AS 11801.3:2019

Australian STANDARD

Information technology — Generic cabling for customer premises

Part 3: Industrial premises (ISO/IEC 11801-3:2017, MOD)

STANDARDS Australia

AS 11801.3:2019

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Australian Chamber of Commerce and Industry
Australian Council of Trade Unions
Australian Digital and Telecommunications Industry Association
Australian Industry Group
Australian Information Industry Association
BICSI South Pacific (Australia)
Energy Networks Australia
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Information technology — Generic cabling for customer premises

Part 3: Industrial premises (ISO/IEC 11801-3:2017, MOD)

Originated as AS/NZS ISO/IEC 24702:2007.
Revised and redesignated as AS 11801.3:2019.

Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee CT-001, Communications Cabling. AS/NZS 11801.1 in conjunction with AS 11801.3, supersedes AS/NZS 24702:2007, *Telecommunications installations — Generic cabling — Industrial premises*.

The objective of this Standard specifies generic cabling for use within industrial premises, or industrial areas within other types of premises, which can comprise single or multiple buildings on a campus. It covers balanced cabling and optical fibre cabling.

This Standard is optimized for premises in which the maximum distance over which telecommunications services can be distributed is 10 000 m. The principles of this Standard can be applied to larger installations.

Cabling defined by this Standard supports a wide range of services, including automation, process control, and monitoring applications. That can also incorporate the supply of power.

This Standard specifies directly or via reference to AS/NZS ISO/IEC 11801-1—

(a) the structure and minimum configuration for generic cabling within industrial premises;

(b) the interfaces at the telecommunications outlet (TO);

(c) the performance requirements for cabling links and channels;

(d) the implementation requirements and options;

(e) the performance requirements for cabling components; and

(f) the conformance requirements and verification procedures.

The cabling providing critical automation, process control and monitoring applications within the automation islands is not addressed by this Standard. Information for this application specific cabling is provided in the IEC 61784-5series (design) and in IEC 61918 (installation).

Safety (electrical safety and protection, fire safety) and electromagnetic compatibility (EMC) requirements are outside the scope of this Standard, and are covered by other Standards and by regulations. However, information given by this Standard can be of assistance.

This Standard is intended to be read in conjunction with AS/NZS 11801.1, *Information Technology — Generic cabling for customer premises, Part 1: General requirements (ISO/IEC 11801-1:2017, MOD).*

This Standard is one of a series of customer cabling Standards addressing design, minimum specification and performance of links and channels, cable/cabling accommodation and installation, conformance testing and administration.

This Standard is part of a series of Standards which are associated with other Australian Standards, Australia/New Zealand Standards and International Standards.

Standards which are part of the series and Standards that are associated with this Standard are as follows:

AS/NZS 11801.1, *Information technology—Generic cabling for customer premises, Part 1: General requirements (ISO/IEC 11801-1:2017, MOD)*

AS 11801.2, *Information technology—Generic cabling for customer premises, Part 2: Office premises (ISO/IEC 11801-2:2017, MOD)*

AS 11801.3, *Information technology—Generic cabling for customer premises, Part 3: Industrial premises (ISO/IEC 11801-3:2017, MOD)* (this Standard)

AS 11801.4, *Information technology—Generic cabling for customer premises, Part 4: Single-tenant homes (ISO/IEC 11801-4:2017, MOD)*

AS 11801.5, *Information technology—Generic cabling for customer premises, Part 5: Data centres (ISO/IEC 11801-5:2017, MOD)*

AS 11801.6, *Information technology—Generic cabling for customer premises, Part 6: Distributed building services (ISO/IEC 11801-6:2017, MOD)*

AS 30129, *Information technology—Telecommunications bonding networks for buildings and other structures (ISO/IEC 30129:2015, MOD)*

AS/NZS 2967, *Optical fibre communication cabling systems safety*

AS/NZS 3084, *Telecommunications installations—Telecommunications pathways and spaces for commercial buildings*

AS/NZS 3085.1, *Telecommunications installations—Administration of communications cabling systems, Part 1: Basic requirements*

AS/NZS ISO/IEC 14763.2, *Information technology—Implementation and operation of customer premises cabling, Part 2: Planning and installation*

AS/NZS 14763.3, *Information technology—Implementation and operation of customer premises cabling, Part 3: Testing of optical fibre cabling (ISO/IEC 14763-3:2014, MOD)*

IEC 61935.1, *Specification for the testing of balanced and coaxial information technology cabling — Part 1: Installed balance cabling as specified in ISO/IEC 11801 and related standards*

IEC 61935.2, *Specification for the testing of balanced and coaxial information technology cabling — Part 2: Cords as specified in ISO/IEC 11801 and related standards*

This Standard is an adoption with national modifications, and has been reproduced from, ISO/IEC 11801-3:2017, *Information technology — Generic cabling for customer premises — Part 3: Industrial premises* and its Corrigendum No. 1 (2018). The modifications in Appendix ZZ are additional requirements, which have been added at the end of the source text.

Appendix ZZ lists the variations to ISO/IEC 11801-3:2017 for the application of this Standard in Australia.

This Standard is structured as follows:

(i) Preface.

(ii) ISO/IEC 11801-3:2017 (unedited from the contents page to the final clause of the source document) and its Corrigendum No. 1 (2018).

(iii) Appendix ZZ lists the variations to ISO/IEC 11801-3:2017 for the application of this Standard in Australia.

As this document has been reproduced from an International Standard, the following applies:

(A) In the source text "this part of ISO/IEC 11801" should read "this Australian Standard".

(B) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

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FOREWORD

1) ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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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 ISO/IEC publication may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 11801-3 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This first edition cancels and replaces ISO/IEC 24702:2006 and Amendment 1:2009. This edition constitutes a technical revision.

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

a) standard re-structured to contain only those requirements that are specific for generic cabling systems installed in industrial premises;

b) support of critical process control, monitoring and automation (PCMA) services between automation islands by adding new Annex A (normative) “Industrial cabling system”;

c) support of specific requirements for industrial cabling the end-to-end link (E2E) has been introduced and delivers additional channel configuration covered in Annex B (normative);

d) silica optical fibre cabling has been removed from this International Standard.

ISO/IEC 11801-3 is to be read in conjunction with ISO/IEC 11801-1.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the ISO/IEC 11801 series, published under the general title *Information technology – Generic cabling for customer premises*, can be found on the IEC website.

INTRODUCTION

The importance of cabling infrastructure is similar to that of other fundamental utilities such as water and energy supply and interruptions to the services provided over that infrastructure can have a serious impact. A lack of design foresight, the use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten quality of service and have commercial consequence for all types of users.

This document specifies generic cabling, which is critical for providing robust services to the automation islands in industrial premises, or industrial spaces within other types of building.

Additionally those premises can include

- office spaces for which generic cabling is specified in ISO/IEC 11801-2,
- data centre spaces for which generic cabling is specified in ISO/IEC 11801-5.

Generic cabling for distributed building services in industrial spaces is specified in ISO/IEC 11801-6, which addresses all of the above premises and spaces within them.

This document has taken into account the correlation between all parts of the ISO/IEC 11801 series and the IEC 61918 and IEC 61784-5 series.

Figure 1 shows the schematic and contextual relationships between the standards relating to information technology cabling produced by ISO/IEC JTC 1/SC 25, namely the ISO/IEC 11801 series of standards for generic cabling design, standards for the installation, operation and administration of generic cabling and for testing of installed generic cabling.

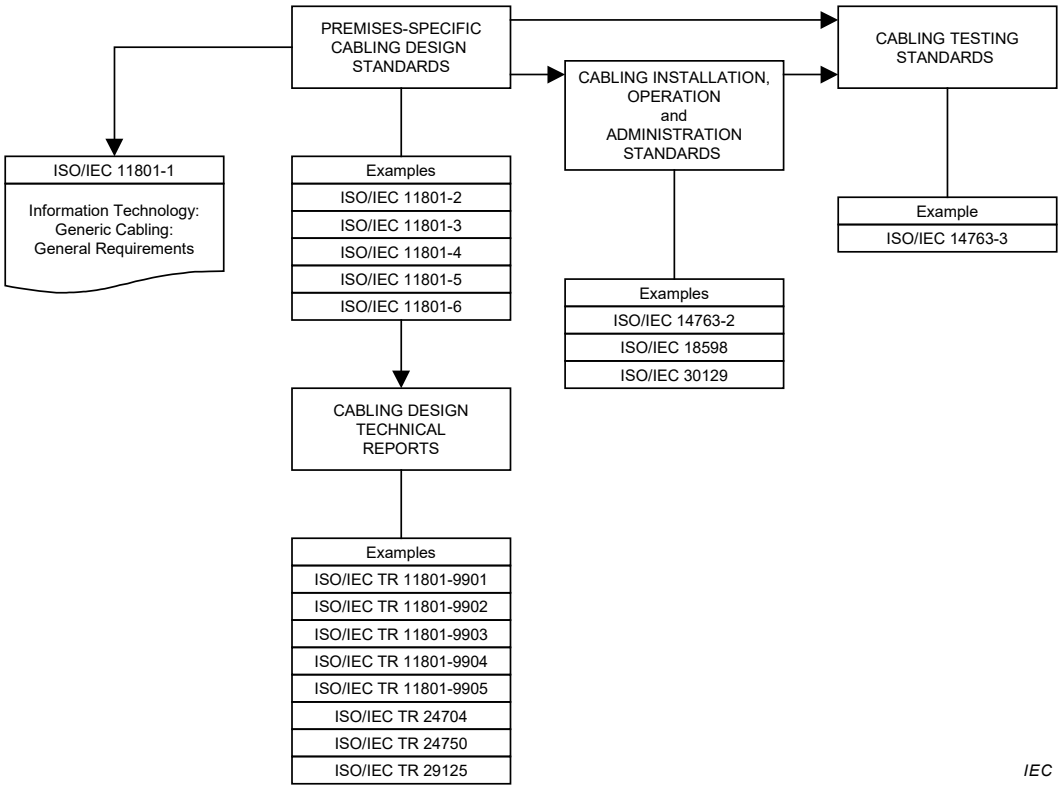

Figure 1 – Relationships between the generic cabling documents produced by ISO/IEC JTC 1/SC 25

The generic cabling specified by this document provides users with

a) an application independent system capable of supporting a wide range of applications in a range of installation and operating environments,

b) a flexible scheme such that modifications are both easy and economical,

c) a multi-vendor supply chain within an open market for cabling components.

In addition, this document provides

d) relevant industry professionals with guidance allowing the accommodation of cabling before specific requirements are known, i.e. in the initial planning either for construction or refurbishment and for further deployment as the requirements of areas are defined,

e) industry and standardization bodies with a cabling system which supports current products and provides a basis for future product development and applications standardization.

Applications addressed in this document include those developed by the technical committees of IEC (including the subcommittees of ISO/IEC JTC 1), including critical industrial process control and monitoring applications and study groups of ITU-T.

As a result, this document

1) specifies a structure for generic cabling supporting a wide variety of applications,

2) adopts balanced cabling channel and link Classes D, E, E_A, F and F_A, specified in ISO/IEC 11801-1,

3) adopts component requirements, specified in ISO/IEC 11801-1, and specifies cabling implementations that ensure performance of permanent links and of channels that meet or exceed the requirements of a specified group (e.g. Class) of applications.

Figure 2 shows the relationship between all the documents (the generic cabling standards produced by ISO/IEC JTC 1/SC 25 and the application-specific standards produced by IEC SC 65C) that apply to industrial premises.

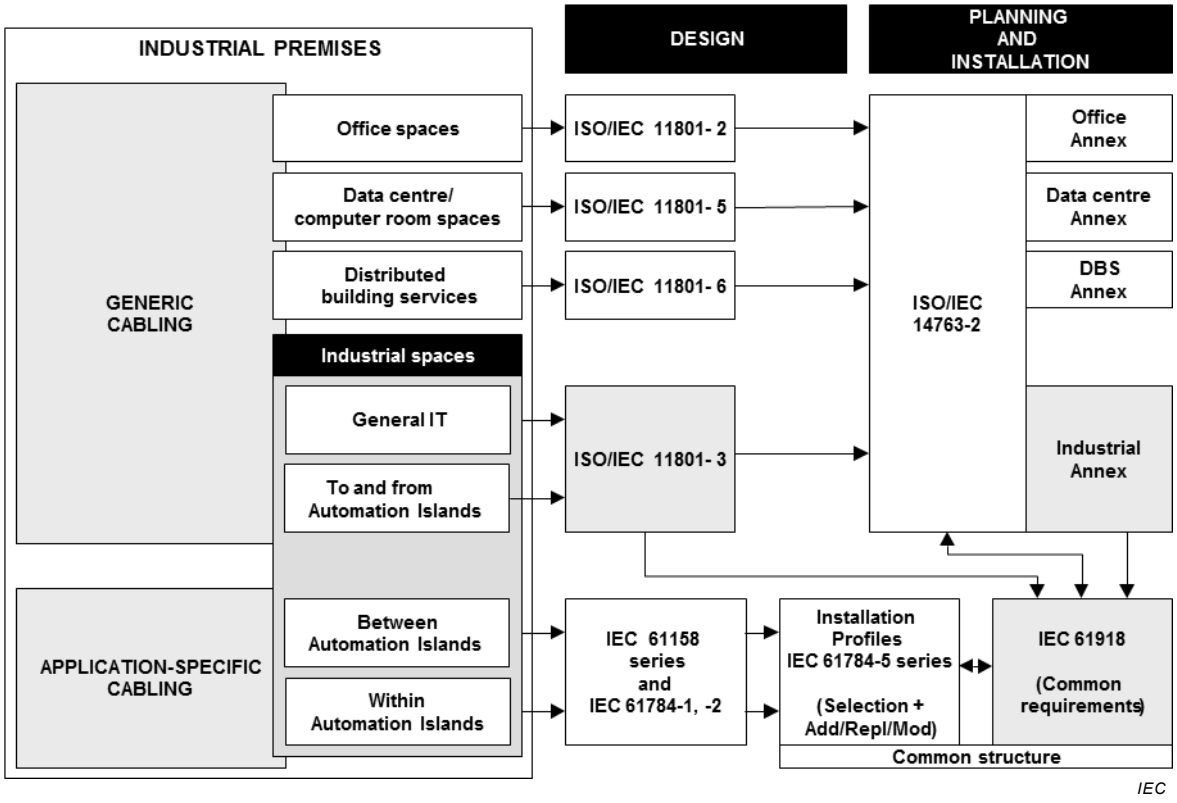

Figure 2 – Relationships between the ISO/IEC and IEC cabling documents that apply to industrial premises

It is anticipated that the generic cabling system meeting the minimum requirements of this document will have a life expectancy consistent with other infrastructures within industrial premises.

This document has taken into account requirements specified in application standards listed in ISO/IEC 11801-1:2017, Annex E. It refers to International Standards for components and test methods whenever appropriate International Standards are available.

INFORMATION TECHNOLOGY – GENERIC CABLING FOR CUSTOMER PREMISES

Part 3: Industrial premises

1 Scope

This part of ISO/IEC 11801 specifies generic cabling for use within industrial premises, or industrial areas within other types of premises, which can comprise single or multiple buildings on a campus. It covers balanced cabling and optical fibre cabling.

This document is optimized for premises in which the maximum distance over which telecommunications services can be distributed is 10 000 m. The principles of this document can be applied to larger installations.

Cabling defined by this document supports a wide range of services, including automation, process control, and monitoring applications. That can also incorporate the supply of power.

This document specifies directly or via reference to ISO/IEC 11801-1

a) the structure and minimum configuration for generic cabling within industrial premises,

b) the interfaces at the telecommunications outlet (TO),

c) the performance requirements for cabling links and channels,

d) the implementation requirements and options,

e) the performance requirements for cabling components,

f) the conformance requirements and verification procedures.

The cabling providing critical automation, process control and monitoring applications within the automation islands is not addressed by this document. Information for this application-specific cabling is provided in the IEC 61784-5 series (design) and in IEC 61918 (installation).

Safety (electrical safety and protection, fire, etc.) and electromagnetic compatibility (EMC) requirements are outside the scope of this document, and are covered by other standards and by regulations. However, information given by this document can be of assistance.

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, *Industrial communication networks – Installation of communication networks in industrial premises*

IEC 61754-20, *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 20: Type LC connector family*

IEC 61784-5 (all parts), *Industrial communication networks – Profiles – Part 5: Installation of fieldbuses – Installation profiles for CPF*

ISO/IEC 11801-1:2017, *Information technology – Generic cabling for customer premises – Part 1: General requirements*

ISO/IEC 11801-2, *Information technology – Generic cabling for customer premises – Part 2: Office premises*