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**Intelligent manufacturing - Industrial data - Collection
specification**

智能制造 工业数据 采集规范

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Foreword

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It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

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Introduction

This document is guided by the intelligent manufacturing system architecture proposed in the "Guidelines for the Construction of National Intelligent Manufacturing Standard System (2021 Edition)".

The intelligent manufacturing system architecture analyzes the activities, equipment, and features involved in intelligent manufacturing from three dimensions. life cycle, system level, and intelligent features.

The symptoms and other contents are described, as shown in Figure 1.

Figure 1 Architecture of intelligent manufacturing system

The life cycle covers all stages from product prototype development to product recycling and remanufacturing, including design, production, logistics, sales, service

services and a series of interrelated value creation activities.

The system level refers to the hierarchical division of the organizational structure related to the production activities of the enterprise, including the equipment level, unit level, workshop level, enterprise level and

Collaboration layer.

Intelligent features refer to the representation of self-perception, self-decision-making, self-execution, self-learning, self-adaptation and other functions of manufacturing activities, including resource

5 layers of intelligent requirements such as elements, interconnection, integration and sharing, system integration and emerging formats.

In order to illustrate the corresponding relationship between industrial data acquisition and intelligent manufacturing system architecture, it is convenient for the implementation of data acquisition in intelligent factories.

In this document, the location of industrial data sources in the "system hierarchy" and the corresponding relationship between data collection methods and each layer of the "system hierarchy" are carried out.

explained. For ease of understanding, the description of each layer of the "system level" is as follows.

---Equipment layer refers to the use of sensors, instruments, machines, devices, etc. to realize the actual physical process and perceive and control the logistics flow

program level;

--- The unit layer refers to the layer used to process information, realize monitoring and control physical processes within the enterprise;

---The workshop level is the level to realize the production management facing the factory or workshop;

---Enterprise layer is the layer that realizes business-oriented management;

---The collaboration layer is the layer where enterprises realize the interconnection and sharing of internal and external information, and realize business collaboration between enterprises.

Industrial Data Acquisition Specifications for Intelligent Manufacturing

1 Scope

GB/T 42127-2022 covers the collection of industrial data in intelligent manufacturing, for discrete and process plants planning what data they will hold and how they will take it. It

begins with the sources and the collection methods: sensing and control equipment on the shop floor - sensors, controllers, actuators, monitoring systems - alongside the other class of source named in the clause, and the methods that suit each. The requirements clause then sets general rules and works through the data source, the communication protocol, the data format, and the collection and monitoring of the process itself. That last item is the one a plant pays for when it is missing. Data gathered without an agreed format and without a watch on the collection path becomes a historian nobody can read two years later: timestamps that do not line up between lines, tags whose meaning lives only in the head of the engineer who configured them, and silent gaps where a gateway stopped publishing and nothing raised an alarm, found only when someone tries to trace a defective batch. Written for manufacturers building out data collection, for the integrators and platform suppliers doing the work, and for those specifying it in a contract.

This document specifies the general specifications for industrial data collection in intelligent manufacturing.

This document is applicable to the planning and collection of data resources of discrete and process industry enterprises.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 42128-2022 Principles of Industrial Data Classification for Intelligent Manufacturing

3 Terms, Definitions and Abbreviations

The following terms and definitions apply to this document.

3.1 Terms and Definitions

3.1.1

data collection data collection

Access to data from sensors, transmitters and other physical signal sources, controllers, monitoring systems, and enterprise information or business management systems process.

3.1.2