

Siemens 353 Process Automation Controller



process
INSTRUMENTATION

SIEMENS

Complete Process Automation Controller

A True Innovation in Local Control Solutions

The market-leading Siemens 353 Loop Controller is a true innovation in local control. This stand-alone, microprocessor-based industrial controller is designed for a broad range of process applications. It can serve as a simple single-loop controller or as a multi-loop controller with complete control functions, including indication, control, logic, or sequencing for a small unit batch or continuous process.

The 353 controller satisfies the needs of both continuous and discrete applications by providing:

Function Block, Ladder Logic, and Sequential Step Logic

The ability to use both function blocks and ladder logic in the same controller allows you to design your control strategy to meet the real world requirements. A built-in library of pre-configured, Factory Configured Options (FCOs) provides quick field set-up for a selection of common basic control schemes, such as PID, cascade control, or ratio control. A large selection of reusable function blocks allows for simple changes to FCOs or the design of a custom control strategy to meet the needs of specific process control application.

Nine of the most common control strategies can be selected with simple pushbutton entries. These control strategies, which can be easily customized to accommodate individual needs, are:

- Single-Loop Controller with Tracking Setpoint
- Single-Loop Controller with Fixed Setpoint
- Ratio Set Controller with Operator Setpoint Limits
- Single-Loop Controller with Operator Setpoint Limits
- Cascade Loop Controller
- Cascade Loop Controller with Operator Setpoint Limits
- External Set Controller with Tracking Setpoint
- External Setpoint with Fixed Setpoint
- Dual Loop controller

Built-In Communications

The 353 controller's fieldbus and networking options enable it to function as an integral element in a plant system.

Ethernet, MODBUS™, LIL™ (Local Instrument Link), and LonWorks™ communications are:

- Ethernet (MODBUS TCP/IP protocol) supports peer-to-peer communication between controllers. Ethernet communication also supports multiple HMI's on the same network and permits redundant operator stations for better plant control.
- The controller supports RS-232/RS-485 MODBUS communication. This permits communication with PLC's and HMI software utilities that support MODBUS.
- LIL communication supports peer-to-peer communication. Since a large installed base of legacy LIL products exists, the 353 can be readily integrated into existing LIL networks when expanding plant controls. The Model 352P is a 353 control that fits into an existing 352 case and provides all the same I/O options as the 352 controller
- LonWorks communication permits the expansion of the controller I/O. This permits better utilization of the controller's multi-loop and logic capabilities. I/O is expanded using LonWorks modules. LonWorks permits a distributed I/O network.

The 353 controller supports both plantwide control communications and intelligent field communications.



The advanced 353 controller hardware is designed to accommodate and support emerging fieldbus technologies.

Auto Tuning

Auto tuning simplifies the procedure for tuning a control loop, and insures tighter control by automatically adjusting the controller settings to match the process dynamics.

Multiple Loop Control

Capable of supporting up to 25 control and/or ladder logic loops, the 353 controller has the power to solve complex control problems. Five different operator faceplates are available that support operator interaction. The faceplates support single variable PID control, process variable monitoring, discrete variable indication, sequential step logic control, and motor start/stop control. Each configured loop can be viewed locally using the LOOP button on the faceplate. Loop data is mapped to network communication and permits each loop to be monitored and controlled from a plant operator station (HMI).

Weather-Resistance Display

The weather-resistant faceplate provides a local message display with complete access to the controller for pushbutton configuration of quick field changes. It also includes a PC connection for configuration, monitoring, or troubleshooting using the graphical configuration software. The 353 controller is a complete automation solution.

Complete Application Solution

The 353 controller provides the capabilities of both traditional loop controllers and sequential step controllers. Almost any application including a combination of continuous control (flow, temperature and pressure) and discrete control (motor start/stop and interlocks) can be configured. The 353 controller can meet the demand of complex control applications, all within one device, one configuration and one operator interface.

One of the major advancements offered by the 353 controller is its configuration versatility. The 353 controller can be

completely configured from its faceplate or through a windows based graphical configuration utility. This software provides complete configuration and documentation of the 353 control strategy, including choice of function block or ladder logic configuration. Configurations can be downloaded using the built-in RS-232 front port, or using network communications via Ethernet, RS-485 MODBUS, or LIL.

The features incorporated in the 353 controller result in an instrument with unmatched capability. The 353 controller is the ideal solution for these and other applications:

- Combustion and drum level control for boilers.
- Unit control and operation for batch processes in the chemical industry.
- Compressor anti-surge control and interlocks.
- Filter backwash sequencing and flume control for water treatment plants.
- Ratio feed control

The 353 controller provides combustion management for boilers.



Total System Integration

Increasingly, integration into the overall plant control strategy is a requirement for control and automation equipment. Designed not only as a controller but also as a communications engine, the 353 controller supports both plant wide control communications and intelligent field communications.

The 353 controller integrates with other PLCs and DCSs. Your choice of Ethernet or MODBUS protocol is available with all 353 controllers allowing easy integration with other control devices.

Control Flexibility

Designed for flexibility, the 353 controller can be scaled to meet your application

needs. No matter what your control needs, you can scale your application using the 353 controller as a single, stand-alone controller, a multiple loop controller for small unit batch applications, or integrating it with larger control systems through the various communication options. You choose your strategy and network or communications according to your specific application.

Siemens Energy & Automation, Inc.

Process Industries Division
1201 Sumneytown Pike, P. O. Box 900
Spring House, PA 19477-0900

Tel: 215-646-7400

www.sea.siemens.com/ia

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