IEC 61784-5-3

Edition 1.0 2007-12

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 61784-5-3:2007-12(en-fr)

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FOREWORD

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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 bilingual version (2015-01) corresponds to the English version, published in 2007-12.

This standard is to be used in conjunction with IEC 61918:2007.

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

FDIS	Report on voting
65C/471/FDIS	65C/482/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.

The French version of this standard has not been voted upon.

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

A list of all parts of the 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 publication will remain unchanged until the maintenance result 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- withdrawn,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.

The contents of the corrigendum of February 2009 have been included in this copy.

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 61918:2007 (Ed. 1.0) 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 standard, see IEC/TR 61158-1.

Each CP installation profile is specified in a separate annex of this standard. 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 standard 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.

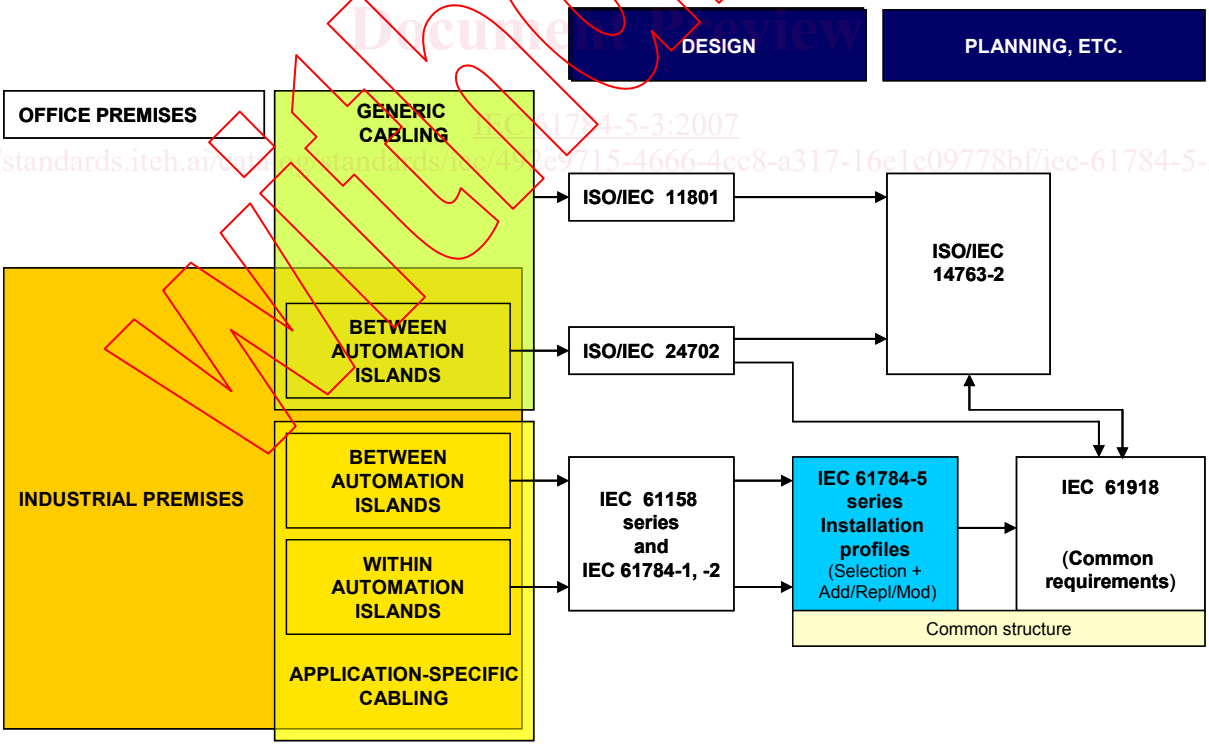

Figure 1 – Standards relationships

INDUSTRIAL COMMUNICATION NETWORKS – PROFILES

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

1 Scope

This part of IEC 61784 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 61918:2007.

2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 61918:2007, *Industrial communication networks – Installation of communication networks in industrial premises*

The normative references of IEC 61918:2007, Clause 2, apply. For profile specific normative references, see A.2, B.2, and C.2.

3 Terms, definitions and abbreviated terms

For the purpose of this document, the terms, definitions and abbreviated terms of IEC 61918:2007, Clause 3, apply. For profile specific terms, definitions and abbreviated terms see A.3, B.3, and C.3.

4 CPF 3: Overview of installation profiles

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

The installation requirements for CP 3/1 (PROFIBUS with physical layer according to RS 485, RS 485-IS, and fibre) are specified in Annex A.

The installation requirements for CP 3/2 (PROFIBUS with physical layer according to MBP, MBP-IS, MBP-LP) are specified in Annex B.

The installation requirements for CP 3/3, CP 3/4, CP 3/5, and CP 3/6 (PROFINET) are specified in Annex C.

5 Installation profile conventions

The numbering of the clauses and subclauses in the annexes of this standard corresponds to the numbering of IEC 61918:2007 main clauses and subclauses.

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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 International Standard 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.

The annex clauses and subclauses of this standard supplement, modify, or replace the respective clauses and subclauses in IEC 61918:2007.

Where there is no corresponding subclause of IEC 61918:2007 in the normative annexes in this standard, the subclause of IEC 61918:2007 applies without modification.

The annex heading letter represents the installation profile assigned in Clause 4. The annex heading number shall represent the corresponding numbering of IEC 61918:2007.

EXAMPLE "Annex B.4.4" in IEC 61784-5-3 means that CP 3/2 specifies the Subclause 4.4 of IEC 61918:2007.

All main clauses of IEC 61918:2007 are cited and apply in full unless otherwise stated in each normative installation profile annex.

If all subclauses of a (sub)clause are omitted, then the corresponding IEC 61918 (sub)clause applies.

If in a (sub)clause it is written "Not applicable", then the corresponding IEC 61918 (sub)clause does not apply.

If in a (sub)clause it is written "Addition", then the corresponding IEC 61918 (sub)clause applies with the additions written in the profile.

If in a (sub)clause it is written "Replacement", then the text provided in the profile replaces the text of the corresponding IEC 61918 (sub)clause.

NOTE A replacement can also comprise additions.

If in a (sub)clause it is written "Modification", then the corresponding IEC 61918 (sub)clause applies with the modifications written in the profile.

If all (sub)clauses of a (sub)clause are omitted but in this (sub)clause it is written "(sub)clause x has "Addition" (or "Replacement") or is "Not applicable", then (sub)clause x becomes valid as declared and all the other corresponding IEC 61918 (sub)clauses apply.

6 Conformance to installation profiles

Each installation profile within this standard includes part of IEC 61918:2007. It may also include defined additional specifications.

A statement of compliance to an installation profile of this standard shall be stated[2] as either

Compliance to IEC 61784-5-3:2007[3] for CP 3/n <name> or

Compliance to IEC 61784-5-3 (Ed.1.0) for CP 3/n <name>

where the name within the angle brackets < > is optional and the angle brackets are not to be included. The n within CP 3/n shall be replaced by the profile number 1 to 6.

NOTE The name may be the name of the profile, for example PROFIBUS or PROFINET.

If the name is a trade name then the permission of the trade name holder shall be required.

Product standards shall not include any conformity assessment aspects (including quality management provisions), neither normative nor informative, other than provisions for product testing (evaluation and examination).

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2 In accordance with ISO/IEC Directives

3 The date should not be used when the edition number is used.

Annex A
(normative)

CP 3/1 specific installation profile

A.1 Installation profile scope

Addition:

This standard specifies the installation profile for Communication Profile CP 3/1 (PROFIBUS with a physical layer according to RS 485, RS 485-IS, and fibre). The CP 3/1 is specified in IEC 61784-1.

A.2 Normative references

Addition:

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*

ANSI TIA/EIA-485-A, *Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems*

A.3 Installation profile terms, definitions, and abbreviated terms

A.3.1 Terms and definitions

Addition:

A.3.1.1
hazard
potential source of harm

NOTE The term includes danger to persons arising within a short time scale (for example fire and explosion) and also those that have a long term effect on a person's health (for example release of a toxic substance).

[IEC 61508-4:1998, 3.1.2]

A.3.1.2

intrinsic safety "i"
type of protection based on the restriction of electrical energy within apparatus and of interconnecting wiring exposed to the potentially explosive atmosphere to a level below that which can cause ignition by either sparking or heating effects

[IEC 60079-11:2006, 3.1.1]

NOTE No single device or wiring is intrinsically safe by itself (except for battery-operated self-contained apparatus such as portable pagers, transceivers, gas detectors, etc., which are specifically designed as intrinsically safe self-contained devices) but is intrinsically safe only when employed as part of a properly designed intrinsically safe system.

A.3.2 Abbreviated terms

Addition: