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**General technical requirement of intelligent control system  
for window and door**

门窗智能控制系统通用技术要求

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# General technical requirement of intelligent control system for window and door

## 1 Scope

This document gives the system composition of the intelligent control system for window and door. It also specifies the technical requirements for the system.

This document applies to the design, manufacturing and application of the intelligent control system for window and door in civil buildings.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 4208-2017, *Degrees of protection provided by enclosure (IP code)*

GB 4943.1, *Audio/video, information and communication technology equipment - Part 1: Safety requirements*

GB/T 9254.1-2021, *Information technology equipment, multimedia equipment and receivers - Electromagnetic compatibility - Part 1: Emission requirements*

GB/T 9254.2, *Information technology equipment, multimedia equipment and receivers - Electromagnetic compatibility - Part 2: Immunity requirements*

GB 12663, *Intrusion and hold-up alarm systems - Control and indicating equipment*

GB/T 20138-2006, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

GB 21556, *General safety technique requirement of locks*

GB/T 22239, *Information security technology - Baseline for classified protection of cybersecurity*

GB/T 31070.1, *Building intercom systems - Part 1: General technical requirements*

GB/T 33135, *Information technology - Finger vein recognition system - General specifications for finger vein capture device*

GB/T 35273, *Information security technology - Personal information security specification*

GB/T 35783, *Information technology - General specification for iris recognition devices*

GB/T 37036.3, *Information technology - Biometrics used with mobile devices - Part 3: Face*

GB/T 37742, *Information technology - Biometric - General specification for fingerprint recognition devices*

GB/T 39188-2020, *General technical specification of electric windows and doors (gates)*

GA 374, *Burglary-resistant electronic locks*

### **3 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

#### **3.1 intelligent control system for window and door**

It consists of a sensor module, an indicator module, an executable module, a management and control module, an intelligent terminal and an intelligent application service platform. It realizes software and hardware integration for the intelligent control system for window and door through the intelligent application service platform.

#### **3.2 sensor module**

It is a functional device or device that is composed of sensitive elements and conversion elements, can sense the external environment or detect external actions, and can convert the perceived physical quantities into electrical signals and output them.

#### **3.3 indicator module**

A device that reflects the operating status of the system or issues alarm information through indication signals such as graphics, symbols, and text.

#### **3.4 executable module**

A device that receives and executes instructions from the management and control module and drives doors and windows to complete actions such as opening, closing, and locking.

#### **3.5 management and control module**

A device that can receive signals from the sensor module or user instructions, analyze

- c) The sensing device and battery shall be easy to install and replace;
- d) The fingerprint recognition function shall comply with the relevant provisions of GB/T 37742;
- e) The face recognition function shall comply with the relevant regulations of GB/T 37036.3;
- f) The iris recognition function shall comply with the relevant regulations of GB/T 35783;
- g) The finger vein recognition function shall comply with the relevant regulations of GB/T 33135.

#### **6.2.2 Indicator module**

The indicator module meets the following requirements:

- a) It shall have the functions of power display, operating status display and fault display;
- b) For systems equipped with sound and light alarm devices, the alarm sound pressure level shall comply with the relevant regulations of GB 12663.

#### **6.2.3 Executable module**

The executable module meets the following requirements:

- a) It shall be able to maintain the state before the power outage or system failure and manually open and close doors and windows in the event of a power outage or system failure;
- b) It shall be able to stop or rebound when encountering obstacles;
- c) It shall have operating speed, operating torque adjustment and closed buffer functions. The damping range shall be adjustable;
- d) It shall have real-time status feedback;
- e) Electronic anti-theft locks shall comply with the relevant regulations of GA 374. Other types of door locks shall comply with the relevant regulations of GB 21556;
- f) It shall be able to prevent mis-operation;
- g) The equivalent continuous sound level A of the noise generated during operation shall not be greater than 60 dB(A).

#### **6.2.4 Management and control module**

The management and control module meets the following requirements:

- a) It shall have storage capabilities. The system can automatically save key information such as identity authentication, device association, and device configuration when the power supply is abnormal or outages, restarts, or replaces the battery;
- b) It shall have communication connection capabilities. If wireless communication is used to connect to each module, reliable communication shall be ensured;
- c) It shall have the function of giving priority to manual control;
- d) It shall have the function of user permission setting;
- e) It shall have the function of triggering device linkage based on the signal from the sensing module. Trigger conditions can be set by users;
- f) It shall have the ability to report equipment faults, status, basic settings and other information;
- g) It shall have the ability to integrate multiple devices and systems. It shall have functional interfaces to connect with third parties such as intelligent homes, intelligent buildings, and intelligent communities;
- h) Systems equipped with audio/video collection modules shall have visitor video call functions and emergency call functions, which shall comply with the relevant regulations of GB/T 31070.1.

#### **6.2.5 Intelligent application service platform**

The intelligent application service platform meets the following requirements:

- a) It shall have equipment management, user management, log management and other modules, which can set, manage and query the equipment, system users and usage logs connected to the system;
- b) It shall have exception information prompting, recording and processing functions;
- c) AI computing module shall be used;
- d) It shall have the function of docking with third-party platforms or systems.

#### **6.2.6 Intelligent terminal**

The Intelligent terminal meet the following requirements:

- a) It shall be possible to identify the user's identity;
- b) It shall be able to receive real-time status information pushed by the system. The

system response time after the information is sent shall be less than 2 s;

- c) It shall be possible to obtain the audio and video information collected by the system;
- d) It shall have remote control function.

### **6.3 Power supply adaptability**

When AC power supply is used, the system shall be able to work normally when the voltage changes within the range of 220 V ( $1\pm 10\%$ ) and  $50\text{Hz}\pm 1\text{Hz}$ . When using DC power supply, the system shall be able to work normally when the voltage changes within  $\pm 10\%$  of the rated value.

### **6.4 Electrical safety**

The electrical safety of the system shall comply with the relevant regulations of GB 4943.1.

### **6.5 Information security**

#### **6.5.1 Identity authentication**

Identity authentication meets the following requirements:

- a) Intelligent terminals and/or intelligent application service platforms shall provide unique user ID and authentication information complexity checking functions, login failure processing functions, etc.;
- b) Measures such as ending the session, limiting the number of illegal logins, and automatically logging out can be taken.

#### **6.5.2 Permission control**

Intelligent terminals and/or intelligent application service platforms shall grant minimum permissions to different users for operations.

#### **6.5.3 Data security**

The data collection, storage, transmission and access of intelligent terminals and/or intelligent application service platforms meet the following requirements:

- a) Encryption keys shall not be hard-coded in the code;
- b) Ciphertext shall be used throughout the communication process;
- c) Shall have the ability to resist replay attacks;
- d) Encryption algorithms that have been decrypted shall not be used;

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