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Technical Report



Setpoints for Sequenced Actions



ANSI/ISA-TR67.04.08 — Setpoints for Sequenced Actions

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ISA
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, North Carolina 27709

Preface

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Foreword

In the preparation of an earlier version of ANSI/ISA-S67.04-Part I-1994 it was deemed necessary to provide additional guidance regarding methods for implementing the standard. In order to address this need, Standard Subcommittee SP67.15 was formed in 1988 (later incorporated into SP67.04) and has prepared a recommended practice (ISA-RP67.04-Part II-1994). It was the intent of SP67.04 that the recommended practice's scope be consistent with the standard's scope.

The recommended practice represents guidelines and examples of methods for the implementation of ANSI/ISA-S67.04 in order to facilitate the performance of instrument uncertainty calculations and setpoint determination for safety-related instrument setpoints in nuclear power plants.

However, the recommended practice could not adequately cover all of the topics related to setpoint uncertainties without becoming too voluminous a document. This Technical Report is one in a series that supplements the recommended practice and standard.

The topic of setpoints for sequenced actions is one that came up too late in the process of preparation for the recommended practice to be included in the 1994 issue. This Technical Report represents work in progress in this area that may be incorporated into a future revision of the recommended practice.

Abstract

This Technical Report supplements ANSI/ISA-S67.04-Part I-1994 and ISA-RP67.04-Part II-1994 in the area of methods used to determine instrument setpoints for sequenced actions.

Key Words

Error Identification, Instrumentation, Instrument Setpoints, Minimum Separation, Sequenced Actions, Setpoint Calculation, Standards, Uncertainty Determination.

This is a preview of "ANSI/ISA TR67.04.08-...". [Click here](#) to purchase the full version from the ANSI store.

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1 Scope

This Technical Report provides guidance on the handling of setpoints for sequenced actions in both nuclear safety-related and nuclear power plant non-safety-related instrumentation.

2 Purpose

The purpose of this Technical Report is to supplement the information provided in ANSI/ISA-S67.04-Part I-1994, *Setpoints for Nuclear Safety-Related Instrumentation*, and ISA-RP67.04-Part II-1994, *Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation*, for the performance of instrument uncertainty calculations and instrument setpoint determinations. Specifically, the topics addressed in this Technical Report expand on the discussion of Sections 7 (Establishment of Setpoints) and 9 (Interfaces) of ISA-RP67.04, Part II.

3 Definitions

- 3.1 applicable uncertainty (AU):** That portion of the channel uncertainty which is applicable to a calculation of the minimum separation between setpoints.
- 3.2 bistable uncertainty (BU):** That portion of the channel uncertainty which is due to uncorrected possible errors associated only with the bistable.
- 3.3 channel uncertainty (CU):** The total amount to which an instrument channel's output is in doubt (or the allowance made therefore) due to possible errors, either random or systematic, that have not been corrected for. The uncertainty is generally identified within a probability and confidence level. (ISA-RP67.04, Part II)
- 3.4 earliest actuation (ACTN) point:** The value closest to the normal operating point of the process variable at which a bistable or channel could be expected to actuate.
- 3.5 latest actuation (ACTN) point:** The value farthest from the normal operating point of the process variable at which a bistable or channel could be expected to actuate.
- 3.6 reset deadband (DB):** The range through which an input can be varied, upon reversal of direction, without initiating an observable change in output.