TurboSentry

2003 Overspeed Trip

www.tri-sen.com

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Description

The Turbosentry is a triplicated electronic overspeed trip device designed to API612 requirements. The Turbosentry is manufactured and supported by Invensys Process Systems and distributed by Tri-Sen.

Applications

The Turbosentry is designed to replace a traditional mechanical trip bolt on steam or gas turbines, power turbines, and other rotating equipment. The unit's range of speed and ease of configuration enables it to be used in a wide variety of rotating equipment overspeed protection applications.

Features

- The TurboSentry's 2003 (two-out-of-three voting) logic meets and exceeds the reliability requirements of API 612 (Section 3.4.2.2)
- Voting Schemes to fit each application- while designed for TMR voting, the TurboSentry can also be used as a two-out-of-two dual overspeed trip system if compliance with API 612 is not required
- Easy on-line calibration and test of each trip setpoint and speed measurement circuit (using an external calibration source) provides simple set up and operation without fear of shutting down the turbine
- Total response time ≤ 30msec (elapsed time from overspeed detection through decision making logic) initiates the trip signal for rapid detection
- Wide speed range of 200- to 30,000-RPM allows the TurboSentry to protect virtually any turbomachinery train
- Redundant power supplies: accepts one or two external 18-32 VDC power sources
- Accuracy to 0.02% of speed-the highest measurement accuracy available for overspeed protection
- Peak-hold on highest detected speed (key-lock protected) stored for turbine analysis
- Available in both a panel mount and a NEMA 4X enclosure
- Two separate connections for simplex or redundant 18-32 VDC power sources

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Specifications

Inputs

- Signal Inputs
  - ✓ Speed input: Three (3) magnetic speed sensors, One (1) remote reset digital input 24 VDC @ 10mA, Two (2) remote trip inputs for external trip activation 24 VDC @ 10 mA

Outputs

- Digital Outputs (Relays rated at 24 VDC @ 5Amps)
  - ✓ Trip output: Two (2) Normally Energized Form-C Relay
  - ✓ Alarm output: Two (2) Normally Energized Form-C Relay
- Analog Outputs
  - ✓ Speed indications: One (1) 4-20 mA output proportional to speed

Display

- Five (5) digit alpha-numeric display, ½ in. high characters for speed and setpoint display
- Two (2) digit alpha-numeric diplays, ½ in. high characters for channel indication/configuration
- Alpha-numeric LED indicators for trip and alarm for each of three microprocessors and the overall system status
- Power indication: LED (2)
- Mode indication: Run, Test, Setup LEDs, key-switch operated
- Enter, Test and Reset: Push buttons

Environmental Specifications

- Operating temperature range: -15°C to 65°C
- Storage temperature range: -40°C to 85°C
- Humidity: 5-95% non-condensing

Certifications

- Designed to meet CSA, FM and TUV requirements

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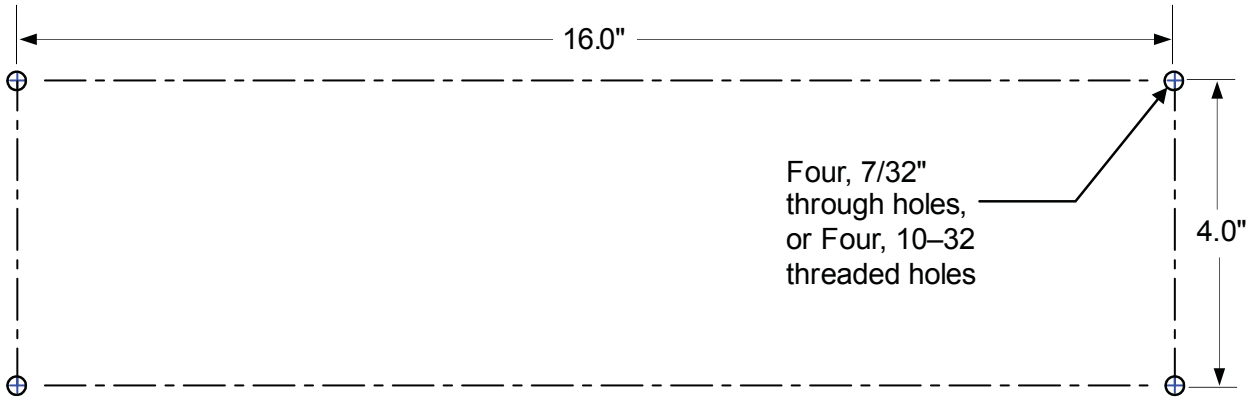
Dimensions

- Panel Mount: 18”W x 6”H x 2-1/2” D
- NEMA 4 Enclosure: 20”W x 6”H x 8.8”D



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Ordering Information

Model Number	*Description*
Turbosentry	
1600071-001	Turbosentry TMR Overspeed Trip Protection Device, Panel Mount, V 4.1
3000749-100	Assembly Turbosentry Type 4X w/o Power Supply
3000749-200	Assembly Turbosentry Type 4X w/1 Power Supply
3000749-300	Assembly Turbosentry Type 4X w/2 Power Supplies
Documentation	
9700090-001	Turbosentry User's Guide, V3.1
9700090-003	Turbosentry User's Guide, V4.1
Miscellaneous	
1420114-001	Spare 24VDC Power Supply for Type 4X Turbosentry
2000456-001	19" Rack Mounting Kit for Panel Mount Turbosentry
3000736-001	Flush Mount Adapter Kit for Panel Mount Turbosentry
1600063-001	Kit, Spare Parts including Terminal Blocks, Fuses and Keys
2000478-001	Spare Fuse Kit for Type 4X Turbosentry including 4-5x20mm fuses

Turbosentry Notes:

Speed Pickups

- The Turbosentry requires connection to three magnetic speed pickups for speed sensing. The three magnetic speed pickups are not included with the Turbosentry and should be provided separately. The three speed pickups should not be shared with any other control or monitoring system. Please refer to the Turbosentry User's Guide for speed pickup specifications and a list of recommended speed pickups.

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