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

CJ/T 477-2015

**Ultrasonic gas meter
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

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

This standard is under the jurisdiction of the Gas Standardization Technical Committee of the Ministry of Housing and Urban-Rural Development.

Drafting organizations of this standard. Wuhan Shengfan Electronics Co., Ltd., Hefei Dibe Instrument Technology Development Co., Ltd., Wuhan Shengfan Information Technology Co., Ltd., Anhui Baolong Fule Energy Measurement Co., Ltd.

1 Scope

This standard specifies the terms and definitions, symbols, working conditions, measurement characteristics, structure and materials of ultrasonic gas meters (hereinafter referred to as gas meters).

Materials, indicating devices, communication, power supply, electromagnetic interference, other functions, test methods, inspection rules, signs, packaging, transportation and storage.

This standard applies to the maximum working pressure not exceeding 50kPa, the maximum flow rate not exceeding 160m³/h, and the minimum working environment temperature range the design of a fully electronic gas meter with a temperature range of -10°C~40°C, double pipe joints, and ultrasonic detection technology for gas flow measurement.

Design, production, testing and acceptance.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 191 Packaging, storage and transportation pictorial signs GB/T 2410 Determination of light transmittance and haze of transparent plastics GB/T 2423.24 Environmental test Part 2: Test method Test Sa. Simulate solar radiation on the ground and its test guide GB 3836.1 Explosive Atmosphere Part 1: General Requirements for Equipment GB 3836.2 Explosive environment Part 2: Equipment protected by flameproof enclosure "d" GB 3836.4 Explosive environment Part 4: Equipment protected by intrinsically safe "i" GB 3836.8 Electrical Equipment for Explosive Gas Atmosphere Part 8."n" Type Electrical Equipment GB 3836.14 Electrical equipment for explosive gas atmospheres Part 14: Classification of hazardous locations GB 4208 Shell protection grade (IP code) GB/T 5169.5 Fire hazard test for electrical and electronic products-Part 5: Test flame needle flame test method device, confirmation test method and guide GB/T 6968-2011 diaphragm gas meter GB/T 8897.1 Primary battery Part 1: General GB/T 8897.4 Primary batteries Part 4: Safety requirements for lithium batteries GB 9254 Information Technology Equipment Radio Disturbance Limits and Measurement Methods GB/T 11020 List of test methods for flammability of solid non-metallic materials when exposed to flame sources GB/T 11186.3 Method of measuring paint film color Part 3: Calculation of color difference GB/T 13611 Classification and basic characteristics of urban gas GB/T 13893 Paints and varnishes-Determination of moisture resistance by continuous condensation method GB/T 16422.3 Plastic laboratory light source exposure test method Part 3: Fluorescent ultraviolet

lamp GB/T 17626.2~GB/T 17626.5 Electromagnetic compatibility test and measurement technology GB/T 17626.8~GB/T 17626.9 Electromagnetic compatibility test and measurement technology GB/T 17799.1~GB/T 17799.2 General standards for electromagnetic compatibility GB/T 26831 (all parts) Community Energy Metering and Collecting System Specification

3 Terms and definitions, symbols

The following terms, definitions and symbols apply to this document.

3.1 Terms and definitions

3.1.1

A gas meter that uses ultrasonic technology to measure, record and display the volume of gas passed.

3.1.2

Ultrasonic transducer A device used to transmit and receive ultrasonic signals in a gas meter.

3.1.3

Base condition

The specified conditions for gas volume conversion (ie, the reference gas temperature is 20°C, and the reference gas pressure is 101.325kPa).

3.1.4

Communication port

Interface for data exchange.

3.1.5

Electrical signal interface Gas meter serial or pulse output interface.

3.1.6

Indication error

The percentage of the difference between the volume displayed by the gas meter and the volume actually passed through the gas meter and the volume actually passed through the gas meter.

3.1.7

Prompt information

Visual signals, characters and letters that prompt important events during the operation of the gas meter or (and) the operation of the gas meter.

3.1.8

Maximum error offset the maximum average error change at any test flow point.

3.1.9

Working pressure

The upper limit of the working pressure of the gas meter is the same as that declared and marked by the manufacturer on the display window or nameplate.

3.1.10

average error

The arithmetic mean of the indication error of multiple measurements for the same flow.

3.1.11

Measuring unit

A gas meter component that generates an electrical signal proportional to the gas flow.

3.1.12

level of accuracy

The gas meter meets the level required by this standard, such as level 1.5 or 1.0.

3.1.13

Normal working conditions Conditions when the gas meter works.

---Do not exceed the maximum working pressure (regardless of whether there is gas flowing through);

---In the flow range;

---In the range of ambient temperature and working medium temperature.

3.1.14

Operating mode

The measurement method to obtain the gas volume is divided into standard mode and test mode.

3.1.15

Optical interface

Use serial data interface such as infrared transmission and reception.