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

GB/T 38852.1-2020

**Industrial-process measurement, control and
automation--Evaluation of system properties for the purpose of
system assessment - Part 1: Terminology and basic concepts**

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Foreword

The GB/T 38852 "Assessment of System Characteristics in the Evaluation of Industrial Process Measurement Control and Automation Systems" is divided into 8 parts.

- Part 1.Terminology and basic concepts;
- Part 2.Evaluation methodology;
- Part 3.System functional evaluation;
- Part 4.System performance evaluation;
- Part 5.System credibility assessment;
- Part 6.System operability evaluation;
- Part 7.System Security Assessment;
- Part 8.Evaluation of other system characteristics.

This part is Part 1 of GB/T 38852.

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

The translation method used in this part is equivalent to the IEC 61069-1.2016 "System characteristics in the evaluation of industrial process measurement control and automation systems"

Evaluation of Sexuality Part 1.Terminology and Basic Concepts.

The Chinese documents that have a consistent correspondence with the international documents cited in this section are as follows.

---GB/T 17626.2-2018 Electromagnetic compatibility test and measurement technology Electrostatic discharge immunity test (IEC 61000-4-2.

2008, IDT);

---GB 17799.4-2012 EMC general standard emission in industrial environment (IEC 61000-6-4.2011, IDT).

This part was proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Industrial Process Measurement Control and Automation Standardization Technical Committee (SAC/TC124).

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Electric Power Planning and Design Institute, Shanghai Institute of Measurement and Testing Technology, Chongqing University of Posts and Telecommunications, Qingdao Blue Whale Technology Co., Ltd., Jiangsu Electronic Information

Information Product Quality Supervision and Inspection Institute, Shanghai Automation Instrumentation Co., Ltd., Fujian Shangrun Precision Instrument Co., Ltd., Beijing Kangjisen

Technology

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Introduction

System evaluation refers to the judgment that the system is suitable for a specific mission or a type of mission based on evidence.

In order to obtain all the evidence, a complete assessment of all system characteristics related to a specific mission or a

Factor).

Since it is difficult to achieve a complete evaluation of all system characteristics, the principles behind the system evaluation are.

---Identification of the importance of each relevant system characteristic;

---Relevant system characteristics evaluation plan, which should show good cost-effectiveness for the evaluation of multiple system characteristics.

When implementing a system evaluation, the key is to obtain the maximum credibility of the applicability of the system under the actual cost and time constraints.

Promote.

Evaluation can only be carried out when a mission has been declared (or given) or any mission has been assumed. When there is no mission, no evaluation is made. but

Yes, the system can be checked to collect and organize data for future evaluations. In these cases, since the assessment is the assessed group

As a part, this part can be used as a guide for the evaluation plan and provide methods for performing the evaluation.

When preparing for the assessment, you will find that the definition of the system is too narrow. For example, a control system with two or more versions of shared resources

Facilities (such as networks) should consider version coexistence and interoperability. In this case, the system being evaluated should not be limited to "new"

BCS, but should include these two versions. In other words, the boundary of the system should be changed to include all systems to solve these problems.

The structure of this part and the relationship with other parts expected in GB/T 38852 are shown in Figure 1.

Figure 1 The overall design of GB/T 38852

See Appendix A for some examples of evaluation items.

Industrial process measurement control and automation

Evaluation of system characteristics in system evaluation

Part 1.Terminology and basic concepts

1 Scope

This part of GB/T 38852 defines the terminology and outlines the basic process control system (BPCS) and basic discrete control system

(BDCS) The basic concept of assessment. These two general system types cover discrete, batch and continuous applications. In this section, BPCS

And BDCS are collectively referred to as the Basic Control System (BCS).

The handling of safety in this section is limited to the dangers that may arise from the BCS itself.

The hazards that may be introduced by the process or device controlled by the evaluated BCS are not considered.

If the BCS risk reduction is expected to be less than 10 (that is, $SIL < 1$ according to GB/T 20438.4-2017), its assessment is consistent with this

section.

BCS that has a safety integrity level (SIL) or performs any safety instrumented function (SIF) is not within the scope of this section.

SIL is defined by GB/T 20438.4-2017, and SIF is defined by GB/T 21109.1-2007.

This part is available to users and manufacturers of the system, as well as independent agencies responsible for carrying out evaluations.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 20438.4-2017 Functional safety of electrical/electronic/programmable electronic safety-related systems-Part 4.Definitions and abbreviations

Language (IEC 61508-4.2010, IDT)

GB/T 21109.1-2007 Functional safety of safety instrumented systems in the process