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**Industrial-process measurement, control and automation -
life-cycle-management for systems and components**

工业过程测量控制和自动化 系统和部件的生命周期管理

(English Translation)

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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 equivalent to IEC 62890:2020 "Life cycle management of industrial process measurement, control and automation systems and components".

Introduction

In today's automation applications, the life cycle of components, equipment and systems is increasingly different from the life cycle of the entire factory.

The increasing functionality of components, the continuous development of electronic technology, and the inherent innovation momentum of hardware and software are all shortening the time required to achieve the desired results.

The life cycle of individual automation components. For example, some semiconductor components are only produced for a short time and then discarded.

In contrast, the use time of automation systems is much longer. In addition, there are also great differences in the use time of different industrial sectors.

Production lines in the automotive industry typically last as long as a new model is manufactured, which today is about seven to eight years.

The operating life of process equipment in the industry is typically around 15 years, while the service life of oil, energy and power plants may be as long as 50 years.

The life cycle of the factory and the products needs to be considered from the perspective of the overall functionality of the factory and the economy.

The increasing utilization and integration of plant process data from automation systems to enterprise and asset management systems has led to the Technical dependencies between the various levels of the system. To ensure the regularity, operability and safety of the equipment, all these layers and value chains A more unified approach to lifecycle management among partners is critical.

Therefore, it is necessary to adopt different strategies to maintain the availability of equipment through advanced maintenance strategies. This has a great impact on automation products and spare parts.

For example, when planning a new plant, if it is envisaged that when an updated version of an engineering system is developed, the manufacturer needs to ensure that the updated version can be used with older components and systems already in use in existing plants and may this increasingly requires close cooperation with partners along the value chain.

Current situations indicate that mastering these conflicting characteristics of lifecycle management will become increasingly important in the automation field, especially in this is particularly the case in ongoing discussions between plant users and manufacturers, and between manufacturers and suppliers.

The interaction of these two factors, including the demand for high functionality and high efficiency, and the impact of IT technology on automation, help to illustrate this theme.

Scope of the topic.

This document is developed in response to this situation. It consists of a basic, complementary and consistent model and strategy for automation lifecycle management.

These general models and strategies are then applied to a variety of instances.

Therefore, this paper presents a general approach applicable to automation in various industrial sectors. The economic significance of life cycle management is the definition of common models, terms, processes and strategies is a recurring theme in the articles.

It is an indispensable foundation for reaching a consensus on lifecycle management among manufacturers.

Proactive lifecycle management focuses on selecting robust components, specifications, and technologies to achieve long-term stability. Proactive Approach this includes applying this common reference model when developing standards so that sustainable interoperability and compatibility can be effectively ensured.

Industrial process measurement control and automation systems and Component life cycle management

1 Scope

This document establishes the basic principles for the life cycle management of systems and components used in industrial process measurement, control and automation. These principles Applicable to various industrial sectors. This document provides definitions and references related to the life cycle of a product type and the life cycle of a product instance Models and defines a consistent set of common reference models and terminology. The key models defined are.

---Life cycle model;

---Structural model;

---Compatibility model.

This document also describes the application of these models in life cycle management strategies.

Technical aspects related to the design, planning, development and maintenance and

operation of plants.

Definition of common models and terms for lifecycle management for all partners in the value chain (e.g. plant users, products and systems) A common understanding and application by manufacturers, service providers and component suppliers is essential.

The models and strategies described in this document are also applicable to related management systems such as Manufacturing Execution Systems (MES) and Enterprise Resource Planning (ERP).

(ERP).

2 Normative references

This document has no normative references.

3.1 Terms and Definitions

The following terms and definitions apply to this document.

The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) maintain databases of terminology used in their standardization work at the following addresses.

3.1.1

after-sales support phase A phase in the life cycle of a product type that begins at the end of the sales phase and ends when the product is disposed of.

3.1.2

The new part meets all specified requirements of its predecessor compatibility configuration.

3.1.3

capabilityprofile

Represents the compatibility profile of the product type characteristics.