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**Configuration file exchange for industrial control system HMI -
Part 2: Basic exchange description**

工业控制系统人机接口组态文件交互 第2部分：基础交互描述

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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 is part 2 of GB/T 45283 "Industrial control system human-machine interface configuration file interaction". GB/T 45283 has been published The following parts.

1. General information;

2. Basic interaction description;

3. Extended Interaction Description;

4. Test requirements; 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 was prepared by the National Automation System and Integration Standardization Technical Committee (SAC/TC159) and the National Industrial Process Measurement, Control and Automation It is jointly under the jurisdiction of the Automation Standardization Technical Committee (SAC/TC124). This document was drafted by: Beijing Institute of Automation of the Mechanical Industry Co., Ltd., Zhejiang Zhongkong Research Institute Co., Ltd., Hangzhou Electronic Technology University, Daqing Zijinqiao Software Technology Co., Ltd., Shanghai Buke Automation Co., Ltd., Beijing Yakong Technology Development Co., Ltd., Beijing Likong Yuantong Technology Co., Ltd., China Academy of Mechanical Science Group Co., Ltd., Jiangsu Shangchun Automation Technology Co., Ltd., Jilin University Institute of Mechanical Industry Instruments and Meters, Sanmen Sanyou Technology Co., Ltd., Hangzhou Yiyi Taidi Information Technology Co., Ltd. Company, Odesense Software System (Beijing) Co., Ltd., Shenzhen Hualong Xunda Information Technology Co., Ltd., Shenzhen Polytechnic, Zhejiang Electric Power Co., Ltd. Hangzhou Xiaoshan District Power Supply Company, Tianjin University, Zhejiang Zhongxin Electric Power Engineering Construction Co., Ltd., China Instrument Instrument Society, Xi'an Gaoshang Intelligent Technology Co., Ltd., Longnan Dingtai Electronic Technology Co., Ltd., Jiangxi Lvchongchong Internet of Things Technology Co., Ltd. Company, Dalian Hausen Ruide Equipment Manufacturing Co., Ltd., and Dongfang Electric Group Science and Technology Research Institute Co., Ltd. The main drafters of this document are. Wang Kai, Shi Yiming, Wu Huifeng, Li Yanqing, Wang Tianlin, Ouyang Yunsheng, Chen Gen, Tian Xiaoliang, Lu Qiuming, Zhang Liming, Yu Kuo, Wang Han, Liu Chunbao, Wang Haidan, Liu Yaqun, Wu Junyi, Yang Konghua, Lu Shan, Du Mingchao, Chen

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In order to realize the interaction of heterogeneous configuration platform files and promote the interconnection between heterogeneous software platforms, the industrial control system human-machine interface Configuration file interaction series standard. The overall objectives of GB/T 45283 "Industrial Control System Human-Machine Interface Configuration File Interaction" include.

--- Make configuration files inheritable and solve the problem of backward compatibility after software or equipment is updated.

---Realize the reusability of software files. User-defined graphic components, script functions and other custom modules can be used in different configuration tools. It can be reused in programs and configuration platforms to improve the efficiency of configuration software development and reduce software development costs.

--- Make configuration files portable and reduce users' dependence on configuration platforms. GB/T 45283 is intended to consist of four parts.

1.General information. Mainly describes the general information of configuration file interaction, used to standardize the structure and content.

2.Basic interaction description. Mainly describes the basic interactive configuration file structure and file content based on XML, used for Guide the design and development of export and import tools for basic interaction files of human-machine interface software and the verification of software functions.

3.Extended Interaction Description. Mainly describes the XML-based extended interactive configuration file structure and file content, used for Guide the design and development of export and import tools for extended interaction files of human-machine interface software and the verification of software functions.

4.Test requirements. Mainly describes the industrial control system human-machine interface configuration file interaction test process, test preparation, Mission design and execution, analysis and reporting, and data management. Industrial control system human-machine interface configuration file interaction Part

1 Scope

GB/T 45283.2-2025 is the part of the Chinese HMI configuration exchange series that defines the file format. The problem the series addresses is a familiar and expensive one: the graphics, tags, alarms, scripts and animations of an operator interface are held in a vendor-specific format, so changing or extending a control system means rebuilding the HMI from nothing. This part specifies the neutral file the configuration is exchanged in: the

schema file and its versioning and naming, the screen coordinate system, and then the exchange file itself section by section, the file header, the menus, the views, the variables, the functions, the scripts, the events, the user configuration and the resources, followed by the declaration of the view classes and of the composite types such as the brush. A normative annex carries the XML schema and an informative one a worked example. For a control system vendor, an engineering contractor or a plant owner trying to avoid lock-in in China, this is the format.

This document specifies the file structure of the basic interactive files of the general human-machine interface (HMI) software configuration of industrial control systems and standardizes the menu XML description format for elements such as orders, screens, variables, device configurations, scripts, events, user configurations, and resources. This document is applicable to industrial control system human-machine interface configuration files designed and developed in accordance with this document in process industry, discrete industry and other industries. It guides the design and development of tools for exporting and importing basic interaction files of human-computer interface software and verifies software functions.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 45283.1-2025 Industrial control system human-machine interface configuration file interaction Part

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Schema file xmlSchemafile The XML Schema Definition (XSD) file format is used to describe the structure of elements and attributes in XML files and to define their legal constitute.

Note. The schema file defines the elements and attributes that can appear in the XML configuration file, defines which elements are sub-elements and their order and number, and defines an element Or whether the attribute can be empty, define the data type, default value and fixed value of elements and attributes.

3.2 complexType The "complexType" node in the element type definition in the schema file is used to describe the sub-elements, attributes, or Structural definition of mixed content (a combination of elements and text).