

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

CJ/T 224-2012

Electronic remote-reading water meter

电子远传水表

(English Translation)

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Foreword

This standard is drafted according to the rules specified in GB/T 1.1-2009.

This standard is the revision to CJ/T 224-2006 Electronic Remote-reading Water-meter.

Compared with CJ/T 224-2006, the main technical changes of this standard are as follows.

- Add the terms and definitions of mechanical-electric conversion, mechanical-electric conversion devices. Deleted the terms and definitions of the devices to be tested;
- Add the classification by indication device;
- Change the measurement characteristics into metrological requirements. Add zero-flow integrating reading, rated operation conditions, sensitive class of sectional flow, and other 4 requirements;
- Change the appearance seal to visual inspection requirements. Add 6 items' requirements
- electronic seal, material and structure requirements of electronic remote-reading water-meter, adjustment of electronic remote-reading water-meter, verification marks and protective device, inspection device, and indication device.

- Delete requirements of "other outline dimensions shall be provided by the manufacturing plant on its own" in technical characteristics. Add requirements of flange connection end of electronic remote-reading water-meter;
- Modify the requirements of electronic device properties;
- Modify the requirements of climatic environment, electromagnetic environment and power supply;
- Change the mean time between failures (MTBF) of controller of electronic remote-reading water-meter to be not less than 2.63×10^4 h;
- Supplement that the error test of mechanical-electric conversion is only applicable to the mechanical electronic remote-reading water-meter. Type inspection shall be performed after the completion of test of 7 items that are stipulated in 7.8.1, 7.8.2, 7.8.3, 7.9.3, 7.10.3, 7.11.1 and 7.11.2;
- Modify the test methods of climatic environment, electromagnetic environment and power supply;
- Add the informative annex.

This standard was proposed by Standard Rating Institute of Ministry of Housing and Urban-rural Development.

Electronic remote-reading water meter

1 Scope

This standard stipulates the electronic remote-reading water-meter's terms and definitions, structure and classification, metrological requirements, technical requirements, test method, inspection rules and mark, packaging, transportation, and storage.

This standard is applicable to water-meters that have digital output signal and comply with relevant provisions of GB/T 778.1-2007 and GB/T 778.3-2007.

2 Normative references

The articles contained in the following documents have become part of this document when they are quoted herein. For the dated documents so quoted, all the modifications (including all corrections) or revisions made thereafter shall be applicable to this document.

GB/T 191 Packaging - Pictorial marking for handling of goods GB/T 778.1-2007

Measurement of water flow in fully charged closed conduits -Meters for cold potable water and hot water - Part 1. Specifications (ISO 4064-1:2005, IDT) GB/T 778.3-2007

Measurement of water flow in fully charged closed conduits -Meters for cold potable water and hot water - Part 3. Test methods and equipment (ISO 4064-3:2005 IDT) GB/T 2423.8

Environmental testing for electric and electronic products Part 2. Test methods Test Ed. Free fall (idt IEC 68-2-32:1990) GB 4208-2008 Degrees of protection provided by enclosure (IP code) (IDT IEC 60529:2001) GB/T 5080.7-1986 Equipment reliability testing - Compliance test plans for failure rate and mean time between failures assuming constant failure rate (idt IEC 605-7-1978) GB/T 15464 General-purpose specification for the packaging of instrumentation products GB/T 15479-1995 Technical requirements and test methods of insulation resistance and insulating strength for use in industrial process measurement and control instruments JB/T 9329 Basic environmental conditions and testing methods for instruments transportation and storage in the transportation

3 Terms and Definitions

For the purpose of this document, terms and definitions defined in GB/T 778.1 AND the following terms and definitions apply.

Electronic remote-reading water-meter the water-meter that has digital output signal; the function of water flow signal acquisition;

and functions such as data processing, storage, and remote transmission.

Mother meter

The velocity-type water-meter and volumetric water-meter that are used to measure water.

Electronic device

A part of the electronic remote-reading water-meter. It adopts electronic components to execute the specific functions such as water flow's signal conversion, data processing and information storage, and signal remote transmission. The electronic device can be made to be independent; it can be tested independently.

Mechanical-electric conversion the process that the mechanical counting signal of accumulative volume of the electronic remote-reading water-meter is converted into electronic counting signal.

Mechanical-electric conversion device the electronic components that perform mechanical-electric conversion.

6.1.1 Appearance

The electronic remote-reading water-meter shall have good finishing, no burr, scratch, crack, corrosion, mildew stain and coating peeling.

The displayed digits shall be eye-catching, clean. The text symbols and marks indicating the function shall be complete, clear and correct.

Protective glass on the reading device shall be in good transparency. There shall not have

defects such as making the reading distorted.

6.1.2 Electronic seal

Electronic seal of the electronic remote-reading water-meter shall comply with the provisions of 6.5 in GB/T 778.1-2007.

6.1.3 Material and structure of the electronic remote-reading water-meter

Material and structure of the electronic remote-reading water-meter shall comply with the provisions of 6.1 in GB/T 778.1-2007.

6.1.4 Adjustment of the electronic remote-reading water-meter

Adjustment of the electronic remote-reading water-meter shall comply with the provisions of 6.3 in GB/T 778.1-2007.

6.1.5 Verification marks and protective devices

Verification marks and protective devices of the electronic remote-reading water-meter shall comply with the provisions of 6.4 in GB/T 778.1-2007.

6.1.6 Inspection device

Inspection device of the electronic remote-reading water-meter shall comply with the provisions of 6.7.2 in GB/T 778.1-2007.

6.1.7 Indication device

The indication device of electronic remote-reading water-meter shall comply with the provisions of 6.6 and 6.7.3 in GB/T 778.1-2007.

6.2.1 Diameter and overall dimensions of the electronic remote-reading

water-meter

Diameter and overall dimensions of the electronic remote-reading water-meter shall comply with the provisions of 4.1.1 in GB/T 778.1-2007.

Durability of the electronic remote-reading water-meter shall comply with the provisions of 6.2 in GB/T 778.1-2007.

6.11 Reliability of electronic devices

Under specified application conditions, MTBF of electronic device of the electronic remote-reading water-meter shall not be less than 2.63×10^4 h.