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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 28857-2025

Replacing GB/T 28857-2012

Differential transformer displacement transducer

差动变压器式位移传感器

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Standardization Administration of the PRC

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 28857-2012 "DC differential transformer displacement sensor". Compared with GB/T 28857-2012, In addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) The scope has been changed to add "AC" differential transformer type displacement sensor (see Chapter 1, Chapter 1 of the 2012 edition);

b) Added product categories (see 4.1);

c) The measuring range of the sensor has been changed (see Table 1, Table 1 of the 2012 edition);

d) Added AC power parameters (see 5.3.2);

e) The operating temperature range of the sensor has been changed (see 5.4, 5.4 of the 2012 edition);

f) Changed the range value requirements of mechanical stroke (see 6.4.3, 6.5.3 of the 2012 edition);

g) Added technical requirements for lead wire strength (see 6.4.4);

h) Modified the technical requirements for sensor ripple voltage (see 6.5.5, 6.6.5 of the 2012 edition);

i) Added technical requirements for sensor harmonic voltage (see 6.5.6);

j) Added technical requirements for temperature drift of the lower limit of the range (see 6.6.2);

k) Added technical requirements for temperature drift of upper range limit (see 6.6.4);

l) Add technical requirements for the protection level of the sensor housing to improve the dust and water resistance of the product (see 6.7.6);

m) Added the electromagnetic compatibility technical requirements for sensors (see 6.7.7);

n) Added the sensor lead wire strength test method (see 7.6.4);

o) The ripple voltage test method has been changed (see 7.7.6, 7.7.5 of the 2012 edition);

p) Added harmonic voltage test method (see 7.7.7);

q) Added the lower range limit temperature drift test method (see 7.8.2);

r) Added the upper range temperature drift test method (see 7.8.4);

s) Added the test method for the protection level of the sensor housing (see 7.9.6).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee for Standardization of Industrial Process Measurement, Control and Automation (SAC/TC124).

The main drafting units of this document are: Shenyang Instrument Science Research Institute Co., Ltd., Shanghai Industrial Automation Instrumentation Research Institute Co., Ltd., Instrument and Meter Components Quality Inspection and Testing Center, Jiangsu Lianneng Electronic Technology Co., Ltd., China National Nuclear Corporation Automatic Instrument System Engineering Co., Ltd., China National Machinery Industry Corporation Sense Technology Co., Ltd.

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Previous versions of the documents replaced by this document.

- First published in 2012 as GB/T 28857-2012;

- This is the first revision.

1 Scope

This document specifies the product classification, basic parameters, technical requirements, inspection and Rules, marking, instructions for use, as well as packaging, storage and transportation, describe the test methods.

This document applies to AC and DC differential transformer type displacement sensors.

2 Normative references

GB/T 2423.60-2008

GB/T 2829-2002

GB/T 4208

GB/T 7665

GB/T 9969

GB/T 13384

GB/T 17626.2-2018

GB/T 17626.3-2023

GB/T 17626.4-2018

GB/T 17626.5-2019

GB/T 25480-2010

3 Terms and Definitions

The terms and definitions defined in GB/T 7665 and the following apply to this document.

3.1 Change

Based on the working principle of transformer, it is a device powered by DC or AC power. It has one winding on the primary side and two windings on the secondary side.

There is a movable iron core on the transformer opening. When the iron core is displaced, the magnetic circuit changes, so that the output differential voltage changes accordingly.

3.2

A displacement sensor that uses the principle of differential transformer and outputs proportionally with the change in displacement.