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CCS N11



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

GB/T 15478-2015

Replacing GB/T 15478-1995

**Test methods of the performances for pressure
transducer/sensor**

压力传感器性能试验方法

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Foreword

The standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 15478-1995 "Test methods of the performance for pressure transducer/sensor". As compared with GB/T 15478-1995, the main changes of this

standard are as follows: -In

3.1.2 and 3.1.3, MODIFY the relative humidity to "30% ~ 85%", and MODIFY the deviation range to " $\pm 5\%$ "; -CANCEL the clause

3.2 dynamic conditions from the original standard; - Respectively determine the indicators in 3.3.1b),

3.3.3 as 1/3, 1/5 and 1/5; -In 5.3.2b), with respect to the output impedance, DIVIDE the sensor circuit into passive circuit and active circuit, with corresponding test methods; -In 5.4.2.4, MODIFY the hysteresis definition to "Hysteresis is, at the same test point, the maximum absolute value of the output difference when the measured value increases and decreases"; -In 5.4.2.5, MODIFY the repeatability definition to "Repeatability is the consistency between successive measurement results"; -REMOVE the two indicators "zero drift" and "overload (overload)" from the static performance indicators, both of which are listed as independent items; - CHANGE the "sensitivity stability" to "full scale output stability"; -In 5.6.2b), MODIFY the "... 5 to 10 times the dynamic performance of the sensor." to "... 5 times the dynamic performance of the sensor."; -In 5.9.2.1, CONDUCT detailed descriptions against the "temperature effect test", making specific requirements; MODIFY the "thermal sensitivity drift" to "thermal full-scale output drift"; MODIFY the "thermal sensitivity lagging" to the "thermal full scale output lagging"; MODIFY the "conduct three measurement upper and lower calibration cycles" to the "conduct one measurement upper and lower calibration cycle (only one cycle is measured)"; Test methods of the performances for pressure transducer/sensor

1 Scope

GB/T 15478-2015 is the Chinese national standard on test methods of the performances for pressure transducer/sensor, 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 10 December 2015 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 July 2016. Classification: ICS 17.100, CCS N11. 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 standard specifies the test conditions, the general provisions of the test, the test items and the test methods, AND data calculation and processing for the performance of the pressure sensor (abbreviated as sensor). This standard applies to pressure sensors (including absolute pressure sensor, differential pressure sensor, gauge pressure sensor AND negative pressure sensor).

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 2423.1-2008 Environmental testing for electric and electronic products - Part 2. Test methods - Test A. Cold;

GB/T 2423.2-2008 Environmental testing for electric and electronic products - Part 2. Test methods - Test B. Dry heat;

GB/T 2423.3-2006 Environmental testing for electric and electronic products - Part 2. Test methods - Test Cab. Damp heat steady state;

GB/T 2423.5-1995 Environmental testing for electric and electronic products - Part 2. Test methods - Test Ea and guidance. Shock;

GB/T 2423.10-2008 Environmental testing for electric and electronic products - Part 2. Test methods - Test Fc. Vibration (sinusoidal);

GB/T 2423.15-2008 Environmental testing for electric and electronic products - Part 2. Test methods - Test Ga and guidance. Acceleration steady;

GB/T 2423.17-2008 Environmental testing for electric and electronic products - Part 2. Test methods - Test Ka. Salt mist;

GB/T 2423.21-2008 Environmental testing for electric and electronic products - Part 2. Test methods - Test M. Low air pressure

GB/T 2423.24-2013 Environmental testing - Part 2. Test methods - Test Sa. Simulated solar radiation at ground level and guidance for solar radiation testing;

GB/T 2423.25-2008 Environmental testing - Part 2. Test methods - Test Z/AM. Combined cold/low air pressure tests;

GB/T 2423.26-2008 Environmental testing - Part 2. Test methods - Test Z/AM. Combined dry heat/low air pressure tests;

GB/T 2423.27-2005 Environmental testing for electric and electronic products - Part 2. Test methods - Test Z/AMD. Combined sequential cold, low air pressure and damp heat test;

GB/T 2423.37-2006 Environmental testing for electric and electronic products - Part 2. Test methods - Test L. Dust and sand;

3.1 Environmental conditions

3.1.1 Reference atmospheric conditions The reference performance test of the sensor shall

be conducted at the following reference atmospheric conditions. Temperature. 18 °C ~ 22 °C; Relative humidity. 60% ~ 70%; Atmospheric pressure. 86kPa ~ 106kPa.

3.1.2 General test atmospheric conditions If it is impossible or unnecessary for the sensor to be subjected to the test under the reference atmospheric conditions, it is recommended to use the following atmospheric conditions.

- b) Details of the inspection;
- c) Magnification(if specified);
- d) Specified values and judgment criteria of the characteristic parameters;
- e) Differences from the test methods of this standard.

5.2 Inspection of dimensions and weights

5.2.1 Inspection items The inspection items include.

- a) Overall dimensions;
- b) Mechanical interface form and dimensions;

5.2.2 Inspection methods It shall use the below mentioned appropriate gauges to conduct dimension and weight inspection against the sensors.

- a) Calipers, micrometers and dial indicators;
- b) Standard gauge, standard meter;
- c) Projectors with appropriate linear magnification;
- d) Measurement microscope, triple coordinates measurement instrument or the measurement instrument of equivalent accuracy;