ISA–67.01.01–2002 (R2007)

Transducer and Transmitter Installation for Nuclear Safety Applications

Reaffirmed 31 July 2007

ISA–67.01.01–2002 (R2007)
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ISBN: 978-1-934394-47-2

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1 Scope

This document covers the installation of transducers for nuclear safety-related applications.

2 Purpose

This document establishes requirements and recommendations for the installation of transducers and auxiliary equipment for nuclear applications outside of the main reactor vessel.

3 Definitions and terminology

ANSI/ISA-51.1-1979 (R1993)* is the basic reference for terms not defined herein. ISA-37.1-1975 (R1995)* is the reference for terms not included in ANSI/ISA-51.1-1979 (R1993).

3.1 auxiliary equipment:
separate devices, such as field-mounted power supplies, that are appended to the basic transducer and are located in the same general area as the transducer. Equipment located away from the transducer (such as control-board-mounted controllers and rack-mounted power supplies) is not included in the definition as used in this document.

3.2 code:
refers to the ASME Boiler and Pressure Vessel Code, Section III* and other sections required to implement the requirements of Section III.

3.3 code class:
the applicability of the Code, determined through consideration of pressure boundary integrity.

3.4 in-line:
transducers exposed directly to the process fluid in piping, vessels, equipment, or the main flow paths of fluid systems.

3.5 nuclear safety-related:
that which is essential to:

a) emergency reactor shutdown

b) containment isolation

c) reactor core cooling

d) containment or reactor heat removal

e) prevention or mitigation of a significant release of radioactive material to the environment

f) maintaining safe shutdown conditions, or

g) providing reasonable assurance that a nuclear power plant can be operated without undue risk to health and safety of the public.

3.6 off-line:
transducers that are either connected to the process fluid via sensing lines with one or more isolation valves or are not exposed to the process fluid.

*See references and bibliography.