

STN	Priemyselné komunikačné siete. Profily. Časť 5-2: Inštalácia prevádzkových zberníc. Inštalačné profily pre rad komunikačných profilov CPF 2.	STN EN 61784-5-2
		18 4020

Industrial communication networks - Profiles - Part 5-2: Installation of fieldbuses - Installation profiles for CPF 2

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Obsahuje: EN 61784-5-2:2013, IEC 61784-5-2:2013

Oznámením tejto normy sa od 14.10.2016 ruší
STN EN 61784-5-2 (18 4020) zo septembra 2012

119114

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, odbor SÚTN, 2014
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy
rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

**EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM**

EN 61784-5-2

December 2013

ICS 25.040.40; 35.100.40

Supersedes EN 61784-5-2:2012

English version

**Industrial communication networks -
Profiles -
Part 5-2: Installation of fieldbuses -
Installation profiles for CPF 2
(IEC 61784-5-2:2013)**

Réseaux de communication industriels -
Profils -
Partie 5-2: Installation des bus de terrain -
Profils d'installation pour CPF 2
(CEI 61784-5-2:2013)

Industrielle Kommunikationsnetze -
Profile -
Teil 5-2: Feldbusinstallation -
Installationsprofile für die
Kommunikationsprofilfamilie 2
(IEC 61784-5-2:2013)

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 3 of IEC 61784-5-2, 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 61784-5-2:2013.

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 document supersedes EN 61784-5-2:2012.

EN 61784-5-2:2013 includes the following significant technical changes with respect to EN 61784-5-2:2012:

- updates pertaining to current installation practices;
- addition of new technology that has become recently available;
- errors have been corrected;
- improved alignment with EN 61918.

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 61784-5-2:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- | | | |
|------------------|------|---|
| IEC 61158 Series | NOTE | Harmonized as EN 61158 Series (not modified). |
| IEC/TR 61158-1 | NOTE | Harmonized as CLC/TR 61158-1. |
| IEC 62026-3 | NOTE | Harmonized as EN 62026-3. |

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>
--------------------	-------------	--------------	--------------	-------------

Addition to Annex ZA of EN 61918:2013:

IEC 61918	2013	Industrial communication networks - Installation of communication networks in industrial premises	EN 61918	2013
-----------	------	---	----------	------



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Industrial communication networks – Profiles –
Part 5-2: Installation of fieldbuses – Installation profiles for CPF 2**

**Réseaux de communication industriels – Profils –
Partie 5-2: Installation des bus de terrain – Profils d'installation pour CPF 2**





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2013 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

Useful links:

IEC publications search - www.iec.ch/searchpub

The advanced search enables you to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available on-line and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary (IEV) on-line.

Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Liens utiles:

Recherche de publications CEI - www.iec.ch/searchpub

La recherche avancée vous permet de trouver des publications CEI en utilisant différents critères (numéro de référence, texte, comité d'études,...).

Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

Just Published CEI - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications de la CEI. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électriques et électroniques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (VEI) en ligne.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Industrial communication networks – Profiles –
Part 5-2: Installation of fieldbuses – Installation profiles for CPF 2**

**Réseaux de communication industriels – Profils –
Partie 5-2: Installation des bus de terrain – Profils d'installation pour CPF 2**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX XH

ICS 25.040.40; 35.100.40

ISBN 978-2-8322-1060-4

**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.....	9
INTRODUCTION.....	11
1 Scope.....	12
2 Normative references	12
3 Terms, definitions and abbreviated terms	12
4 CPF 2: Overview of installation profiles	12
5 Installation profile conventions	13
6 Conformance to installation profiles.....	14
Annex A (normative) CP 2/1 (ControlNet™) specific installation profile	15
A.1 Installation profile scope.....	15
A.2 Normative references	15
A.3 Installation profile terms, definitions, and abbreviated terms	15
A.3.1 Terms and definitions	15
A.3.2 Abbreviated terms	15
A.3.3 Conventions for installation profiles	15
A.4 Installation planning	16
A.4.1 General	16
A.4.2 Planning requirements.....	17
A.4.3 Network capabilities	18
A.4.4 Selection and use of cabling components	24
A.4.5 Cabling planning documentation.....	41
A.4.6 Verification of planning specification	41
A.5 Installation implementation	41
A.5.1 General requirements.....	41
A.5.2 Cable installation.....	41
A.5.3 Connector installation.....	43
A.5.4 Terminator installation	53
A.5.5 Device installation	53
A.5.6 Coding and labelling.....	55
A.5.7 Earthing and bonding of equipment and devices and shield cabling.....	56
A.5.8 As-implemented cabling documentation.....	57
A.6 Installation verification and installation acceptance test.....	57
A.6.1 General	57
A.6.2 Installation verification.....	57
A.6.3 Installation acceptance test	60
A.7 Installation administration.....	62
A.8 Installation maintenance and installation troubleshooting	62
A.8.1 General	62
A.8.2 Maintenance.....	62
A.8.3 Troubleshooting	62
A.8.4 Specific requirements for maintenance and troubleshooting	67
Annex B (normative) CP 2/2 (EtherNet/IP™) specific installation profile.....	68
B.1 Installation profile scope.....	68
B.2 Normative references	68

B.3 Installation profile terms, definitions, and abbreviated terms	68
B.3.1 Terms and definitions	68
B.3.2 Abbreviated terms	68
B.3.3 Conventions for installation profiles	68
B.4 Installation planning	69
B.4.1 General	69
B.4.2 Planning requirements	70
B.4.3 Network capabilities	70
B.4.4 Selection and use of cabling components	74
B.4.5 Cabling planning documentation	86
B.4.6 Verification of cabling planning specification	87
B.5 Installation implementation	87
B.5.1 General requirements	87
B.5.2 Cable installation	87
B.5.3 Connector installation	88
B.5.4 Terminator installation	89
B.5.5 Device installation	89
B.5.6 Coding and labelling	89
B.5.7 Earthing and bonding of equipment and devices and shield cabling	89
B.5.8 As-implemented cabling documentation	91
B.6 Installation verification and installation acceptance test	91
B.6.1 General	91
B.6.2 Installation verification	91
B.6.3 Installation acceptance test	93
B.7 Installation administration	94
B.8 Installation maintenance and installation troubleshooting	94
Annex C (normative) CP 2/3 (DeviceNet™) specific installation profile	95
C.1 Installation profile scope	95
C.2 Normative references	95
C.3 Installation profile terms, definitions, and abbreviated terms	95
C.3.1 Terms and definitions	95
C.3.2 Abbreviated terms	95
C.3.3 Conventions for installation profiles	95
C.4 Installation planning	96
C.4.1 General	96
C.4.2 Planning requirements	97
C.4.3 Network capabilities	98
C.4.4 Selection and use of cabling components	112
C.4.5 Cabling planning documentation	121
C.4.6 Verification of cabling planning specification	121
C.5 Installation implementation	121
C.5.1 General requirements	121
C.5.2 Cable installation	121
C.5.3 Connector installation	124
C.5.4 Terminator installation	136
C.5.5 Device installation	138
C.5.6 Coding and labelling	141

C.5.7 Earthing and bonding of equipment and devices and shield cabling	141
C.5.8 As-implemented cabling documentation	142
C.6 Installation verification and installation acceptance test	142
C.6.1 General	142
C.6.2 Installation verification	142
C.6.3 Installation acceptance test	145
C.7 Installation administration	146
C.8 Installation maintenance and installation troubleshooting	146
C.8.1 General	146
C.8.2 Maintenance	146
C.8.3 Troubleshooting	146
C.8.4 Specific requirements for maintenance and troubleshooting	146
Annex D (informative) Additional information	150
D.1 Network validation check sheet for CP 2/3 (DeviceNet)	150
Bibliography	154
 Figure 1 – Standards relationships	11
Figure A.1 – Interconnection of CPF 2 networks	16
Figure A.2 – Overview of CPF 2/1 networks	17
Figure A.3 – Drop cable requirements	19
Figure A.4 – Placement of BNC/TNC plugs	19
Figure A.5 – Placement of terminators	20
Figure A.6 – Extending a network using repeaters	20
Figure A.7 – Extending a network using active star topology	21
Figure A.8 – Links	21
Figure A.9 – Extending the network beyond 99 nodes	22
Figure A.10 – Maximum allowable taps per segment	30
Figure A.11 – Example of repeaters in star configuration	31
Figure A.12 – Repeaters in parallel	32
Figure A.13 – Repeaters in combination series and parallel	33
Figure A.14 – Ring repeater	33
Figure A.15 – Installing bulkheads	34
Figure A.16 – Coaxial BNC and TNC terminators	35
Figure A.17 – Terminator placement in a segment	35
Figure A.18 – Redundant network icons	37
Figure A.19 – Redundant coax media	38
Figure A.20 – Redundant fibre media	38
Figure A.21 – Repeaters in series versus length difference for coax media	39
Figure A.22 – Repeaters in series versus length difference for fibre media	39
Figure A.23 – Example of redundant coax network with repeaters	40
Figure A.24 – Example of improper redundant node connection	40
Figure A.25 – Example tool kit for installing BNC connectors	44
Figure A.26 – Calibration of coaxial stripper	45
Figure A.27 – Coax PVC strip length detail (informative)	45

Figure A.28 – Memory cartridge and blade.....	46
Figure A.29 – Cable position.....	47
Figure A.30 – Locking the cable.....	47
Figure A.31 – Stripping the cable	47
Figure A.32 – Install the crimp ferrule	48
Figure A.33 – Cable preparation for PVC type cables (informative)	48
Figure A.34 – Cable preparation for FEP type cables (informative)	49
Figure A.35 – Strip guides	49
Figure A.36 – Using the flare tool.....	50
Figure A.37 – Expanding the shields.....	50
Figure A.38 – Install the centre pin	50
Figure A.39 – Crimping the centre pin.....	51
Figure A.40 – Installing the connector body	51
Figure A.41 – Installing the ferrule	51
Figure A.42 – Crimp tool	52
Figure A.43 – Sealed IP65/67 cable.....	53
Figure A.44 – Terminator placement	53
Figure A.45 – Mounting the taps	54
Figure A.46 – Mounting the tap assembly using the universal mounting bracket	55
Figure A.47 – Mounting the tap using tie wraps or screws.....	55
Figure A.48 – Redundant network icons	56
Figure A.49 – Network test tool.....	58
Figure A.50 – Shorting the cable to test for continuity	59
Figure A.51 – Testing fibre segments.....	61
Figure A.52 – Multi-fibre backbone cable housing	63
Figure A.53 – Repeater adapter module.....	63
Figure A.54 – Short and medium distance fibre module LEDs	65
Figure A.55 – Long and extra long repeater module LEDs	66
Figure B.1 – Interconnection of CPF 2 networks	69
Figure B.2 – Redundant linear bus	71
Figure B.3 – Peer to peer connections	71
Figure B.4 – Mated connections.....	74
Figure B.5 – The 8-way modular sealed jack & plug (plastic housing)	78
Figure B.6 – The 8-way modular sealed jack & plug (metal housing)	79
Figure B.7 – M12-4 connectors	79
Figure B.8 – Simplex LC connector	80
Figure B.9 – Duplex LC connector	80
Figure B.10 – IP65/67 sealed duplex LC connector	81
Figure B.11 – IP65/67 sealed duplex SC-RJ connector	81
Figure B.12 – M12-4 to 8-way modular bulkhead	83
Figure B.13 – The 8-way modular sealed jack & plug (plastic housing)	88
Figure B.14 – The 8-way modular sealed jack & plug (metal housing).....	89
Figure B.15 – M12-4 connectors	89

Figure B.16 – Earthing of cable shield	91
Figure C.1 – Interconnection of CPF 2 networks	96
Figure C.2 – Connection to generic cabling	97
Figure C.3 – DeviceNet cable system uses a trunk/drop line topology	98
Figure C.4 – Measuring the trunk length	100
Figure C.5 – Measuring the trunk and drop length	101
Figure C.6 – Measuring drop cable in a network with multiports	101
Figure C.7 – Removable device using open-style connectors	102
Figure C.8 – Fixed connection using open-style connector	102
Figure C.9 – Open-style connector pin out	102
Figure C.10 – Open-style connector pin out 10 position	103
Figure C.11 – Power supply sizing example	106
Figure C.12 – Current limit for thick cable for one power supply	107
Figure C.13 – Current limit for thick cable and two power supplies	108
Figure C.14 – Worst case scenario	109
Figure C.15 – Example using the lookup method	109
Figure C.16 – One power supply end connected	111
Figure C.17 – Segmenting power in the power bus	112
Figure C.18 – Segmenting the power bus using power taps	112
Figure C.19 – Thick cable construction	122
Figure C.20 – Cable Type I construction	123
Figure C.21 – Thin cable construction	123
Figure C.22 – Flat cable construction	123
Figure C.23 – Cable preparation	124
Figure C.24 – Connector assembly	125
Figure C.25 – Micro connector pin assignment	125
Figure C.26 – Mini connector pin assignment	125
Figure C.27 – Preparation of cable end	126
Figure C.28 – Shrink wrap installation	126
Figure C.29 – Wire preparation	126
Figure C.30 – Open-style connector (female)	127
Figure C.31 – Open-style (male plug)	127
Figure C.32 – Flat cable	128
Figure C.33 – Aligning the cable	128
Figure C.34 – Closing the assembly	129
Figure C.35 – Proper orientation of cable	129
Figure C.36 – Locking the assembly	129
Figure C.37 – Driving the IDC contacts in to the cable	130
Figure C.38 – End cap placement	130
Figure C.39 – End cap seated	131
Figure C.40 – End cap installation on alternate side of cable	131
Figure C.41 – Flat cable IDC connectors	132
Figure C.42 – Installing the connectors	132

Figure C.43 – Cable wiring to open-style terminals	133
Figure C.44 – Auxiliary power cable profile	133
Figure C.45 – Pin out auxiliary power connectors.....	134
Figure C.46 – Power supply cable length versus wire size	135
Figure C.47 – Sealed terminator	137
Figure C.48 – Open-style terminator	137
Figure C.49 – Open-style IDC terminator	137
Figure C.50 – Sealed terminator IDC cable	138
Figure C.51 – Direct connection to the trunk	138
Figure C.52 – Wiring of open-style connector.....	139
Figure C.53 – Wiring of open-style 10-position connector	139
Figure C.54 – Diagnostic temporary connections	139
Figure C.55 – Thick cable preterminated cables (cord sets).....	140
Figure C.56 – Thin cable preterminated cables (cord sets).....	141
 Table A.1 – Basic network characteristics for copper cabling not based on Ethernet	22
Table A.2 – Allowable fibre lengths	23
Table A.3 – RG6 coaxial electrical properties.....	25
Table A.4 – RG6 coaxial physical parameters	25
Table A.5 – Cable type selection.....	26
Table A.6 – Information relevant to optical fibre cables	27
Table A.7 – Copper connectors for ControlNet.....	27
Table A.8 – Fibre connectors for fieldbus systems	28
Table A.9 – Relationship between FOC and fibre types (CP 2/1).....	29
Table A.10 – Parameters for Coaxial RG6 Cables.....	42
Table A.11 – Bend radius for coaxial cables outside conduit	42
Table A.12 – Parameters for silica optical fibre cables	42
Table A.13 – Parameters for hard clad silica optical fibre	43
Table A.14 – Test matrix for BNC/TNC connectors.....	59
Table A.15 – Wave length and fibre types	62
Table A.16 – LED status table.....	64
Table A.17 – Repeater adapter and module diagnostic	64
Table A.18 – Repeater adapter indicator diagnostic	64
Table A.19 – Repeater module indicator	65
Table A.20 – Short and medium distance troubleshooting chart	65
Table A.21 – Long and extra long troubleshooting chart.....	67
Table B.1 – Network characteristics for balanced cabling based on Ethernet	72
Table B.2 – Network characteristics for optical fibre cabling.....	72
Table B.3 – Fibre lengths for 1 mm POF A4a.2 POF 0.5 NA	73
Table B.4 – Fibre lengths for 1 mm POF A4d POF 0.3 NA	74
Table B.5 – Information relevant to copper cable: fixed cables.....	75
Table B.6 – Information relevant to copper cable: cords	75
Table B.7 – TCL limits for unshielded twisted-pair cabling	76

Table B.8 – ELTCTL limits for unshielded twisted-pair cabling	76
Table B.9 – Coupling attenuation limits for screened twisted-pair cabling.....	76
Table B.10 – Information relevant to optical fibre cables	77
Table B.11 – Connectors for balanced cabling CPs based on Ethernet	78
Table B.12 – Industrial EtherNet/IP 8-way modular connector parameters	78
Table B.13 – Industrial EtherNet/IP M12-4 D-coding connector parameters	79
Table B.14 – Optical fibre connecting hardware	80
Table B.15 – Relationship between FOC and fibre types (CP2/2).....	81
Table B.16 – Connector insertion loss.....	82
Table B.17 – Parameters for balanced cables	87
Table B.18 – Parameters for silica optical fibre cables	87
Table B.19 – Parameters for POF optical fibre cables	88
Table C.1 – Basic network characteristics for copper cabling not based on Ethernet.....	99
Table C.2 – Cable trunk and drop lengths for CP 2/3	99
Table C.3 – Summary of available current for trunk cables (CP 2/3).....	103
Table C.4 – Permissible current for thin cable drop lines of various lengths	104
Table C.5 – Power supply specification for DeviceNet.....	104
Table C.6 – Power supply tolerance stack up for DeviceNet.....	105
Table C.7 – Current versus cable length for one power supply thick cable	107
Table C.8 – Current versus length for two power supplies	108
Table C.9 – Definition of equation variables	110
Table C.10 – Information relevant to copper cable: fixed cables	113
Table C.11 – Information relevant to copper cable: cords	113
Table C.12 – DeviceNet cables and connector support cross reference	114
Table C.13 – DeviceNet cable profiles	114
Table C.14 – Copper connectors for non-Ethernet based fieldbus	117
Table C.15 – Additional connectors for CP 2/3 (DeviceNet)	117
Table C.16 – Parameters for balanced cables	122
Table C.17 – Wire colour code and function	127
Table C.18 – Auxiliary power cable colour code	133
Table C.19 – Auxilliary power supply requirements	134
Table C.20 – Signal wire verification	143
Table C.21 – Shield to earth	144
Table C.22 – Connector pin out	145

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS –
PROFILES –****Part 5-2: Installation of fieldbuses –
Installation profiles for CPF 2****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 61784-5-2 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

This third edition cancels and replaces the second edition published in 2010. This edition constitutes a technical revision.

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

- updates pertaining to current installation practices;
- addition of new technology that has become recently available;
- errors have been corrected;
- improved alignment with IEC 61918.

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.

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 61784-5-2 for CPF 2), allows readers to work with standards of a convenient size.

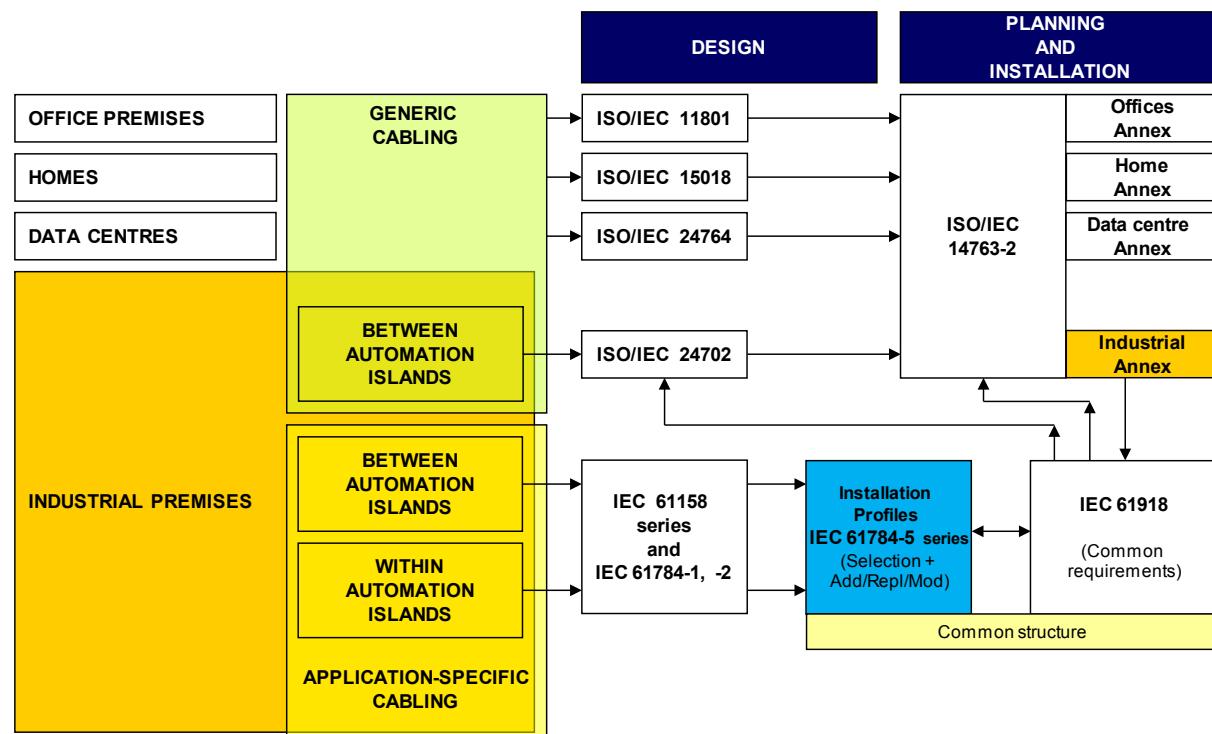


Figure 1 – Standards relationships

INDUSTRIAL COMMUNICATION NETWORKS – PROFILES –

Part 5-2: Installation of fieldbuses – Installation profiles for CPF 2

1 Scope

This part of IEC 61784-5 specifies the installation profiles for CPF 2 (CIP™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 Clauses A.2, B.2, C.2.

koniec náhľadu – text d'alej pokračuje v platenej verzii STN

¹ CIP™ (Common Industrial Protocol) is a trade name of ODVA, Inc. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this standard does not require use of the trade name CIP™. Use of the trade name CIP™ requires permission of ODVA, Inc.