

ICS 19.080
CCS N20;N61



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

GB 4793-2024

**Safety technical specification for electrical equipment for
measurement, control and laboratory use**

测量、控制和实验室用电气设备安全技术规范

Issued on: October 28, 2024

Implemented on: November 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

1	Scope
2	Normative references
3	Terms and definitions
4	Environmental conditions
5	Marking and documents
5.1	Marking
5.1.5	Terminals, connectors and operating devices
5.4	Documentation
6	Protection against electric shock
6.3	Limits for accessible parts
6.4	Primary protection measures
6.5	Additional protective measures under single fault conditions
6.5.1	Protective connections
6.6	Insulation requirements
6.6.1	Nature of insulation
7	Protection against mechanical hazards
7.3	Moving parts
7.3.5	Gap limits between moving parts
7.5	Lifting and carrying devices
8	Mechanical stress resistance
9	Prevention of flame spread
9.3	Once a fire occurs, contain the flame within the equipment
9.6	Overcurrent protection
10	Temperature limits and heat resistance of equipment...
11	Protection against hazards of fluids and solid foreign matter...
12	Protection against radiation (including laser sources), sound pressure, ultrasonic pressure...
13	Protection against released gases and substances, explosions and implosions...
14	Components and assemblies...
15	Protection by interlocking devices...
16	Test flames -5 0 W horizontal and vertical flame test methods
56	References...

1 Scope

GB 4793-2024 is the Chinese national standard on safety technical specification for electrical equipment for measurement, control and laboratory use, in the field of testing. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 28 October 2024 by the State Administration for Market Regulation; Standardization Administration of China, and takes effect on 1 November 2026. Classification: ICS 19.080, CCS N20;N61. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the safety requirements for electrical equipment for measurement, control and laboratory use, such as marking and documents, protection against electric shock, protection against mechanical hazards, resistance to mechanical stress, prevention of flame spread, temperature limits and heat resistance of equipment, protection against the hazards of fluids and solid foreign matter, protection against radiation (including laser sources) and sound pressure and ultrasonic pressure, protection against released gases and substances, explosions and implosions, components and assemblies, protection using interlocking devices. This document applies to the design, production, inspection, use of electrical equipment for measurement, control, laboratory use (including industrial automation equipment).

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in the text. Among them, for referenced documents with dates, only the versions corresponding to the dates apply to this document; for referenced documents without dates, the latest versions (including all amendments) apply to this document.

GB/T 4025 Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators

GB/T 4208 Degrees of protection provided by enclosure (IP code)

GB/T 5169.16 Fire hazard testing for electric and electronic products - Part

3 Terms and definitions

The terms and definitions defined in GB/T 42125.1-2024 apply to this document.

4 Environmental conditions

4.1 Normal environmental conditions The equipment shall be designed to be safe for use under at least the following conditions.

4.2 Extended environmental conditions The equipment shall be designed to be safe not only for use under the environmental conditions specified in 4.1, but also for use under the following rated conditions specified by the equipment manufacturer.

5.1 Marking

5.1.1 General The equipment shall be marked with markings in accordance with the provisions of 5.1.2 ~ 5.2. In addition to the markings on internal parts, these markings shall be visible from the outside, or, if the cover or door is intended to be removed or opened by the operator, these markings shall be visible from the outside after the cover is removed or the door is opened without tools. Marks applicable to the entire equipment shall not be marked on parts that can be removed by the operator without tools.

5.1.2 Identification The equipment shall be marked with at least the following.

5.1.3 Power supply The equipment shall be marked with the following information.

5.1.4 Fuse Any fuse that can be replaced by the operator shall be marked next to its fuse holder, to enable the operator to identify the correct replacement fuse.

5.1.5 Terminals, connectors and operating devices

5.1.6 Switches and circuit breakers If a power switch or circuit breaker is used as a disconnect device, the "off" position shall be clearly marked.

5.1.7 Equipment protected by double insulation or reinforced insulation Equipment that is only partially protected by double insulation or reinforced insulation shall not be marked with the symbol of No.10 in Table 1.

5.1.8 Field wiring terminal box Under normal conditions, at an ambient temperature of 40 °C, or at the maximum rated ambient temperature (if higher than 40 °C), if the temperature of the terminals or enclosure of the field wiring box or junction box exceeds 60 °C, there shall be a sign to warn the installer to refer to the installation instructions when determining the temperature rating of the cable connected to the terminal. The sign shall be visible before or during connection; or the sign shall be marked near the terminal.

5.2 Warning signs Warning signs are visible when the equipment is in normal use. If a warning sign applies to a specific part of the equipment, it shall be marked on or near that specific part. The dimensions of the warning sign shall be as follows:

5.3 Durability of markings The required markings shall remain legible under normal

conditions of use and shall withstand the effects of cleaning agents specified by the manufacturer.

5.4 Documentation

5.4.1 General For safety purposes, the following documentation shall be provided with the equipment as required by the operator and responsible personnel. It shall be ensured that the service personnel authorized by the manufacturer have access to the safety-related documents they need.

5.4.2 Equipment rating The documentation shall contain the following.

5.4.3 Equipment installation The documentation shall include installation and specific commissioning instructions, and, if necessary for safety, warnings of hazards arising during the installation and commissioning of the equipment or due to improper installation or commissioning of the equipment. Such information (if applicable) includes.

5.4.4 Equipment operation The instructions for use shall include, where applicable.

6 Protection against electric shock

6.1 General The equipment shall be protected against electric shock under normal conditions and single fault conditions; accessible parts shall not be dangerously charged. The voltage, current, charge or energy between accessible parts and ground or between any two accessible parts within

1.8 m on the same part of the equipment (along the surface or through the air) shall not exceed the limits under normal conditions in 6.3.1, nor the limits under single fault conditions in 6.3.2.

6.2 Exceptions If it is impossible to prevent the following parts from being both accessible and hazardous live due to operational reasons, it is allowed that these parts are accessible to operators in normal use when they are hazardous live.

6.3 Limits for accessible parts

6.3.1 Limits under normal conditions If the measured voltage exceeds the limit in a), meanwhile the other measured values are greater than the limits in c) below, it is considered to be hazardous live.

6.4 Primary protection measures

6.4.1 Enclosure and protective shield If the enclosure or protective shield is provided by insulation, they shall meet the requirements of basic insulation.

6.4.2 Basic insulation The electrical gaps, creepage distances, solid insulation that form