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

GB/T 27758.1-2011

**Industrial automation systems and integration -- Diagnostics,
capability assessment and maintenance applications
integration -- Part 1: Overview and general requirements**

工业自动化系统与集成 诊断、能力评估以及维护应用集成 第1部分：综述与通用
要求

(English Translation)

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Foreword

GB/T 27758 "Industrial automation systems and integration diagnostics, capability assessment and maintenance applications integration" intended to publish in parts. Current plan Post the following components.

--- Part 1. Overview and general requirements;

--- Part 2. Application description matrix elements and definitions;

--- Part 3. application integration method is described.

This section GB/T 27758 Part 1.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method identical with ISO 18435-1:2009 "Industrial automation systems and integration diagnostics, capability assessment and maintenance should with integrated Part 1. Overview and General Requirements. " Consistency correspondence between this part of international documents and normative references of our files are as follows.

GB/T 20720.1-2006 Enterprise Control System Integration Part 1. Models and Terminology (IEC 62264-1:2003, IDT) GB/T 20720.2-2006 Enterprise Control System Integration Part 2. Object model attributes (IEC 62264-2:2004, IDT) this part made the following editorial

changes.

--- GB/T 27758.1 standard text used in "this part of GB/T 27758 of" instead of "this part of ISO 18435," the word;

--- According to China's national standards requirements to redraft the foreword;

--- Which has been translated into national standards with international standards in this section appears renumbered number of national standards, international standards unconverted Reservations.

This part is proposed by China Machinery Industry Federation.

This part of the automation systems and integration by the National Standardization Technical Committee (SAC/TC159) centralized.

This section is responsible for drafting unit. Beijing Machinery Industry Automation Research Institute.

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0.1 Summary

GB/T 27758 defines a set of integration methods for the diagnosis, capability assessment and maintenance applications and production, control, and other manufacturing Service application integration.

GB/T 27758 Description Application Integration Model and general application interoperability requirements. These applications integration model aims to.

a) for the manufacture of assets, such as equipment, automation equipment and software unit, provides diagnostic capability assessment and maintenance applications integration reference Architecture;

b) to make the diagnosis, capability assessment and maintenance applications integration with other applications become possible;

c) to deal with asset management lifecycle view of a system.

Application integration model designed to lead the industry specification or standard for diagnosis, assessment and maintenance applications with the ability to produce and control applications set to make. These integrated model defines some elements and rules to help identify and select the interface interoperability described in the template. These interoperability as templates used to refer specifically Interoperability Regulation (profile) based on international standards, these international standards apply to different levels of integrated enterprise Features and application resources.

GB/T 27758 target audience is the developer of industrial automation applications, particularly in the design, implementation, deployment, and operations to enable integrated

Diagnosis, ability to assess, control, those who produce and maintain application systems.

0.2 Asset operation and maintenance cycle management integrated framework

GB/T 27758 focuses on describing the manufacturing assets and resources required to meet the integration needs to support manufacturing transport system life cycle Line and maintenance phases (Figure 1).

FIG. 1 GB/T 27758 overview of manufacturing systems life cycle

In Figure 2, the frame shows the diagnostic and maintenance related activities. Shown by an ellipse marked out these activities in several combinations which it provides an effective mechanism that can change for a variety of manufacturing operations using adapted maintenance strategy. These changes include variations in product demand of changes in operating status and the environment as well as during the life cycle of continuous improvement of manufacturing assets.

For example, the first figure is a combination of activities to maintain the operational phase of task execution, including planned maintenance tasks involving asset inspection, monitoring and diagnostics, as well as processing or repair in accordance with the need to generate in order to maintain the results of the evaluation as the end. These activities primarily relates to the control of conventional Maintenance tasks.

Standard form of representation to other analysis tools through diagnostic interfaces well-defined production process, materials and equipment problems.

This standard can also get the following benefits.

- a) by reference to predefined diagnostic and maintenance applications interoperability regulation designed to support end-user purchase plan or open, integrated and Security systems.
- b) by using the on GB/T 27758 universal tool, system integrators to reduce development and maintenance time diagnostic solutions.
- c) by using the on GB/T 27758 common tools, diagnostics and maintenance of products or services providers can offer and develop new the product.
- d) because the access to critical information more convenient, security management system can be greatly improved.

By applying the implementation and the ability to target and by business needs, such as cost, safety and environmental compatibility, etc., to improve the system integrated real Online process optimization possibilities.

We need the required state inspection, maintenance planning and asset management systems and other manufacturing applications, when integrated, model and application integration Interoperability framework (schema), and field devices can give equipment

providers, system integrators and application designers a way to go Assess the suitability diagnostics and maintenance components.

0.5 Contact with GB/T 27758 (ISO 18435) in other parts of

Table 1 briefly describes GB/T 27758 (ISO 18435) of the parts, and Figure 3 is illustrated.

In Figure 3, GB/T 27758 (ISO 18435) as the focal point of the various parts of the region indicated by the dotted line, dashed line area defined UML class diagram Specific parts of the UML class diagram shows the models integrated single application or between applications.

Table 1 GB/T 27758 (ISO 18435) Overview

Part Description

GB/T 27758.1

Integrated approach, application integration model elements, the relationship between these elements and general industrial applications in selected scene Demand described Summary ISO 18435-2a it describes the use and application of field matrix elements relation matrix elements that represent the integrated application to application between demand Application integration method described by ISO 18435-3a interoperability specifications template mode a drafted.

This section GB/T 27758 and provides an overview of the elements and the rules describe methods of manufacturing application integration needs. These elements include the critical factors required to integrate different manufacturing applications, as well as the relationship between these key factors. These rules should include support for a Internal exchange of information between different applications and interoperability.

FIG. 3 GB/T 27758 (ISO 18435) Internal Relations

ISO 18435-2 will give some detailed definitions, including the application of the interaction matrix elements (AIME) matrix elements and applications (ADME) architecture and the relationships between them. In particular, statements from a group AIMEs construct an ADME steps.

ISO 18435-3 will define a recommended method for describing the manufacturing enterprise of two or more of the manufacturing sector interoperability as well as integration of demand. Mainly in production and operation and maintenance of the field.

Industrial automation systems and integration Diagnostic, competency assessment and maintenance applications integration Part 1. Overview and General Requirements