



TECHNICAL SPECIFICATION



**Direct current (DC) plugs and socket-outlets for information and communication technology (ICT) equipment installed in data centres and telecom central offices
Part 1: Plug and socket-outlet system for 2,6 kW**

INTERNATIONAL
ELECTROTECHNICAL
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CONTENTS

FOREWORD	6
1 Scope	8
2 Normative references	9
3 Terms and definitions	10
4 General requirements	14
5 General notes on tests	14
6 Ratings	16
7 Classification	16
7.1 Accessory classifications	16
7.1.1 Classification according to the method of connecting the cable	16
7.1.2 Classification according to the type of terminals	16
7.2 Socket-outlet classifications	16
7.2.1 Classification according to the degree of protection against electric shock	16
7.2.2 Classification according to the existence of shutters	16
7.2.3 Classification according to the method of application/mounting of the socket-outlet	16
7.2.4 Classification according to the method of installation	17
8 Marking	17
8.1 General	17
8.2 Symbols	17
8.3 Visibility of markings	18
8.4 Marking for plugs	18
8.5 Marking of terminals	18
8.6 Durability of marking	19
9 Checking of dimensions	19
10 Protection against electric shock	19
11 Provision for earthing	22
12 Terminals and terminations	23
12.1 General	23
12.2 Terminals with screw clamping for external copper conductors	24
12.3 Screwless terminals for external copper conductors	29
12.4 Flat quick-connect terminations	35
12.4.1 General	35
12.4.2 Constructional requirements	35
12.4.3 Electrical requirements	36
12.5 Permanent connections	36
13 Construction of socket-outlets	36
14 Construction of plugs	43
15 Interlocked socket-outlets	48
16 Resistance to ageing, protection provided by enclosures, and resistance to humidity	48
16.1 Resistance to ageing	48
16.2 Protection provided by enclosures	49
16.2.1 General	49

16.2.2	Protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects	49
16.3	Resistance to humidity	50
17	Insulation resistance and electric strength	51
18	Operation of earthing contacts	52
19	Temperature rise	53
20	Breaking capacity	56
21	Normal operation	57
22	Force necessary to withdraw the plug	58
22.1	General	58
22.2	Verification of the maximum withdrawal force for socket-outlets	59
22.3	Verification of the minimum withdrawal force	59
23	Flexible cables and their connection	60
24	Mechanical strength	63
25	Resistance to heat	72
26	Screws, current-carrying parts and connections	73
27	Creepage distances, clearances and distances through sealing compound	75
28	Resistance of insulating material to abnormal heat and to fire	77
29	Resistance to rusting	78
Annex A (normative) Safety-related routine tests for factory-wired accessories (protection against electric shock and correct polarity)		107
A.1	General remarks	107
A.2	Polarized systems, “+” and “-” – correct connection	107
A.3	Earth continuity	108
A.4	Short-circuit/wrong connection and reduction of creepage distance and clearances between “+” and “-” to earth ()	108
Annex B (normative) Survey of specimens needed for tests		109
Annex C (informative) Alternative gripping tests		110
C.1	Gripping test C1	110
C.2	Gripping test C2	112
Annex D (normative) Standard sheets and gauges		114
D.1	Standard sheets	114
D.2	Gauges for checking the dimensions of the entry holes	118
Bibliography		121
Figure 1 – Examples of accessories		80
Figure 2 – Pillar terminals		81
Figure 3 – Screw terminals and stud terminals		82
Figure 4 – Saddle terminals		83
Figure 5 – Mantle terminals		84
Figure 6 – Example of thread-forming screw		84
Figure 7 – Example of thread-cutting screw		84
Figure 8 – Arrangement for compression test of 10.2 and 24.6		85
Figure 9 – Gauge for checking non-accessibility of live parts, through shutters		86
Figure 10 – Gauge for checking non-accessibility of live parts, through shutters, and of live parts of socket-outlets with increased protection		87

Figure 11 – Arrangement for checking damage to conductors	88
Figure 12 – Information for deflection test	89
Figure 13 – Device for checking the resistance to lateral strain	90
Figure 14 – Example of apparatus for breaking capacity and normal operation test.....	91
Figure 15 – Circuit diagram for breaking capacity and normal operation tests	92
Figure 16 – Apparatus for verification of maximum withdrawal force	92
Figure 17 – Apparatus for testing cord retention.....	93
Figure 18 – Apparatus for flexing test	94
Figure 19 – Sketches showing the application of the blows according to Table 20.....	95
Figure 20 – Apparatus for impact test at low temperature of 24.5	96
Figure 21 – Example of test arrangement to verify the fixation of pins in the body of the plug	97
Figure 22 – Arrangement for test on covers or cover-plates	97
Figure 23 – Gauge (thickness about 2 mm) for the verification of the outline of covers or cover-plates.....	98
Figure 24 – Examples of application of the gauge of Figure 23 on covers fixed without screws on a mounting surface or supporting surface	99
Figure 25 – Examples of application of the gauge of Figure 23 in accordance with the requirements of 24.16	100
Figure 26 – Gauge for verification of grooves, holes and reverse tapers	101
Figure 27 – Sketch showing the direction of application of the gauge of Figure 26	101
Figure 28 – Ball pressure test apparatus.....	101
Figure 29 – Apparatus for compression test for the verification of resistance to heat of 25.5	102
Figure 30 – Test procedures for normal operation (see Clause 21)	103
Figure 31 – Clamping unit for the temperature rise test of Clause 19	104
Figure 32 – The profile of the inrush current for the test of Clause 20	105
Figure 33 – Annex to Figure 32 with additional information on a possible circuit to produce the inrush current as given in Figure 32.....	105
Figure 34 – Circuit diagram for testing socket-outlets and plugs according to 18.2.....	106
Figure 35 – Possible test setup for the temperature rise test for Clauses 19 and 21	106
Figure C.1 – Reference plug for gripping test.....	111
Figure C.2 – Example of the test apparatus for plug gripping test	112
Figure D.1 – Standard sheet 1: 2,6 kW / 294 V to 400 V d.c. socket-outlet for class I equipment.....	115
Figure D.2 – Standard sheet 2: 2,6 kW / 294 V to 400 V d.c. plug for class I equipment.....	116
Figure D.3 – Standard sheet 3: positioning of the “+” and “–” pins/socket-contacts	117
Figure D.4 – Minimum gauges for checking the dimensions of the entry holes: C1	118
Figure D.5 – Maximum gauges for checking the dimensions of the entry holes: C2	118
Figure D.6 – Gauge for checking the first point of contact: C3.....	119
Figure D.7 – Gauges for checking the minimum withdrawal force (see 22.3)	119
Figure D.8 – Gauge for checking the maximum withdrawal force: C4max (see 22.2)	120
Table 1 – Relationship between rated power and connectable nominal cross-sectional areas or American Wire Gauge (AWG) size of copper conductors	24
Table 2 – Values for pull test for screw-type terminals	26

Table 3 – Composition of conductors	27
Table 4 – Tightening torques for the verification of the mechanical strength of screw-type terminals	28
Table 5 – Relationship between rated power and connectable cross-sectional areas or AWG size of copper conductors for screwless terminals	30
Table 6 – Value for pull test for screwless-type terminals.....	32
Table 7 – Values for flexing under mechanical load test for copper conductors	32
Table 8 – Test current for the verification of electrical and thermal stresses in normal use for screwless terminals.....	33
Table 9 – Nominal cross-sectional areas or AWG size of rigid copper conductors for deflection test of screwless terminals.....	34
Table 10 – Deflection test forces.....	35
Table 11 – Forces to be applied to tabs	36
Table 12 – Relationship between tab size and maximum current.....	36
Table 13 – Forces to be applied to covers, cover-plates or actuating members whose fixing is not dependent on screws	38
Table 14 – External cable dimension limits for surface-type socket-outlets	40
Table 15 – Nominal cross-sectional areas of copper conductors and test currents for the temperature rise test.....	54
Table 16 – Maximum and minimum withdrawal force for plugs and socket-outlets.....	60
Table 17 – External dimensions of flexible cables to be accommodated by cord anchorages.....	60
Table 18 – Torque test values for cord anchorages.....	61
Table 19 – Maximum dimensions of flexible cables to be accommodated in rewirable accessories	62
Table 20 – Height of fall for impact tests	65
Table 21 – Torque test values for glands	68
Table 22 – Resistance to heat of different types or parts of accessories	72
Table 23 – Creepage distances, clearances and distances through insulating sealing compound.....	76
Table B.1 – Number of specimens needed for the tests according to 5.5.....	109

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIRECT CURRENT (DC) PLUGS AND SOCKET-OUTLETS FOR INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) EQUIPMENT INSTALLED IN DATA CENTRES AND TELECOM CENTRAL OFFICES

Part 1: Plug and socket-outlet system for 2,6 kW

FOREWORD

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- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62735-1, which is a Technical Specification, has been prepared by IEC technical committee 23: Electrical accessories.

In this standard, the following print types are used:

- compliance statements: in *italic* type

The text of this Technical Specification is based on the following documents:

Enquiry draft	Report on voting
23/692/DTS	23/708A/RVC

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

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

A list of all parts in the IEC 62735 series, published under the general title *Direct current (DC) plugs and socket-outlets for information and communication technology (ICT) equipment installed in data centres and telecom central offices*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- transformed into an International Standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

DIRECT CURRENT (DC) PLUGS AND SOCKET-OUTLETS FOR INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) EQUIPMENT INSTALLED IN DATA CENTRES AND TELECOM CENTRAL OFFICES

Part 1: Plug and socket-outlet system for 2,6 kW

1 Scope

This part of IEC 62735, which is a Technical Specification, applies to plugs and fixed socket-outlets for class I equipment with two active contacts plus an earthing contact, a rated power of 2,6 kW and a rated voltage range from 294 V to 400 V d.c. They are intended to power d.c. information and communication technology equipment only, products according to IEC 60950.

The accessories according to this part of IEC 62735 are intended to be used by ordinary persons in data centres only where the value of the d.c. voltage distribution system is defined as follows:

- 380 V with a tolerance of ± 20 V for installations with no backup battery or with a voltage regulation system;
- 380 V with a voltage range of 294 V to 400 V for installations with a backup battery where voltage regulation is not guaranteed;
- the voltage value between each live conductor and earth does not exceed 200 V d.c. during normal operation;
- there are two abnormal voltage ranges (duration below 10 min):
 - 260 V up to 294 V, and
 - above 400 V to 410 V.

The maximum current of the plug and the socket-outlet is

- 6,5 A when the voltage between live contacts is 400 V d.c.,
- 8,8 A when the voltage between live contacts is 294 V d.c.

and can rise up to 10 A when the voltage between live contacts decreases to 260 V d.c. for 10 min maximum.

The voltage between live conductors can fall down to 260 V d.c. when the voltage discharge value of the battery reaches the disconnecting level. The consequence is that the current increases accordingly.

The accessories according to this part of IEC 62735 do not require maintenance.

Plugs and socket-outlets covered by this part of IEC 62735 are intended for use in circuits where

- basic protection,
- an overcurrent protection (of 8,8 A or less for each socket-outlet or multiple socket-outlet),
- the fault protection (indirect contact protection), and
- additional protection

are already assured.

This part of IEC 62735 does not cover requirements for flush mounting boxes: however, it covers only those requirements for surface-type mounting boxes which are necessary for the tests on the socket-outlet.

NOTE 1 General requirements for mounting boxes are given in IEC 60670.

This part of IEC 62735 also applies to

- plugs incorporated in cord sets,
- plugs and socket-outlets incorporated in cord extension sets for data centres to be fixed to a wall or a rack,
- the cord extension set and multiple socket-outlets for data centres intended to be fixed to a wall or a rack, and
- socket-outlets which are a component of an assembly,

unless otherwise stated in the standard for the relevant assembly.

This part of IEC 62735 does not apply to

- single or multiple portable socket-outlets not fixed to a wall or a rack;
- plugs, socket-outlets and couplers for industrial purposes;
- plugs, socket-outlets and vehicle couplers for electric vehicles according to the IEC 61851 and IEC 62196 series;
- plugs and socket-outlets for household;
- appliance couplers;
- plugs, fixed and portable socket-outlets for extra-low voltage (ELV);

NOTE 2 ELV values are specified in IEC 60364-4-41.

- fixed socket-outlets combined with fuses, automatic switches, etc.

Socket-outlets with pilot lights are allowed provided that pilot lights comply with the relevant standard, if any.

Plugs and socket-outlets complying with this part of IEC 62735 are only suitable for use at ambient temperatures not normally exceeding +40 °C, but their average over a period of 24 h does not exceed +35 °C, with a lower limit of the ambient air temperature of –5 °C.

Socket-outlets complying with this part of IEC 62735 are only suitable for incorporation or mounting in equipment in such a way and in such a place that it is unlikely that the surrounding temperature exceeds 35 °C.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-151:2001, *International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices* (available at: www.electropedia.org)

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60352-2, *Solderless connections – Part 2: Crimped connections – General requirements, test methods and practical guidance*

IEC 60423, *Conduit systems for cable management – Outside diameters of conduits for electrical installations and threads for conduits and fittings*

IEC 60512-12-1, *Connectors for electronic equipment – Tests and measurements – Part 12-1: Soldering tests – Test 12a: Solderability, wetting, solder bath method*

IEC 60512-12-2, *Connectors for electronic equipment – Tests and measurements – Part 12-2: Soldering tests – Test 12b: Solderability, wetting, soldering iron method*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60695-2-11, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 61032, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61210, *Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements*

ISO 1456, *Metallic coatings – Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and of copper plus nickel plus chromium*