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AMENDMENT 2
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Industrial automation systems — Manufacturing message specification —

Part 3:
Companion standard for robotics

AMENDMENT 2: Revision to conformance

Systèmes d'automatisation industrielle — Système de messagerie industrielle —

Partie 3: Norme d'accompagnement pour la robotique

AMENDEMENT 2: Révision pour conformité

Reference number
ISO/IEC 9506-3:1991/Amd.2:1997(E)

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.

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.

Amendment 2 to International Standard ISO/IEC 9506-3:1991 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*.

Introduction

This Amendment details the textual changes to ISO/IEC 9506-3 to remove the definitions of the conformance classes from the standard and allow them to be specified by an International Standardized Profile (ISP). At the time the standard was developed, the ISP process was not yet in place for specifying profiles. Now that the ISP process has been established, it is appropriate to move the definition of conformance classes (profiles) from the base standard to the ISP document.

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Part 3:
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AMENDMENT 2: Revision to conformance

On page vi , in the Introduction, delete the third paragraph. The text should now read:

Introduction

This part of ISO/IEC 9506 is intended to be used in an open communication system employing robots and robotic systems connected to a communication network conforming to the OSI model (ISO 7498). This part of ISO/IEC 9506 also recognizes that the robot can act as a controller (client) to devices connected to it such as vision systems and grippers. Client conformance for communication to such devices is not defined by this part of ISO/IEC 9506. Conformance requirements for communication to such devices are defined by the companion Standard appropriate to that device or by ISO/IEC 9506-1 and ISO/IEC 9506-2.

This part of ISO/IEC 9506 does define conformance requirements for the robot when used in a network with multiple clients. The messages are described using the method defined in ISO 8824.

This part of ISO/IEC 9506 also recognizes that the robot can act as a controller to devices connected to it such as vision systems and grippers. This part of ISO/IEC 9506 identifies the requirements for communications in such a manner but does not identify MMS service and protocol conformance requirements for the robot when acting in a client role. These requirements are identified by the companion standard covering the device to which the robot intends to communicate.

MMS is intended to be used with yet other standards designed to achieve a systematic and uniform approach to Open Systems Interconnection of Information Processing Systems as defined in ISO 7498. As such, MMS is positioned within the application layer of the OSI model. It defines the Application Service Element and the protocol required to extend information systems networks to the programmable control devices of the automated factory environment. The services defined by MMS are generic and intended to be referenced by the companion standards, each of which is oriented towards a more specific class of application.

This part of ISO/IEC 9506 recognizes that safe operation of robots is required at all times. Safety requirements for robots are specified in ISO DIS 10218. All robot actions delineated in this part of ISO/IEC 9506 are permissible under the safety standard.

Implementation of this part of ISO/IEC 9506 requires a minimum implementation of MMS. This is covered in Clause 9 which references the conformance requirements of ISO/IEC 9506-1 and 2. Implementers of MMS for robots and robotic systems should have a thorough understanding of MMS for proper implementation of this part of ISO/IEC 9506. Implementers should also have a thorough understanding of the modeling, services and protocol defined in this part of ISO/IEC 9506. Users of robots and robotic systems are directed to the clauses on modeling and services found in this document.

For the purpose of this part of ISO/IEC 9506, the term "robot" means "manipulating industrial robot" as defined in ISO/TR 8373. As used in this part of ISO/IEC 9506, a robot will generally refer to the manipulator together with its control system and any ancillary equipment, devices, sensors, or communications links, necessary for the robot to perform its task. Figure 1 illustrates the elements of the robot system as described in this part of ISO/IEC 9506. Since the definitions of ISO/TR 8373 only describe robot systems with a single arm and this part of ISO/IEC 9506 anticipates robots with multiple arms operating in a coordinated fashion, these definitions have been generalized. The term "robot system controller" will refer to the (single) task program operating with the (possible multiple) control program of the robot arm(s) of the system.

"MMS services" refers to the abstract services defined in ISO/IEC 9506-1 and "MMS protocol" refers to the protocol defined in ISO/IEC 9506-2.

On page 1, under Scope, delete item d).

On page 5, clause 5.1.1, delete the first sentence.

On page 94, clause 9, replace the text of 9.1, 9.2, and 9.3 in this clause with the following:

9 Robot conformance

9.1 General

Flexible application of robots requires that they be connected to a network and have their activities coordinated with other equipment. As described earlier, there are two fundamental modes of operation of a robot - as a client device and as a server device. The robot may function in either or both modes simultaneously. However, the services and conformance requirements of the robot when acting as a client and responding as a server, are considered separately.

9.2 Robot server conformance

9.2.1 General requirements

Minimum requirements for all MMS responders are prescribed in 17.9 of ISO/IEC 9506-2:1990. These minimum requirements includes support for the responder role for

Initiate,
Conclude,
Abort,
Reject and
Identify.

This requirement applies with equal force to any implementation claiming conformance to the abstract syntax defined in this part of ISO/IEC 9506.