



BSI Standards Publication

Industrial networks — Profiles

Part 5-8: Installation of fieldbuses — Installation profiles for CPF 8

National foreword

This British Standard is the UK implementation of EN IEC 61784-5-8:2024. It is identical to IEC 61784-5-8:2024. It supersedes BS EN IEC 61784-5-8:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/65, Measurement and control.

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 5-8: Installation of fieldbuses
- Installation profiles for CPF 8
(IEC 61784-5-8:2024)

Réseaux industriels - Profils - Partie 5-8: Installation des
bus de terrain - Profils d'installation pour la CPF 8
(IEC 61784-5-8:2024)

Industrielle Kommunikationsnetze - Profile - Teil 5-8:
Feldbusinstallation - Installationsprofile für die
Kommunikationsprofilfamilie 8
(IEC 61784-5-8:2024)

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

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European foreword

The text of document 65C/1280/FDIS, future edition 3 of IEC 61784-5-8, 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 61784-5-8:2024.

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- latest date by which the national standards conflicting with the (dow) 2027-05-08 document have to be withdrawn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 61784-5-8:2018 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).

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 61784-5-8:2024 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 5-8: Installation of fieldbuses –
Installation profiles for CPF 8**

FOREWORD

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IEC 61784-5-8 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 third edition cancels and replaces the second 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) Annex E and related references have been added.

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

Draft	Report on voting
65C/1280/FDIS	65C/1295/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, published 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.

IMPORTANT – The "colour inside" logo on the cover page of this document 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 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 standard provides the installation profiles of the communication profiles (CP) of a specific communication profile family (CPF) by stating which requirements of IEC 61918:2018 and IEC 61918:2018/AMD1:2022 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 standard IEC 61918:2018 for the benefit of the persons representing the roles in the fieldbus installation process as defined in IEC 61918:2018 (planner, installer, verification personnel, validation personnel, maintenance personnel, administration personnel). By reading the installation profile in conjunction with IEC 61918:2018, 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 standard for each CPF (for example IEC 61784-5-8 for CPF 8) allows readers to work with standards of a convenient size.

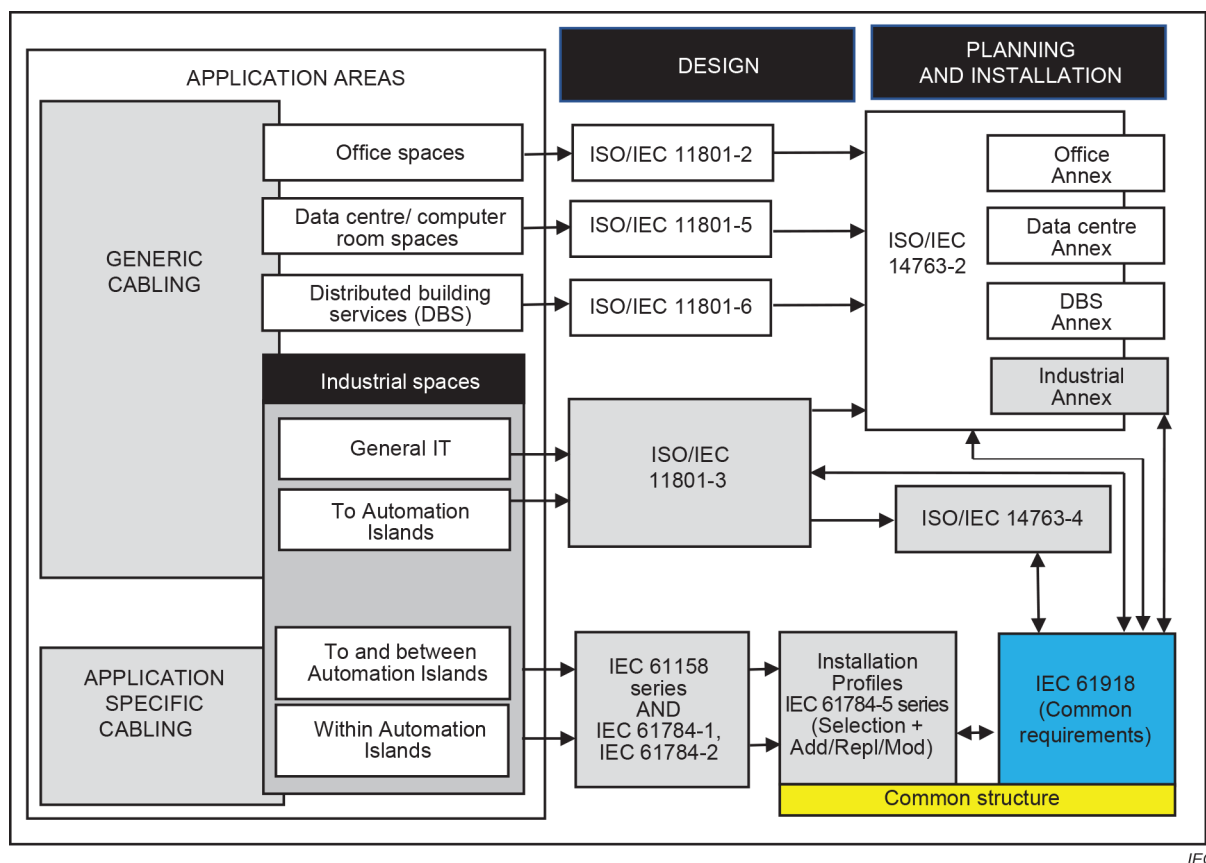


Figure 1 – Standards relationships

INDUSTRIAL NETWORKS – PROFILES –

Part 5-8: Installation of fieldbuses – Installation profiles for CPF 8

1 Scope

This part of IEC 61784-5 specifies the installation profiles for CPF 8 (CC-Link^{TM1}).

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, and E.2 respectively.

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 and IEC 61918:2018/AMD1:2022, Clause 3 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 CC-LinkTM, CC-Link/LTTM and CC-Link IETM are trade names of Mitsubishi Electric Co., control of trade name use is given to CCLink Partner Association. 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. Use of the trade name 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 8: Overview of installation profiles

CPF 8 consists of six communication profiles as specified in IEC 61784-1-8 and IEC 61784-2-8.

The installation requirements for CP 8/1 (CC-Link™/V1) and CP 8/2 (CC-Link™/V2) are specified in Annex A.

The installation requirements for CP 8/3 (CC-Link/LT™) are specified in Annex B.

The installation requirements for CP 8/4 (CC-Link IE™ Controller Network) are specified in Annex C.

The installation requirements for CP 8/5 (CC-Link IE™ Field Network) are specified in Annex D.

The installation requirements for CP 8/6 (CC-Link IE™ TSN) are specified in Annex E.

5 Installation profile conventions

The numbering of the clauses and subclauses in the annexes of this document corresponds to the numbering of IEC 61918 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 heading number shall represent the corresponding numbering of IEC 61918.

EXAMPLE "Subclause B.4.4" in IEC 61784-5-8 means that CP 8/3 specifies 4.4 of IEC 61918:2018 and IEC 61918:2018/AMD1:2022.

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 parts of IEC 61918:2018 and IEC 61918:2018/AMD1:2022. It may also include defined additional specifications.

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

Compliance with IEC 61784-5-8:2024 for CP 8/m <CC-Link> or

Compliance with IEC 61784-5-8 (Ed.3.0) for CP 8/m <CC-Link>

where the name within the angle brackets < > is optional and the angle brackets shall not be included. The m within CP 8/m shall be replaced by the profile number 1 to 6.

NOTE The name can be the name of the profile, as: CC-Link/V1, CC-Link/V2, CC-Link/LT, CC-Link IE Controller Network, CC-Link IE Field Network, or CC-Link IE TSN.

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).

Annex A (normative)

CP 8/1 and CP 8/2 (CC-Link™/V1 and CC-Link™/V2) specific installation profile

A.1 Installation profile scope

Addition:

This annex specifies the installation profile for Communication Profile CP 8/1 (CC-Link™/V1) and CP 8/2 (CC-Link™/V2). The CP 8/1 and CP 8/2 are specified in IEC 61784-1-8.

CP 8/1 and CP 8/2 networks implement a medium attachment unit compliant with ISO/IEC 8482 and is a derivative of ANSI TIA/EIA-485-A.

A.2 Normative references

Addition:

ISO/IEC 8482, *Information technology – Telecommunications and information exchange between systems – Twisted pair multipoint interconnections*

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

A.3.2 Abbreviated terms

A.3.3 Conventions for installation profiles

Not applicable.

A.4 Installation planning

A.4.1 General

A.4.1.1 Objective

A.4.1.2 Cabling in industrial premises

Addition:

Generic cabling in accordance with ISO/IEC 11801-3 is not suitable for the cabling of CP 8/1 or CP 8/2 networks.

A.4.1.3 The planning process

A.4.1.4 Specific requirements for CPs

Not applicable.

A.4.1.5 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

A.4.2 Planning requirements

A.4.2.1 Safety

A.4.2.1.1 General

A.4.2.1.2 Electrical safety

A.4.2.1.3 Functional safety

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.4.2.4 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

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 8/1 and CP 8/2 support bus and complex bus t-branch configurations (see A.4.3.1.5.2). A pure star is not recommended since there is no defined trunk line ends for terminator placement.

A.4.3.1.3 Basic physical topologies for active networks

Not applicable.

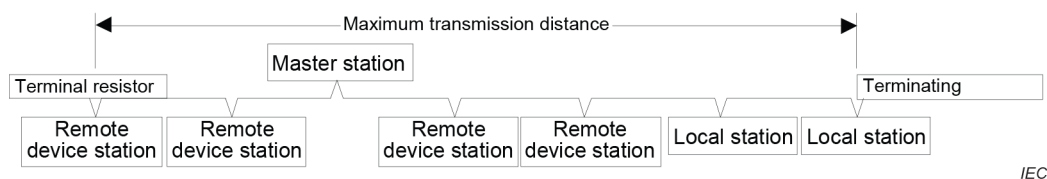
A.4.3.1.4 Combination of basic topologies

A.4.3.1.5 Specific requirements for CPs

Replacement:

A.4.3.1.5.1 Bus topology pass-through configuration

The bus topology pass-through configuration is implemented with a dedicated cable and pass-through type connectors, one for each device as shown in Figure A.1.



IEC

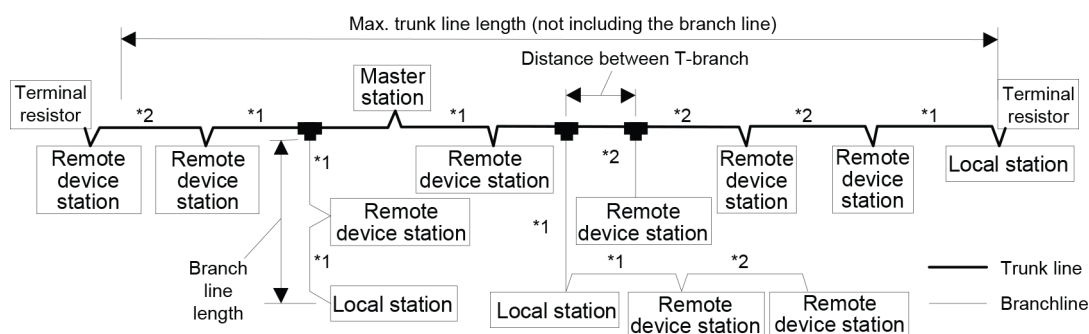
NOTE The minimum cable distance device-to-device is 20 cm.

Figure A.1 – Pass-through connector configuration

A.4.3.1.5.2 Bus t-branch topology

The bus t-branch topology is shown in Figure A.2. This is a modification of the bus topology in that branch lines, which differ from spurs, may be added to a trunk segment.

The cable types may be mixed in the network, but shall remain consistent for a given branch line or trunk segment.



IEC

NOTE 1 The minimum cable distance between the master or local station to another station depends on the network configuration.

NOTE 2 The minimum cable distance between remote stations is 30 cm.

Figure A.2 – Bus t-branch topology

A.4.3.1.6 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

A.4.3.2 Network characteristics

A.4.3.2.1 General

A.4.3.2.2 Network characteristics for balanced cabling not based on Ethernet

Replacement:

Table A.1 provides values for CP 8/1 and CP 8/2 for the bus topology based on the template given in IEC 61918:2018, Table 1.

Table A.1 – Basic network characteristics for balanced cabling not based on Ethernet

Characteristic	CP 8/1, CP 8/2
Basic transmission technology	Type 18
Length / transmission speed	Segment length m
156 kbit/s	1 200
625 kbit/s	900
2,5 Mbit/s	400
5 Mbit/s	160
10 Mbit/s	100
Maximum capacity	Max. no.
Devices / segment	64
Devices / network	64

Addition:

Table A.2 provides values for CP 8/1 and CP 8/2 for the bus t-branch topology.

Table A.2 – Bus t-branch network characteristics

Characteristic	Transmission speed		Comment
Length / transmission speed	156 kbit/s	625 kbit/s	Higher speeds not supported
Maximum trunk segment length (m)	500	100	Does not include branch length
Maximum branch length (m)	8	8	
Maximum overall branch length (m)	200	50	Total all branches combined
Maximum capacity			
Maximum devices / branch segment	6	6	

A.4.3.2.3 Network characteristics for balanced cabling based on Ethernet

Not applicable.

A.4.3.2.4 Network characteristics for optical fibre cabling

Not applicable.

A.4.3.2.5 Specific network characteristics

A.4.3.2.6 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

A.4.4 Selection and use of cabling components

A.4.4.1 Cable selection

A.4.4.1.1 Common description

A.4.4.1.2 Copper cables

A.4.4.1.2.1 Balanced cables for Ethernet-based CPs

Not applicable.

A.4.4.1.2.2 Copper cables for non-Ethernet-based CPs*Addition:*

Unshielded cables shall not be used with CP 8/1 and CP 8/2 networks.

Replacement:

Table A.3 provides values based on the template given in IEC 61918:2018, Table 4.

Table A.3 – Information relevant to copper cable: fixed cables

Characteristic	CP 8/1, CP 8/2
Nominal impedance of cable (tolerance)	110 Ω ($\pm 15 \Omega$) at 1 MHz 110 Ω ($\pm 6 \Omega$) at 5 MHz
DCR of conductors	$\leq 37,8 \Omega/\text{km}$
DCR of shield	–
Number of conductors	3
Shielding	with drain wire
Colour code for conductor	signal DA = BU (blue) signal DB = WH (white) signal DG = YE (yellow)
Jacket colour requirements	–
Jacket material	Application dependent
Resistance to harsh environment (e.g. UV, oil resist, LS0H)	Application dependent
Agency ratings	Application dependent
Conductor cross-sectional area	0,518 mm ² (20 AWG)
Dielectric strength	$\geq 500 \text{ V r.m.s.}$
Insulation resistance (after dielectric strength test)	$\geq 10\,000 \text{ M}\Omega \cdot \text{km}$
Mutual capacitance (at 1 kHz)	$\leq 60 \text{ nF / km}$
Maximum attenuation for 100 m	$\leq 1,6 \text{ dB at } 1 \text{ MHz}$ $\leq 3,5 \text{ dB at } 5 \text{ MHz}$

A.4.4.1.3 Cables for wireless installation**A.4.4.1.4 Optical fibre cables**

Not applicable.

A.4.4.1.5 Special purpose balanced and optical fibre cables

Not applicable.

A.4.4.1.6 Specific requirements for CPs*Addition:*

The minimum wiring between three communicating devices is shown in Figure A.3.

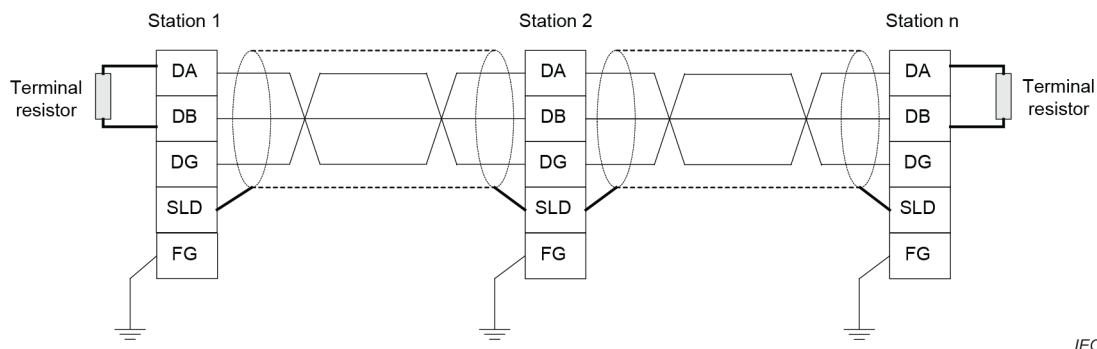


Figure A.3 – Wiring

A.4.4.1.7 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

A.4.4.2 Connecting hardware selection

A.4.4.2.1 Common description

A.4.4.2.2 Connecting hardware for balanced cabling CPs based on Ethernet

Not applicable.

A.4.4.2.3 Connecting hardware for copper cabling CPs not based on Ethernet

Modification:

There is no detailed physical connector specifications for CP 8/1 and CP 8/2 networks. The type of connector shall be a screw-compression type with each terminal able to accommodate two conductors of the type specified for the media cable. It is also required that sufficient terminals are provided for all five connection points, or alternatively, four connection points with a separate connection point provided for the FG circuit. See Figure A.3.

Replacement:

Table A.4 provides values based on the template given in IEC 61918:2018, Table 8.

Table A.4 – Connectors for copper cabling CPs not based on Ethernet

	IEC 608 07-2 or IEC 608 07-3	IEC 61076-2-101			IEC 61169-8	ANSI/(NFPA) T3.5.29 R1-2007		Others		
	Sub-D	M12-5 with A-coding	M12-5 with B-coding	M12-n with X-coding	Coaxial (BNC)	M 18	7/8-16 UN-2B THD	Open style	Terminal block	Others
CP 8/1	No	No	No	No	No	No	No	Yes	Yes	≥ 4 pins
CP 8/2	No	No	No	No	No	No	No	Yes	Yes	≥ 4 pins

A.4.4.2.4 Connecting hardware for wireless installation

A.4.4.2.5 Connecting hardware for optical fibre cabling

Not applicable.

A.4.4.2.6 Specific requirements for CPs

Not applicable.

A.4.4.2.7 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3**A.4.4.3 Connections within a channel/permanent link****A.4.4.3.1 Common description****A.4.4.3.2 Balanced cabling connections and splices for CPs based on Ethernet**

Not applicable.

A.4.4.3.3 Copper cabling connections and splices for CPs not based on Ethernet**A.4.4.3.3.1 Common description****A.4.4.3.3.2 Connections minimum distance****A.4.4.3.3.3 Copper cabling splices**

Not applicable.

A.4.4.3.3.4 Copper cabling bulkhead connections

Not applicable.

A.4.4.3.3.5 Copper cabling J-J couplers (J-J adaptors)

Not applicable.

A.4.4.3.4 Optical fibre cabling connections and splices for CPs based on Ethernet

Not applicable.

A.4.4.3.5 Optical fibre cabling connections and splices for CPs not based on Ethernet

Not applicable.

A.4.4.3.6 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3**A.4.4.4 Terminators****A.4.4.4.1 Common description****A.4.4.4.2 Specific requirements for CPs**

Addition:

The trunk line shall be terminated at each of its two ends with a $110\ \Omega \pm 5\%$ resistor rated for at least 0,5 W.

A.4.4.4.3 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

A.4.4.5 Device location and connection

A.4.4.5.1 Common description

A.4.4.5.2 Specific requirements for CPs

Not applicable.

A.4.4.5.3 Specific requirements for wireless installation

Not applicable.

A.4.4.5.4 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

A.4.4.6 Coding and labelling

A.4.4.6.1 Common description

A.4.4.6.2 Additional requirements for CPs

A.4.4.6.3 Specific requirements for CPs

Not applicable.

A.4.4.6.4 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3

A.4.4.7 Earthing and bonding of equipment and devices and shielded cabling

A.4.4.7.1 Common description

A.4.4.7.2 Bonding and earthing of enclosures and pathways

A.4.4.7.3 Earthing methods

A.4.4.7.3.1 Equipotential

Not applicable.

A.4.4.7.3.2 Star

A.4.4.7.3.3 Earthing of equipment (devices)

Addition:

Parallel RC earthing circuit shall not be used for CP 8/1 or CP 8/2.

A.4.4.7.3.4 Copper bus bars

A.4.4.7.4 Shield earthing

A.4.4.7.4.1 Non-earthing or parallel RC

Not applicable.

A.4.4.7.4.2 Direct

A.4.4.7.4.3 Derivatives of direct and parallel RC

Not applicable.

A.4.4.7.5 Specific requirements for CPs

Not applicable.

A.4.4.7.6 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3**A.4.4.8 Storage and transportation of cables****A.4.4.8.1 Common description****A.4.4.8.2 Specific requirements for CPs**

Not applicable.

A.4.4.8.3 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3**A.4.4.9 Routing of cables****A.4.4.10 Separation of circuits****A.4.4.11 Mechanical protection of cabling components****A.4.4.11.1 Common description****A.4.4.11.2 Specific requirements for CPs**

Not applicable.

A.4.4.11.3 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3**A.4.4.12 Installation in special areas****A.4.5 Cabling planning documentation****A.4.6 Verification of cabling planning specification****A.5 Installation implementation****A.5.1 General requirements****A.5.1.1 Common description****A.5.1.2 Installation of CPs**

Not applicable.

A.5.1.3 Installation of generic cabling in industrial premises

Not applicable.

A.5.2 Cable installation

A.5.2.1 General requirements for all cabling types

A.5.2.1.1 Storage and installation

A.5.2.1.2 Protecting communication cables against potential mechanical damage

Replacement:

Table A.5 provides values based on the template given in IEC 61918:2018, Table 18.

Table A.5 – Parameters for balanced cables

Characteristic		Value
Mechanical force	Minimum bending radius, single bending (mm)	a
	Bending radius, multiple bending (mm)	a
	Pull forces (N)	a
	Permanent tensile forces (N)	a
	Maximum lateral forces (N/cm)	a
	Temperature range during installation (°C)	a
a Depending on cable type: see manufacturers data sheet		

A.5.2.1.3 Avoid forming loops

A.5.2.1.4 Torsion (twisting)

A.5.2.1.5 Tensile strength (on installed cables)

A.5.2.1.6 Bending radius

A.5.2.1.7 Pull force

A.5.2.1.8 Fitting strain relief

A.5.2.1.9 Installing cables in cabinet and enclosures

A.5.2.1.10 Installation on moving parts

A.5.2.1.11 Cable crush

A.5.2.1.12 Installation of continuous flexing cables

A.5.2.1.13 Additional instructions for the installation of optical fibre cables

Not applicable.

A.5.2.2 Installation and routing

A.5.2.3 Specific requirements for CPs

Not applicable.

A.5.2.4 Specific requirements for wireless installation

Not applicable.

A.5.2.5 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3**A.5.3 Connector installation****A.5.3.1 Common description**

Replacement for paragraph 4:

When making cables or cord sets, the installer shall refer to Table A.6 for the appropriate connector wiring.

Addition:

Table A.6 – Cable conductor assignments

Signal	Conductor colour
DA	BU
DB	WH
DG	YE
SLD	Drain

A.5.3.2 Shielded connectors

Replacement for last paragraph:

Shielded connectors shall be installed in accordance with the manufacturer's recommended procedures.

A.5.3.3 Unshielded connectors

Not applicable.

A.5.3.4 Specific requirements for CPs

Not applicable.

A.5.3.5 Specific requirements for wireless installation

Not applicable.

A.5.3.6 Specific requirements for generic cabling in accordance with ISO/IEC 11801-3**A.5.4 Terminator installation****A.5.4.1 Common description****A.5.4.2 Specific requirements for CPs**

Addition:

The trunk line shall be terminated at each of its two ends with a $110\ \Omega \pm 5\%$ resistor rated for at least 0,5 W.