

ISO/IEC 11801-3:2017-11 (E)

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

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