

# TS310

Configurable Single or Dual Valve Governor



[www.tri-sen.com](http://www.tri-sen.com)



### Description

The TS310 is a 1 or 2 valve, user configurable control system that will provide complete control for simple or complex prime movers.

### Applications

The TS310 can be applied to steam or gas turbines, diesel or gas engines, compressor pumps, generator drives, expanders, and hydrotrubines.

### Features

- Startup Sequencing and Speed Control
- Wide variety of configurable algorithms including:
  - ✓ Inlet pressure control
  - ✓ Extraction/admission control
  - ✓ Back pressure control
  - ✓ Process control (suction, discharge, MW)
  - ✓ Load limiting
- Field configuration for specific mechanical data and for a wide variety of sophisticated control and sequencing functions
- A high speed data link provides remote control and monitoring communication
- Rugged NEMA 4 enclosure for outdoor installation
- Automatic shift from DROOP control into frequency control when the utility grid is lost, and back to DROOP bumplessly when the utility tie breaker is closed again



### Specifications

#### Inputs

- 2 Speed pickups (020 KHZ)
- 4 Analog Inputs (0-10 VDC)

#### Outputs

- 2 Analog (0-200 mADC) Contacts
- 8 total – input or output
- Standard Opto modules (selectable)

#### Communications

- 1 RS422 Port 0600 Baud

#### Display

- LCD 8 Digit (.5" High)
- NEMA 4 enclosure

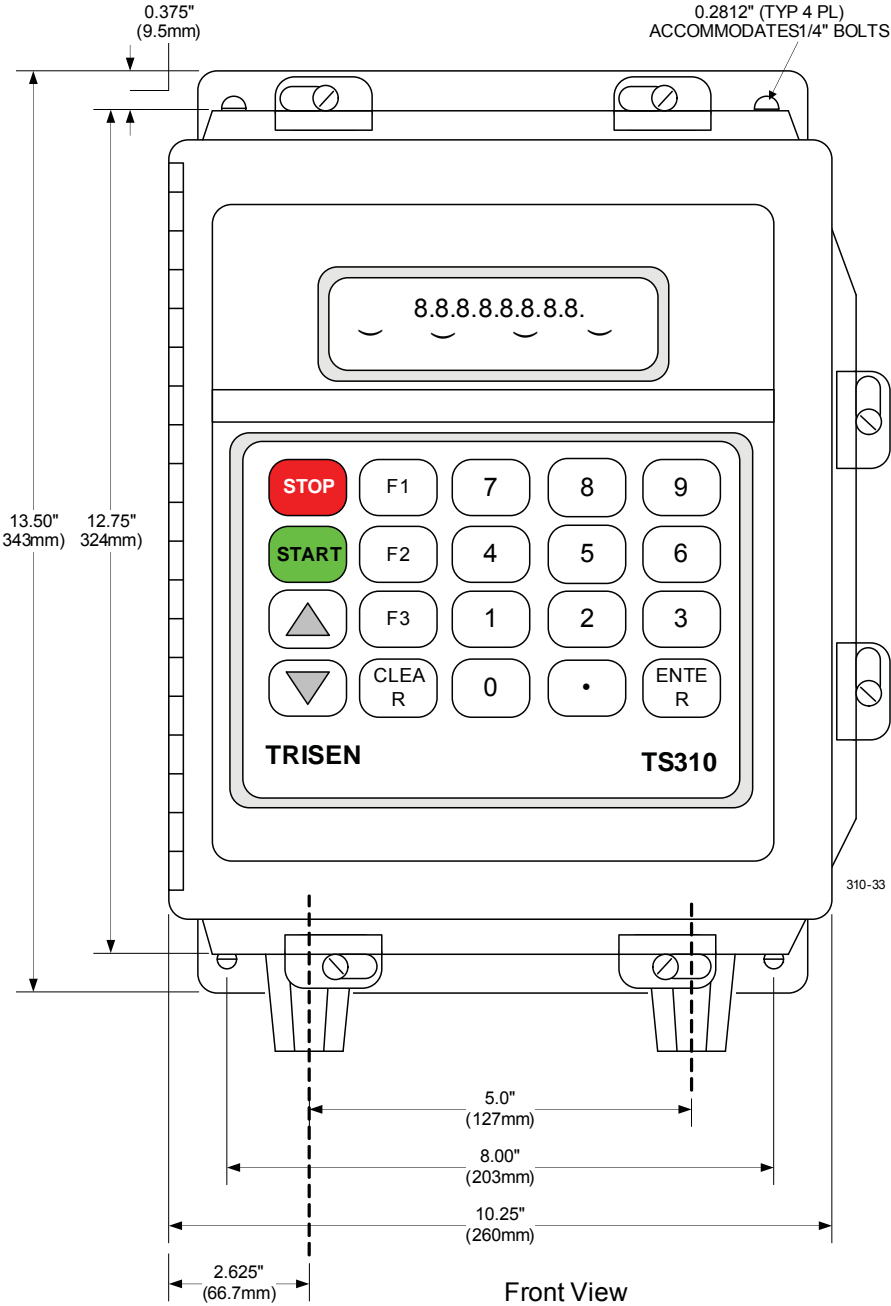
#### Environmental Specifications

- Temperature: 0-70° C (operating)
- Humidity: to 95% (non-condensing)

## Configurable Single or Dual Valve Governor

### Dimensions

- 13.5" H x 10.25" W x 5.56" D (panel mount or flush mount)



### Ordering Information

<u>Model Number</u>	<u>Description</u>
<b>Controls</b>	
3100000-100	TS310 Steam Turbine Controller (90-250VAC), Surf Mt.
3100001-100	TS310 Steam Turbine Controller (24VDC), Surf Mt.
3100002-100	TS310 Steam Turbine Controller (90-250VAC) Flush Mt.
3100003-100	TS310 Steam Turbine Controller (24VDC) Flush Mt.
<b>Spare Parts</b>	
0087-5678	TS310 Main Board w/ Rev. 14 software
0087-7164	TS310 Termination Board, less I/O modules
3100018-001	TS310 Keyboard
3100015-100	TS310 Power Supply Assy, 90-250 VAC, VT25-371-10/XX
3100016-100	TS310 Power Supply Assy, 10-40VDC, VT25-372-10/XX
4100001-001	Cable TS310 I/O Ribbon (We only use one size that fits both flush and surface.)
7061-0000	IAC5, 90-140 VAC/DC
7061-0001	IAC5A, 180-280 VAC/DC
7049-0000	IDC5, 10-32 VDC
7022-0000	OAC5, 3A @ 140V
7022-0001	OAC5A, 3A @250V
7023-0000	ODC5, 3A @60V
7023-0001	ODC5A, 1A @ 200V
7045-0000	OAC5-5, 3A @280V
7026-0003	Opto22 Dry Contact Relay, OU5, N.O.
7026-0005	Opto22 Dry Contact Relay, OU5, N.C.
<b>Manual</b>	
93-2952	TS310 Manual
<b>Optional Accessories</b>	
85-2782	M360 Simulator
99-6813	RS232 Communication Kit
89-9930	P324 Battery Backup for 110VAC, 10-40VDC Power Supply
3100020-001	Service Kit (fuses, diodes, etc.)

*TS310 Note:*

Contact Tri-Sen for Elliott YR Retrofit Kit

## Configurable Single or Dual Valve Governor

### Configuration Specification Sheet

Enter the corresponding letter(s) or number(s) for each category (example: AS11AAAEEEEFF).  
Once completed, fax or email this form to Tri-Sen along with your purchase order.

1.      2.      3.      4.      5.      5.      5.      5.      5.      5.      5.

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1. Software		2. Cover Type		3. Power		4. Voltage		5. Digital Input/Output Modules		
A	01	F	Flush Mount	1	Single	1	90-250 AC	0		
B	02	S	Surface Mount	2	Battery**	2	10-40 DC	A	IAC5	N.O. AC Input 90-140 VAC/DC
						3	20-60 DC	B	IAC5A	N.O. AC Input 180-280 VAC/DC
								C	IDC5	N.O. DC Input 10-32 VDC/AC
								D	OAC5	N.O. AC Output 3A at 12-140V
								E	OAC5A	N.O. AC Output 3A at 24-280V
								F	ODC5	N.O. DC Output 3A at 5-60V
								G	ODC5A	N.O. DC Output 1A at 5-200V
								H	OAC5A-5	N.O. AC Output 3A at 24-280V
								I	OU5	N.O. Dry Contact 10VA max.
								J	OU5	N.C. Dry Contact 10VA max.

\*\* Battery back-up requires 120VAC