



BSI Standards Publication

Industrial communication networks — Fieldbus specifications

Part 2: Physical layer specification and service definition

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National foreword

This British Standard is the UK implementation of EN IEC 61158-2:2023. It is identical to IEC 61158-2:2023. It supersedes BS EN 61158-2:2014, which is withdrawn.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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Amendments/corrigenda issued since publication

Date	Text affected
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EUROPÄISCHE NORM

April 2023

ICS 25.040.40; 35.100.20; 35.240.50

Supersedes EN 61158-2:2014

English Version

Industrial communication networks - Fieldbus specifications -
Part 2: Physical layer specification and service definition
(IEC 61158-2:2023)

Réseaux de communication industriels - Spécifications des
bus de terrain - Partie 2: Spécification et définition des
services de la couche physique
(IEC 61158-2:2023)

Industrielle Kommunikationsnetze - Feldbusse - Teil 2:
Spezifikation und Dienstfestlegungen des Physical Layer
(Bitübertragungsschicht)
(IEC 61158-2:2023)

This European Standard was approved by CENELEC on 2023-04-13. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

The text of document 65C/1200/FDIS, future edition 7 of IEC 61158-2, 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 IEC 61158-2:2023.

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) 2024-01-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-04-13

This document supersedes EN 61158-2:2014 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 has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

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 61158-2:2023 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 standard indicated:

IEC 60079-0	NOTE Approved as EN IEC 60079-0
IEC 60875-1	NOTE Approved as EN 60875-1
IEC 60947-5-2	NOTE Approved as EN IEC 60947-5-2
IEC 61158 (series)	NOTE Approved as EN 61158 (series)
IEC 61158-1	NOTE Approved as EN IEC 61158-1
IEC 61158-4-1	NOTE Approved as EN 61158-4-1
IEC 61158-4-4	NOTE Approved as EN IEC 61158-4-4
IEC 61158-4-7	NOTE Approved as EN 61158-4-7
IEC 61158-4-8	NOTE Approved as EN 61158-4-8
IEC 61158-4-12	NOTE Approved as EN IEC 61158-4-12
IEC 61158-4-16	NOTE Approved as EN 61158-4-16

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IEC 61158-4-20	NOTE Approved as EN 61158-4-20
IEC 61158-4-24	NOTE Approved as EN IEC 61158-4-24
IEC 61300-3-4	NOTE Approved as EN 61300-3-4
IEC/TR 61491	NOTE Approved as CLC/TR 61491
IEC 61784-1 (series)	NOTE Approved as EN IEC 61784-1 (series) ¹
IEC 61784-2 (series)	NOTE Approved as EN IEC 61784-2 (series) ²

¹ To be published. Stage at the time of publication: FprEN IEC 61784-1-X:2023.

² To be published. Stage at the time of publication: FprEN IEC 61784-2-X:2023.

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(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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050	series	International Electrotechnical Vocabulary	-	-
IEC 60079-11	-	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	EN 60079-11	-
IEC 60079-14	2007	Explosive atmospheres - Part 14: Electrical installations design, selection and erection	EN 60079-14	2008
IEC 60079-25	-	Explosive atmospheres - Part 25: Intrinsically safe electrical systems	EN IEC 60079-25	-
IEC 60169-17	-	Radio-frequency connectors. Part 17: R.F. - coaxial connectors with inner diameter of outer conductor 6,5 mm (0,256 in) with screw coupling - Characteristic impedance 50 ohms (Type TNC)	-	-
IEC 60189-1	2018	Low-frequency cables and wires with PVC insulation and PVC sheath - Part 1: General test and measuring methods	-	-
IEC 60255-22-1	1988 ³	Electrical relays - Part 22: Electrical disturbance tests for measuring relays and protection equipment - Section 1: 1 MHz burst disturbance tests	-	-
IEC 60364-4-41	-	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	-
IEC 60364-5-54	-	Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors	HD 60364-5-54	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-

³ This standard has been withdrawn.

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		7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz		
IEC 60754-2	-	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	EN 60754-2	-
IEC 60793	series	Optical fibres	EN IEC 60793	series
IEC 60793-2	2019	Optical fibres - Part 2: Product specifications - General	EN IEC 60793-2	2019
IEC 60793-2-30	2015	Optical fibres - Part 2-30: Product specifications - Sectional specification for category A3 multimode fibres	EN 60793-2-30	2015
IEC 60793-2-40	2021	Optical fibres - Part 2-40: Product specifications - Sectional specification for category A4 multimode fibres	EN IEC 60793-2-40	2021
IEC 60794-1-2	2003	Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures	EN 60794-1-2	2003
IEC 60807-3	-	Rectangular connectors for frequencies below 3 MHz - Part 3: Detail specification for a range of connectors with trapezoidal shaped metal shells and round contacts - Removable crimp contact types with closed crimp barrels, rear insertion/rear extraction	-	-
IEC 60811-403	-	Electric and optical fibre cables - Test methods for non-metallic materials - Part 403: Miscellaneous tests - Ozone resistance test on cross-linked compounds	EN 60811-403	-
IEC 60811-404	2012	Electric and optical fibre cables - Test methods for non-metallic materials - Part 404: Miscellaneous tests - Mineral oil immersion tests for sheaths	EN 60811-404	2012
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	-
IEC 61000-4-3	-	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN IEC 61000-4-3	-
IEC 61000-4-4	-	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	-
IEC 61076-2-114	2020	Connectors for electrical and electronic equipment - Product requirements - Part 2-114: Circular connectors - Detail specification for connectors with M8 screw-locking with power contacts and signal contacts for data transmission up to 100 MHz	EN IEC 61076-2-114	2020

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		control - Programmable controllers - Part 2: Equipment requirements and tests		
IEC 61156-1	2007	Multicore and symmetrical pair/quad cables for digital communications - Part 1: Generic specification	-	-
IEC 61158-3-20	2023	Industrial communication networks - Fieldbus specifications - Part 3-20: Data- link layer service definition - Type 20 elements	- ⁴	
IEC 61158-4-2	2023	Industrial communication networks - Fieldbus specifications - Part 4-2: Data-link layer protocol specification - Type 2 elements	EN IEC 61158-4-2	2023
IEC 61158-4-3	2019	Industrial communication networks - Fieldbus specifications - Part 4-3: Data-link layer protocol specification - Type 3 elements	EN IEC 61158-4-3	2019
IEC 61169-8	2007	Radio-frequency connectors - Part 8: Sectional specification - RF coaxial connectors with inner diameter of outer conductor 6,5 mm (0,256 in) with bayonet lock - Characteristic impedance 50 Ω (type BNC)	EN 61169-8	2007
IEC 61210	2010	Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements	EN 61210	2010
IEC 61754-2	-	Fibre optic connector interfaces - Part 2: Type BFOC/2,5 connector family	EN 61754-2	-
IEC 61754-13	-	Fibre optic connector interfaces - Part 13: Type FC-PC connector	EN 61754-13	-
IEC 61754-22	-	Fibre optic connector interfaces - Part 22: Type F-SMA connector family	EN 61754-22	-
IEC 63171	-	Connectors for electrical and electronic equipment - Shielded or unshielded free and fixed connectors for balanced single- pair data transmission with current-carrying capacity - General requirements and tests	EN IEC 63171	-
ISO/IEC 7498	series	Information technology - Open Systems Interconnection - Basic reference model	-	-
ISO/IEC 7498-1	1994	Information technology - Open Systems Interconnection - Basic reference model: The basic model	-	-
ISO/IEC 8482	-	Information technology - Telecommunications and information exchange between systems - Twisted pair multipoint interconnections	-	-

⁴ EN 61158-3-20:2014 was published in parallel with IEC 61158-3-20:2014.

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		between information technology systems - Requirements for local and metropolitan area networks - Part 3: Standard for Ethernet		
ISO 9314-1	-	Information Processing Systems - Fibre distributed data interface (FDDI) - Part 1: Token Ring physical layer protocol (PHY)	-	-
ISO/IEC 10731	1994	Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services	-	-
ISO 4892-1	-	Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance	EN ISO 4892-1	-
TIA-422-B	1994	Electrical Characteristics of Balanced Voltage Digital Interface Circuits	-	-
TIA-485-A	1998	Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems	-	-

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