



SLOVENSKI STANDARD
SIST EN IEC 61918:2019/oprA2:2023
01-april-2023

Industrijska komunikacijska omrežja - Inštalacija komunikacijskih omrežij v industrijskih okoljih - Dopnilo A2

Amendment 2 - Industrial communication networks - Installation of communication networks in industrial premises

Industrielle Kommunikationsnetze - Installation von Kommunikationsnetzen in Industrieanlagen

Amendement 2 - Réseaux de communication industriels - Installation de réseaux de communication dans des locaux industriels

Ta slovenski standard je istoveten z: EN IEC 61918:2018/prA2:2023

ICS:

| | | |
|-----------|--|--|
| 25.040.40 | Merjenje in krmiljenje industrijskih postopkov | Industrial process measurement and control |
| 35.110 | Omreževanje | Networking |

SIST EN IEC 61918:2019/oprA2:2023 **en,fr,de**



COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 61918/AMD2 ED4

DATE OF CIRCULATION:

2023-02-03

CLOSING DATE FOR VOTING:

2023-04-28

SUPERSEDES DOCUMENTS:

65C/1173/CD, 65C/1184A/CC

| | |
|---|---|
| IEC SC 65C : INDUSTRIAL NETWORKS | |
| SECRETARIAT: France | SECRETARY: Ms Valérie DEMASSIEUX |
| OF INTEREST TO THE FOLLOWING COMMITTEES: SC 22G, TC 57, SC 121A | PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary. |
| FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY | |
| <input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system. | <input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING |

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Recipients of this document are invited to submit, with their comments, notification of

- any relevant patent rights of which they are aware and to provide supporting documentation,
- any relevant "in some countries" clauses to be included should this proposal proceed. Recipients are reminded that the enquiry stage is the final stage for submitting "in some countries" clauses. See AC/22/2007.

TITLE:

Amendment 2 - Industrial communication networks - Installation of communication networks in industrial premises

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:

NC comments will be addressed during the SC65C/JWG10 web meeting scheduled on May 30th-31st, 2023 (two Zoom sessions from 10:00 to 14:00 UTC). A corresponding meeting notice will be provided in due time by the convenor.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS – INSTALLATION OF
COMMUNICATION NETWORKS IN INDUSTRIAL PREMISES****AMENDMENT 2****FOREWORD**

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Amendment 2 to IEC 61918:2018 and to IEC 61918:2018/AMD1:2022 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

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

| Draft | Report on voting |
|-------------|------------------|
| 65C/XX/XXXX | 65C/XX/XXX |

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 Amendment is English.

IEC CDV 61918:2018/AMD2
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52 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in
53 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement,
54 available at www.iec.ch/members_experts/refdocs. The main document types developed by
55 IEC are described in greater detail at www.iec.ch/standardsdev/publications/.

56 The committee has decided that the contents of this document will remain unchanged until the
57 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
58 specific document. At this date, the document will be

- 59 • reconfirmed,
- 60 • withdrawn,
- 61 • replaced by a revised edition, or
- 62 • amended.

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INTRODUCTION to Amendment 2

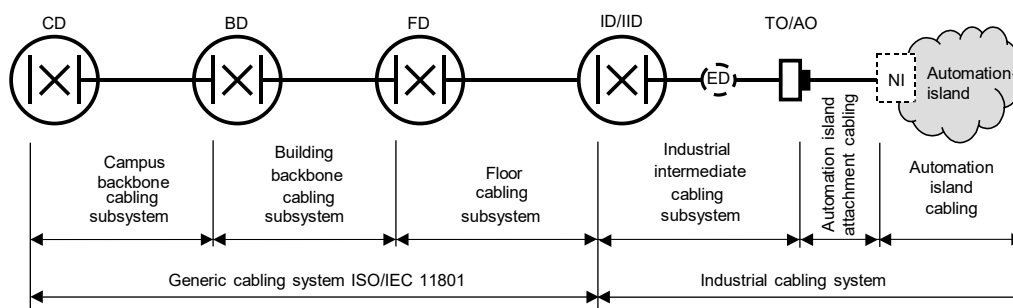
67 This Amendment 2 describes the result of the maintenance activity of IEC 61918:2018 that
68 takes into account the evolution of the technology, which is being considered during the
69 Installation Profiles revision cycle.

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(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/f855a324-73b6-4262-8f78-3ab74d965d5b/sist-en-iec-61918-2019-opra2-2023>

73 **2 Normative references**74 *Replace the reference to ISO/IEC 14763-4 with the following updated reference:*75 ISO/IEC 14763-4:2021, *Information technology – Implementation and operation of customer*
76 *premises cabling – Part 4: Measurement of end-to-end (E2E) links, modular plug terminated*
77 *links (MPTL) and direct attach cabling*78 *Replace the reference to IEC 61918 with the following updated reference:*79 IEC 61918:2018, *Industrial communication networks – Installation of communication networks*
80 *in industrial premises*
81 IEC 61918:2018/AMD1:202282 *Delete the following normative reference:*83 ISO/IEC TR 11801-9902:2017, *Information technology – Generic cabling for customer*
84 *premises – Part 9902: Specifications for End-to-end link configurations*85 *Add the following normative references:*86 IEC 61156-13:—¹, *MULTICORE AND SYMMETRICAL PAIR/QUAD CABLES FOR DIGITAL*
87 *COMMUNICATIONS – Part 13: Symmetrical single pair cables with transmission*
88 *characteristics up to 20 MHz – Horizontal floor wiring - Sectional specification*89 ISO/IEC 11801-1:2017/AMD1:—², *Information technology – Generic cabling for customer*
90 *premises – Part 1: General requirements*91 ISO/IEC TS 29125:2017/AMD1:2020, *Information technology – Telecommunications cabling*
92 *requirements for remote powering of terminal equipment*93 **4 Installation planning**94 **4.1.2 Cabling in industrial premises**95 *Replace Figure 3 with the following updated figure:*

96

97 **Figure 3 – Automation island cabling attached to elements of generic cabling**

¹ Under preparation. Stage at the time of publication: IEC/DECFDIS 61156-13:2023

² Under preparation. Stage at the time of publication: ISO/IEC CD 11801-1/AMD1:2022

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99 **4.2.2 Security**

100 *Replace, at the end of the first paragraph, “requirements for security.” with “technical and*
 101 *organizational measures aimed at mitigating the specific security risk for the communication*
 102 *subset identified during the security design of the whole automation system.”*

103 *Add, at the end of the second paragraph, the following sentence: “The prevention of*
 104 *accidental disruption to any of these services requires careful consideration”*

105 *Delete the EXAMPLE.*

106 *Replace the third paragraph with the following two new paragraphs:*

107 *“IEC 62443, breaks down the design of security within a system to security levels based on*
 108 *risk level. For each level there are different measures. For this purpose, cabling planning and*
 109 *installation play a role in implementing countermeasures and is central to achieving physical*
 110 *and environmental security countermeasures, in accordance with Clause 4 and Clause 5, in*
 111 *general, and requirements described in 4.4.9.1 (Routing of cables), 4.4.9.6.(Installing*
 112 *redundant communication cables), 4.4.11 (Mechanical protection of cabling components),*
 113 *5.2.1.2 (Protecting communication cables against potential mechanical damage), in particular.*

114 *Moreover, the first security level defined in IEC 62443 requires that a protection against*
 115 *unintentional failures be implemented. An important contribution to this protection comes from*
 116 *the application of the rules for installation verification and installation acceptance test,*
 117 *installation administration and installation maintenance and troubleshooting, described in*
 118 *Clause 6, Clause 7 and Clause 8, which reduce the risk of intermittent system malfunction*
 119 *due to incorrect cabling (e.g., insufficient implemented protection from electromagnetic*
 120 *interferences, instable connections, etc.).”*

<https://standards.iteh.ai/catalog/standards/sist/f855a324-73b6-4262-8f78-61918-2019/oprA2:2023>

121 **4.2.3.2 Use of the described environment to produce a bill of material**

122 *Add, after Figure 7, the following sentence:*

123 *“Passive optical components in the harsh industrial environment should be protected with*
 124 *suitable mitigation techniques or tested according to IEC 61753-1.”*

125 **4.4.3.2.1 Common description**126 **d) Balanced 1-pair cabling**

127 *Replace the title with “Balanced 1-pair reference implementation and cabling”*

128 *Replace the paragraph with the following updated paragraph: “For 1-pair reference*
 129 *implementation and cabling the requirements specified in Annex Q apply.”*

130 **Annex D Connector tables**

131 *Replace, in the first paragraph after Table D.1, “to Table D.13” with “to Table D.15”.*

132 *Replace, in the second paragraph after Table D.1, at the end of bullet a), “ – “ with “ - “.*

133 *Add, at the end of the bullet list of CPF_n before Table D.2, the following new bullet:*
 134 *“**CPF 22** (AUTBUS): CP 22/1 (AUTBUS).”*

135 *Add, in the bullet list of CPF_n, at the end of the CPF₈ bullet, “and CP 8/6 (CC-Link IE TSN).”*

136 *Add, in the bullet list of CPF_n, at the end of the CPF19 bullet, “, CP 19/3 (Σ-LINK II) and CP*
137 *19/4 (MECHATROLINK-4).”.*

138 *Replace, in Table D.8, the two rows that show identical pin assignment for CP 14/1 and*
139 *CP 14/2 with a single common row (with the same pin assignment).*

140 *Replace Tables D.3, D.5, D.10, D.11 and D.12 with the following new tables.*

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[SIST EN IEC 61918:2019/oprA2:2023](https://standards.iteh.ai/catalog/standards/sist/f855a324-73b6-4262-8f78-3ab74d965d5b/sist-en-iec-61918-2019-opra2-2023)

<https://standards.iteh.ai/catalog/standards/sist/f855a324-73b6-4262-8f78-3ab74d965d5b/sist-en-iec-61918-2019-opra2-2023>

Table D.3 – 8-way modular connector

| CP | Pin | | | | | | | | Housing |
|--|----------------|----|----|---|---|----|---|---|---------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| CP 1/1 | - | - | - | - | - | - | - | - | - |
| CP 1/2 | T568A or T568B | | | | | | | | Drain |
| CP 2/1 | - | - | - | - | - | - | - | - | - |
| CP 2/2 | T568A or T568B | | | | | | | | Drain |
| CP 2/3 | - | - | - | - | - | - | - | - | - |
| CP 3/1 | - | - | - | - | - | - | - | - | - |
| CP 3/2 | - | - | - | - | - | - | - | - | - |
| CP 3/3 ^a CP 3/4 ^a CP 3/5 ^a CP 3/6 ^a | YE | OG | WH | - | - | BU | - | - | Drain |
| CP 4/1 | - | - | - | - | - | - | - | - | - |
| CP 4/3 | T568A or T568B | | | | | | | | Drain |
| CP 6/1 CP 6/3 | - | - | - | - | - | - | - | - | - |
| CP 6/2 | T568B | | | | | | | | Drain |
| CP 8/1 CP 8/2 | - | | | | | | | | - |
| CP 8/3 | - | | | | | | | | - |
| CP 8/4 | T568B | | | | | | | | Drain |
| CP 8/5 | | | | | | | | | |
| CP 8/6 | | | | | | | | | |
| CP 10/1 | | | | | | | | | |
| CP 11/1 CP 11/2 | T568B | | | | | | | | Drain |
| CP 11/3 | - | - | - | - | - | - | - | - | - |
| CP 12/1 ^b CP 12/2 ^b | YE | OG | WH | - | - | BU | - | - | Drain |
| CP 13/1 | T568B | | | | | | | | Drain |
| CP 14/1 CP 14/2 | T568B | | | | | | | | Drain |
| CP 14/3 | - | - | - | - | - | - | - | - | - |
| CP 15/1 CP 15/2 | T568A or T568B | | | | | | | | Drain |
| CP 16/1 CP 16/2 | - | | | | | | | | - |
| CP 16/3 | YE | OG | WH | - | - | BU | - | - | Drain |
| CP 17/1 | T568B | | | | | | | | Drain |
| CP 18/1 CP 18/2 | YE | OG | WH | - | - | BU | - | - | Drain |
| CP 19/1 | - | - | - | - | - | - | - | - | - |
| CP 19/2 ^c CP 19/3 | BU | WH | OG | - | - | YE | - | - | Drain |
| CP 19/4 | BU | WH | OG | - | - | YE | - | - | Drain |
| CP 20/1 CP 20/2 | T568A or T568B | | | | | | | | Drain |
| CP 21/1 | T568A or T568B | | | | | | | | Drain |
| CP 22/1 | - | | | | | | | | - |

^a With 4 pair cabling, use T568A or T568B

^b With 4 pair cabling, use T568B

^c With crossover pairing pins: 1-3, 2-6, 3-1, 6-2.

Table D.5 – M12-4 D-coding connector

| CP | Pin | | | | |
|--------------------------------------|-------|-------|-------|----|---------|
| | 1 | 2 | 3 | 4 | Housing |
| CP 1/1 | - | - | - | - | - |
| CP 1/2 | - | - | - | - | - |
| CP 2/1 | - | - | - | - | - |
| CP 2/2 | WH/OG | OG | WH/GN | GN | Drain |
| CP 2/3 | - | - | - | - | - |
| CP 3/1 | - | - | - | - | - |
| CP 3/2 | - | - | - | - | - |
| CP 3/3 CP 3/4 CP 3/5 CP 3/6 | YE | WH | OG | BU | Drain |
| CP 4/1 | - | - | - | - | - |
| CP 4/3 | - | - | - | - | - |
| CP 6/1 CP 6/3 | - | - | - | - | - |
| CP 6/2 | WH/OG | OG | WH/GN | GN | Drain |
| CP 8/1 CP 8/2 | - | - | - | - | - |
| CP 8/3 | - | - | - | - | - |
| CP 8/4 | - | - | - | - | - |
| CP 8/5 | - | - | - | - | - |
| CP 8/6 | WH/GN | WH/OG | GN | OG | Drain |
| CP 10/1 | - | - | - | - | - |
| CP 11/1 CP 11/2 CP 11/3 | - | - | - | - | - |
| CP 12/1 CP 12/2 | YE | WH | OG | BU | Drain |
| CP 13/1 | YE | WH | OG | BU | Drain |
| CP 14/1 CP 14/2 | WH/OG | OG | WH/GN | GN | Drain |
| CP 14/3 | - | - | - | - | - |
| CP 15/1 CP 15/2 | WH/OG | OG | WH/GN | GN | Drain |
| CP 16/1 | - | - | - | - | - |
| CP 16/2 | - | - | - | - | - |
| CP 16/3 | YE | WH | OG | BU | Drain |
| CP 17/1 | - | - | - | - | - |
| CP 18/1 CP 18/2 | YE | WH | OG | BU | Drain |
| CP 19/1 | - | - | - | - | - |
| CP 19/2 ^a | BU | OG | WH | YE | Drain |
| CP 19/3 | - | - | - | - | - |
| CP 19/4 | BU | OG | WH | YE | Drain |
| CP 20/1 | - | - | - | - | - |
| CP 20/2 | - | - | - | - | - |
| CP 21/1 | - | - | - | - | - |
| CP 22/1 | - | - | - | - | - |

^a With crossover pairing pins: 1-2, 2-1, 3-4, 4-3.