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

GB/T 18759.2-2025

Replacing GB/T 18759.2-2006

**Electrical equipment of machines - Open numerical control
system - Part 2: System architecture**

机械电气设备 开放式数控系统 第2部分：体系结构

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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 2 of GB/T 18759 "Open CNC Systems for Mechanical and Electrical Equipment". GB/T 18759 has been published. The following section.

1.General Provisions;

3.Bus Interface and Communication Protocol;

4.Hardware Platform;

5.Software Platform;

6.Network Interfaces and Communication Protocols;

7.General Technical Requirements;

8.Testing and Acceptance. This document replaces GB/T 18759.2-2006 "Open CNC Systems for Mechanical and Electrical Equipment - Part

2.System Architecture", and is consistent with... Compared with GB/T 18759.2-2006, apart

from structural adjustments and editorial changes, the main technical changes are as follows:

---The basic function area and its basic function component diagrams have been removed (see

3.3 in the 2006 edition);

---The description of "API" in the system platform has been changed to "Open CNC System Application Programming Interface (ONCAPI)," and the following has been added. The components of ONCAPI (see Chapter 5, Chapter 4 of the 2006 edition);

---Added technical details regarding the function descriptions and module names in the "MP Functional Components" section (see Table 1);

1 Scope

GB/T 18759.2-2025 is the Chinese national standard covering the architecture of an open CNC - the separation of the human interface, the interpolation and the servo layers, the interfaces between them, and the extension points at which a machine builder can add his own function without touching the core. Part 2 of the series. It replaces GB/T 18759.2-2006, in force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 18759.2-2006.

This document describes the architecture of an open CNC system, specifying the basic functions of each functional component and its corresponding modules. This document applies to open CNC systems used in mechanical and electrical equipment.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 18759.1-2025 Open-type numerical control systems for mechanical and electrical equipment - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 18759.1-2025, as well as the following terms and definitions, apply to this document.

3.1 functional area To achieve different machining control objectives, the various functions of the CNC device are categorized according to operating logic, application scenarios,

and process requirements. Modular areas formed after classification and integration.

Note. The basic functional area of the ONC system includes the Numerical Control (NC) functional area, the Programmable Logic Control (PLC) functional area, and the Human-Machine Interface (HMC) functional area. Energy zone.

3.2 functional component

3.3 functional module It is an independent basic unit used to implement the functions of each component and has a standard data interface.

4. Abbreviations The following abbreviations apply to this document. AC. Axis Control IOC. Input/Output Control IODrv. Input/Output Driver