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

GB/T 20818.11-2018

Replacing GB/T 20818.11-2018

**Industrial-process measurement and control - Data structures and elements in
process equipment catalogues - Part 11: List of properties (LOPs) of measuring
equipment for electronic data exchange - Generic structures**

(English Translation)

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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 11 of GB/T 20818 "Data Structures and Elements in the Catalogue of Process Equipment for Measurement and Control of Industrial Processes".

GB/T 20818 has published the following parts.

- Part 1.Measuring devices with analog and digital outputs;
- Part 10.Basic Principles of Attribute Lists (LOPs) for Electronic Data Interchange in Industrial Process Measurement and Control;
- Part 11.General Structure of Attribute Lists (LOPs) for Electronic Data Interchange of Measuring Equipment;
- Part 12.Attribute Lists (LOPs) for Electronic Data Interchange of Flow Measurement Equipment;
- Part 13.Attribute List (LOP) for Electronic Data Interchange of Pressure Measurement Equipment;
- Part 14.Attribute List (LOP) for Electronic Data Interchange of Temperature Measurement Equipment;
- Part 15.Attribute Lists (LOPs) for Electronic Data Interchange of Level Measurement Equipment;
- Part 16.List of Attributes (LOPs) for Electronic Data Interchange of Density Measurement Equipment;
- Part 21.General Structure of Attribute Lists (LOPs) for Electronic Data Interchange of

Automatic Valves;

---Part 22.Valve Body Assembly Electronic Data Interchange Attribute Lists (LOPs) General Structure;

---Part 92.Attribute Lists (LOPs) for Electronic Data Interchange of Measuring Equipment; LOPs aspect;

---Part 242.Attribute Lists (LOPs) for Electronic Data Interchange of Valve/Actuator Accessories;

---Part 243.Attribute Lists (LOPs) for Electronic Data Interchange of Flow Control Accessories

This document replaces GB/T 20818.11-2018 "Data Structures and Elements in the Catalogue of Process Equipment for Measurement and Control in Industrial Processes".

Part 11.General Structure of Attribute Lists (LOPs) for Electronic Data Interchange of Measuring Equipment, consistent with GB/T 20818.11-2018.

Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows.

---The definition of the term "switch" has been changed (see 3.1.11,.2018 version 3.1.11);

---The definition of the term "(aspect)" has been changed (see 3.2.1,.2018 version 3.2.1);

---The source of the term "category" has been changed (see 3.2.2,.2018 version 3.2.2);

---Change the "'Automation Equipment' field to the "'Process Automation (IEC 61987 Series)' field" (see 4.3.5,.2018 version).

4.3.5);

---The content of the environmental design conditions overview has been revised (see 5.4.3.1,.2018 version 5.4.3.1);

---Change "Signal Characteristics" to "Alarm Signal" (see 6.5.3.2.4, version 6.5.3.2.4 of.2018);

---Change "Output Signal Processing" to "Output Signal Processing (Optional)" (see 6.6.2.1,.2018 version of 6.6.2.1);

---Change "The output signal processing block should indicate the possibility of modifying the output signal provided by the measuring device" to "'Output signal processing block should indicate the possibility of modifying the output signal provided by the measuring device'...

The 'processor' block is optional; if used, it should indicate the possibility of modifying the output signal provided by the measuring device (see 6.6.2.3,.2018 edition).

(6.6.2.3)

---Change "Signal Characteristics" to "Alarm Signal" (see 6.6.2.4,.2018 version of 6.6.2.4);

---Added the performance variable "Flow Rate" (see 6.8.3.1);

---The reference conditions for performance variables have been added (see 6.8.3.2);

---The classification scheme for process measurement devices has been changed and some definitions have been modified (see Table A.1, Table A.1 in the.2018 version).

This document adopts the equivalent of IEC 61987-11.2016 "Data structures and elements in the catalogue of process equipment for measurement and control of industrial processes".

Part 11.General Structure of Attribute Lists (LOPs) for Electronic Data Interchange of Measuring Equipment.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no 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 on Standardization of Industrial Process Measurement and Control (SAC/TC124).

0.1 Overview

Only when the information exchanged and its purpose are clearly defined can the company, business systems, engineering tools, internal data systems, and...

Only then can the exchange of product data between future control systems (electrical, measurement, and control technologies) proceed smoothly.

In the past, users would make various requests to suppliers or manufacturers when purchasing equipment, and suppliers would describe the equipment according to their requirements.

They have their own file formats, typically using different terminology, structures, and media (paper, databases, CDs, electronic catalogs, etc.). This situation differs from the norm.

Similar to certain situations in the planning and development process, equipment information is often used in many different information technology systems.

There are many types of equipment, each with different attributes (including equipment attributes and operational attributes, etc.). This allows for a comprehensive record of equipment planning and ordering processes.

In addition to providing all necessary information during the later stages of use, and to ensure that all relevant parties pay attention to these factors, GB/T 20818 "Industrial

Process Measurement" was specifically formulated.

The "Data Structures and Elements in the Catalog of Control Process Equipment" aims to describe different devices and standardize the exchange of information.

GB/T 20818 proposes a standardized approach that helps suppliers and users of measuring equipment optimize internal and inter-company processes.

The workflow. Based on the work or functional role in the process, the engineering company is considered either a user or a supplier. This method is specified through attribute blocks.

Process control equipment. These attribute blocks are combined into attribute lists, where each list describes a specific type of equipment (device).

GB/T 20818 includes attributes that can be used for querying or proposing, as well as the attributes required for integrating devices into computer systems to perform other tasks.

Detailed attributes. GB/T 20818 is proposed to consist of the following parts.

---Part 1.Measuring Devices with Analog and Digital Outputs. Designed to specify process measuring devices with analog and digital outputs.

The purpose of defining a set of general structures and product characteristics is to provide guidance for the development of standards for different types of process measurement equipment.

---Part 10.Fundamental Principles of Attribute Lists (LOPs) for Electronic Data Interchange in Industrial Process Measurement and Control. This aims to specify...

The basic principles of Operational Attribute List (OLOP) for Electronic Data Interchange of Measuring Equipment are explained, and a data model for OLOP is provided.

---Part 11.General Structure of Attribute Lists (LOPs) for Electronic Data Interchange of Measuring Equipment. This aims to specify the electronic...

The general structure of the Data Exchange Device Attribute List (DLOP) is provided, along with several important detailed descriptions.

---Part 12.List of Attributes (LOPs) for Electronic Data Interchange of Flow Measurement Equipment. This aims to specify electronic data interchange attributes for flow measurement equipment.

Operational Attribute List (OLOP) and Device Attribute List (DLOP) for data exchange.

---Part 13.Attribute List (LOP) for Electronic Data Interchange of Pressure Measurement Equipment. This aims to specify the electronic data interchange requirements for pressure measurement equipment.

According to the Operational Attribute List (OLOP) and Device Attribute List (DLOP).