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

GB/T 21099.1-2007

**Function blocks for process control -- Part 1: Overview of
system aspects**

过程控制用功能块 第1部分：系统方面的总论
(English Translation)

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Foreword

GB/T 21099 "for process control function block" is divided into the following sections.

--- Part 1. System aspects Subjects;

--- Part 2. Functional Block concept and electronic device description language specification;

--- Part 3. Electronic Device Description Language;

Part --- Chapter 4. EDD interoperability guidelines.

This is Part 1 GB/T 21099 of.

This section identical with IEC/CDV61804-1.2003 "process control function blocks - Part 1. System aspects Subjects" (English Version).

This section according to IEC/CDV61804-1.2003 translation.

For ease of use, of IEC/CDV61804-1.2003 made the following editorial changes.

- a) "this International Standard" be replaced by "this section";
- b) Remove IEC/CDV61804-1.2003 Foreword;
- c) The text clearly wrong number was correct;
- d) IEC/CDV61804-1.2003 Annex E (informative) content of manifest error, given deleted;
- e) The IEC/CDV61804-1.2003 Annex F to the Appendix to this part of the E.

This section of the Appendix A, Appendix B, Appendix C, Appendix D and Appendix E are informative appendices.

This part is proposed by China Machinery Industry Federation.

This part of the measurement and control of Standardization Technical Committee II by the National Technical Committee under the jurisdiction of the industrial process.

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Introduction

This section is based on an end-user-driven function blocks (FB) for distributed process control system requirements specification. This section and Related standard function block (GB/T 21099.2) from the electricity industry. This section after the oil and gas, petrochemical, medical Drug and fine chemical, paper, food and beverage, sewage treatment plants, metallurgy and other applications in the field of verification. For other industries, the other general requirement standards and related specifications.

Current and future digital process control system needs to meet the following requirements.

- increase privacy and security;
- shorten time to market;
- tool support is available;
- reduce development and support costs;
- Minimize training costs;
- Support for distributed control applications integration;
- Integration method implementation support;
- increase maintainability, changeability, agility, scalability, flexibility and effectiveness, accessibility, availability, and support tools Compatibility capacitive, multi-vendor devices/applications, knowledge and design reusability, reusable software components;
- digital process control systems by Digital Equipment composition, these devices are compatible with each other, the collaboration can be interconnected, interoperable and interchangeable.

Architectures and operating process control system at all stages of the life cycle are required to meet these needs. Design Process Control System recognized basic concept is to use FB description of all necessary implementation-dependent functions. FB data to provide specific functions and algorithms the package, which has autonomy. Process control system may contain multiple instances of a plurality of different FB, which run in the provision of public services (Such as communication) interfaces to the environment as well as in other applications. See Figure 1.

Interactive applications 1 GB/T 21099.1-2007/IEC/CD Vp 61804-1.2003 Process control function block Part 1. System aspects Subjects

1 Scope

GB/T 21099 in this part of the vendor to provide a standard way for a general guide to the process control system does not meet the digital Breaking development needs. Through this specification, the user can ensure compatibility of their choice of equipment, may cooperate, can interconnectivity, interoperable and interchangeability. This section gives the total demand. For a better understanding, this section gives background information and examples in the Appendix.

FB This section defines the requirements to provide control, easy maintenance and management of applications that perform and measurement equipment and Interactive agencies.

- control involves making process to achieve and maintain the desired properties of the essential functions;
- maintain state information acquisition process and automation equipment comprising the device status information as well as its adjustment functions, such as Calibrating a sensor drift;
- process optimization management information.

The main concern is the economic process and plant equipment. And to measure the performance and reliability of an item of plant or equipment during installation, and comparing the performance and reliability of an item from a different provider, perform the same function in the same operating environment and have special off system. There are examples of performance, two valves from different providers, before the failure of the reach of cycles. This allows the generation of Specifically, effective statistical analysis to support change management and decision-making plant equipment.

A prerequisite for the design, implementation and operation of a process control system based on the FB is a tool, equipment and other components follow on General specification of the same architecture. This architecture is used to define the components of the system, e.g., functional blocks, devices, data, data connection, to and the relationship between these components. In this section related to the GB/T 19769 common function block model provides process control function block these basic components. GB/T 19769 should be added that in the device specification implemented FB parameters and functions.

Architecture and scope of the function block must be specified in the description 7.4. 7.4 contains a minimum set of functional blocks required for the process industry. it They appear in two different chapters, involving the "Advanced" function block that contains the image control circuit (for example, proportional, integral, differential ---Boolean function complexity required PID) of the process industry but the most common functions, the other containing EFB (ElementaryFB) set as desired the number can be composed of a specific and unique functionality.