

AD353-138

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Procidia Control Solutions Series Application Data Sheet List

Listed below are the application data sheets in the Procidia™ Control Solutions series. All AD's can be downloaded from the Siemens Internet site as discussed in the Application Support section. The list is divided into two sections:

- Process Control – Lists papers that provide solutions to common industrial process needs. Downloadable controller configuration examples are included in many papers. SAMA¹ symbology is explained in several papers.
- Communications and Installation – Lists papers that address Ethernet, Modbus, alarm management and controller installation.



Process Control

Title	Topic Sample	Number
Single Point Positioning Control	Single point positioning control is commonly used on firetube and small watertube boilers. It is a single feedback control loop.	AD353-101
Parallel Positioning Control	Parallel positioning control is commonly used on package boilers. The process variable is either steam header pressure (shown in the diagram) or hot water outlet temperature. The PID function block...	AD353-102
Full-Metered, Cross-Limited Control	Full-metered control is a cascade control strategy that requires three process variable measurements. The measured variable for the primary loop is steam header pressure. There are two secondary loops...	AD353-103
O ₂ Trim Control	Oxygen (O ₂) trim is one of several flue gas analysis trim control methods. Flue gas analysis trim control is used to optimize air/fuel ratio and control...	AD353-104
Boiler Drum Level (Feedwater) Control	Boiler drum level is a critical variable in the safe operation of a boiler. A low drum level risks uncovering the watertubes and exposing them to heat stress and damage. High drum level risks water...	AD353-105
Furnace (Draft) Pressure Control	This paper deals with the movement and control of combustion air into the furnace and removal of the combustion by-product gases (or flue gases).	AD353-106

¹ Scientific Apparatus Makers Association

Title	Topic Sample	Number
Discrete Controller Status Output	In critical applications, it is often desirable to have a controller status signal to indicate that the controller is functional.	AD353-112
Ratio Control	Ratio control is a technique in which the ratio between two process variables is held constant. It is often applied to flow control in blending systems...	AD353-117
Coarse/Fine Control	A coarse/fine control strategy uses two final control elements (FCE's), one large and one small, connected for an additive affect on the process. The large FCE supports large changes in the...	AD353-118
Digital Controller Tuning	Controller tuning is the adjusting of the proportional gain, integral time, derivative time and, in some cases, derivative gain to obtain the desired control loop...	AD353-119
Compressor Capacity Control	The primary objective of capacity control is to manipulate the flow capacity of the compressor to match the flow required by the process.	AD353-120
Compressor Surge Control	The most common method of surge control uses compressor ΔP to represent head and the differential pressure across an inlet orifice (called "h") to represent capacity.	AD353-121
Override Control	To avoid unscheduled shutdowns, an override control strategy can be used to constrain the process within safe operating limits.	AD353-122
Parallel Compressor Control	Multiple compressors are operated in parallel to provide more capacity and rangeability than can normally be delivered by a single machine...	AD353-123
Pressure/Temperature Compensation	Pressure and temperature compensation is a mathematical operation that corrects the measured...	AD353-124
Flow Rate Calculations	Ratio control strategies manipulate the flow of one stream in proportion to another. The objective of most ratio control strategies is to control a variable...	AD353-125
Heat Transfer Calculations	Many process operations are controlled by manipulating the transfer of heat from one process stream to another. A distillation column is...	AD353-126
Dead Time Compensation	Dead time is the period during which the process variable does not respond to a change in valve position; during that time, the process appears to...	AD353-127
Cascade Control	Cascade control uses a secondary controller in conjunction with a primary controller to improve control of the primary process variable.	AD353-128
Feedforward Control	Feedforward control is a method of compensating for process load disturbances before they can affect the primary control variable.	AD353-129
Fundamentals of Combustion	Combustion is the oxidation of a fuel resulting in the release of energy. In a typical industrial application, combustion occurs in a furnace. The energy...	AD353-130

Title	Topic Sample	Number
SAMA Diagrams for Boiler Controls	SAMA diagrams represent the language of choice throughout the power industry for instrumentation and control systems. This publication illustrates...	AD353-131
Boiler Control Overview	A boiler operation must maximize boiler uptime and performance. Upgrading the boiler control system is an inexpensive way to improve boiler efficiency...	AD353-132
Program Sequencer and Recipe Management	Batch process control systems require extensive logic and sequence capabilities, in addition to continuous functions for the control of flows, temperatures...	AD353-133

Communications and Installation

Title	Topic Sample	Number
Process Controller, Sample Specification	This sample specification is for a process controller. In addition to the following, it may be useful to include information on specific process...	AD353-100
Case to Instrument Panel Seal	This paper provides a procedure for creating a seal between an instrument panel and the flange of a Model 353 case or Model 353 Remote Display...	AD353-107
RS485 Modbus Communication	This paper discusses the use of the Modbus™ RS485 network interface included as a standard feature in all series 353 loop controllers.	AD353-108
Dedicated Backup in a Single Variable Control Loop	This paper provides guidelines for designing, wiring, and configuring a single variable process control loop that includes a dedicated backup controller.	AD353-109
Ethernet Peer to Peer Communications...	Ethernet is a leading form of network communication that is often employed on industrial process networks. Data is exchanged between network-connected...	AD353-113
Extending I/O Capability with Ethernet	Ethernet, then, can be used to acquire sensor information from remote locations extending the I/O capability of controllers.	AD353-114
Alarm Management	Procidia controllers include built-in alarm functions that enable you to create and manage an optimum process alarm strategy.	AD353-115
Selecting your i ware V3.0 Upgrade	An i ware Operator Interface software installation can be upgraded to version 3.0 at the existing level and...	AD353-134

Application Support

Technical literature for controllers, transmitters, valve positioners and many other hardware and software products; addresses of Siemens sales representatives; and the above application data sheets can be found at www.usa.siemens.com/ia. To reach the process controller page, click **Process Instrumentation** and then **Process Controllers and Recorders**. To select the type of assistance desired, click **Support** (in the right-hand column).

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