

ICS 25.040.40

CCS N18



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

GB/T 45283.1-2025

**Configuration file exchange for industrial control system HMI -
Part 1: General information**

工业控制系统人机接口组态文件交互 第1部分：通用信息

Issued on: February 28, 2025

Implemented on: September 1, 2025

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

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Abbreviations	2
5 Basic structure of human-machine interface	2
6 Configuration file interaction	3
6.1 Configuration file contents	3
6.2 Configuration File Interaction Model	3
6.3 Interaction file content	4
7 Screen Description	5
7.1 Menu	5
7.2 Layer	5
7.3 Element	5
7.4 Primitive Animation	5
8 Variable Description	5
8.1 Data Types	5
8.2 Screen variables	6
8.3 Data (library) variables	6
9 Equipment Description	7
9.1 Definition	7
9.2 Basic properties	7
9.3 Extended Attributes	8
10 Script Description	8
10.1 Functions	8
10.2 Script Syntax	9
10.3 Event	11
12 Reference	13

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 1 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 managed by the Automation Standardization Technical Committee (SAC/TC124). This document was drafted by: Zhejiang Zhongkong Research Institute Co., Ltd., Daqing Zijinqiao Software Technology Co., Ltd., Shanghai Buke Automation Co., Ltd. Co., Ltd., Beijing Institute of Automation of Mechanical Industry Co., Ltd., Xiamen Haiwei Technology Co., Ltd., Hangzhou Dianzi University, Beijing Likong Yuanlong Technology Co., Ltd., Beijing Yakong Technology Development Co., Ltd., China Academy of Mechanical Science Group Co., Ltd., Jilin University, Shenzhen Vocational and Technical University, Mechanical Industry Instrumentation Comprehensive Technology and Economic Research Institute, Hangzhou Yiyi Taidi Information Technology Co., Ltd., Shenzhen Hualongxun Information Technology Co., Ltd., Liugong Liuzhou Transmission Co., Ltd., Shenzhen Huacheng Industrial Control Co., Ltd., Chengdu Siweigong Rate Electronic Technology Co., Ltd., China Instrument and Control Society, Dalian Haosen Ruide Equipment Manufacturing Co., Ltd., Hangzhou Jiuyou Intelligent Technology Co., Ltd. Company, Heilongjiang Zhenning Technology Co., Ltd., Shenzhen Dafu Precision Co., Ltd., Zhuzhou Yingding Automation Equipment Technology Co., Ltd., Xi'an Gaoshang Intelligent Technology Co., Ltd., Shandong Boshi Pengcheng Intelligent Technology Co., Ltd., Jiangsu Heyi Intelligent Technology Co., Ltd., Shenzhen Kerui Technology Co., Ltd. and Beijing HGTECH Huiyu Technology Co., Ltd. The main drafters of this document are. Shi Yiming, Li Yanqing, Yu Kuo, Ouyang Yunsheng, Wu Huifeng, Wang Tianlin, Chen Gen, Zhang Jing, Cai Gongsong, Wang Kai, Zhang Liming, Wang Han, Lu Qiuming, Tang Cong, Anquan Kun, Tian Xiaoliang, Lin Yaoyao, Xue Jingwan, Ye Kehui, Chen Yu, Lu Shan, Wang Shuo, Liu Chunbao, Yang Konghua, Yan Wanbin, Chen Sujiao, Wang Sunjun, Song Xiaoping, Gao Lijin, Yu Meimei, Zheng Shengquan, Zhao Leizhen, Song Yang, Miao Lixiao, Han Mei, Guo Yonggui, He Caiying, Dou Xiaomu, Xu Songyan, Zang Chonghai, Jin Qiang, Li Ning, Sun Shiguo.

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 general requirements and methods for interactive testing of industrial control system human-machine interface configuration files. Method, including basic requirements, consistency testing, interoperability testing and test summary. Industrial control system human-machine interface configuration file interaction Part

1 Scope

GB/T 45283.1-2025 is Part 1 of the Chinese standard for exchanging configuration files between industrial control system HMIs. The problem it addresses costs real money: an HMI configuration, the screens, the tags, the alarms, the trends and the animations, represents months of engineering, and it is locked into the vendor's proprietary project format, so changing supplier or migrating a plant means rebuilding it from scratch. This part establishes the general information: the basic structure of a human-machine interface and its constituent objects, the model of the configuration file and what it must be able to express, the interaction and exchange process between systems, the general requirements on the exchange format, and the conformance and extension rules, providing the framework that the later parts fill in for each category of object. It takes effect on 1 September 2025.

This document specifies the basic structure of industrial control system human-machine interface software and the requirements for human-machine interface configuration file interaction, and The interactive screens, variables, devices, scripts, and resources of the components are described. This document is applicable to the interaction of human-machine interface software configuration files in control systems in process industries, discrete industries, etc. It can be used as a reference for design, development, management and maintenance.

2 Normative references

The contents of the following documents constitute 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 45283.2-2025 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 Industrial control system industrial control system; ICS Various control systems used in industrial production.

Note. Industrial control systems typically include supervisory control and data acquisition systems (SCADA), distributed control systems (DCS) and other smaller control systems. Used in the industrial sector and critical infrastructure. [Source: GB/T 32919-2016, 3.1, modified]

3.2 human-machine interface The set of ways an employee (user) interacts with a specific machine, device, computer program, or other complex tool (system). NOTE In many cases these include video or computer terminals, buttons, auditory feedback, flashing lights, etc. The methods provided by the human-machine interface include. input (Allows the user to control the machine) Output (Allows the machine to notify the user). [Source: GB/T 33009.1-2016, 3.1.7, modified]

3.3 Configuration file A certain format is used to save the configuration project files.

3.4 Programmable (logic) controllers; PLC A digitally operated electronic system used in industrial environments. Note

1.This system uses programmable memory as an internal register for user instructions to complete specified functions such as logic, sequence, timing, counting, calculation, etc.