SINGAPORE STANDARD

Condition monitoring and diagnostics of machines – Data processing, communication and presentation

– Part 3 : Communication

Singapore
Standards
Council

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Condition monitoring and diagnostics of machines – Data processing, communication and presentation

– Part 3 : Communication

The content of this Singapore Standard was approved on 17 October 2019 by the Manufacturing Standards Committee (MSC) under the purview of the Singapore Standards Council.

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MSC consists of the following members:

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MSC sets up the Technical Committee on Smart Manufacturing to oversee the preparation of this standard. The Technical Committee consists of the following members:

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The Technical Committee sets up the Working Group on Smart Manufacturing Readiness Level to prepare this standard. The Working Group consists of the following experts who contribute in their *individual capacity*:

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INTECH Process Automation Pte Ltd
Nanyang Technological University
Rockwell Automation Southeast Asia Pte Ltd
SESTO Robotics Pte Ltd
Singapore Industrial Automation Association
Singapore Institute of Manufacturing Technology
TÜV SÜD Asia Pacific Pte Ltd

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National Foreword

This Singapore Standard was prepared by the Working Group on Smart Manufacturing Readiness Level set up by the Technical Committee on Smart Manufacturing under the purview of MSC.

This standard is identical with ISO 13374-3:2012, "Condition monitoring and diagnostics of machines – Data processing, communication and presentation – Part 3: Communication", published by the International Organization for Standardization.

NOTE – Reference to International Standards are replaced by applicable Singapore Standards and Technical References.

This standard is expected to be used by system integrators, government agencies, testing, inspection and certification bodies, professional institutions, institutes of higher learning and training providers.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as "Mature Standards". Mature Standards will not be subject to further review, unless there are requests to review such standards.*

2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*

3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13374-3 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration, shock and condition monitoring*, Subcommittee SC 5, *Condition monitoring and diagnostics of machines*.

ISO 13374 consists of the following parts, under the general title *Condition monitoring and diagnostics of machines — Data processing, communication and presentation*:

— *Part 1: General guidelines*

— *Part 2: Data processing*

— *Part 3: Communication*

The following part is planned:

— *Part 4: Presentation*

Introduction

The various computer software systems written for condition monitoring and diagnostics (CM&D) of machines that are currently in use cannot easily exchange data or operate in a plug-and-play fashion without an extensive communication infrastructure. The lack of an all-purpose communication system makes it difficult to integrate various CM&D sub-systems and provide a unified view of the condition of machinery to users. The intent of ISO 13374 is to provide the basic requirements for open CM&D software architecture in order to allow CM&D information to be processed, communicated and displayed by various software packages independent of platform-specific or hardware-specific protocols.

ISO 13374-1 gives a general overview of data processing, communication and presentation. ISO 13374-2 provides greater details of the data-processing methodology and requirements present in today's software-enhanced systems. This part of ISO 13374 provides the requirements of the data communication architecture for open CM&D systems.

Condition monitoring and diagnostics of machines — Data processing, communication and presentation —

Part 3:
Communication

1   Scope

This part of ISO 13374 specifies requirements for data communication for an open condition monitoring and diagnostics (CM&D) reference information architecture and for a reference processing architecture. Software design professionals require communications to be defined for exchange of CM&D information between software systems. This part of ISO 13374 facilitates the interoperability of CM&D systems.

2   Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 13372, *Condition monitoring and diagnostics of machines — Vocabulary*

ISO 13374-1:2003, *Condition monitoring and diagnostics of machines — Data processing, communication and presentation — Part 1: General guidelines*

ISO 13374-2:2007, *Condition monitoring and diagnostics of machines — Data processing, communication and presentation — Part 2: Data processing*

ISO/IEC 19501, *Information technology — Open Distributed Processing — Unified Modeling Language (UML) Version 1.4.2*