for Industrial Robots and Robot Systems — Safety Requirements


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Foreword

The primary objective of this Technical Report is to enhance the safety of personnel using industrial robot systems by establishing correlations between the new ANSI/RIA/ISO 10218-1-2007 standard and the current ANSI/RIA R15.06-1999 and in particular Clause 4 which contains similar information.

The Robotic Industries Association Subcommittee R15.06 on Safety has carefully reviewed the new national adoption of an international standard and believes that its provisions are applicable for use in the United States. The information contained in 10218-1 can be used in place of the information contained in Clause 4 of R15.06. The information is generally not interchangeable; the reader should apply either Clause 4 of R15.06 or the 10218-1 standard in its entirety. The 10218-1 standard contains certain new provisions that are not covered directly by information in R15.06 which remains the governing standard in the United States for all aspects of industrial robot system safety. For this reason the committee chose to provide recommendations for using the new information by writing this Technical Report.

Industrial safety must be a conscious effort on the part of everyone associated with automation and industrial robots. Personnel skills, training, attitude, and corporate safety culture are extremely important factors in any successful safety program. This Technical Report is intended to provide guidelines for the safe application of new industrial robots compliant with ANSI/RIA/ISO 10218-1-2007.

This Technical Report is supplemental to the American National Standards ANSI/RIA R15.06-1999 and ANSI/RIA/ISO 10218-1-2007 and is not itself a standard. Industry standards, including technical reports, are voluntary. The Robotic Industries Association makes no determination with respect to whether any robot, associated safety devices, manufacturer, or user is in compliance with published standards.

Publication of this Technical Report that has been registered with ANSI has been approved by the Accredited Standards Developer Robotic Industries Association of Ann Arbor, Michigan. This document is registered as a Technical Report according to the Procedures for the Registration of Technical Reports with ANSI. This document is not an American National Standard and the material contained herein is not normative in nature. Comments on the content of this document should be sent to:

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0 Introduction

This technical report is supplemental to ANSI/RIA R15.06-1999 and provides additional safety information relative to using ANSI/RIA/ISO 10218-1-2007 (the American national adoption of ISO 10218-1:2006).

This Technical Report may refer to the standards only by their number rather than include their prefix (ANSI, ISO, RIA) to make reading easier but still understandable.

The new internationally developed standard 10218-1 provides requirements for the manufacture of robots equivalent to the information in Clause 4 of R15.06 (see Annex A for a cross reference of clauses from each document.) 10218-1 goes on to provide requirements for optional features for new robots that do not have equivalent information in R15.06. So that these optional features can be used effectively with R15.06, this Technical Report provides recommendations and guidelines supplemental to R15.06. These recommendations and guidelines are consistent with current positions within the international committee developing the International Standard 10218-2 for integration of robots with the features from 10218-1. The national safety committee set out to identify the most common or efficient solutions; other solutions may be possible.

1 Scope

The purpose of this technical report is to recommend industry best practices for the integration and use of new robot features introduced by ANSI/RIA/ISO 10218-1-2007 standard for robot safety. This information is in addition to the requirements contained in ANSI/RIA R15.06-1999 and is considered by the committee to be in compliance with the 10218-1 and R15.06 safety standards.

This Technical Report is intended to be used for the integration of new robots when ANSI/RIA/ISO 10218-1-2007 is used in place of Clause 4 of ANSI/RIA R15.06-1999.

This entire document is informative in nature, and is not a standard. The use of the word syntax “shall” and “should” in a particular statement indicates the relative importance of specific criteria or features in this technical report.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute requirements of this technical report. At the time of publication, the editions listed were valid. All standards are subject to revision, and parties to agreements based on this technical report are encouraged to investigate applying the most recent editions of the standards.

ANSI/RIA R15.06-1999
ANSI/RIA/ISO 10218-1-2007