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

GB/T 18216.12-2025

**Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V
DC - Equipment for testing, measuring or monitoring of protective measures -
Part 12: Power metering and monitoring devices(PMD)**

(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 the standard for electrical safety protection measures for low voltage power distribution systems with an AC voltage of 1000V and a DC voltage of 1500V and below.

Part 12 of "Test, Measuring or Monitoring Equipment". GB/T 18216 has published the following parts.

--- Part 1: General requirements;

--- Part 2: Insulation resistance;

- Part 3: Loop impedance;
- Part 4: Grounding resistance and equipotential grounding resistance;
- Part 5: Resistance to earth;
- Part 6: Effectiveness of residual current devices (RCD) in TT, TN and IT systems;
- Part 7: Phase sequence;
- Part 8: Insulation monitoring devices in IT systems;
- Part 9: Insulation fault location equipment in IT systems;
- Part 10: Combined measuring equipment for testing, measuring or monitoring protective measures;
- Part 11: Effectiveness of residual current monitors (RCM) in TT, TN and IT systems;
- Part 12: Power measurement and monitoring devices (PMD).

This document replaces GB/T 18216.12-2010 "Electrical safety of low voltage power distribution systems with AC 1000V and DC 1500V and below" Test, measuring or monitoring equipment for protective measures Part 12: Electric quantity measuring and monitoring devices (PMD)" and GB/T 18216.12-Compared with 2010, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

--- Added requirements for power measurement and monitoring functions (PMF) in the scope and requirements for devices with embedded power measurement and monitoring functions the additional requirements for the EPMF (see Chapter 1) and the specific terms are given (see Appendix H);

--- PMD-A was deleted because GB/T 39853 series of national standards mainly covers this type of device;

--- Added three PMD categories and gave the minimum functional requirements for each category (see 4.3).

This document is equivalent to IEC 61557-12:2021 "Electrical safety standards for low voltage power distribution systems up to 1000 V AC and 1500 V DC" Test, measuring or monitoring equipment for complete protective measures - Part 12: Electrical quantity measuring and monitoring devices (PMD)".

The following minimal editorial changes were made to this document.

--- Correct the sign of the total harmonic distortion rate of the root mean square value of current in 3.5.1 from "THD_R" to "THD_Ri";

---Correct the units in Table 24, Table 32, Table 33, Table 34, Table 38, Table 39, Table 40, Table 42 and Table 43 to %.

Introduction

IEC 60364-6 specifies the initial testing, continuous monitoring and commissioning of electrical installations in TN, TT or IT systems.

In addition to specifying the general criteria for carrying out these tests, IEC 60364-6 also includes the Only in a few cases, such as when measuring insulation resistance, does IEC 60364-6 include the measurement equipment used.

Circuit diagrams given as examples in IEC 60364-6 and referenced in the main body of the document are generally not applicable to Actual use.

When dangerous voltages are present in electrical installations, or when equipment is used improperly or is damaged, testing can easily cause accidents.

Therefore, technicians need to rely on measuring devices that ensure the safety of the measuring method in addition to simplifying the measurement.

Applying the general rules for safety of electrical and electronic measuring equipment (IEC 61010-1) to perform protective measures testing is not sufficient in itself.

Measurements during power installation may cause harm not only to the technicians but also to third parties due to different measurement methods.

Similarly, in order to obtain an objective assessment of the equipment, for example, periodic testing, continuous insulation monitoring or in the case of performance assurance, an important prerequisite is to obtain reliable and comparable measurement results using measuring devices from different manufacturers.

GB/T 18216 Test Method for Electrical Safety Protection Measures for Low Voltage Distribution Systems with AC 1000V and DC 1500V and Below the purpose of the "Testing, Measuring or Monitoring Equipment" is to provide uniform principles for compliance with the above characteristics. These principles apply to nominal voltage AC Measuring and monitoring equipment for electrical safety tests and performance tests in systems with 1000V and DC 1500V and below. GB/T 18216 it is planned to consist of 17 parts.

--- Part 1: General requirements. The purpose is to establish the low voltage distribution system with nominal voltage AC 1000V and DC 1500V and below General requirements for test equipment used for measuring and monitoring electrical safety in systems.

--- Part 2: Insulation resistance. The purpose is to establish the insulation resistance of equipment and electrical installation equipment in the non-excited state.

Relevant requirements for resistance equipment.

--- Part 3: Loop impedance. The purpose is to establish the measurement between the line conductor and the protective conductor, between the line conductor and the neutral