
Aeronavtika - Konektor, električni in optični, pravokotni, modularni, pravokotni vložki, stalna delovna temperatura 175 °C (ali 125 °C) - 002. del: Specifikacija lastnosti in razporeditev kontaktov

Aerospace series - Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous - Part 002: Specification of performance and contact arrangements

Luft- und Raumfahrt - Elektrische und optische Rechtecksteckverbinder, modular, rechteckige Kontakteinsätze, Dauerbetriebstemperatur 175 °C (oder 125 °C) konstant - Teil 002: Leistungsdaten und Kontaktanordnungen

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Série aérospatiale - Connecteur, électrique et optique, rectangulaire, modulaire, à inserts rectangulaires, température de fonctionnement 175 °C (ou 125 °C) continu - Partie 002: Spécification de performances et arrangements de contacts

Ta slovenski standard je istoveten z: EN 4644-002:2012

ICS:

49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems
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Aerospace series - Connector, electrical and optical,
rectangular, modular, rectangular inserts, operating temperature
175 °C (or 125 °C) continuous - Part 002: Specification of
performance and contact arrangements

Série aérospatiale - Connecteur, électrique et optique,
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Luft- und Raumfahrt - Elektrische und optische
Rechtecksteckverbinder, modular, rechteckige
Kontaktsteinsätze, Dauerbetriebstemperatur 175 °C (oder
125 °C) konstant - Teil 002: Leistungsdaten und
Kontaktanordnungen

This European Standard was approved by CEN on 6 August 2011.

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Foreword

This document (EN 4644-002:2012) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2012, and conflicting national standards shall be withdrawn at the latest by November 2012.

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EN 4644-002:2012 (E)**1 Scope**

This European Standard specifies the common conditions for rectangular electrical modular connectors for receptacles and plugs with interchangeable modules and a continuous operating temperature of 175 °C (or 125 °C).

Contact arrangements for fibre optic contacts are described in EN 4639-002.

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.

EN 3155-002, *Aerospace series — Electrical contacts used in elements of connection — Part 002: List and utilization of contacts*

EN 3197, *Aerospace series — Design and installation of aircraft electrical and optical interconnection systems*

EN 4529-002, *Aerospace series — Elements of electrical and optical connection — Sealing plugs — Part 002: Index of product standards*

EN 4639-002, *Aerospace series — Connectors, optical, rectangular, modular, multicontact, 1,25 diameter ferrule, with removable alignment sleeve holder — Part 002: List of product standards*

EN 4644-003, *Aerospace series — Connector, electrical and optical, rectangular, modular, rectangular inserts, operating temperature 175 °C (or 125 °C) continuous — Part 003: Rectangular inserts — Product standard*

EN 4644-011, *Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 011: Male housing size 1, class A, C and E — Product standard*

EN 4644-012, *Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 012: Female housing size 1, class A, C and E — Product standard*

EN 4644-013, *Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 013: Male housing size 1 with ground blocks, class B and F — Product standard*

EN 4644-014, *Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 014: Female housing size 1 with ground blocks, class B and F — Product standard*

EN 4644-021, *Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 021: Male housing size 2 without mounting holes; class A, C and E — Product standard*

EN 4644-022, *Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 022: Male housing size 2 with mounting holes; class A, C and E — Product standard*

EN 4644-023, *Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 023: Male housing size 2 with ground block; class A, C and E — Product standard*

EN 4644-024, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 024: Female housing size 2 class A,C and E — Product standard

EN 4644-025, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 025: Female housing size 2 with flange, without ground block; class A, C and E — Product standard

EN 4644-026, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 026: Female housing size 2 with ground block class B and F — Product standard

EN 4644-131, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 131: Male housing size 3 class A and C — Product standard

EN 4644-132, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 132: Female housing size 3 class A and C — Product standard

EN 4644-133, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 133: Female housing size 3 with float mount class A and C — Product standard

EN 4644-141, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 141: Male housing size 4 class A and C — Product standard

EN 4644-142, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C (or 125°C) continuous — Part 142: Female housing size 4 class A and C — Product standard

EN 4644-201, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C continuous — Part 201: Locking and polarising system for housing size 2 — Product standard

EN 4644-202, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C continuous — Part 202: Polarising hardware — Product standard

EN 4644-203, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C continuous — Part 203: Dust caps — Product standard

EN 4644-204, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C continuous — Part 204: tools — Product standard

EN 4644-301, Aerospace series — Connectors, electrical and optical, rectangular modular — Operating temperature 175°C continuous — Part 301: Cable outlet — Product standard

TR 4654, Aerospace series — Connectors, electrical - PrEN EPX derivated products — Technical report

3 Description of models

Modular electrical rectangular, rack and panel or disconnect connectors, environmental resistant with four shells sizes 1, 2, 3 and 4, crimp contacts class R.

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4 Description and codification of shell classes

See Table 1.

Table 1

Classes	Description
A	Plug and receptacle with aluminium alloy housing, nickel plated, 96 h resistance to salt mist, without grounding block, maximum operating temperature: 175 °C continuous.
B	Plug and receptacle with aluminium alloy housing, nickel plated, 96 h resistance to salt mist, with grounding block, maximum operating temperature: 175 °C continuous.
C	Plug and receptacle with aluminium alloy housing and aluminium chromatisation plating, 48 h resistance to salt mist, without grounding block, maximum operating temperature: 125 °C continuous.
E	Plug and receptacle with composite housing, nickel plated, 96 h resistance to salt mist, without grounding block, maximum operating temperature: 175 °C continuous.
F	Plug and receptacle with composite housing, nickel plated, 96 h resistance to salt mist, with grounding block, maximum operating temperature: 175 °C continuous.

5 Terminology

See EN 4644-001.

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6 Operating conditions – Permissible cables dimensions

The performance of these connectors is achieved with the cables of the dimensions given in Table 2 and using the accessories and wiring tools specified.

Table 2 (1 of 2)

Contact size		Size of conductors standard cables		Outer diameter of cables mm	
Contact	Barrel	AECMA code	AWG	min.	max.
22	22	004	22	0,86	1,45
		002	24		
		001	26		
20	20	006	20	1,02	1,80
		004	22		
		002	24		

Table 2 (2 of 2)

Contact size		Size of conductors standard cables		Outer diameter of cables mm	
Contact	Barrel	AECMA code	AWG	min.	max.
16	16	012	16	1,73	2,62
		010	18		
		006	20		
12	12	030	12	2,46	3,43
		020	14		
8	8	090	8	4,80	5,75
5	8	090	8	4,80	5,75
		050	10		

7 Operating characteristics

7.1 Electrical conditions

- Rated current: according to standards for contacts.
- Insulation resistance at ambient temperature: 5 000 M Ω .
- Withstanding voltage at sea level: 1 500 V r.m.s.
- Withstanding voltage from 15 000 m to 21 000 m: 800 V r.m.s.

7.2 Environmental conditions

- Minimum temperature: -65 °C
- Maximum temperature: 175 °C continuous. (except class C at 125 °C).
- Corrosion resistance and fluid resistance: see EN 4644-001.

7.3 Mechanical conditions

Mechanical endurance: 500 mating and unmating cycles for contacts; 100 mating and unmating cycles for locking mechanisms.

7.4 Housing electrical continuity

See Table 3.

Table 3

Class	Maximum resistance m Ω
A, B, E, F	2,5
C	15

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7.5 Shielding effectiveness

See EN 4644-001.

8 Product standards

Table 4

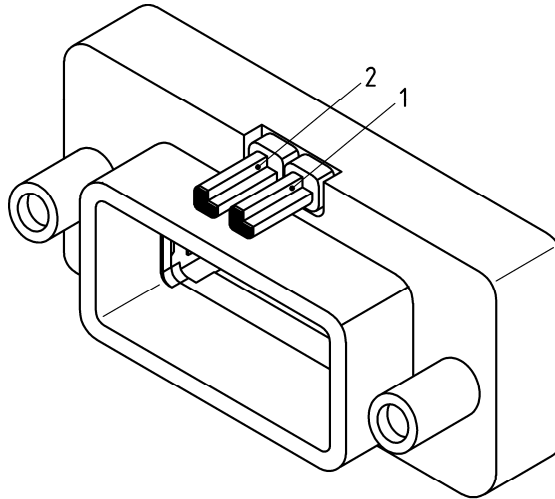
Product standard	Class	Disconnect application	Rack and panel application	Description
EN 4644-003	Not applicable	Not applicable	Not applicable	Rectangular inserts
EN 4644-011	A, C, E	X	—	Plug size 1
EN 4644-012	A, C, E	X	—	Receptacle size 1
EN 4644-013	B-F	X	—	Plug size 1 with ground blocks
EN 4644-014	B-F	X	—	Receptacle size 1 with ground blocks
EN 4644-021	A, C, E	X	—	Plug size 2 without mounting holes
EN 4644-022	A, C, E	X	—	Plug size 2 with mounting
EN 4644-023	B-F	X	—	Plug size 2 with ground blocks
EN 4644-024	A, C, E	X	—	Receptacle size 2
EN 4644-025	A, C, E	X	—	Receptacle size 2 with flange, without ground blocks
EN 4644-026	B-F	X	—	Receptacle size 2 with ground blocks
EN 4644-131	A, C	—	X	Plug size 3
EN 4644-132	A, C	—	X	Receptacle size 3
EN 4644-133	A, C	—	X	Receptacle size 3 with float mount
EN 4644-141	A, C	X (with 2 size 2 receptacle)	X	Plug size 4
EN 4644-142	A, C		X	Receptacle size 4
EN 4644-201	Not applicable	Not applicable	Not applicable	Locking and polarising system for housing size 2
EN 4644-202	Not applicable	Not applicable	Not applicable	Polarising hardware
EN 4644-203	Not applicable	Not applicable	Not applicable	Dust caps
EN 4644-204	—	Not applicable	Not applicable	tools
EN 4644-301	Not applicable	Not applicable	Not applicable	Cable outlet
TR 4654	—	Not applicable	Not applicable	Four gang connector –right angle PC tail contacts.

9 Polarisation

9.1 Polarisation for size 1 connectors

9.1.1 Polarisation for plug connector (mating side shown)

Polarising positions described apply when holding the connector as shown in Figure 1.



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Key

- 1 Polarising post number 1
- 2 Polarising post number 2

NOTE Black area represents the material.
Polarising "CC" in the example.

Figure 1