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**GB/T 20818.14-2023**

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**Industrial-process measurement and control - Data structures and elements in  
process equipment catalogues - Part 14: Lists of properties (LOP) for  
temperature measuring equipment for electronic data exchange**

工业过程测量和控制 过程设备目录中的数据结构和元素 第14部分：温度测量设备电子数据交换用属性列表（LOP）

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## Table of Contents

|                                        |    |
|----------------------------------------|----|
| 1 Scope .....                          | 1  |
| 2 Normative reference documents .....  | 1  |
| 3 Terms and Definitions .....          | 1  |
| 4 General .....                        | 2  |
| 4.1 Overview .....                     | 2  |
| 4.2 Special circumstances .....        | 2  |
| 4.3 Description of OLOP and DLOP ..... | 2  |
| 15 Reference .....                     | 16 |

## 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 Part 14 of GB/T 20818 "Data structures and elements in catalogs of industrial process measurement and control process equipment". GB/T 20818 has released the following parts.

1. Measuring equipment with analog and digital outputs;

10. Basic principles of List of Properties (LOPs) for electronic data exchange for industrial process measurement and control;

11. General structure of attribute lists (LOPs) for electronic data exchange of measuring equipment;

12. List of attributes (LOPs) for electronic data exchange of flow measurement equipment;

13. List of properties (LOP) for electronic data exchange of pressure measuring equipment;

14. List of attributes for electronic data exchange of temperature measuring equipment (LOP);

15. List of attributes (LOPs) for electronic data exchange of level measuring equipment;

21. General structure of attribute list (LOP) for electronic data exchange of automatic valves.

This document is equivalent to IEC 61987-14:2016 "Data structures and elements in the catalog of industrial process measurement and control process equipment". Part

14. List of properties (LOP) for electronic data exchange of temperature measuring

equipment. 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 Industrial Process Measurement Control and Automation Standardization Technical Committee (SAC/TC124). This document was drafted by: Xiamen Yuhao Software Co., Ltd., Shanghai Modulus Automation Technology Co., Ltd., Mechanical Industrial Instruments Integrated Institute of Technology and Economics, Anhui Tiankang (Group) Co., Ltd., Hanwei Technology Group Co., Ltd., Endress+Hauser (China) Automation Chemical Co., Ltd., Xiamen Anton Electronics Co., Ltd., Shenzhen Ertai Technology Co., Ltd., Chongqing Yutong System Software Co., Ltd., Shenzhen Te An Electronics Co., Ltd., Southwest University, Jiangsu Xinhui Measurement and Control Technology Co., Ltd., Chongqing Wei'an Measurement Instrument Manufacturing Co., Ltd., Shenzhen Wanxun Automatic Control Co., Ltd., Zhejiang Chintizhong Automatic Control Engineering Co., Ltd., Shenzhen Jinkaibo Automation Testing Co., Ltd., Chongqing Chongke Physical and Chemical Measurement Center Co., Ltd., Beijing Kunlun Coast Technology Co., Ltd., Xi'an Dongfeng Mechanical and Electrical Co., Ltd., Shanghai Analog Instruments Co., Ltd., Luzhou Vocational and Technical College, Zhejiang Shangshu Information Technology Co., Ltd., Beibei District Kemeng Instrument Co., Ltd., Beijing Brady Instruments Instrument Co., Ltd., Anhui Konewell Electric Co., Ltd., Henan Baoshian Electronic Technology Co., Ltd., Suowu Electric Equipment (Shanghai) have Co., Ltd., Chongqing Changping Information Technology Co., Ltd., Shanghai Mingkong Sensing Technology Co., Ltd., and Chongqing Zhiernxin Technology Co., Ltd. The main drafters of this document. Zhou Yu, Han Hengchao, Wang Shuo, Mao Wenwen, Li Zhigang, Chen Junxi, Xiao Guozhuan, Zheng Yanzhe, Yue Hao, Xu Changhong, Zhang Yu, Wang Yuxiang, Tang Tian, Zou Jing, Xu Ruidong, Zheng Xu, Huang Dong, Yu Zhenhua, Tang Xiaodong, Zheng Yiqun, Xu Ning, Wang Haohan, Liu Jingcheng, Zhou Zhouqi, Yan Legang, Gao Jidong, Ke Youchang, Bai Junwei, Zhang Nan, Wu Hailin, Chen Qingrong, Li Renqiong, Liu Feng, Qi Qian, Jiang Shan.

Only when the information exchanged and the purpose of the information are clearly defined, the company, business systems, engineering tools, internal company data systems and Only then can product data exchange between future control systems (electrical, measurement and control technology) proceed smoothly. In the past, users would make various requirements to suppliers or manufacturers when purchasing equipment, and suppliers would describe these equipment according to their Their own file formats, often using different terminology, structures and carriers (paper, databases, CD-ROMs, electronic catalogs, etc.). This situation and regulations Similar to some situations in the planning and development process, device information is often used in many different information technology systems. There are many types of equipment, each with different attributes (including equipment attributes and operating attributes, etc.). In order to record the equipment at one time, it is important to plan and order the equipment. As well as all

necessary information in the later use process, all relevant parties should pay attention to these elements, and GB/T 20818 "Industrial Process Measurement" is specially formulated. and data structures and elements in the control process equipment catalog to describe different equipment and standardize the exchange of information. GB/T 20818 proposes a standardized approach that helps suppliers and users of measurement equipment optimize their performance within and between companies. workflow. Depending on the job or functional role in the process, engineering companies may be considered users or suppliers. This method specifies the Customized process control equipment. These attribute blocks are combined into attribute lists, each of which describes a specific device (device) type. GB/T 20818 includes attributes that can be used for queries or proposals as well as those needed to integrate the device into a computer system to perform other tasks. Detailed properties. GB/T 20818 is intended to consist of the following parts.

1.Measuring equipment with analog and digital outputs. Specifies communication for process measurement equipment with analog and digital outputs Using a collection of structures and product characteristics, the purpose is to provide guidance for the formulation of standards for different types of process measurement equipment.

10.Basic principles of List of Properties (LOPs) for electronic data exchange for industrial process measurement and control. The purpose is Specifies the basic principles of operating attribute lists (OLOP) for electronic data exchange of measuring equipment, and provides the data model of OLOP.

## 1 Scope

GB/T 20818.14-2023 is Part 14 of the Chinese series on data structures in process equipment catalogues, and gives the lists of properties for temperature measuring equipment. A temperature measurement is an assembly rather than a device - sensor, sheath, thermowell, extension and transmitter - and the properties that decide whether it will work in a given service are spread across all of them: the sensor type and class, the immersion length, the wetted material, the response time and the process connection. Comparing catalogues by hand across those dimensions is what the property list removes. The standard sets the general provisions and the description of the object and device lists of properties, with a normative annex giving the full property list for temperature measuring equipment. It took effect on 1 March 2024.

This document specifies.

---Operating attribute list (OLOP) used to describe the operating parameters of temperature measuring equipment and a set of requirements for temperature measuring equipment;

---Device Properties List (DLOP) used to describe different contact and non-contact temperature measurement device types. The structure of OLOP and DLOP conforms to the general structure defined in IEC 61987-11 and conforms to the general structure defined in

IEC 61987-

10 Basic principles of LOP structure. In addition to OLOP, other aspects required in the different electronic data exchange processes described in IEC 61987-10 have been Published in IEC 61987-92. The attribute library and block library used by LOP in this document are listed in Appendix C and Appendix D respectively.

## 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 20818.10-2017 Industrial process measurement and control data structures and elements in process equipment catalogs Part

10 Sub. List of Properties (LOPs) Basic Principles for Electronic Data Exchange for Industrial Process Measurement and Control ( IEC 61987-10.2009, IDT)

GB/T 20818.11-2018 Data structures and elements in industrial process measurement and control process equipment catalogs Part 11. Common structure of lists of properties (LOPs) for electronic data exchange of measuring equipment ( IEC 61987-11.2012, IDT)

GB/T 17564.1-2011 Standard data element types and related classification schemas for electrical projects Part

## 3 Terms and definitions

The terms and definitions defined in GB/T 20818.10-2017 and GB/T 20818.11-2018 apply to this document. Temperature-related terms and definitions as defined in the IEC Common Data Dictionary (CDD) apply to this document.