

საქართველოს სტანდარტი

სსკ: 35.200

საინფორმაციო ტექნოლოგია - საერთო კაბელების ჩაწყობა სამომხმარებლო
სათავსებისათვის ნაწილი 3: ინდუსტრიული სათავსები

საინფორმაციო მონაცემები

1 მიღებულია და დაშვებულია სამოქმედოდ: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს გენერალური დირექტორის 30/12/2020 წლის № 125 განკარგულებით

2 მიღებულია „თავფურცლის“ თარგმნის მეთოდით: სტანდარტიზაციის საერთაშორისო ორგანიზაციის (ისო) სტანდარტი ისო/იეკ 11801-3:2017 „საინფორმაციო ტექნოლოგია - საერთო კაბელების ჩაწყობა სამომხმარებლო სათავსებისათვის ნაწილი 3: ინდუსტრიული სათავსები“

3 პირველად

4 რეგისტრირებულია: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეგისტრში 30/12/2020 წლის №268-1.3-019553



ISO/IEC 11801-3

Edition 1.0 2017-11

INTERNATIONAL STANDARD

Information technology – Generic cabling for customer premises
Part 3: Industrial premises

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძლება სტანდარტი.



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2017 ISO/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 ISO/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.

IEC Central Office
3, rue de Varembé
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.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables 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 online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC 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.



ISO/IEC 11801-3

Edition 1.0 2017-11

INTERNATIONAL STANDARD

**Information technology – Generic cabling for customer premises
Part 3: Industrial premises**

საინფორმაციო ნაწილი. სრული გესტიბის სანახავად შეიძლება გერიფირთ თემის დანართისათვის.

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 35.200

ISBN 978-2-8322-5032-7

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD	5
INTRODUCTION	7
1 Scope	10
2 Normative references	10
3 Terms, definitions, abbreviated terms and symbols	11
3.1 Terms and definitions	11
3.2 Abbreviated terms	12
3.3 Symbols	12
4 Conformance	12
5 Structure of the generic cabling system	13
5.1 General	13
5.2 Functional elements	13
5.3 Cabling subsystem	14
5.3.1 General structure	14
5.3.2 Campus and building backbone cabling subsystem	15
5.3.3 Floor cabling subsystem	15
5.3.4 Intermediate cabling subsystem	15
5.3.5 Centralized cabling architecture	16
5.3.6 Design objectives	16
5.4 Interconnection of subsystems	16
5.5 Accommodation of functional elements	18
5.6 Interfaces	19
5.6.1 Equipment interfaces and test interfaces	19
5.6.2 Channels and permanent links	19
5.7 Dimensioning and configuring	19
5.7.1 General	19
5.7.2 Distributors	19
5.7.3 Connecting hardware	20
5.7.4 Apparatus attachment and equipment cords	20
5.7.5 Patch cords and jumpers	20
5.7.6 Telecommunications outlet	20
5.7.7 Telecommunications rooms and equipment rooms	21
5.7.8 Industrial enclosures	21
6 Channel performance requirements	21
6.1 General	21
6.2 Environmental performance	22
6.3 Transmission performance	22
6.3.1 General	22
6.3.2 Balanced cabling	22
6.3.3 Optical fibre cabling	23
7 Link performance requirements	23
7.1 General	23
7.2 Balanced cabling	23
7.3 Optical fibre cabling	23
8 Reference implementations	23
8.1 General	23

8.2	Balanced cabling	23
8.2.1	General	23
8.2.2	Intermediate cabling subsystem	24
8.2.3	Floor cabling subsystem	26
8.2.4	Campus and building backbone cabling subsystem	28
8.3	Optical fibre cabling	28
9	Cable requirements	28
9.1	General.....	28
9.2	Balanced cables	28
9.3	Optical fibre cables	29
10	Connecting hardware requirements	29
10.1	General requirements	29
10.2	Connecting hardware for balanced cabling.....	29
10.2.1	General requirements	29
10.2.2	Electrical, mechanical and environmental performance	29
10.3	Connecting hardware for optical fibre cabling.....	30
10.3.1	General requirements	30
10.3.2	Optical, mechanical and environmental performance	30
11	Cords	30
11.1	Jumpers.....	30
11.2	Balanced cords	30
11.2.1	General	30
11.2.2	Additional requirements for apparatus attachment cords	30
11.3	Optical fibre cords.....	30
Annex A (normative)	Industrial cabling system	31
A.1	General.....	31
A.2	Industrial intermediate cabling subsystem	31
Annex B (normative)	Additional reference implementations	33
B.1	General.....	33
B.2	Channel configurations	33
B.2.1	General	33
B.2.2	Channels with no connections	33
B.2.3	Channels with inter-connections	34
B.2.4	End-to-end link (E2E link)	35
B.3	Channels using balanced cabling bulkhead connections	36
Annex C (informative)	Other implementations	38
C.1	General.....	38
C.2	Channels using balanced cabling bulkhead connections with additional connections	38
Bibliography.....		41
Figure 1 – Relationships between the generic cabling documents produced by ISO/IEC JTC 1/SC 25		7
Figure 2 – Relationships between the ISO/IEC and IEC cabling documents that apply to industrial premises.....		8
Figure 3 – Configuration of apparatus-based functional elements within industrial premises		14
Figure 4 – Structure of generic cabling for industrial environment		14

Figure 5 – Centralized structure of generic cabling for industrial premises	16
Figure 6 – Hierarchical structure of generic cabling for industrial premises	17
Figure 7 – Inter-relationship of functional elements in an installation with diversity for protection against failure (CPs optional between IDs and TOs)	17
Figure 8 – Accommodation of functional elements (CPs optional between IDs and TOs)	18
Figure 9 – Equipment and test interfaces	19
Figure 10 – Transmission performance of a channel	21
Figure 11 – Example of a system showing the location of cabling interfaces and extent of associated channels	22
Figure 12 – Intermediate cabling models	25
Figure 13 – Floor cabling model	27
Figure A.1 – Industrial cabling system supporting several AIs via an IID	31
Figure A.2 – Combined structure of generic and industrial cabling system using an IID	32
Figure B.1 – Channel configurations without intermediate connections	34
Figure B.2 – Channel configurations with inter-connections	35
Figure B.3 – Channel configurations with bulkhead connections	36
Figure C.1 – Channel configurations with bulkhead and additional connections	39
 Table 1 – Maximum channel lengths	20
Table 2 – Length assumptions used in the mathematical modelling of balanced intermediate cabling	25
Table 3 – Intermediate link length equations	26
Table 4 – Floor link length equations	28
Table B.1 – Channel length equations for balanced cabling with inter-connections	35
Table B.2 – Channel length equations with bulkhead connections	37
Table C.1 – Channel equations with bulkhead and additional connections	40

INFORMATION TECHNOLOGY – GENERIC CABLING FOR CUSTOMER PREMISES

Part 3: Industrial premises

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.
- 2) The formal decisions or agreements of IEC and ISO 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 and ISO member bodies.
- 3) IEC, ISO and ISO/IEC publications have the form of recommendations for international use and are accepted by IEC National Committees and ISO member bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC, ISO and ISO/IEC publications is accurate, IEC or ISO 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 and ISO member bodies undertake to apply IEC, ISO and ISO/IEC publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any ISO, IEC or ISO/IEC publication and the corresponding national or regional publication should be clearly indicated in the latter.
- 5) ISO and IEC do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. ISO or IEC are 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 ISO or its directors, employees, servants or agents including individual experts and members of their technical committees and IEC National Committees or ISO member bodies 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 of, use of, or reliance upon, this ISO/IEC publication or any other IEC, ISO or ISO/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 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.

საინფორმაციო ნაწილი. სრული ტექსტი გვხვდეთ სანახავის გვერდზე თუ კიბებზე დაცვის სამინისტროს საიტზე.