

ICS 17.040.30

CCS J42



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

GB/T 43150-2023

**Design and metrological characteristics of electronic
digital-indicator gauges**

电子数显指示表的设计和计量特性

Issued on: September 7, 2023

Implemented on: April 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1 Scope	1
2 Normative reference documents	1
3 Terms and Definitions	1
4 Design Features	1
4.1 Overall design and naming	1
4.2 Main dimensions	3
4.3 Digital display	3
4.4 Error message	4
4.5 Data interface	4
4.6 Use protection	4
4.7 Probe	4
4.8 Zero adjustment	4
4.9 Additional functions	4
4.10 Design characteristics (manufacturer specifications)	4
5 Metrological characteristics	5
5.1 General	5
5.2 Maximum allowable error	5
5.3 Allowable limits of measuring force	5
10 Reference	11

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents" Drafting. This document is equivalent to ISO 13102.2012 "Product Geometric Specification (GPS) Length Measuring Instruments. Electronic Digital Indicator" Design and metrological properties". This document has made the following minimal editorial changes.

---In order to coordinate with the existing standards, the name of the standard is changed to "Design and Measurement Characteristics of Electronic Digital Indicators";

---A note has been added to the definition of electronic digital display indicator. Please note that some content in this document may be subject to patents. The publisher of this

document assumes no responsibility for identifying patents. This document is proposed by China Machinery Industry Federation. This document is under the jurisdiction of the National Standardization Technical Committee for Measuring Tools and Measuring Instruments (SAC/TC132). This document was drafted by: Guilin Guanglu Digital Measurement and Control Co., Ltd., Chengdu Xincheng Measuring Tools Co., Ltd., Dongguan Tema Electronics Co., Ltd. Division, Harbin Measuring Tools and Cutting Tools Group Co., Ltd., Suzhou Guoliang Measuring Tool Technology Co., Ltd., Jingjiang Measuring Tool Co., Ltd., Shenzhen Metrology Quality Quantity Testing Research Institute, Qinghai Measuring Tools and Cutting Tools Co., Ltd., Shenzhen Dongye Precision Instrument Co., Ltd., Chengdu Tool Research Institute Co., Ltd. The main drafters of this document. Dong Zhongxin, Yan Liexue, Chen Zhengwei, Yang Zhongyi, Zhang Wei, Zhao Yonghai, Qin Xiangdong, Wu Peigang, Ma Shibin, Sun Yunchen, He Yixian, Wang Fei, Huang Guiyun.

This document is a Geometric Product Specification (GPS) standard and is considered a universal standard for GPS (see ISO 14638). In general GPS matrix, it affects the size and distance of the standard link F. The GPS master plan given in GB/T 20308 provides the General principles of GPS systems. The basic rules for GPS given in ISO 8015 apply to this document, while the default rules given in ISO 14253-1 apply to applications based on This document establishes specifications unless otherwise stated. For detailed information on the relationship of the standard to other standards and the GPS matrix model, see Appendix D. Design and metrological characteristics of electronic digital display indicators

1 Scope

GB/T 43150-2023 specifies the design and metrological characteristics of electronic digital indicator gauges, equivalent to ISO 13102. The digital indicator replaced the dial gauge in most inspection work and brought properties the dial never had that now have to be specified: a data interface that feeds a measurement straight into a report, a zero that can be set anywhere, and a display that can show a number when the instrument is in a state where that number is not valid - which is why the error messages are part of the standard. It sets the design features, covering the overall design and designation, the main dimensions, the digital display, the error messages, the data interface, the protection in use, the probe, the zero adjustment, the additional functions and the manufacturer's declared characteristics, and then the metrological characteristics with their maximum permissible errors. It took effect on 1 April 2024.

This document specifies the most important design and metrological characteristics of electronic digital display meters.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document

through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 24634-2009 Product Geometric Specification (GPS) General concepts and requirements for GPS measuring equipment (ISO 14978. 2006, IDT) ISO 14253-

1 Geometric Product Specification (GPS) Measurement inspection of workpieces and measuring equipment Part

3 Terms and definitions

The terms and definitions defined in GB/T 24634-2009 and the following apply to this document.

3.1 electronic digital-indicator gauge A measuring instrument that obtains the linear displacement of the measuring rod from a sensor and reads it using the principles of electronic measurement and digital display.

Note. Those with a resolution of 0.01mm are called digital dial indicators, and those with resolutions of 0.001mm and 0.005mm are called digital dial indicators.

4 Design features

4.1 Overall design and naming The overall design and process of the electronic digital display indicator shall comply with the requirements of this document.