industrial communication networks – Installation of communication networks in industrial premises*

The normative references of IEC 61918:2018, Clause 2, apply.

NOTE For profile specific normative references, see Clause(s) A.2, B.2 and C.2.

## 3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms, definitions and abbreviated terms of IEC 61918:2018, Clause 3, apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE For profile specific terms, definitions and abbreviated terms see Clause(s) A.3, B.3 and C.3.

## 4 CPF 3: Overview of installation profiles

CPF 3 consists of six communication profiles as specified in IEC 61784-1 and IEC 61784-2.

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[1] PROFIBUS and PROFINET are trade names of the non-profit organization PROFIBUS Nutzerorganisation e.V. (PNO). This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the trade names holder or any of its products. Compliance to this profile does not require use of the trade names. Use of the trade names PROFIBUS and PROFINET requires permission of the trade name holder.