International Standard

ISO 10924-3

Road vehicles — Circuit breakers —

Part 3: Miniature circuit breakers with tabs (Blade type), Form CB11

Véhicules routiers — Coupe-circuits —

Partie 3: Coupe-circuits miniatures avec languette (type languette), Forme CB11

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 32, *Electrical and electronic components and general system aspects*.

This second edition cancels and replaces the first edition (ISO 10924-3:2015), which has been technically revised.

The main changes are as follows:

— in Table 2, the test sequence plans were modified for tests No 1, 7, 14, 15 and 19;

— the voltage test at 5.2.2 has been split into fast and standard versions of the circuit breaker;

— the tests for dielectric strength in 5.12.1 and the requirements in 5.12.2 have been clarified.

A list of all parts in the ISO 10924 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Road vehicles — Circuit breakers —

Part 3:
Miniature circuit breakers with tabs (Blade type), Form CB11

1 Scope

This document specifies miniature circuit breakers with tabs (blade-type), Form CB11 for use in road vehicles. It establishes, for this circuit breaker form, the rated current, test procedures, performance requirements and dimensions.

This document is intended to be used in conjunction with ISO 10924-1 and ISO 10924-2. The numbering of its clauses corresponds to that of ISO 10924-1, whose requirements are applicable, except where modified by requirements particular to this document.

This document is applicable to circuit breakers with a rated voltage of 14 V and/or 28 V, a current rating of ≤30 A and a breaking capacity of 2 000 A intended for use in road vehicles with a nominal voltage of 12 V and/or 24 V.

The circuit breakers are different in dimensions and functions, such as electric reset, automatic reset, manual reset and switchable.

NOTE This type of circuit breaker is intended to be used in similar applications as miniature fuse-links according to ISO 8820-3. While the tab dimensions and current ratings can be the same, there can be differences in performance which the user of these products is advised to consider.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6722-1[1)], *Road vehicles — 60 V and 600 V single-core cables — Part 1: Dimensions, test methods and requirements for copper conductor cables*

ISO 8820-3, *Road vehicles — Fuse-links — Part 3: Fuse-links with tabs (blade type) Type C (medium), Type E (high current) and Type F (miniature)*

ISO 10924-1, *Road vehicles — Circuit breakers — Part 1: Definitions and general test requirements*

ISO 10924-2, *Road vehicles — Circuit breakers — Part 2: Guidance for users*

ISO 16750-4, *Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 4: Climatic loads*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10924-1 apply.

1) Withdrawn document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Marking, labelling, and colour coding

Details about the required markings are in and the following Table 1.

Table 1 — Colour code

Rated current I_R A	Colour code
5	tan/light brown
7,5	brown
10	red
15	blue
20	yellow
25	white
30	green

5 Tests and requirements

5.1 General

5.1.1 General test conditions

In addition to carrying out the test procedures in accordance with ISO 10924-1, the following criteria shall apply:

— tests shall be performed following the test sequences in Table 2;

— the test fixture for electrical tests shall be designed in accordance with Type F as shown in ISO 8820-3. The connection resistance shall be 0,8 mΩ max. to ensure the proper function of the test fixture;

— the ambient temperature range for circuit breakers according to this document shall be: (−40 to 85) °C, Code G in accordance with ISO 16750-4.

5.1.2 Test sequence plan

Table 2 — Test sequence plan

No.	Test	Clause	Sample groups [a]						
			1	2	3	4	5	6	7
1	Dimensions	Clause 6	—	—	—	—	—	—	X
2	Marking, labelling and colour coding	Clause 4	X	X	X	X	X	X	X
3	Operating time rating 2,0 I_R	5.5	X	X	X	X	X	X	X
4	Current steps	5.6	—	—	—	—	X	—	—
5	Voltage drop	5.2	X	X	X	X	X	X	X
6	Maximum housing temperature	5.3	—	—	—	X	—	—	—
7	No current trip and reset temperature	5.7	—	—	—	X	—	—	—

NOTE "—" means this item is not required.

[a] Five circuit breakers for each rated current rating per sample group.