

310SV

SINGLE VALVE GOVERNOR



310SV

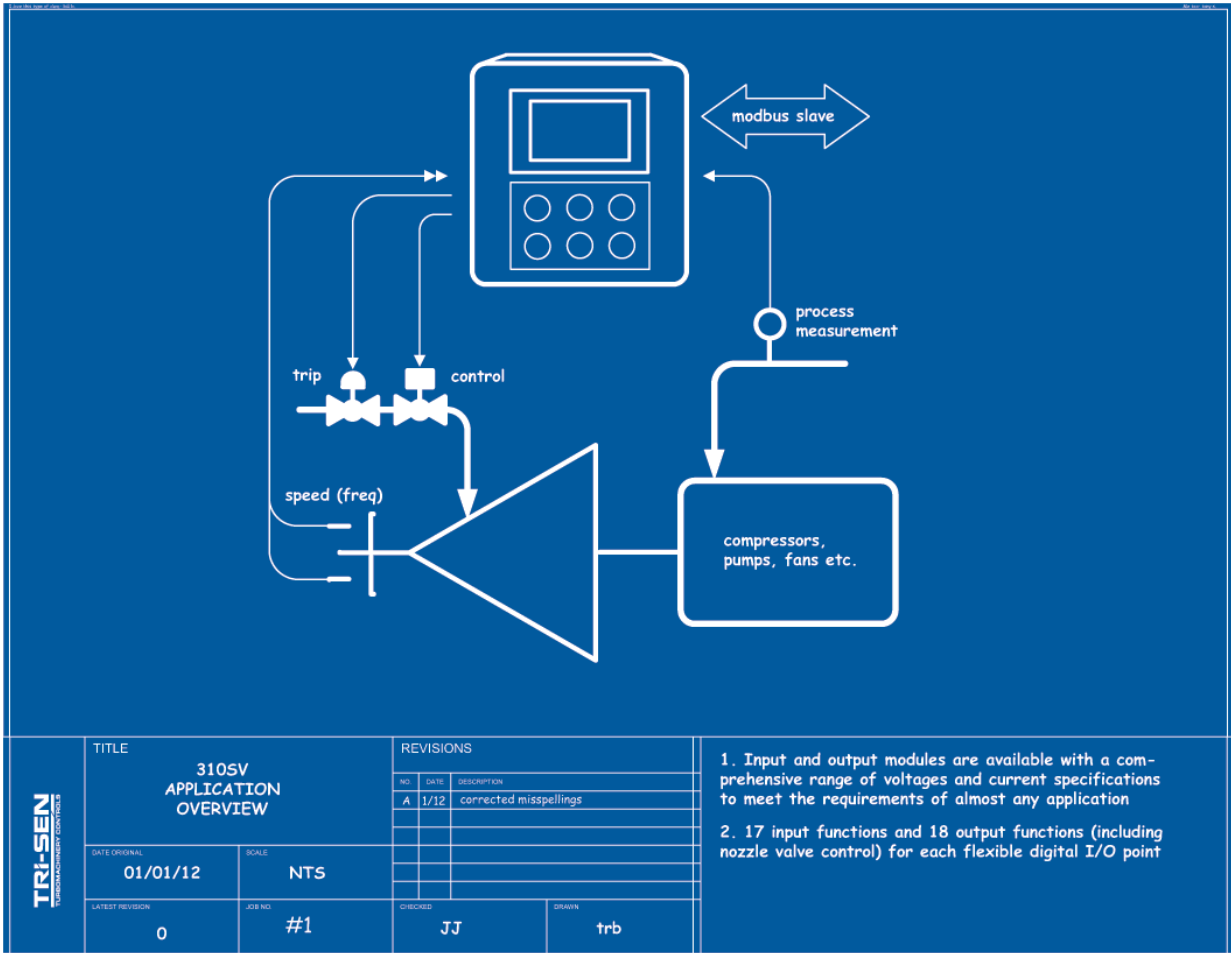
SINGLE VALVE GOVERNOR

APPLICATION

The 310SV is a fully integrated and configurable controller designed to startup, run, and protect single-valve steam turbines. The controller is designed to control steam turbines driving mechanical type loads, such as pumps, fans, compressors, and so on.

In addition to speed control, the 310SV provides cascade control for controlling process variables such as suction/ discharge pressure, or suction flow.

The operator interface includes a display area that indicates the status of the turbine, as well as push-buttons that allow the operator to control the turbine.



APPLICATION OVERVIEW

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The 310SV is a fully integrated and configurable controller designed to startup, run, and protect single-valve steam turbines.

A NEMA type 4 enclosure houses the 310SV allowing it to be mounted outdoors on the turbine deck. The unit is self-contained with internal termination hardware.

The operator interface includes a display area that indicates the status of the turbine, as well as push-buttons that allow the operator to control the turbine. The 310SV is powered either by 24 volts DC, or by an optional 120/240 volt AC power supply.

FEATURES

- Six flexible, digital I/O points, each configurable as a digital input or output by selecting the corresponding plug-in module.
- Input and output modules are available with a comprehensive range of voltages and current specifications to meet the requirements of almost any application
- 17 input functions and 18 output functions (including nozzle valve control) for each flexible digital I/O point
- Five separate remote digital inputs that can each be configured from a list of 17 input functions start, stop, speed raise/lower, halt, continue, idle/run, and alarm acknowledge
- Completely automatic turbine startup
- Eight configurable speed bands, each with separate ramp rates and idle times
- Critical speed band avoidance
- Startup, Run, Droop, and Overspeed Test tuning constants for the Speed PID
- Process PID for control of process suction or discharge measurements
- Local and remote speed and process setpoint control
- Modbus serial data communication
- Simulator
- PC configurator



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SOFTWARE

Powerful PC Configurator

The 310SV Configurator is a Windows-based software application that allows the user to configure the controller from a PC.

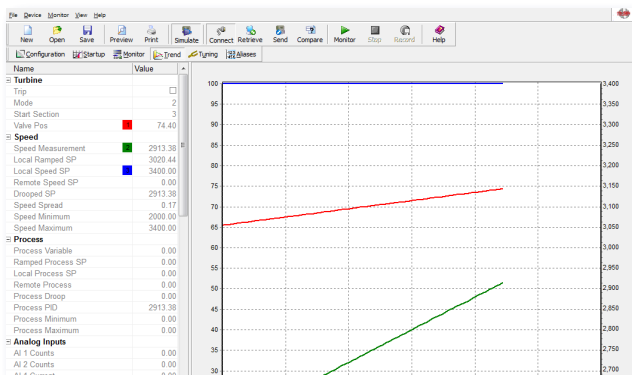
The Configurator makes setup easy with features like an expandable parameter view, drop down menus and checkboxes.

Detailed online help minimizes the need to refer to the User's Guide during configuration. Configurations can be easily downloaded or uploaded to or from the 310SV and a comparison feature makes it easy to identify differences between two configuration files.

Real-Time Monitoring and Trending

The 310SV Configurator allows real-time monitoring of I/O values and states, calculated values and alarm and trip history.

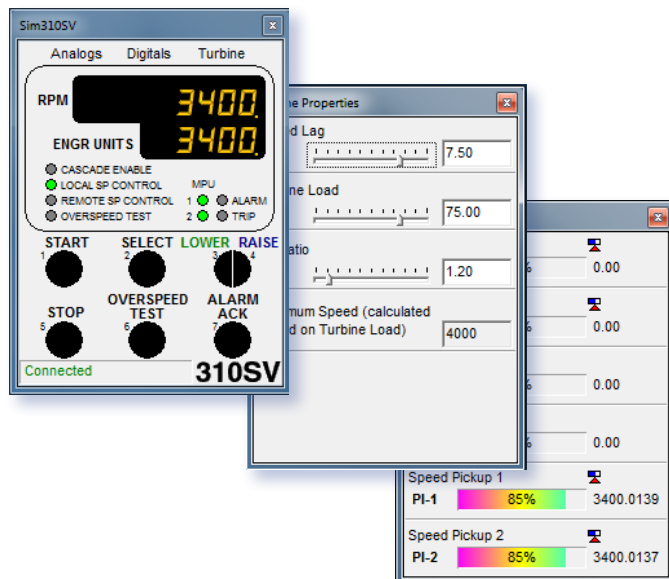
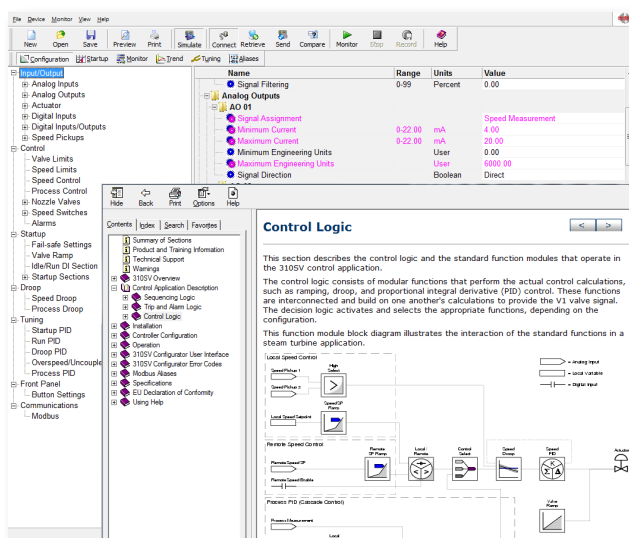
Selectable real-time trending and recording are also included.



Simulator

One of the most powerful features of the Configurator is the Simulate mode, which allows the user to test a configuration on the PC without running the turbine or even connecting to the 310SV controller.

The user can simulate a turbine startup and confirm configured speed ranges, ramp rates and digital I/O functions without leaving the shop or the office.



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SPECIFICATIONS

Inputs

Pulse inputs	2 passive inputs, 20-20,000 Hz, 1 to 10Vrms sinusoidal, ± 0.5 RPM accuracy
Analog inputs	2 inputs, 4-20mA, 12 bit, $\pm 0.25\%$ of full scale accuracy
Digital inputs	Up to 6 inputs, 24V DC, 120V AC, or 120V DC
Remote Inputs	6 digital inputs, 24V DC

Outputs

Analog outputs	2 outputs, 4-20mA
Actuator output	1, current source 0-20mA (800 ohm load), 0-160mA (100 ohm load)
Digital outputs	Up to 6 outputs, 24V DC, 120V AC, 240V AC (3.5A) or 200V DC (1.0A)

Power Supply

Power Supply	95 to 260 V AC, 0.2A typical @ 120V AC
Power Supply	20 to 32 V DC, 0.5A typical @ 24V DC

Environmental Specifications

Temperature	-25°C-65°C (DC power version)- refer to User's Guide for restrictions
Humidity	5%-95%, non-condensing
Shock	15G for 11ms, half sine, in each axis
Vibration	Per axis: sinusoidal, 2.0G acceleration, 10 to 150Hz

Certifications

Electrical Safety	UL 508/3121-1, CSA C22.2
Hazardous Area	UL 1604 (Class 1, Div 2, Groups A, B, C, D)
CE Mark	European Union EMC Directive No. 89/336/EEC, Low Voltage Equipment Directive No. 72/23/EEC

310SV DIMENSIONS

12"W x 12"H x 6"D (304 x 304 x 152 mm)

