

ICS 25.040.40

CCS N 18



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

GB/T 15969.101-2026

**Programmable controllers - Part 101: Software information
model**

可编程序控制器 第101部分：软件信息模型

(English Translation)

Issued on: August 28, 2026

Implemented on: March 1, 2027

Issued by: State Administration for Market Regulation

Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms and Definitions
4 Abbreviations
5 Information Model
6 Reference Types
6.1 Overview
6.3 HasOutputVar
6.4 HasInOutVar
6.5 HasLocalVar
6.6 HasExternalVar
6.7 With
7 Object Types
7.2 CtrlResourceType (Controls resource type)
7.3 CtrlTaskType (Controls task type)
7.5 CtrlProgramType (Control Program Type)
7.7 SFCType (SFC object type)
8 Definition of the attributes and characteristics of control variables
8.1 Public Properties of Variables
8.2 Data Types
8.3 Variable-Specific Node Attributes
8.4 Characteristics of Variables
9 Objects used to organize address space structures
9.1 CtrlTypes
9.2 Use Cases of Software Information Models
9.3 Entry point 30 for UA clients
11 Namespace

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 101 of GB/T 15969 "Programmable Logic Controllers". GB/T 15969 has the following parts published.

- Part 1: General Information;
- Part 2: Equipment Requirements and Testing;
- Part 3: Programming Languages;
- Part 4: User Guidelines;
- Part 5: Communication;
- Part 6: Functional Safety;
- Part 7: Fuzzy Control Programming;
- Part 8: Guidelines for the Application and Implementation of Programming Languages;
- Part 9: Single-Point Digital Communication Interface (SDCI) for Small Sensors and Actuators;
- Part 10: XML Open Interactive Format for PLCs;
- Part 101: Software Information Model;
- Part 102: OPC Unified Architecture Functional Model.

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.

Introduction

Since its invention, programmable logic controllers (PLCs) have been widely used in various fields of industrial automation and have become an important component of industrial automation systems.

It needs support. Programmable logic controller (PLC) technology is developing very rapidly. Its applications have expanded from logic control to motion control, process control, and batch processing.

Control, formula control, etc.; the control range has expanded from single machine to the

entire workshop and even the entire plant, and includes remote radio control, thus covering a wide range of functions.

The application areas of programmable logic controllers (PLCs) include distributed control systems (DCS), numerical control systems (NC), and robot control systems. In short, PLCs have been continuously...

Expanding towards vertical and horizontal integration.

The GB/T 15969 series of standards have been continuously revised and expanded with the development of programmable logic controller (PLC) technology, and have improved the standards for PLCs.

---Part 1: General Information. The purpose is to establish the relevant definitions of programmable logic controllers (PLCs) and their peripheral devices, and to confirm their compatibility with programmable logic controllers (PLCs).

Key characteristics related to the selection and application of programmable controllers and their peripheral devices.

---Part 2: Equipment Requirements and Testing. This section outlines the equipment requirements and related testing procedures for programmable logic controllers (PLCs) and their peripherals.

The verification process is conducted in accordance with regulations.

---Part 3: Programming Languages. The purpose is to define the semantics and syntax of the most commonly used programming languages for programmable logic controllers (PLCs).

---Part 4: User Guidelines. The purpose is to provide general information on GB/T 15969 for end users of programmable logic controllers (PLCs), and...

Help them select programmable logic controller (PLC) devices and technical specifications according to the GB/T 15969 series standards.

---Part 5: Communication. The purpose is to define the communication between the programmable controller and other electronic systems.

---Part 6: Functional Safety. This section specifies the functional safety requirements for programmable logic controllers (PLCs) and their related peripheral devices.

The focus is on establishing and describing the safety lifecycle elements of functionally safe programmable controllers, and aligning them with IEC 61508-1, the general safety lifecycle defined in IEC 61508-2 and IEC 61508-3 is consistent.

---Part 7: Fuzzy Control Programming. This section covers programming languages for fuzzy control and integrating fuzzy control applications into GB/T 15969.3 programming.

The basic methods in the language are specified in order to provide a means for the interoperability and portability of fuzzy control programs between different programming systems.

Provide the foundation.

---Part 8: Guidelines for the Application and Implementation of Programming Languages. The purpose is to help users utilize the standards defined in GB/T 15969.3.

Software development using programming languages.

---Part 9: Single-Point Digital Communication Interface (SDCI) for Small Sensors and Actuators. For use with programmable controllers.

The communication services and protocols for single-point digital communication interfaces of stations and equipment have been standardized, with the aim of conforming to GB/T 15969.2.

The digital I/O interface is being extended to a single-point digital communication interface.

This method enables the exchange of GB/T 15969.3 programs, or even the entire GB/T 15969.3 project, in different development environments.

---Part 101: Software Information Model. The purpose is to provide a framework for data exchange between programmable logic controllers (PLCs) and with other different platform systems.

Communication provides specifications.

---Part 102: OPC Unified Architecture Functional Model. Its purpose is to guide the interaction between programmable controllers and with other different platforms.

Information exchange between systems.

Programmable Logic Controllers Part 101.

Software Information Model

1 Scope

This document defines a software information model based on the OPC unified architecture information model to describe the software model in GB/T 15969.3.

The model specifies the reference type, object type, control variables, address space structure, and namespace of the programmable controller software information model.

Requirements, etc.

This document guides the construction of a mapping from the GB/T 15969.3 software model to an OPC unified architecture server, and standardizes programmable logic