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

GB/T 17215.321-2021

Replacing GB/T 17215.321-2008

**Electricity metering equipment (AC) - Particular requirements -
Part 21: Static meters for active energy(classes A, B, C, D and
E)**

电测量设备（交流） 特殊要求 第21部分：静止式有功电能表 (A级、B级、C级、
D级和E级)

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1 Scope

GB/T 17215.321-2021 is the Chinese national standard on electricity metering equipment (ac) - particular requirements - part 21: static meters for active energy(classes a, b, c, d and e), in the field of metrology and measurement. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 30 April 2021 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 November 2021. Classification: ICS 17.220.20, CCS N22. 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 Part of GB/T 17215.3 specifies the standard electricity value, structure, meter's marking and documentation, metering performance, climate environment, external influence, metering performance protection, electrical requirements, for static meters for active energy. This Part of GB/T 17215.3 is only applicable to the newly manufactured static meters for active energy, which is used to measure the AC active energy, in

60 Hz power grid, AND has an accuracy class of A, B, C, D, E. (below referred to as "meter"). It is also applicable to other type tests.

Note 1: For other requirements (such as structure, EMC, reliability), refer to GB/T 17215.211- 2021, as well as the relevant parts of GB/T 17215.911, GB/T 17215.921, GB/T 17215.9311, GB/T 17215.9321, GB/T 17215.941. This Part applies to newly manufactured electricity metering equipment, which is used to meter and control electrical energy in the power grid, that has a voltage not exceeding 600 V. All special functional units, except the electrical energy measuring function, can be integrated in the meter enclosure, OR can form a separate enclosure.

Note 2: The above voltage is the line-to-neutral line voltage, which is derived from the nominal voltage, as shown in Table 7 of IEC 62052-31:2015. If the meter has functions other than metering active energy, for example: - Measurement of voltage amplitude, current amplitude, power, frequency, power factor, etc.; - Measurement of power quality parameters; - Load control function; - Data communication interface. If encapsulated in the meter enclosure, the relevant standards can apply to these functional requirements. However, the requirements for these functions are not within the scope of this Part.

Note 3: The requirements for power monitoring devices and measurement functions (such as voltage amplitude, current amplitude, power, frequency, etc.) have been covered in GB/T 18216.12; BUT equipment, that complies with GB/T 18216.12, is not suitable as a payment meter, unless they also meet the accuracy class requirements of this Part.

Note 4: The requirements for power quality monitoring meters have been covered in IEC 62586-1. The measurement methods for power quality monitoring functions have been covered in GB/T 17626.30-2012. The test requirements for power quality monitoring functions are covered in IEC 62586-2. The requirements of this Part apply, if the meter is designed to be mounted on a specified mating (meter) socket or rack. The test is performed, with the meter mounted on the specified mating socket or rack. However, the requirements for such socket or rack are outside the scope of this Part.

Note 5: Examples of rack-mounted meters are: rail-mounted meters, panel-mounted meters, etc. If the meter is designed to install a separated indicator display, the requirements of this Part apply; meanwhile, the meter can be connected to its separated indicator display for testing, unless otherwise specified. If the meter has more than one current circuit per phase (for example: multi-unit meter), the requirements of this Part apply to all current circuits of any current-measuring unit, in the meter enclosure. This Part also applies to auxiliary input and output circuits, operating indicators, test outputs of electricity metering equipment.

Note 6: For example, pulse input and output, control input and output, power test output. This Part distinguishes: - Single-phase meters and multi-phase meters; - Directly connected meters and meters connected via a transformer; - Meters with integrated indicating displays and meters with separated indicating displays; - Indoor and outdoor meters. This Part does not apply to: - The meters, which have a line-to-neutral voltage in excess of 600 V derived from the nominal voltage;

4.4 Power consumption Power consumption shall comply with the requirements, test conditions, test procedures, acceptance criteria, which are specified in

4.4 of GB/T 17215.211-2021.

5 Structure

5.1 General requirements The general requirements of the structure shall comply with the provisions in

5.1 of GB/T 17215.211-2021.

5.2 Mechanical test The mechanical test shall comply with the provisions of

5.2 in GB/T 17215.211-2021. It shall also comply with the spring hammer test requirements, test conditions, test procedures, acceptance criteria, which are specified in

8.2 of IEC 62052-31:2015.

5.3 Windows The window requirements shall comply with the provisions in

5.3 of GB/T 17215.211- 2021.

5.4 Sealing requirements The requirements for sealing shall comply with the provisions in

5.4 of GB/T 17215.211-2021.

5.5 Display of measured value The measurement value display requirements shall comply with the provisions of

5.5 in GB/T 17215.211-2021.

5.6 Storage of measured values The storage requirements of the measured values shall comply with the provisions in

5.6 of GB/T 17215.211-2021.

5.7 Output The output requirements shall comply with the provisions of

5.13 Meter temperature limit and heat resistance

5.13.1 Surface temperature limits to prevent burns When the ambient temperature is 40 °C, the temperature of the easy-to-contact surface of the meter shall not exceed the value given in 1) in Table 31 of IEC 62052-31:2015, under normal conditions. When the ambient temperature exceeds 40 °C, the temperature of the easily accessible surface of the meter is allowed to exceed the value, which is given in 1) in Table 31 of IEC 62052-31:2015, BUT the excess value shall not be greater than the difference, between the ambient temperature and 40 °C. The surface of the terminal box, which is covered by the terminal cover, OR the surface of the board-mounted meter, which is protected by the fence, is not regarded as an accessible surface. The test method shall comply with the provisions in