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White Paper

Cord Sets and Interconnection Cord Sets
(IEC 60799:2018)

Cord sets and interconnection cord sets (IEC 60799:2018)
German version EN IEC 60799:2021

Geräteanschlussleitungen und Weiterverbindungs-Geräteanschlussleitungen gemäß
EN IEC 60799 :2021 (IEC 60799:2018)

Cordons-connecteurs et cordons d´interconnexion (IEC 60799:2018)
Version allemande EN IEC 60799:2021

What is it?

The lengthy description “Cord sets and interconnection cord sets” defines nothing more than the detachable mains cable supply cable for the power supply of electrical equipment and the cable that is required to continue the power supply to the next electrical equipment.

Scope of application

Cord sets and interconnection cord sets are intended for domestic use and similar general purposes. The often stated assumption that professional event technology involves industrial applications is incorrect.
What is considered here is the application within the European economic area.

Consequences

Electrical equipment that falls under the scope of the Low Voltage Directive 2014/35/EU[1] must be designed and manufactured in accordance with the safety objectives. The Low Voltage Directive requires that the manufacturer checks the conformity of the electrical equipment with the directive requirements by means of a conformity assessment and ensures this for the entire series. This includes issuing an EU declaration of conformity and affixing the CE marking.

The consequences of improper conformity assessment must be considered.

Non-compliance with the legal requirement can lead to anything from preventive measures under administrative law to repressive measures under criminal law. The national authorities of the individual nation states cooperate in market surveillance and can also initiate measures up to

1 Article 1 of the Low Voltage Directive 2014/35/EU describes that the scope of the Directive includes electrical equipment for use at a nominal voltage between 50 and 1 000 V for alternating current and between 75 and 1 500 V for direct current, with exceptions.

Requirements of the Low Voltage Directive (LVD)

Cord sets and interconnection cord sets fall within the scope of the Low-Voltage Directive 2014/35/EU (LVD) and must therefore comply with the requirements of this directive.

EUR-Lex - 32014L0035 - EN - EUR-Lex (europa.eu)

Presumption of conformity with the LVD applies if the products comply with the standards listed under the LVD.

The following standards are listed in the Official Journal of the Low Voltage Directive

- EN 60799:1998 Cord sets and interconnection cord sets
- EN IEC 60320-1:2021 Appliance couplers

Products that comply with the above standards therefore also meet the requirements of the Low Voltage Directive

Conclusion:
Only products that comply with the requirements of the Low Voltage Directive 2014/35/EU may bear the CE marking and be placed on the market for the first time in the European Economic Area.

The Product Safety Act ProdSG applies to Germany. In the other European countries there are analogous comparable national laws which should be clarified:

Product Safety Act (ProdSG)

The Product Safety Act, the national implementation, is the law on making products available on the market and the implementation (10) of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (OJ L 96, 29.3.2014, p. 357)

ProdSG.pdf (gesetze-im-internet.de)

Conclusion:
Standards are only rules of technology. As soon as a standard is listed in the Official Journal, the presumption of conformity can be given by the fulfillment of the standard requirement.

Definition

The following two assembled cables are described in EN IEC 60799:2021:

a.) A cord set intended to connect an electrical device to the mains supply. It consists of a non-reconnectable (*) plug, a movable cable and a non-reconnectable (*) appliance inlet.

b.) A interconnection cord set intended to further connect the mains supply from one electrical device to another electrical device. It consists of a non-reconnectable (*) device connection plug, a movable cable and a non-reconnectable (*) device socket.

An extension cord, on the other hand, consists of a plug and a coupling and can be used to connect devices directly to the mains supply.

(*) Non-reconnectable means that the connector is not suitable for reconnection by non-professionals. This can be achieved, for example, by overmolding or by a twist-on lock that can only be released with tools.

Requirements for the components

Different requirements apply to the various components of an assembled cable according to EN IEC 60799:2021:

a.) The requirements for the plug for use on cord set are described in IEC 60884-1. In Germany, this is DIN VDE 0620-2-1 or DIN VDE 0620-101. In Germany, this is DIN VDE 0620-2-1 or DIN VDE 0620-101. In addition, IEC TR 60083 describes the standardized plugs used worldwide for mains connection.

b.) The requirements for the connectors for use on cord sets or interconnection cord sets are described in EN IEC 60320-1:2021.

c.) The requirements for the plug connector for use on interconnection cord sets are described in EN IEC 60320-1 (VDE 0625-1).

d.) The requirements for PVC-sheathed cables for use in cord sets or interconnection cord sets are described in IEC 60227.

e.) The requirements for rubber-sheathed cables for use in cord sets or interconnection cords sets are described in IEC 60245.

Connectors, e.g. according to EN 61984:2009 are not suitable for this application.

The presumption of conformity with the Low Voltage Directive applies if the products meet the requirements of the standards listed in the Official Journal. EN 61984:2009 is currently not listed in the Official Journal.

The CE marking must NOT be applied to cord sets or interconnection cord sets that are manufactured with connectors according to EN 61984.

Note

It is not sufficient that only the components connected to a cord set (consisting of plug, line, connector) or an interconnection cord set (consisting of plug connector, line, connector) are certified according to the corresponding component standards.

Compliance with the requirements of EN IEC 60799 must be demonstrated to the authorities.

This can be done, for example, by testing at an accredited testing laboratory. Certification including production monitoring by an accredited certification institute additionally certifies that an independent third-party body has tested the conformity and confirms it for the entire product series.

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Attachment

Statement VDE Prüf- und Zertifizierungsinstitut GmbH dated 2023-04-03

VDE

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Cord sets and Interconnection cord sets according to EN 60799
Information about the requirements for testing and certification
Requirements of the Low-Voltage Directive 2014/35/EU

Cord sets and Interconnection cord sets shall be in compliance the requirements of the ***Low-Voltage Directive 2014/35/EU*** (LVD)
https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/low-voltage-lvd_en

Presumption of conformity with the LVD is applicable, if products are in compliance with standards listed under the LVD.

The following standards are listed under the LVD:

EN 60799	Cord sets and interconnection cord sets
EN 60320-1	Appliance couplers
EN 60320-2-3	Appliance couplers with a degree of protection higher than IPX0

Therefore products in compliance with the above listed standards are as well in compliance with the requirements of the LVD.

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Requirements of EN 60799

5 Requirements
5.1 Requirements for component parts

The plug of a cord set shall comply with the requirements of IEC 60884-1 *(for Germany: DIN VDE 0620-1 or DIN VDE 0620-101).*

The connector of a cord set or an interconnection cord set shall comply with the requirements of EN 60320-1.

The plug connector of an interconnection cord set shall comply with the requirements of EN 60320-1.

The connector, with a degree of protection higher than IPX0, of a cord set or an interconnection cord set shall comply with the requirements of EN 60320-2-3.

The plug connector, with a degree of protection higher than IPX0, of an interconnection cord set shall comply with the requirements of EN 60320-2-3.

Based on the above mentioned requirements the following applies:

1. Cord sets according to EN 60799 made with connecting devices other than plugs according to IEC 60884-1 / VDE 0620-2-1 or VDE 0620-101 and connectors according to the EN 60320-Series are not permitted.

2. Interconnection cord sets according to EN 60799 made with connecting devices other than appliance couplers (plug connectors and connectors) according to the EN 60320-Series are not permitted.

Remark
It is not sufficient that only the components which are connected together to a Cord set (based on plug, cord, connector) or an Interconnection cord set (based on plug connector, cord, connector) are certified according to their related component standards.

The compliance of these requirements of EN 60799can be verified by testing and certification at an independent testing institute (for example at VDE Testing and Certification Institute).

Mit freundlichen Grüßen /
Best regards

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A list of permitted and non-permitted products according to EN IEC 60799:2021

Table 1: Examples of permitted / non-permitted component combinations for cord sets according to EN IEC 60799:2021 with plugs and connectors of the same for cable connection

Plug	Cable Type	Connectro	allowed/not allowed
Plug as per VDE 0620-2-1 Schuko (DIN 49406-1) 	H05VV-F 3G0,75mm² H05VV-F 3G1mm² H05VV-F 3G1,5mm² H05RR-F 3G0,75mm² H05RR-F 3G1mm² H05RR-F 3G1,5mm² H05RN-F 3G0,75mm² H05RN-F 3G1mm² H05RN-F 3G1,5mm²	Connector as per EN 60320-3 C13 	10A IP20 Indoor  directive-compliant
Plug as per VDE 0620-2-1 Schuko (DIN 49406-1) 	H05VV-F 3G1mm² H05VV-F 3G1,5mm² H05VV-F 3G2,5mm² H07RN-F 3G1,5mm²	EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3FX-W-TOP  REAN RCAC3F-X-000	16A IP44  directive-compliant
Plug as per VDE 0620-2-1 Schuko (DIN 49406-1) 	H07RN-F 3G2,5mm²	EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3FX-W-TOP-L 	16A IP44  directive-compliant
Plug as per VDE 0620-2-1 Schuko (DIN 49406-1) 	H05VV-F 3G1,5mm² H05VV-F 3G2,5mm² H05RN-F 3G1,5mm² H07RN-F 3G1,5mm²	EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXA-W-S 	16A IP20 Indoor  directive-compliant
Plug as per VDE 0620-2-1 Schuko (DIN 49406-1) 	H07RN-F 3G2,5mm²	EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXA-W-L 	16A IP20 Indoor  directive-compliant
Plug as per VDE 0620-2-1 Schuko (DIN 49406-1) 		Connector as per EN 61984 Mating face powerCON blue/grey 	 not directive-compliant
Plug as per VDE 0620-2-1 Schuko (DIN 49406-1) 		Connector as per EN 61984 Mating face powerCON TRUE1 	 not directive-compliant

Table 2a: Examples of permitted / non-permitted component combinations for cord sets according to EN IEC 60799:2021 with plug connectors and connectors of the same type for cable connection

Plug connector	Cable Type	Connector	allowed/not allowed
EN 60320-3C14 connector 	H05VV-F 3G0,75mm² H05VV-F 3G1mm² H05VV-F 3G1,5mm² H05RR-F 3G0,75mm² H05RR-F 3G1mm² H05RR-F 3G1,5mm² H05RN-F 3G0,75mm² H05RN-F 3G1mm² H05RN-F 3G1,5mm²	Connector as per EN 60320-3 C13 	10A IP20 Indoor  directive-compliant
EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3MX-W-TOP  REAN RCAC3M-X-000	H05VV-F 3G1mm² H05VV-F 3G1,5mm² H05VV-F 3G2,5mm² H07RN-F 3G1,5mm²	EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3FX-W-TOP  REAN RCAC3F-X-000	16A IP65  directive-compliant
EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3MX-W-TOP-L 	H07RN-F 3G2,5mm²	Connector as per EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3FX-W-TOP-L 	16A IP65  directive-compliant
EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXB-W-S 	H05VV-F 3G1,5mm² H05VV-F 3G2,5mm² H05RN-F 3G1,5mm² H07RN-F 3G1,5mm²	EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXA-W-S 	16A IP20 Indoor  directive-compliant
EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXB-W-L 	H07RN-F 3G2,5mm²	Connector as per EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXA-W-L 	16A IP20 Indoor  directive-compliant
Connector as per EN 61984 Mating face powerCON blue/grey 		Connector as per EN 61984 Mating face powerCON blue/grey 	 not directive-compliant
Connector as per EN 61984 Mating face powerCON TRUE1 		Steckverbidner as per EN 61984 Mating face powerCON TRUE1 	 not directive-compliant

Table 2b: Examples of permitted / non-permitted component combinations for cord sets according to EN IEC 60799:2021 with plug connectors or connectors of different types for cable connection

Plug connector	Cable type	Connector	Allowed / Not allowed
Plug connector according to DIN EN 60320-1 Neutrik powerCON True1 TOP NAC3MX-W-TOP  Rean RCAC3M-X-000	H05VV-F 3G1mm² H05VV-F 3G1,5mm²	Connector according to DIN EN 60320-3 C13 	10A IP 20 Indoor  directive-compliant
Plug connector according to DIN EN 60320-1 Neutrik powerCON blue/grey NAC3FXXB-W-S 	H05VV-F 3G1,5mm²	Connector according to DIN EN 60320-3 C13 	10A IP 20 Indoor  directive-compliant
Plug connector according to DIN EN 61984 Mating face powerCON blue/grey 		Connector according to DIN EN 60320-3 C13 	 not directive-compliant
Plug connector according to DIN EN 61984 Mating face powerCON True1 		Connector according to DIN EN 60320-3 C13 	 not directive-compliant

Selection Matrix: Examples of permitted / non-permitted component combinations for cord sets according to EN IEC 60799:2021 with plug connectors or connectors of different types for cable connection.

	Connector as per DIN EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3FX-W-TOP  REAN RCAC3F-X-000	Connector as per DIN EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3FX-W-TOP-L 	Connector as per DIN EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXA-W-S 	Connector as per DIN EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXA-W-L 	Connector as per DIN EN 61984 Mating face powerCON blue/grey 	Connector as per DIN EN 61984 Mating face powerCON TRUE1 
GeräteanschlusPlug as per DIN EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3MX-W-TOP  REAN RCAC3M-X-000	16A IP 65 directive-compliant		16A IP 20 Indoor directive-compliant		not directive-compliant	not directive-compliant
GeräteanschlusPlug as per DIN EN 60320-1 NEUTRIK powerCON TRUE1 TOP NAC3MX-W-TOP-L 		16A IP 65 directive-compliant		16A IP 20 Indoor directive-compliant	not directive-compliant	not directive-compliant
GeräteanschlusPlug as per DIN EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXB-W-S 	16A IP 20 Indoor directive-compliant		16A IP 20 Indoor directive-compliant		not directive-compliant	not directive-compliant
GeräteanschlusPlug as per DIN EN 60320-1 NEUTRIK powerCON blue/grey NAC3FXXB-W-L 		16A IP 20 Indoor directive-compliant		16A IP 20 Indoor directive-compliant	not directive-compliant	not directive-compliant
Connector as per DIN EN 61984 Mating face powerCON blue/grey 	Not directive-compliant	not directive-compliant	not directive-compliant	not directive-compliant	not directive-compliant	not directive-compliant
Connector as per DIN EN 61984 Mating face powerCON TRUE1 	not directive-compliant	not directive-compliant	not directive-compliant	not directive-compliant	not directive-compliant	not directive-compliant

The approved cables must be determined in each individual case and derived from the approvals of the individual connectors

Note

Rean plug connectors and connectors certified according to the EN IEC 60320-1 standard can be considered in the same way:

RCAC3F-X-000

RCAC3M-X-000

Plug connectors and Connectors from other manufacturers that are certified according to the EN IEC 60320-1 standard can be considered in the same way.

Connectors from other manufacturers that are certified according to the EN 61984 standard can be considered in the same way.

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