



SLOVENSKI STANDARD

SIST EN 61784-5-19:2014

01-april-2014

Industrijska komunikacijska omrežja - Profili - 5-19. del: Inštalacija procesnih vodil - Inštalacijski profili za CPF 19 (IEC 61784-5-19:2013)

Industrial communication networks - Profiles -- Part 5-19: Installation of fieldbuses -
Installation profiles for CPF 19

Industrielle Kommunikationsnetze - Profile -- Teil 5-19: Feldbusinstallation -
Installationsprofile für die Kommunikationsprofilfamilie 19

Réseaux de communication industriels - Profils -- Partie 5-19: Installation des bus de
terrain - Profils d'installation pour CPF 19

<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>

Ta slovenski standard je istoveten z: EN 61784-5-19:2013

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.100.40	Transportni sloj	Transport layer

SIST EN 61784-5-19:2014

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61784-5-19:2014](https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014)

<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61784-5-19

December 2013

ICS 25.040.40; 35.100.40

English version

**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)

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

SIST EN 61784-5-19:2014

This European Standard was approved by CENELEC on 2013-10-14. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

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

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 61784-5-19:2014
<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61784-5-19:2014](https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014)

<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61784-5-19:2014](#)

<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>



IEC 61784-5-19

Edition 1.0 2013-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Industrial communication networks – Profiles –
Part 5-19: Installation of fieldbuses – Installation profiles for CPF 19**

**Réseaux de communication industriels – Profils –
Partie 5-19: Installation des bus de terrain – Profils d'installation pour CPF 19**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX



ICS 25.040.40; 35.100.40

ISBN 978-2-8322-1073-4

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms, definitions and abbreviated terms	8
4 CPF19: Overview of installation profiles	8
5 Installation profile conventions	8
6 Conformance to installation profiles.....	9
Annex A (normative) CP 19/1 (MECHATROLINK-II) specific installation profile	11
A.1 Installation profile scope.....	11
A.2 Normative references	11
A.3 Installation profile terms, definitions, and abbreviated terms.....	11
A.3.1 Terms and definitions	11
A.3.2 Abbreviated terms	11
A.3.3 Conventions for installation profiles	11
A.4 Installation planning	12
A.4.1 General.....	12
A.4.2 Planning requirements.....	12
A.4.3 Network capabilities	12
A.4.4 Selection and use of cabling components.....	14
A.4.5 Cabling planning documentation.....	21
A.4.6 Verification of cabling planning specification.....	21
A.5 Installation implementation.....	22
A.5.1 General requirements.....	22
A.5.2 Cable installation.....	22
A.5.3 Connector installation.....	23
A.5.4 Terminator installation.....	24
A.5.5 Device installation	24
A.5.6 Coding and labelling.....	24
A.5.7 Earthing and bonding of equipment and devices and shield cabling.....	24
A.5.8 As-implemented cabling documentation.....	25
A.6 Installation verification and installation acceptance test.....	25
A.6.1 General	25
A.6.2 Installation verification.....	25
A.6.3 Installation acceptance test	26
A.7 Installation administration.....	26
A.8 Installation maintenance and installation troubleshooting	27
Annex B (normative) CP 19/2 (MECHATROLINK-III) specific installation profile	29
B.1 Installation profile scope.....	29
B.2 Normative references	29
B.3 Installation profile terms, definitions, and abbreviated terms.....	29
B.3.1 Terms and definitions	29
B.3.2 Abbreviated terms	29
B.3.3 Conventions for installation profiles.....	29

B.4 Installation planning	29
B.4.1 General	29
B.4.2 Planning requirements	29
B.4.3 Network capabilities	30
B.4.4 Selection and use of cabling components	31
B.4.5 Cabling planning documentation	36
B.4.6 Verification of cabling planning specification	36
B.5 Installation implementation	37
B.5.1 General requirements	37
B.5.2 Cable installation	37
B.5.3 Connector installation	38
B.5.4 Terminator installation	38
B.5.5 Device installation	38
B.5.6 Coding and labelling	39
B.5.7 Earthing and bonding of equipment and devices and shield cabling	39
B.5.8 As-implemented cabling documentation	39
B.6 Installation verification and installation acceptance test	39
B.6.1 General	39
B.6.2 Installation verification	39
B.6.3 Installation acceptance test	40
B.7 Installation administration	40
B.8 Installation maintenance and (installation troubleshooting)	40
Bibliography	41
Figure 1 – Standards relationships	7
Figure A.1 – Topology of CP 19/1 network	13
Figure A.2 – Network expansion using repeater	13
Figure A.3 – Structure of cable	15
Figure A.4 – Dimensions of single port device connector	17
Figure A.5 – Dimensions of dual ports device connector	17
Figure A.6 – Dimensions of cable connector	18
Figure A.7 – Cable connector with inductors	18
Figure A.8 – Terminator connection in cable connector housing	19
Figure A.9 – Wiring example	23
Figure A.10 – Terminator installed in M-II cable connector	24
Figure A.11 – Division of network segment by changing terminator location	28
Figure B.1 – Dimensions of IMI device connector	33
Figure B.2 – Dimensions of IMI cable connector	34
Table A.1 – Basic network characteristics for balanced cabling not based on Ethernet	13
Table A.2 – Number of devices and maximum segment length	14
Table A.3 – Information relevant to copper cable: fixed cables	15
Table A.4 – Additional cable specifications	15
Table A.5 – Connectors for copper cabling CPs not based on Ethernet	16
Table A.6 – Parameters for balanced cables	22
Table A.7 – Pin assignment and wire colour coding for CP 19/1 connector	24

SIST EN 61784-5-19:2014

<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>

Table A.8 – Typical problems in a network with balanced cabling	27
Table B.1 – Network characteristics for balanced cabling based on Ethernet	31
Table B.2 – Information relevant to copper cable: fixed cables	31
Table B.3 – Information relevant to copper cable: cords	32
Table B.4 – Connectors for balanced cabling CPs based on Ethernet	33
Table B.5 – Parameters for balanced cables	37
Table B.6 – Pin assignment and wire colour coding for CP 19/2 connector	38

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61784-5-19:2014](https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014)

<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS –
PROFILES –**
**Part 5-19: Installation of fieldbuses –
Installation profiles for CPF 19**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61784-5-19 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

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

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

FDIS	Report on voting
65C/738/FDIS	65C/743/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.

This publication 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 publication 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 publication. At this date, the publication 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 61784-5-19:2014](#)

<https://standards.iteh.ai/catalog/standards/sist/2033bbce-7e57-40c6-a26c-9c0abee6bc7f/sist-en-61784-5-19-2014>

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.

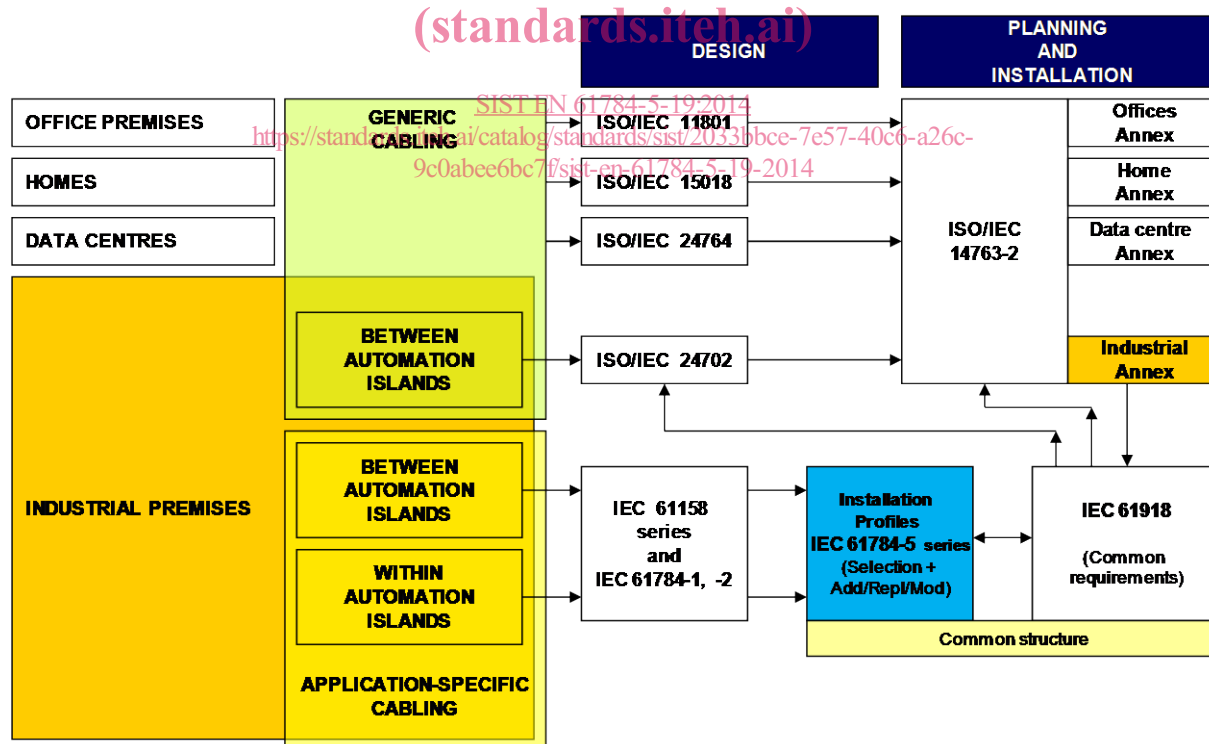


Figure 1 – Standards relationships