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

GB/T 20819.1-2015

Replacing GB/T 20819.1-2007

**Controllers with analogue signals for use in industrial-process
control system -- Part 1: Methods of evaluating the performance**

工业过程控制系统用模拟信号调节器 第1部分：性能评定方法

(English Translation)

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Foreword

GB/T 20819 "industrial process control systems using analog signal conditioner" is divided into two parts.

--- Part 1. Methods for performance evaluation;

--- Part 2. Inspection and routine testing.

This is Part 1 GB/T 20819 of.

This section drafted in accordance with the rules of GB/T 1.1-2009 and GB/T 20000.2-2009 given.

This Part replaces GB/T 20819.1-2007 "industrial process control systems using analog signal controllers - Part 1. Performance Evaluation party Law ", this part of technological change and GB/T 20819.1-2007 compared as follows.

--- Clear of this section applies to electric and pneumatic industrial process PID controller (see Chapter 1, Chapter 1 of the 2007 edition);

--- Increase and update the normative references;

--- Increase the "dead zone, the average error of the stroke, lower stroke average error average error, hysteresis" and other terms and definitions, and simplified positive the content of the text (see 3.9 to 3.13, and 71, 2007, edition of Chapter 4 and 7.1.);

Environmental conditions --- General test conditions clearly defined by the IEC 61298-1 requirements (see 51, 2007 version 5.1.);

--- Arbitration measurement standard reference atmospheric conditions than the increase in "To tropical, subtropical, and other specific requirements, can be used for Generation of the reference atmospheric pressure. "(See 513, 2007 edition of 5.1.3.);

--- Clear the load impedance conditions for testing in accordance with IEC 61298-1 requirements (see 53, 2007 version 5.3.);

--- Clear the setpoint value scale specific validation check is 0%, 20%, 40%, 60%, 80% and 100% (see 7.1, 2007 Version 7.1);

--- Environmental temperature test, the test based on changes to IEC 61298-3, an increase of simplified test content (that is, "During the test, If the multi-party consent, the test is only the instrument 20 °C (reference value), the maximum specified in the instrument, and the instrument specified minimum this 4 at 20 °C temperature is sufficient. "), While increasing the rate of change in the ambient temperature requirements (less than 1 °C/min) (see .. 831, the 2007 version 8.2.1);

--- Relative humidity test, the test based on changes to IEC 61298-3 (see 832, 2007 edition of 8.2.2.);

--- Increased electrostatic discharge test item (see 8.6.6 and Chapter 15);

--- Test reporting requirements increases the reference document (see Chapter 14).

This section uses the translation method is equivalent to using IEC 60546-1:2010 "industrial process control systems using analog signal conditioner Part 1.

Performance evaluation method "(in English).

Consistency correspondence between this part of international documents and normative references of our files are as follows.

--- GB/T 2423.4-2008 Environmental testing for electric and electronic products Part 2. Test methods - Test Db alternating hot and humid (12h 12h cycle) (IEC 60068-2-30:2005, IDT);

--- GB/T 2423.7-1995 Environmental testing for electric and electronic products Part 2. Test methods Test Ec and guidance. Drop and topple (Primarily for equipment - type specimens) (idt IEC 60068-2-31. 1982);

--- GB/T 2423.10-2008 Environmental testing for electric and electronic products Part 2. Test methods Test Fc. Vibration (sinusoidal) (IEC 60068-2-6:1995, IDT);

--- GB/T 2900.56-2008 Electrotechnical terminology automatic control (IEC 60050-351:2006, IDT);

--- GB 4793.1-2007 measurement, control and laboratory use safety requirements for electrical equipment - Part 1. General requirements (IEC 61010-1:2001, IDT);

--- GB/T 17626.2-2006 Electromagnetic compatibility - Testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2. 2001, IDT);

--- GB/T 17626.3-2006 Electromagnetic compatibility - Testing and measurement techniques RFEMS test (IEC 61000-4-3:2002, IDT);

--- GB/T 18271.1-2000 Process measurement and control devices - General methods and procedures for evaluating performance - Part 1. General (Idt IEC 61298-1:1995);

--- GB/T 18271.3-2000 Process measurement and control devices - General methods and

procedures for evaluating performance - Part 3. Impact amount Impact test (idt IEC 61298-3:1998);

--- GB/T 18271.4-2000 Process measurement and control devices - General methods and procedures for evaluating performance - Part 4. Evaluation of newspaper Report content (idt IEC 61298-4:1995).

This part made the following editorial changes.

- a) Remove the IEC 60546-1:2010 foreword and preface;
- b) Where "IEC 60546" where to "GB/T 20819";
- c) on the part of the symbol in accordance with Chinese conversion.

This part is proposed by China Machinery Industry Federation.

This part of the measurement and control of Standardization Technical Committee (SAC/TC124) is administered by the National industrial processes.

This section is drafted. Xiamen-Automation Technology Co., Ltd., Hangzhou Pangu Automation System Co., Ltd., Beijing Jin Shi meter Ltd., Southwest University, Shenzhen standard Li Technology Development Co., Beijing peacekeeping Shing New Instrument Technology Co., Ltd., Fuzhou from Baxter Automation Equipment Co., Ltd., Shanghai Automation Instrumentation Co., Ltd., Anhui Blue Run Automation Instrumentation Co., Ltd., Chongqing Electric Power Technical College Schools, open Kaifeng Instrument Automation Instrumentation Co., Nanjing gifted times Electric Co., Ltd., Fujian Shunchang Rainbow Run Precision Instrument Co., Ltd., Xiamen security East Electronics Co., Ltd., Zhongshan City, East Kawasaki Electric Co., Ltd., Henan Hanwei Electronics Co., Ltd., Fujian on the Run Precision Instrument Co., Xi'an University of Posts.

1 Scope

GB/T 20819 in this section applies to electrical and pneumatic PID with continuous analog input and output signals consistent with existing national standards for Fixed industrial process controller.

It should be noted, the test specified in this part covered with the corresponding test signal applied to the same principle but with different signals are continuous channel no. regulator. It should also be noted that the partially electric or pneumatic industrial process applies only analog components regulator, on with the microprocessor Regulators may refer to.

This section is intended to assess the performance of an analog input and output signals 1) industrial process PID regulator harmonized test methods specified.

While other manufacturers agreed conditions and the user does not exist, the test conditions specified in this part, such as ambient temperature, power supply range and so