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**Production process quality data acquisition
system-Performance assessment and calibration**

生产过程质量数据采集系统 性能评估与校准

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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 is required.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

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Introduction

The production process quality data acquisition system is mainly used in the smart factories of manufacturing enterprises to monitor the production process quality of their production workshops.

The system monitors and collects the data in real time and inputs it into the unified interface within the system to continuously enrich the database and realize dynamic real-time acquisition.

Since the production process quality data collection system can adopt a variety of different

collection methods and collection equipment, There is no unified standard for performance evaluation and calibration methods of quality data acquisition systems.

The performance of a process quality data acquisition system (PQDAS) refers to the ability to perform the required The degree to which functionality is provided. The system can accurately perform the tasks required by the system within the specified response time. If the system performs multiple tasks, then The ability to process and execute these tasks without interfering with each other is therefore very important.

When a system has to complete several tasks at the same time, its performance will change, which requires the execution of each task separately. Analyze the situation.

Therefore, in order to evaluate the performance of a system, it is necessary to categorize the system properties in a hierarchical manner. The sub-characteristics of performance include.

speed, response time, processing power, reliability, and intelligence.

Performance cannot be evaluated directly, but needs to be determined by analyzing and testing its sub-characteristics. In order to determine the various sub-characteristics, information The transformation analyzes the system, examining sub-characteristics through each information flow of the system.

The performance of a system depends first on the design of the system and second on the possible changes (through hardware and software) during the manufacturing and integration phases of the system. Factors introduced.

There are interdependencies between the various sub-characteristics of performance. There may be no uniform measure of system performance because different tasks There can be different numbers of information transformations. When these information transformations share a common facility, there are interdependencies between them.

The performance evaluation techniques mainly include analytical evaluation techniques, experimental evaluation techniques, and tests under influencing conditions.

The requirements of Chapter 8 of GB/T 18272.4-2006 shall be followed.

This document describes the evaluation characteristics and influencing factors of the production process quality data acquisition system, and provides a standardized and unified performance evaluation system.

The evaluation and calibration methods can help realize the automation and intelligence of data collection and analysis in the production process.

Production process quality data acquisition system Performance Evaluation and Calibration

1 Scope

This document describes the evaluation characteristics, influencing factors, evaluation estimation and calibration methods.

This document is intended for system users, enterprises and independent organizations responsible for conducting assessments to evaluate system performance.

2 Normative references

GB/T 34049

GB/T 34050

GB/T 36411

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Production process quality data acquisition system

A system that can collect, communicate, store and statistically analyze quality data of the production process and monitor the process.

3.2 Performance

The accuracy and ability of a system to perform its tasks under specified conditions.

3.3 influencing factor

Observable qualitative or measurable quantitative terms that affect system performance.

4.1 Accuracy

Precision refers to the consistency between the instructions and information that the system executes under specified conditions.

4.2 Response Time

Response time represents the time interval between initiating information transfer and providing the associated response under specified conditions.

Information conversion usually includes three parts. information collection, information processing and output action. The response time of information collection includes input filtering and The time constants of the processor (hardware and/or software) and the input cycle time; the response time of information processing includes the information processing cycle time; the output The response time of an action includes the time constant of the output filter (hardware and/or software) and the output cycle time.