

TECHNICAL SPECIFICATION

Direct current (DC) appliance couplers for information and communication technology (ICT) equipment installed in data centres and telecom central offices –

Part 2: 5,2 kW system

[IEC TS 63236-2:2021](#)

<https://standards.iteh.ai/catalog/standards/sist/ac9f2513-8c71-4e38-b942-12eaab8ed994/iec-ts-63236-2-2021>



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DIRECT CURRENT (DC) APPLIANCE COUPLERS FOR INFORMATION
AND COMMUNICATION TECHNOLOGY (ICT) EQUIPMENT INSTALLED
IN DATA CENTRES AND TELECOM CENTRAL OFFICES –**

Part 2: 5,2 kW system

FOREWORD

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IEC TS 63236-2 has been prepared by IEC technical committee 23: Electrical accessories. It is a Technical Specification.

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

DTS	Report on voting
23/916/DTS	23/958A/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This Part 2 is to be used in conjunction with IEC TS 63236-1:2021.

The clauses of this document supplement or modify the corresponding clauses in IEC 63236-1. When a particular subclause or annex of Part 1 is not mentioned in this Part 2, the subclause or annex of IEC 63236-1 applies as far as is reasonable. Where this document states “addition”, “amendment” or “replacement”, the relevant requirement, test specification or explanatory matter in IEC 63236-1 is to be adapted accordingly.

Clauses or subclauses which are additional to those in Part 1 are numbered starting from 101.

A list of all parts in the IEC 63236 series, published under the general title *Direct current (DC) appliance couplers 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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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DIRECT CURRENT (DC) APPLIANCE COUPLERS FOR INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) EQUIPMENT INSTALLED IN DATA CENTRES AND TELECOM CENTRAL OFFICES –

Part 2: 5,2 kW system

1 Scope

This part of IEC 63236, which is a Technical Specification, applies to DC appliance couplers 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 DC. They are intended to power DC information and communication technology equipment only, as specified in IEC 62368-1.

The accessories according to this document are intended to be used by ordinary persons in data centres only where the value of the DC 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 DC 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 appliance couplers is

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

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

The voltage between live conductors can fall down to 260 V DC 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 document do not require maintenance.

The accessories according to this document are intended for use in circuits where

- basic protection,
- an overcurrent protection (of 17,6 A or less for each socket-outlet or multiple socket-outlet),
- the fault protection (indirect contact protection), and
- additional protection

are already assured.

Appliance couplers complying with this document are suitable for normal use at ambient air temperatures not normally exceeding +60 °C, with a lower limit of the ambient air temperature of -5 °C.

Appliance couplers are not suitable for use in place of plug and socket-outlet systems according to the IEC TS 62735 series

The 2,6 kW system complying with IEC TS 63236-1 is not compatible with the system complying with IEC TS 63236-2 as it is impossible to mate the 2,6 kW connector in the 5,2 kW appliance inlet and it is also impossible to mate the 5,2 kW connector into the 2,6 kW appliance inlet.

2 Normative references

This clause of IEC TS 63236-1:2021 applies.

3 Terms and definitions

This clause of IEC TS 63236-1:2021 applies except as follows:

Addition:

Add the following new definition:

3.101

0 (zero) current operated appliance coupler system

system, either electrical or electronic or mechanical or a combination of these, that prevents current flow while making and breaking [IEC TS 63236-2:2021](https://standards.iteh.ai/catalog/standards/sist/ac9f2513-8c71-4e38-b942-12eaab8ed994/iec-ts-63236-2-2021)

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4 General requirements

This clause of IEC TS 63236-1:2021 applies.

5 General notes on tests

This clause of IEC TS 63236-1:2021 applies.

6 Standard ratings

This clause of IEC TS 63236-1:2021 is replaced as follows:

Replacement:

Accessories shall have a rated power of 5,2 kW at any voltage within the rated voltage range of 294 V to 400 V.

7 Classification of appliance coupler

This clause of IEC TS 63236-1:2021 applies.

8 Marking

This clause of IEC TS 63236-1:2021 applies.

9 Dimensions and compatibility

This clause of IEC TS 63236-1:2021 applies.

10 Protection against electric shock

This clause of IEC TS 63236-1:2021 applies.

11 Provision for earthing

This clause of IEC TS 63236-1:2021 applies.

12 Terminals and terminations

This clause of IEC TS 63236-1:2021 applies except as follows:


12.1 General

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Replacement:

Replace Table 1 with the following: [IEC TS 63236-2:2021](https://standards.iteh.ai/catalog/standards/sist/ac9f2513-8c71-4e38-b942-12eab8ed994/iec-ts-63236-2-2021)
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Table 1 – Relationship between rated power and connectable nominal cross-sectional areas or American Wire Gauges (AWG) size of copper conductors

Power and type of accessory	Flexible copper conductors	
	Nominal cross-sectional area or AWG size ^a	Corresponding diameter of the largest conductor mm
5,2 kW 2P+ 	From 1,5 mm ² up to 2,5 mm ² inclusive or from 16 AWG up to 14 AWG	2,21 or 1,85
^a Nominal cross-sectional area of the conductors of appliance couplers.		

13 Construction

This clause of IEC TS 63236-1:2021 applies.

14 Insulation resistance and electric strength

This clause of IEC TS 63236-1:2021 applies except as follows:

Replacement:

Replace Table 2 with the following:

Table 2 – Maximum diameters of the cords

Type of cord	Number of conductors and nominal cross-sectional area mm ²	Maximum dimensions mm
60227 IEC 57	3 × 2,5	11,4
60245 IEC 53	3 × 2,5	12,4

15 Forces necessary to insert and to withdraw the connector

15.1 General

This clause of IEC TS 63236-1:2021 applies except as follows:

Replacement:

Replace Table 3 with the following:

IEC TS 63236-2:2021
 Table 3 – Maximum and minimum withdrawal forces
 https://standards.iteh.ai/catalog/standards/iec/63236-2-2021/12eaab8ed994/iec-ts-63236-2-2021

Type of connector/ appliance inlet	Withdrawal forces N	
	15.2 Multi pin gauge maximum	15.3 Single pin gauge minimum
5,2kW	60	2,0

16 Operation of contact

This clause of IEC TS 63236-1:2021 applies.

17 Resistance to heating of appliance coupler

This clause of IEC TS 63236-1:2021 applies.

18 Breaking capacity

This clause of IEC TS 63236-1:2021 applies except as follows:

Replacement:

Replace the 3rd paragraph with the following:

The connector is mounted in an appropriate test apparatus, which incorporates the corresponding DC appliance inlet (standard sheet 1, see Figure D.1).

Replace the 7th paragraph with the following:

First the test is done with a test voltage of 260 V and a test current of 1,5 times 20 A with an inrush of 300 A with a profile equivalent to that shown in IEC TS 62735-1:2015, Figure 32, for 100 strokes including switching operation.

Replace the 11th paragraph with the following:

After this test, the test is repeated with a test voltage of 410 V and a test current of 1,5 times 12,7 A with an inrush of 475 A with a profile equivalent to that shown in IEC TS 62735-1:2015, Figure 32, for 100 strokes including switching operation.

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19 Normal operation

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This clause of IEC TS 63236-1:2021 applies except as follows:

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Replacement:

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Replace the 4th and 5th paragraphs with the following:

First the test is done with a test voltage of 400 V and a test current of 13 A with an inrush of 463 A with a profile equivalent to that shown in IEC TS 62735-1:2015, Figure 32, for 1 000 strokes.

Then the test is repeated with a test voltage of 294 V and a test current of 17,6 A with an inrush of 340 A with a profile equivalent to that shown in IEC TS 62735-1:2015, Figure 32, for 1 000 strokes.

20 Temperature rise

This clause of IEC TS 63236-1:2021 applies except as follows:

Replacement:

Replace Table 4 with the following: