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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 21711.201-2024

**Electromechanical elementary relays - Part 2-1: Reliability -
Procedure for the verification of B10 values
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 2-1 of GB/T 21711 "Basic electromechanical relays". GB/T 21711 has been published in the following parts.

- Part 1: General and safety requirements;
- Part 2: Reliability;
- Part 2-1: Reliability B10 value verification procedure;
- Part 7: Test and measurement procedures.

This document is equivalent to IEC 61810-2-1:2017 "Basic electromechanical relays Part

2-1.Reliability B10 value verification procedure".

Introduction

GB/T 21711 "Basic Electromechanical Relays" was formulated to standardize the development, testing, quality assessment and GB/T 21711 "Basic Electromechanical Relays" is a product standard for various basic electromechanical relays.

The basic specification is planned to consist of 7 parts.

--- Part 1: General and safety requirements. The purpose is to determine the basic electromechanical relays used in various fields of electrical or electronic engineering Functional and safety requirements and safety related characteristics.

--- Part 2: Reliability. The purpose is to standardize the requirements for reliability assessment of basic electromechanical relays.

--- Part 2-1.Reliability B10 value verification procedure. The purpose is to standardize the reliability index assessment of basic electromechanical relays and reliability growth requirements assessment requirements.

--- Part 3: Forced positioning (mechanical interlocking) contact relays. The purpose is to add applicable Special requirements for forced positioning (mechanical interlocking) contact relays.

--- Part 4: General and safety requirements for reed relays. The purpose is to provide reed relays suitable for general control circuits.

Establish basic functional and safety requirements.

--- Part 7: Test and measurement procedures. The purpose is to specify the test and measurement procedures applicable to basic electromechanical relays.

--- Part 10: Additional functional characteristics and safety requirements for large capacity relays. The purpose is to build on the general requirements of Part 1 in addition, additional functional characteristics and safety requirements applicable to large-capacity relays are added.

Basic Electromechanical Relays Part 2-1.Reliability B10 value verification procedure

1 Scope

This document establishes a reliability test procedure for use when there are increased reliability verification requirements for basic electromechanical relays.

This document specifies the relays assembled in safety-related machinery control systems in accordance with IEC 62061 and GB/T 16855.1-Detailed provisions are given in 2018.For this relay, the test specified in this document can give the B10 value (B10D value) of

dangerous failure.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 16855.1-2018 Safety of machinery - Safety-related components of control systems - Part 1: General principles for design (ISO 13849-1.

2015, IDT)

GB/T 21711.1-2023 Basic electromechanical relays Part 1: General and safety requirements (IEC 61810-1:2015, IDT) GB/T 21711.2-2024 Basic electromechanical relays Part 2: Reliability (IEC 61810-2:2017, IDT) IEC 61810-3 Basic electromechanical relays Part 3: Positive positioning (mechanical interlocking) contact relays IEC 62061 Electrical safety of machinery Functional safety of safety-related electrical, electronic and programmable electronic control systems Note. GB 28526-2012 Electrical safety of machinery Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061.

2005, IDT)

3 Terms and definitions

The terms and definitions defined in GB/T 21711.2-2024 and the following apply to this document.

Dangerous failure

Failure that could put safety-related parts of a control system into a hazardous or non-functional state.

[Source. GB/T 16855.1-2018, 3.1.5, modified]

3.2 Test-related definitions

3.2.1

Type test

Conformity testing is performed on samples representative of production to obtain basic performance data or to verify that these relays comply with the specified Require.

[Source. GB/T 21711.2-2024, 3.21.1]