

Using ISA-88 and ISA-95 Together

1 Scope

This technical report is targeted for industry stakeholders (individual or teams) intending to use ANSI/ISA-95 for enterprise-to-control system integration and ANSI/ISA-88 for control system integration within a common project.

The specific goal is to help such an individual or team understand the key issues involved in using ISA-88 and ISA-95 together so that they can make appropriate choices. This technical report is the result of an effort to identify key areas of overlap and gaps between ISA-88 and ISA-95. It will not discuss issues that are not pertinent to both of the standards.

2 References

The following documents contain provisions that are referenced in this text. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this technical report are encouraged to investigate the possibility of applying the most recent editions of the reference documents indicated below.

- ANSI/ISA -95.00.01-2000, Enterprise/Control System Integration Part 1: Models and Terminology
- ANSI/ISA -95.00.02-2001, Enterprise/Control System Integration Part 2: Object Model Attributes
- ANSI/ISA-95.00.03-2005, Enterprise/Control System Integration Part 3: Activity Models of Manufacturing Operations Management
- ISA-88.00.01-1995 Batch Control Part 1: Models and Terminology
- ANSI/ISA-88.00.02-2001 Batch Control Part 2: Data Structures and Guidelines for Languages
- ANSI/ISA-88.00.03-2003 Batch Control Part 3: General and Site Recipe Models and Representation
- ANSI/ISA-88.00.04-2006 Batch Control Part 4: Batch Production Records

3 Narrative Overview

3.1 Introduction

When the ISA-88 and ISA-95 series of standards are used within the same plant-wide automation system in an enterprise, it is necessary to align the various definitions in both standards in order for industry stakeholders to reap the intended benefits. Clearly implementations of these two series of standards need to work together. If their interaction is not understood, the intended benefits will not be realized and costly integration problems are likely to arise. The automation, operations and manufacturing solutions providers and consumers will have to work closely together in order to minimize and eventually eliminate these integration problems. This technical report is intended to improve these stakeholders' understanding of both standards series as well as their intent.

Although both standards are intended to enable manufacturing operations and control, they are different in coverage and approach. Table 1 provides a high-level comparison.

Table 1. Comparison of approaches and coverage

	ISA-95	ISA-88
Orientation	Definition of workflow and information exchange for Manufacturing Operations Management.	Physical work execution for Batch and other types of manufacturing.
Conceptual Basis relative to Manufacturing Management Functions	Flexible structure of manufacturing management functions that interacts with business requirements.	Acknowledges but does not directly address manufacturing management functions.
Conceptual Basis relative to Process Control	Directly addressing most traditional process control activities is presently out of scope.	Well-defined equipment-oriented process control structure and function hierarchies extending to the bits and pieces of the manufacturing equipment itself.
Primary areas of concern	Addresses functionalities and applications at a level below enterprise business systems but above manufacturing control systems.	Addresses a lower level, directing, controlling and coordinating the people and equipment that perform or cause the physical transformation of raw or intermediate materials into final or intermediate products.
Affected Industries	Spans all types of manufacturing.	Written primarily in terms of batch manufacturing, but is often applied in other types of manufacturing.

A key task in attempting a combined use of the two standards is to recognize and identify where their definitions and models overlap and where there exists gaps when dealing with the information exchanges within the same application. When dealing with the overlaps and gaps, the user of the two standards has the challenging task of reconciling terminology whenever the two standards use either different terms to mean the same thing or the same term to mean different things. These tasks need to be accomplished to realize a successful combined use of ISA-88 and ISA-95.