

BS EN 61784-5-19:2013



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Industrial communication networks — Profiles

Part 5-19: Installation of fieldbuses —
Installation profiles for CPF 19

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The UK participation in its preparation was entrusted to Technical Committee AMT/7, Industrial communications: process measurement and control, including fieldbus.

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

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**Industrial communication networks -
Profiles -
Part 5-19: Installation of fieldbuses -
Installation profiles for CPF 19
(IEC 61784-5-19:2013)**

Réseaux de communication industriels -
Profils -
Partie 5-19: Installation des bus de terrain
- Profils d'installation pour CPF 19
(CEI 61784-5-19:2013)

Industrielle Kommunikationsnetze -
Profile -
Teil 5-19: Feldbusinstallation -
Installationsprofile für die
Kommunikationsprofilfamilie 19
(IEC 61784-5-19:2013)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 65C/738/FDIS, future edition 1 of IEC 61784-5-19, 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 61784-5-19:2013.

The following dates are fixed:

- latest date by which the document has to be (dop) 2014-07-14
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2016-10-14
standards conflicting with the
document have to be withdrawn

This standard is to be used in conjunction with EN 61918:2013.

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

Endorsement notice

The text of the International Standard IEC 61784-5-19:2013 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, 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Annex ZA of EN 61918:2013 applies, except as follows:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
<i>Addition to Annex ZA of EN 61918:2013:</i>				
IEC 61918	2013	Industrial communication networks - Installation of communication networks in industrial premises	EN 61918	2013

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INTRODUCTION

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

IEC 61918:2013 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 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 61784-5-19 for CPF 19), allows readers to work with standards of a convenient size.

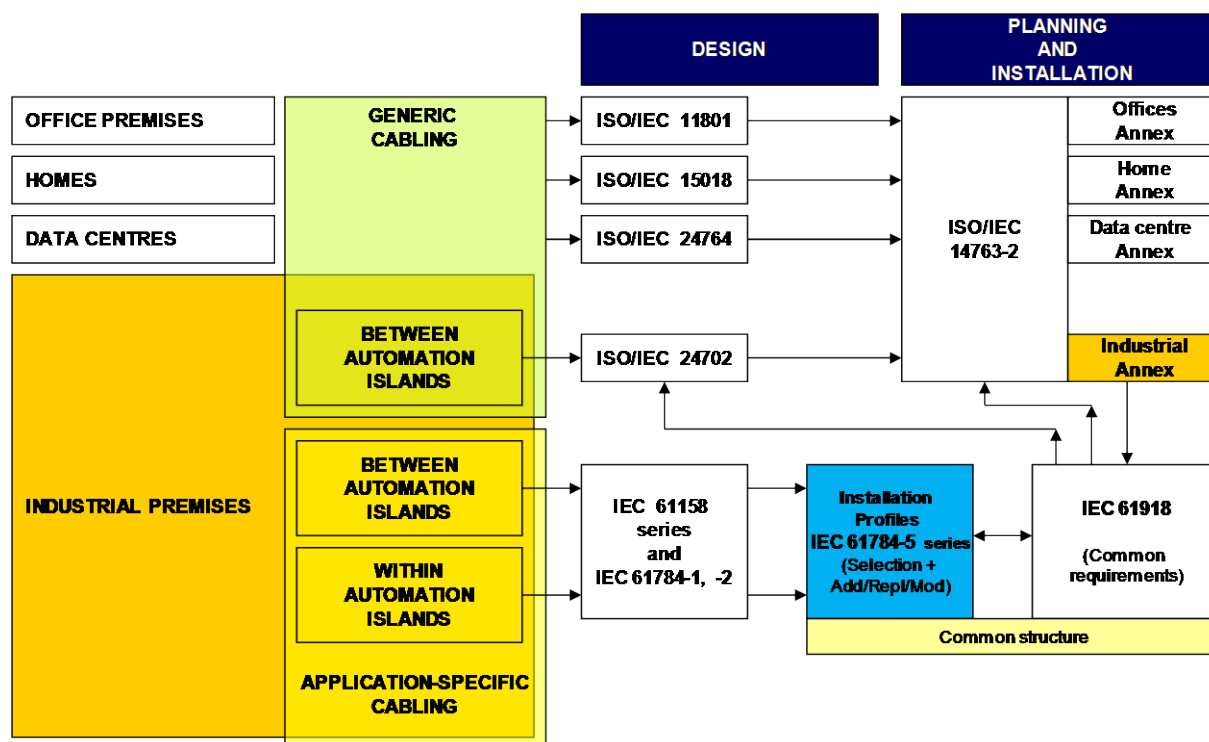


Figure 1 – Standards relationships

INDUSTRIAL COMMUNICATION NETWORKS – PROFILES –

Part 5-19: Installation of fieldbuses – Installation profiles for CPF 19

1 Scope

This part of IEC 61784 specifies the installation profiles for CPF 19 (MECHATROLINK™¹).

The installation profiles are specified in the annexes. These annexes are read in conjunction with IEC 61918:2013.

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 61918:2013, *Industrial communication networks – Installation of communication networks in industrial premises*

The normative references of IEC 61918:2013, Clause 2, apply. For profile specific normative references, see Clause A.2.

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms, definitions and abbreviated terms given in IEC 61918:2013, Clause 3, apply. For profile specific terms, definitions and abbreviated terms see Clauses A.3 and B.3.

4 CPF19: Overview of installation profiles

CPF 19 consists of two Communication Profiles as specified in IEC 61784-1.

The installation requirements for CP 19/1 (MECHATROLINK™-II) are specified in Annex A.

The installation requirements for CP 19/2 (MECHATROLINK™-III) are specified in Annex B.

5 Installation profile conventions

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

¹ MECHATROLINK™ is a trade name of YASKAWA ELECTRIC CORPORATION. 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 name MECHATROLINK 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.

Where there is no corresponding subclause of IEC 61918 in the normative annexes in this standard, the subclause of IEC 61918 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.

EXAMPLE “Subclause B.4.4” in IEC 61784-5-19 means that CP 19/2 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 standard includes part of IEC 61918:2013. It may also include defined additional specifications.

A statement of compliance to an installation profile of this standard shall be stated² as either

Compliance to IEC 61784-5-19:2013³ for CP 19/n <name> or

Compliance to IEC 61784-5-19 (Ed.1.0) for CP 19/n <name>

where the name within the angle brackets < > is optional and the angle brackets are not to be included. The n within CP 19/n shall be replaced by the profile number 1 to 2.

NOTE The name can be the name of the profile, for example MECHATROLINK-II or MECHATROLINK-III.

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

² In accordance with ISO/IEC Directives.

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

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).

Annex A (normative)

CP 19/1 (MECHATROLINK-II) specific installation profile

A.1 Installation profile scope

Addition:

This standard specifies the installation profile for Communication Profile CP 19/1 (MECHATROLINK-II). The CP 19/1 is specified in IEC 61784-1.

A.2 Normative references

Addition:

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.3.1.79

C1 master

master device which initiates cyclic data transfer with slave devices

A.3.1.80

C2 master

master device which initiates message data exchange with other devices

A.3.1.81

master

device that controls the data transfer on the CP 19/1 network and initiates the media access of the slaves by sending messages and that constitutes the interface to the control system

A.3.1.82

slave

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

A.3.2 Abbreviated terms

Addition:

M-II	MECHATROLINK-II
USB	Universal Serial Bus

A.3.3 Conventions for installation profiles

Not applicable.

A.4 Installation planning

A.4.1 General

Subclause 4.1.4 is not applicable.

A.4.2 Planning requirements

A.4.2.1 Safety

A.4.2.1.1 General

A.4.2.1.2 Electric safety

A.4.2.1.3 Functional safety

Not applicable.

A.4.2.1.4 Intrinsic safety

Not applicable.

A.4.2.1.5 Safety of optical fibre communication systems

Not applicable.

A.4.2.2 Security

A.4.2.3 Environmental considerations and EMC

A.4.2.3.1 Description methodology

A.4.2.3.2 Use of the described environment to produce a bill of material

A.4.2.4 Specific requirements for generic cabling in accordance with ISO/IEC 24702

A.4.3 Network capabilities

A.4.3.1 Network topology

A.4.3.1.1 Common description

A.4.3.1.2 Basic physical topologies for passive networks

Modification:

CP 19/1 network supports only passive bus topology.

A.4.3.1.3 Basic physical topologies for active networks

Not applicable.

A.4.3.1.4 Combination of basic topologies

A.4.3.1.5 Specific requirements for CPs

Addition:

CP 19/1 supports passive bus topology by daisy chain connection of devices. Passive star topology is not supported and spurs shall not be used. Figure A.1 shows the CP 19/1 passive bus network.