

- [Products & Services»](#)
- [About](#)
- [Contact»](#)

You are here: [Home](#) / [Products & Services](#) / TS300

TS300

Turbomachinery Control Unplugged

The first self-powered digital turbine governor.



No Power, No Problem.

For your applications where there's just not any power, the TS300 can run using power generated from two speed probes. It also has a back-up battery, providing power when the turbine is stopped or operating at low RPM.

• Related Content

- [GMA-735/TS110-replacement-r2.0](#)
- [TS300 PNT STL Field Mounting Kit Outline](#)
- [TS300 Removal Tool - Users Manual](#)



It's Got Connections.

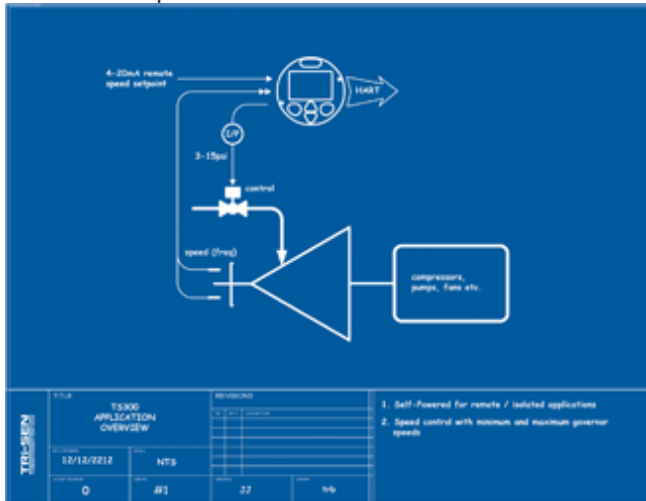
The TS300 uses a standard USB connector for its configuration interface which means you won't need to make-up or keep track of any special cables to communicate with it. It also comes ready to talk to your HART enabled HMI so that you'll be able to monitor your general purpose steam turbines performance.

Step Away from the Edge

With built-in, configurable over-speed testing and detection, you can be sure that your turbine is protected against over-speed without having to de-couple and run your turbine at unsafe speeds.

Simplify, simplify, simplify.

The TS300 is easy to set-up and simple to operate which make for very flat learning curves. Your rotating machinery engineers and technicians will appreciate the intuitive interfaces, as well as the trouble-free performance.



Application

The TS300 self-powered digital governor is designed to control an API-611, single valve, general purpose steam turbine driving a mechanical load. For applications where 24 vdc power is not available the TS300 can be operated in self-powered mode; where the power used to run all of the TS300 electronics is generated from two speed probes. The TS300 also makes use of a back-up battery, providing power when the turbine is stopped or operating at low RPM in the self-powered configuration. The TS300 can also be used for simple turbine applications where 24vdc power is available.



[Download Brochure \(PDF, 3.9MB\)](#)

Features

- Self-Powered for remote / isolated applications
- Configurable start acceleration ramp rate
- Auto Start

- Speed control with minimum and maximum governor speeds
- USB configuration interface
- Front panel menu-driven configuration
- Valve-test
- Overspeed Trip / Test
- 10 year LiON battery backup
- Explosion Proof Class 1, Div 1 (in “transmitter” enclosure), UL Class 1, Div 2 (out of enclosure)

I/O

- (4) configurable 24vdc digital inputs
- (1) 4–20mA analog input (remote speed setpoint)
- (2) pulse (frequency) inputs
- (2) 24vdc, inherently fail-safe, digital output contacts
- (1) configurable analog output (1–6 mA self-powered or 4–20mA with external 24vdc power supply)

Enclosures

- [Aluminum explosion proof “hockey puck” housing](#)
- [Stainless Steel explosion proof “hockey puck” housing](#)
- [GMA-735 retrofit enclosure](#)
- [TS300 Field Mounting Kit](#)

The image displays five screenshots from a software interface:

- Top-left:** A configuration table with columns for Name, Range, Units, and Value. It lists various parameters like Speed Setpoint, Startup PID, and Valve PID.
- Middle-left:** A wiring diagram showing terminal blocks (Terminal Block 12, Terminal Block 13) and their connections to a device.
- Middle-right:** A control panel for 'Remote Speed Setpoint' with a green progress bar and numerical values (e.g., 3000.0, 3760.0).
- Bottom-right:** A digital display showing '490' and 'SETPT 3000 RPM' with 'TURBINE STARTING' text and control buttons.
- Bottom-left:** A graph showing multiple data series (red, green, blue) plotted over time (0.0 to 0.40).

Software

Powerful PC Configurator

The TS300 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 TS300 and a comparison feature makes it easy to identify differences between two configuration files.

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 TS300 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.

Real-Time Monitoring and Trending

The TS300 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.

Specifications

Speed Measurement

Feature	Description
Range	200Hz to 10kHz (200 to 10,000 RPM with 60 tooth gear)
Sensor (probe)	2, passive magnetic, 15ma Max (Tri-Sen 7131-0004 or equivalent)
Gear	Diametrical Pitch $\leq 8^\circ$, 20 – 180 teeth
Accuracy	± 1.0 RPM @ 3000RPM in an operating environment of 20°C

Analog Input

Feature	Description
Inputs per controller	1, differential current input
Resolution	0.1% of full scale
Accuracy	$\pm 2\%$ over operating temperature range
Input Range	0-37.5mA max
Burden	7.1 V max. at 20mA
Common mode range	-0.1V to +12 V

Actuator Output

Feature	Self-Powered By Magnetic Pickup	External Power at +24 VDC
Outputs per controller	1, current source, ground-referenced	1, current source, ground-referenced
Resolution	0.2% of full scale	0.1% of full scale
Output Range	0-5mA	0-20mA

Load Range	0-350 ohms @ 5mA out	0-1000 ohms @ 20mA out
------------	----------------------	------------------------

Digital Input

Feature	Description
Inputs per controller	4, optically isolated with common return
Voltage Range	5V or 10V DC

Digital Output

Feature	Description
Outputs per controller	2, isolated, normally open contact, solid state relays
Voltage Range	24 VDC
Current Range (contact)	3A

Power Input (Optional)

Feature	Description
Power Input	18 to 30 VDC 0.5 A typical @ 24VDC

Dimensions

(TS300 in Aluminum Enclosure)



[Get a response same-day from the experts at Tri-Sen.](#)

Product Summaries



TS300 - [Digital Turbine Governor](#)

The first self-powered digital turbine governor. For your applications where there's just not any power, the TS300 can run using power generated from two speed probes. It also has a back-up battery, providing power when the turbine is stopped or operating at low RPM.



310SV - [Single-Valve Steam Turbine Control](#)

The 310SV is a configurable controller that provides automatic startup sequencing, speed control and process control for a one-valve steam turbine driving a mechanical load (e.g. pump, fan, compressor). A powerful PC configurator allows the user to choose from a wide selection of control options to match the turbine operational requirements.



[Projects](#)

TSx - [Programmable Platform for Engineered](#)

TSx provides the flexibility of a PLC, the reliability and integrity of a safety system, and the speed and power of a dedicated controller. TSx is a robust, programmable platform that includes

Tri-Sen turbomachinery control libraries. TSx offers a wide range of I/O, including an on-board servo control module. TSx can be applied to a wide range of applications, including integrated turbine-compressor control, gas turbine control, and turbine-generator control.



TETRASENTRY – [Hydraulic Trip System](#)

The first quad-redundant, on-line repairable, on-line testable hydraulic trip system independently verified to meet SIL 3.



DSC100 – [Digital Servo Controller](#)

The DSC100 is a small, fully functioned digital servo controller that's easy to configure, easy to calibrate, easy to operate, easy to install and, in the unlikely event it needs maintenance, easy to replace on-line. And, while your rotating equipment engineers and technicians will appreciate the ease of use, you'll appreciate that it's easy on your project budget.



[Turbomachinery Control Accessories](#)

Tri-Sen Systems offers a variety of turbomachinery control peripherals and accessories to accompany our control systems, including but not limited to servo controllers, LVDTs, hydraulic actuators, speed pick-ups, and gears.
