

**AMERICAN NATIONAL STANDARD**

**ANSI/ISA-5.1-2009**

**Instrumentation Symbols  
and Identification**

**Approved 18 September 2009**

ANSI/ISA-5.1-2009, Instrumentation Symbols and Identification

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**THE USER OF THIS STANDARD SHOULD BE AWARE THAT THIS STANDARD MIGHT BE AFFECTED BY ELECTRONIC SECURITY ISSUES. THE COMMITTEE HAS NOT ADDRESSED THE POTENTIAL ISSUES IN THIS VERSION.**

Users may find the following book of value in applying ANSI/ISA-5.1-2009:

*Control System Documentation: Applying Symbols and Identification*, Thomas McAviney  
[www.isa.org/books](http://www.isa.org/books).

Users of this standard are asked to send comments or suggestions to [standards@isa.org](mailto:standards@isa.org).

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*On behalf of the ISA5 Committee and the ISA Standards & Practices Board, we wish to recognize and thank James Carew for his outstanding work, technical expertise, and commitment in leading the revision of this widely used ISA standard, and Thomas McAviney for his valuable technical and editorial contributions.*

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## Introduction (informative)

(1) This introduction, as well as any footnotes, endnotes, and informative annexes, is included for information purposes and as background on the evolution of this standard and not as a normative part of ANSI/ISA-5.1-2009.

(2) The instrumentation symbolism and identification systems described in this standard accommodate advances in technology and reflect the collective industrial experience gained since the original ISA Recommended Practice RP-5.1, published in 1949, was revised, affirmed, and subsequently published as ANSI/ISA-5.1-1984, and then reaffirmed in 1992.

(3) This 2009 version attempts to strengthen this standard in its role as a communication tool in all industries that depend on measurement and control systems to operate and safeguard their manufacturing processes, machines, and other equipment. Communication presupposes and is facilitated by a common language. This 2009 version of the standard continues to build on the foundation for that common language.

(4) When integrated into a system, the designations and symbols presented here form a dedicated language that communicates concepts, facts, intent, instructions, and knowledge about measurement and control systems in all industries.

(5) The 1949 recommended practice and the 1984 standard were published as non-mandatory rather than as mandatory consensus documents. As such, they had many of the strengths and the weaknesses of such standards. Their primary strength was that they could be used in widespread, interdisciplinary ways. Their main weakness was that they were not specific enough, in some cases, to satisfy the special requirements of particular interest groups.

(6) This revision is published as a consensus standard and contains both mandatory and non-mandatory statements that have been reviewed and approved by a large group of practitioners in the field of instrumentation and control. This group was well versed in the use of identification and symbol systems as a means of communicating the intent of measurement and control systems to all that need such information. It is hoped that the consensus reached by this group regarding what is mandatory and what is not will enhance the strengths and lessen the weaknesses of the previous issues.

(7) Versions of this standard have been in use for more than fifty years, and most of the identification letter and symbol meanings or definitions that were contained in ISA-RP5.1-1949 and ISA-5.1-1984 (R 1992), have taken on a proprietary nature and have become accepted industry practice and assumed to be mandatory. The meanings and definitions of new symbols will be mandatory. This action is being taken in response to questions and comments that occur frequently because of unclear definitions.

(8) Mandatory definitions or meanings for letters used in identification and for symbols used in graphic depiction of measurement and control devices and functions are given. Mandatory minimum symbol dimensions are given. Informative identification and graphic symbol guidelines include alternate identification and symbol definitions and usage methods. Consistency is the one criterion that should govern the selection and application of identification and graphic schemes.

(9) This standard has been viewed in the past as being oriented to the oil and chemical process industries. This perception, while not intended, resulted from the fact that people who wrote the original and previous revisions were mainly working in those industries. It is the intent of the ISA5 committee that ISA Technical Reports will be used to address this type of problem. It is hoped that the technical report format will be specific enough to satisfy the special requirements of particular interest groups by providing examples and guidelines for use of the identification and symbolization methods for specific industries. These industries include, but are not limited to, metal refining, power generation, pulp and paper, and discrete parts manufacturing. The technical report format presents the best approach for making this standard applicable to industries that may have many usages and accepted practices that are not used in