

ICS 25.040.40

CCS N10



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

GB/T 29247-2012

**General methods for testing the performance of industrial
process measurement and control instruments**

工业自动化仪表通用试验方法

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by China Machinery Industry Federation. This standard by the national industrial process measurement and control Standardization Technical Committee (SAC/TC124) centralized. This standard was drafted. Shanghai Industrial Automation Instrumentation Institute, Naval Air Station instrumental, Fujian on the Run Precision Instrument Co., Shanghai Weier Tai Industrial Automation Co., Ltd., CNOOC (China) Co., Ltd., Shanghai Automation Instrumentation System Inspection and Testing Institute. The main drafters of this standard. Cai Wen-chi, Li Minghua, Deng Jiangsheng, Leiju Tao, Ge Jian, Xu Zhen, Zhao Yiqian, Chen Fei. Industrial Automation Instrumentation General test method

1 Scope

GB/T 29247-2012 is the common test method behind the numbers on an industrial

instrument's data sheet. A transmitter's accuracy, its dead band, its response to a change in ambient temperature or in supply voltage - each of these is a claim, and a claim is only comparable between two manufacturers if both measured it the same way. This standard fixes that way. It specifies the test equipment, the test configuration, the test procedures and the content of the test report for industrial process measurement and control instruments in general, covering the performance characteristics that recur across instrument types: reference accuracy, dead band and hysteresis, the influence of ambient temperature, input impedance, frequency response, and the effect of changes in supply voltage and frequency. It applies to evaluating instrument performance under normal conditions of use; instruments subject to additional requirements under special working conditions fall outside it. Under ICS 25.040.40 and CCS N10, it is the reference for instrument makers writing specifications, for laboratories verifying them, and for the process industries that have to compare competing equipment on equal terms.

This standard specifies the test methods for general industrial automation instruments, including test equipment, the test configuration, test procedures and test reports. This standard applies to work under normal conditions of use of industrial automation instruments and apparatus (hereinafter referred to as the instrument) performance evaluation. This standard does not apply to the test under special working conditions of the instrument of additional requirements.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

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

GB/T 17214.3 working conditions of industrial process measurement and control equipment Part 3. Mechanical influences

3.1.1 Environmental conditions

3.1.1.1 Reference atmospheric conditions Reference should reference the performance of the instrument under test in the following atmospheric conditions.

--- Temperature. $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$;

--- Relative humidity. $65\% \pm 5\%$;

--- Atmospheric pressure. $86\text{kPa} \sim 106\text{kPa}$. According to industry practice may also be required or the following reference atmospheric conditions.

--- Temperature. $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$;

--- Relative humidity. $50\% \pm 5\%$;

--- Atmospheric pressure. 86kPa ~ 106kPa. Tropical, subtropical or other special-purpose instrument, its participation in accordance with relevant standards than atmospheric conditions. Atmospheric conditions

3.1.1.2 General Test No need to test the reference atmospheric conditions, recommended the following general test atmospheric conditions.

--- Temperature. $20\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$;

--- Relative Humidity. 45% to 75%;

--- Atmospheric pressure. 86kPa ~ 106kPa. During each test the temperature of the allowable rate of change of $1\text{ }^{\circ}\text{C}/10\text{min}$, and should not exceed $3\text{ }^{\circ}\text{C}/\text{h}$.

3.1.1.3 Other Reference environmental conditions In addition to the atmospheric conditions, other reference environmental conditions shall meet the following requirements.