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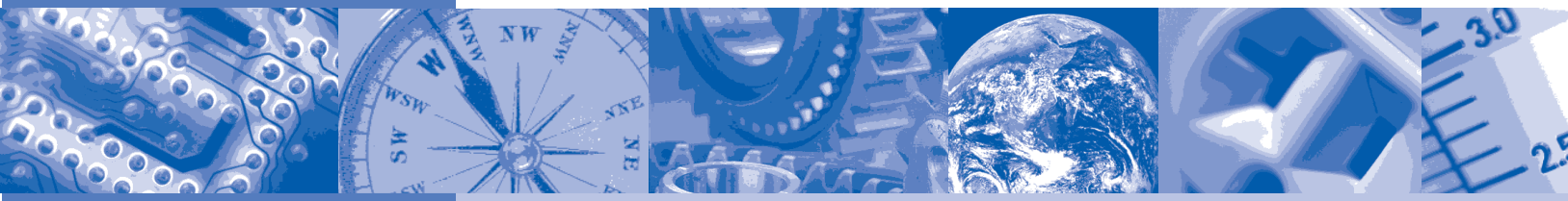

Fossil Fuel Power Plant Unit/Plant Demand Development – Drum Type

Reaffirmed 28 February 2002

ISA–The Instrumentation, Systems, and Automation Society

ANSI/ISA-77.43.01-1994 (R2002)
Fossil Fuel Power Plant Unit/Plant Demand Development – Drum Type

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Contents

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1 Purpose

The purpose of this document is to establish the minimum requirements for the functional design specifications of unit/plant demand development for control systems for drum-type fossil-fueled power plant boilers.

2 Scope

The scope of this document is to address the unit/plant demand development subsystem for boilers with steaming capacities of 200,000 lbs/hr (25 kg/s) or greater. This subsystem includes firing rate demand development, throttle/header pressure control, and unit megawatt/steam flow control as applicable.

This document will address two types of process applications:

a) a single boiler supplying a single turbine, typical of an electric utility power plant; and

b) a single boiler or multiple boilers supplying a common distribution header, typical of an industrial power plant.

Specifically excluded from consideration are:

a) dispatch control;

b) turbine/generator control (other than turbine demand);

c) combustion controls (covered separately by ANSI/ISA-77.41-1992, Fossil Fuel Power Plant Boiler Combustion Controls);

d) steam distribution control systems;

e) economic loading of boilers; and

f) fluidized bed boilers.

3 Definitions

The following definitions are included to clarify their use in this document and may not correspond to the use of the word in other texts. For other definitions, reference ANSI/ISA-51.1-1979 (R1993), Process Instrumentation Terminology.

3.1 alarm:
an indication used to alert an operator about an abnormal condition.

3.2 boiler:
the entire vessel in which steam or other vapor is generated for use external to itself, including the furnace, consisting of waterwall tubes; the firebox area (including burners and dampers); the convection area, consisting of any superheater, reheater, and/or economizer sections; and drums and headers.

3.3 boiler follow mode:
mode of boiler control where the boiler responds to an energy demand requirement and controls boiler pressure by regulating boiler inputs.