SINGAPORE STANDARD

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

– Part 1 : General guidelines

Singapore
Standards
Council

SS ISO 13374-1 : 2019
ISO 13374:2003, IDT
(ICS 17.160; 35.240.99)

SINGAPORE STANDARD

Condition monitoring and diagnostics of machines – Data processing, communication and presentation
– Part 1 : General guidelines

Published by Enterprise Singapore

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.

First published, 2019

MSC consists of the following members:

		Name	**Representation**
Chairman	:	Dr John Yong	*Individual Capacity*
Deputy Chairman	:	Mr Brandon Lee	*Individual Capacity*
Secretary	:	Mr Lee Wei Guo	*Singapore Manufacturing Federation – Standards Development Organisation*
Members	:	Dr Karen Chong	*Science Engineering Research Council*
		Ms Fong Pin Fen	*Economic Development Board*
		Mr Goh Wee Hong	*TÜV SÜD PSB Pte Ltd*
		Mr Ho Chi Bao	*Enterprise Singapore*
		Mr Steven Koh	*Singapore Precision Engineering Technology Association*
		Ms Lee Wan Sie	*Infocomm Media Development Authority*
		Dr Jim Li Hui Hong	*Individual Capacity*
		Dr Lim Ee Meng	*National Metrology Centre*
		Er. Prof Seeram Ramakrishna	*The Institution of Engineers, Singapore*
		Mr Sze Thiam Siong	*Setsco Services Pte Ltd*

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

		Name	**Representation**
Co-Chairmen	:	Mr Yeoh Pit Wee	*Individual Capacity*
		Dr Tan Puay Siew	*Individual Capacity*
Secretary	:	Mr Louis Lauw	*Singapore Manufacturing Federation – Standards Development Organisation*
Members	:	Mr Ang Wee Seng	*Singapore Semiconductor Industry Association*
		Dr Ian Chan Hian Leng	*Singapore Institute of Manufacturing Technology*
		Mr Cheong Siah Chong	*Singapore Industrial Automation Association*
		Mr David Chia	*Beckhoff Automation Pte Ltd*
		Dr Andreas Hauser	*TÜV SÜD Asia Pacific Pte Ltd*
		Mr Sunny Khoo	*Toshiba TEC Singapore Pte Ltd*
		Mr Brandon Lee	*Singapore Manufacturing Federation*
		Prof Lee Loo Hay	*National University of Singapore*
		Mr Zach Lee	*Siemens Industry Software Pte Ltd*
		Mr Gerry Ong	*SMT Technology Pte Ltd*
		Prof John Pang	*Nanyang Technological University*

Members	:	Er. Prof Seeram Ramakrishna	*The Institution of Engineers, Singapore*
		Mr Sim Bak Chor	*Infocomm Media Development Authority*
		Mr Tian Boon Quey	*TRUMPF Pte Ltd*
		Mr Toh Hong Wee	*PBA Systems Pte Ltd*
		Dr Carlos Toro	*Advanced Remanufacturing Technology Centre*

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*:

		Name
Co-Convenors	:	Mr Brandon Lee
		Mr Shridhar Ravikumar
Secretary	:	Mr Louis Lauw
Members	:	Dr Ian Chan Hian Leng
		Mr Cheong Siah Chong
		Mr David Chia
		Dr Andreas Hauser
		Mr Michael Leong
		Dr Lin Wei
		Dr Gary Ng
		Prof John Pang
		Dr Tan Puay Siew
		Mr Yeoh Pit Wee

The organisations in which the experts of the Working Group are involved are:

Advanced Remanufacturing Technology Centre
Beckhoff Automation Pte Ltd
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

(blank page)

Contents

Page

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 13374-1:2003, "Condition monitoring and diagnostics of machines – Data processing, communication and presentation – Part 1: General guidelines", published by the International Organization for Standardization.

NOTE – Where numerical values are expressed as decimals, the comma is read as a full point.

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 13374-1 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration and shock*, 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 requirements*

— *Part 3: Communication requirements*

— *Part 4: Presentation requirements*

Introduction

The various computer software programs written for condition monitoring and diagnostics of machines that are currently in use cannot easily exchange data or operate in a plug-and-play fashion without an extensive integration effort. This makes it difficult to integrate 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 software specifications which will allow machine condition monitoring data and information to be processed, communicated and displayed by various software packages without platform-specific or hardware-specific protocols.

Extensible Markup Language (XML) is a project of the World Wide Web Consortium (W3C), and the development of the specification is being supervised by their XML Working Group. XML is a public format written in the Standard Generalized Markup Language (SGML) (see ISO 8879[1] for details) for defining descriptions of the structures of different types of electronic documents. The version 1.0 specification was accepted by the W3C as a Recommendation in 1998. A W3C Recommendation indicates that a specification is stable, contributes to Web interoperability, and has been reviewed by the W3C membership, who are in favour of supporting its adoption by academic, industry and research communities. It is designed to improve the functionality of the Web by providing more flexible and adaptable information identification.

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

Part 1:
General guidelines

1 Scope

This part of ISO 13374 establishes general guidelines for software specifications related to data processing, communication, and presentation of machine condition monitoring and diagnostic information.

NOTE   Later parts of ISO 13374 (under preparation) will address specific software specification requirements for data processing, communication and presentation.