



BSI Standards Publication

Industrial networks — Profiles

Part 5-6: Installation of fieldbuses — Installation profiles for CPF 6

National foreword

This British Standard is the UK implementation of EN IEC 61784-5-6:2024. It is identical to IEC 61784-5-6:2024. It supersedes BS EN IEC 61784-5-6:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/65/3, Industrial communications: process measurement and control, including fieldbus.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Date	Text affected
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English Version

Industrial networks - Profiles - Part 5-6: Installation of fieldbuses
- Installation profiles for CPF 6
(IEC 61784-5-6:2024)

Réseaux industriels - Profils - Partie 5-6: Installation des
bus de terrain - Profils d'installation pour CPF 6
(IEC 61784-5-6:2024)

Industrielle Kommunikationsnetze - Profile - Teil 5-6:
Feldbusinstallation - Installationsprofile für die
Kommunikationsprofilfamilie 6
(IEC 61784-5-6:2024)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 65C/1283/FDIS, future edition 5 of IEC 61784-5-6, 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 IEC 61784-5-6:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2025-02-08 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2027-05-08 document have to be withdrawn

This document supersedes EN IEC 61784-5-6:2018 and all of its amendments and corrigenda (if any).

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.

This document is read in conjunction with EN IEC 61918:2018, and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 61784-5-6:2024 was approved by CENELEC as a European Standard without any modification.

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 Where 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 61918	2018	Industrial communication networks - Installation of communication networks in industrial premises	EN IEC 61918	2018 ¹
-	-		+ A11	2019
-	-		+ A12	2023
-	-		+ AC	2019-03
+ AMD1	2022		+ A1	2022
+ AMD2	2024		+ A2	2024

¹ The normative references of EN IEC 61918:2018, EN IEC 61918:2018/A11:2019, EN IEC 61918:2018/A12:2023, EN IEC 61918:2018/AC:2019-03, EN IEC 61918:2018/A1:2022, and EN IEC 61918:2018/A2:2024 apply.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL NETWORKS –
PROFILES –****Part 5-6: Installation of fieldbuses –
Installation profiles for CPF 6****FOREWORD**

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IEC 61784-5-6 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial process measurement, control and automation. It is an International Standard.

This document is to be used in conjunction with IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918:2018/AMD2:2024.

This fifth edition cancels and replaces the fourth edition published in 2018. This edition constitutes a technical revision.

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

- a) alignment with IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918:2018/AMD2:2024;
- b) addition of new content related to Single Pair Ethernet (SPE) in Annex B, Table B.1, Table B.3, Table B.4, Table B.6.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65C/1283/FDIS	65C/1297/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 the 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/publications.

A list of all parts of IEC 61784-5 series, under the general title *Industrial 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 website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

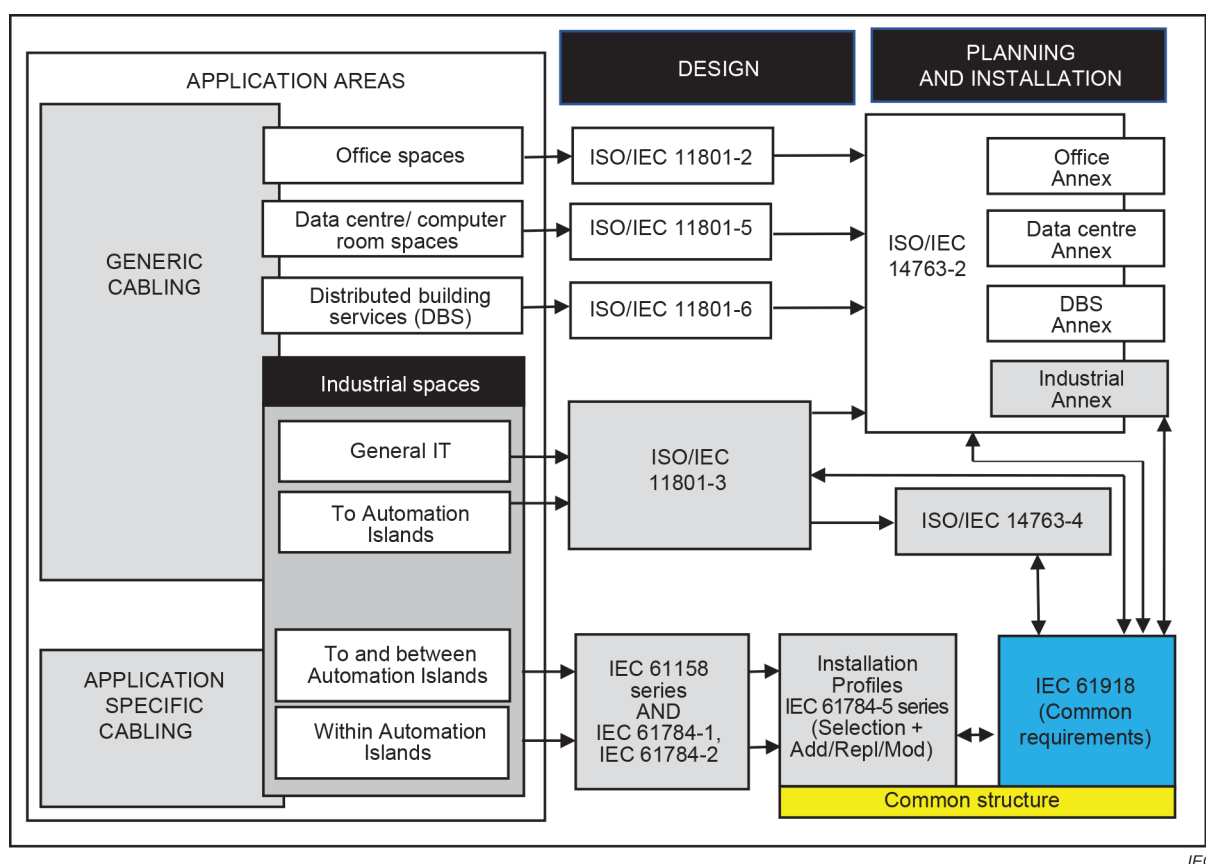
This document is one of a series produced to facilitate the use of communication networks in industrial control systems.

IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918:2018/AMD2:2024 provide the common requirements for the installation of communication networks in industrial control systems. This installation profile document 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 document 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 document for each CPF (for example IEC 61784-5-6 for CPF 6) allows readers to work with documents of a convenient size.



IEC

Figure 1 – Standards relationships

INDUSTRIAL NETWORKS – PROFILES –

Part 5-6: Installation of fieldbuses – Installation profiles for CPF 6

1 Scope

This part of IEC 61784-5 specifies the installation profiles for CPF 6 (INTERBUS™)¹.

The installation profiles are specified in the annexes. These annexes are read in conjunction with IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918:2018/AMD2:2024.

2 Normative references

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.

IEC 61918:2018², *Industrial communication networks – Installation of communication networks in industrial premises*
IEC 61918:2018/AMD1:2022
IEC 61918:2018/AMD2:2024

NOTE For profile specific normative references, see Clauses A.2, B.2.

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms, definitions and abbreviated terms given in IEC 61918:2018, Clause 3, IEC 61918:2018/AMD1:2022, Clause 3, and Clauses A.3, B.3 of this document apply.

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

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

¹ INTERBUS™ is a trade name of INTERBUS Club, an independent organisation of users and vendors of INTERBUS products. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name INTERBUS. Use of the trade name INTERBUS requires permission of the trade name holder.

² The normative references of IEC 61918:2018, Clause 2, IEC 61918:2018/AMD1:2022, Clause 2 and IEC 61918:2018/AMD2:2024, Clause 2, apply.

4 CPF 6: Overview of installation profiles

CPF 6 consists of seven communication profiles (see IEC 61784-1:— for CP 6/1, CP 6/2, CP 6/3, see IEC 61784-2:— for CP 6/4, CP 6/5, CP 6/6, see IEC 61784-3-6 for FSCP 6/7).

The CPF 6 Type 8 network (non-Ethernet-based) installation profile is specified in Annex A.

The CPF 6 Ethernet network specific installation profile is specified in Annex B.

5 Installation profile conventions

The numbering of the clauses and subclauses in the annexes of this document corresponds to the numbering of IEC 61918:2018 main clauses and subclauses.

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

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

The annex heading letter represents the installation profile assigned in Clause 4. The annex (sub)clause numbering following the annex letter shall represent the corresponding (sub)clause numbering of IEC 61918.

EXAMPLE "Subclause B.4.4" in IEC 61784-5-6 means that CP 6/2 specifies the Subclause 4.4 of IEC 61918.

All main clauses of IEC 61918 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 "*(Sub)clause x 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 document includes part of IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918:2018/AMD2:2024. It may also include defined additional specifications.

A statement of compliance with an installation profile of this document shall be state as either

Compliance with IEC 61784-5-6:2024 for CP 6/m <name> or

Compliance with IEC 61784-5-6 (Ed.5.0) for CP 6/m <name>

where the name within the angle brackets < > is optional and the angle brackets are not to be included. The m within CP 6/m shall be replaced by the profile number 1 to 2.

NOTE The name can be the name of the profile, for example INTERBUS.

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

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

Annex A (normative)

CPF 6 Type 8 network specific installation profile

A.1 Installation profile scope

Addition:

This annex specifies the installation profile for CPF 6 Type 8 networks and the related Communication Profiles:

- CP 6/1, CP 6/2, CP 6/3 – specified in IEC 61784-1;
- CP 6/4, CP 6/5, CP 6/6 – specified in IEC 61784-2;
- FSCP 6/7 – specified in IEC 61784-3-6.

A.2 Normative references

Addition:

IEC 60189-1:2018, *Low-frequency cables and wires with PVC insulation and PVC sheath – Part 1: General test and measuring methods*

IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures – General guidance*

IEC 61076-3-123, *Connectors for electronic equipment – Product requirements – Part 3-123: Rectangular connectors – Detail specification for hybrid connectors for industrial environments, for power supply and fibre optic data transmission, with push-pull locking*

IEC 61156-1:2007³, *Multicore and symmetrical pair/quad cables for digital communications – Part 1: Generic specification*

IEC 61754-24-21, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 24-21: Type SC-RJ connectors with protective housings based on IEC 61076-3-106, variant 06*

IEC 61754-27, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 27: Type M12 FO connector family*

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

A.3.1 Terms and definitions

Addition:

A.3.1.93 bus coupler

device that divides the Type 8 network into segments by opening the ring and integrating another ring at this point

³ A 2023 edition of this document exists but the listed edition applies.

A.3.1.94

local bus

ring segment of a Type 8 network with alternate media specifications, which is coupled to a remote bus device via a bus coupler

A.3.1.95

local bus device

device that operates as a slave on a local bus

A.3.1.96

master

device that controls the data transfer on the Type 8 network and initiates the media access of the slaves by sending messages and that constitutes the interface to the control system

A.3.1.97

remote bus

ring segment of a network

A.3.1.98

remote bus device

device operating as a slave on a remote bus

A.3.1.99

remote bus link

connection of two remote bus devices

A.3.1.100

ring segment

one section of a Type 8 network

A.3.1.101

slave

device that accesses the medium only after it has been initiated by the preceding slave or master

A.3.2 Abbreviated terms

Addition:

BC	Bus coupler
COM	Ground line
/DI	Incoming interface: send data line – Outgoing interface: receive data line –
DI	Incoming interface: send data line + Outgoing interface: receive data line +
/DO	Incoming interface: receive data line – Outgoing interface: send data line –
DO	Incoming interface: receive data line + Outgoing interface: send data line +
PELV	Protective extra low voltage
POF	Plastic optical fibre
SELV	Safety extra low voltage