

IEC TS 62735-2

Edition 1.0 2016-12

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 2: Plug and socket-outlet system for 5,2 kW

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 29.120.01; 29.120.30

ISBN 978-2-8322-3708-3

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

CONTENTS

FOF	REWORD	4
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	General requirements	7
5	General notes on tests	7
6	Ratings	7
7	Classification	7
8	Marking	7
9	Checking of dimensions	8
10	Protection against electric shock	8
11	Provision for earthing	8
12	Terminals and terminations	8
13	Construction of socket-outlets	11
14	Construction of plugs	11
15	Interlocked plug and socket-outlet systems	12
16	Resistance to ageing, protection provided by enclosures, and resistance to humidity	12
17	Insulation resistance and electric strength	12
18	Operation of earthing contacts	13
19	Temperature rise	13
20	Breaking capacity	14
21	Normal operation	14
22	Force necessary to withdraw the plug	14
23	Flexible cables and their connection	15
24	Mechanical strength	16
25	Resistance to heat	16
26	Screws, current-carrying parts and connections	16
27	Creepage distances, clearances and distances through sealing compound	16
28	Resistance of insulating material to abnormal heat and to fire	16
29	Resistance to rusting	16
Ann	exes	16
Ann	ex AA (normative) Standard sheets and gauges	17
Bibl	iography	21
	ure AA.1 – Standard sheet 4: 5,2 kW / 294 V to 400 V d.c. socket-outlet for class I	18
Figu	ure AA.2 – Standard sheet 5: 5,2 kW / 294 V to 400 V d.c. plug for class I ipment	
	ure AA.3 – Standard sheet 6: positioning of the "+" and "−" pins/socket-contacts	
	le 1 – Relationship between rated power and connectable nominal cross-sectional	9

IEC TS 62735-2:2016 © IEC 2016

- 3 -

Table 2 – Values for pull test for screw-type terminals	9
Table 3 – Composition of conductors for plugs	9
Table 5 – Relationship between rated power and connectable cross-sectional areas or AWG size of copper conductors for screwless terminals	10
Table 6 – Value for pull test for screwless-type terminals	10
Table 7 – Values for flexing under mechanical load test for copper conductors	10
Table 8 – Test current for the verification of electrical and thermal stresses in normal use for screwless terminals	10
Table 9 – Nominal cross-sectional areas or AWG size of rigid copper conductors for deflection test of screwless terminals	11
Table 10 – Deflection test forces	11
Table 14 – External cable dimension limits for surface-type socket-outlets	11
Table 15 – Nominal cross-sectional areas of copper conductors and test currents for the temperature rise test	13
Table 16 – Maximum and minimum withdrawal force for plugs and socket-outlets	15
Table 17 – External dimensions of flexible cables to be accommodated by cord anchorages	15
Table 18 – Torque test values for cord anchorages	15
Table 19 – Maximum dimensions of flexible cables to be accommodated in rewirable accessories	

-4 -

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 2: Plug and socket-outlet system for 5,2 kW

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC 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.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC 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 undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is 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 its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees 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, use of, or reliance upon, this IEC Publication or any other 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 IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- 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 62735-2, which is a technical specification, has been prepared by IEC technical committee 23: Electrical accessories.

IEC TS 62735-2:2016 © IEC 2016

- 5 -

This technical specification is to be used in conjunction with IEC 62735-1:2015.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
23/743/DTS	23/745A/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 document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2 supplements or modifies the corresponding clauses in IEC 62735-1 so as to convert that publication into the IEC technical specification: *Direct current (DC) plugs and socket-outlets for information and communication technology (ICT) equipment installed in data centres and telecom central offices.*

Where this Part 2 states "addition", "modification" or "replacement", the relevant requirement, test specification or explanatory matter in Part 1 should be adapted accordingly.

Where no change is necessary, this Part 2 indicates that the relevant clause or subclause applies.

In this publication:

- 1) The following print types are used:
 - Requirements proper: in roman type.
 - Test specifications: in italic type.
- 2) Subclauses, notes, tables or figures which are additional to those in Part 1 are numbered starting from 101 and additional list items are numbered from aa). Additional annexes are lettered AA, BB, etc.

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.

– 6 –

IEC TS 62735-2:2016 © IEC 2016

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

Part 2: Plug and socket-outlet system for 5,2 kW

1 Scope

This clause of Part 1 is applicable except as follows:

Replacement:

Replace the first paragraph with the following:

This part of IEC 62735, which is a technical specification, applies to plugs and fixed socketoutlets for class I equipment with two active contacts plus an earthing contact, a rated power of 5,2 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.

The 2,6 kW system complying with Part 1 is safely compatible with the system complying with this part as it is possible to insert the 2,6 kW plug in the 5,2 kW socket-outlet but it is not possible to insert the 5,2 kW plug into the 2,6 kW socket-outlet.

Replace the third paragraph with the following:

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

- 13 A when the voltage between live contacts is 400 V d.c.
- 17,6 A when the voltage between live contacts is 294 V d.c.

and can rise up to 20 A when the voltage between live contacts decreases to 260 V d.c. for 10 min maximum.

Replace, in the 6th paragraph, the second dash with:

an overcurrent protection (of 17,6 A or less for each socket-outlet or multiple socket-outlet),

2 Normative references

This clause of Part 1 is applicable.