EVERYTHING YOU NEED FOR

OVER SPEED

The all-new SpeedSys300 from vibro-meter delivers API 670-compliant overspeed detection in a convenient DIN-rail package that is at once small yet enormously powerful.

Learn more in the pages that follow.

Completely capable

1 Overspeed, underspeed, and rate-of-change (acceleration) alarming

2 One non-safety output (frequency) for speed indication

3 Advanced self-monitoring and diagnostics: detects both sensor chain and module problems

4 4-20mA analog output (SIL-rated; suitable for safety applications)

5 Auxiliary (non-safety) output for speed indication

6 Ultrafast, 10ms response

7 Accepts eddy-current, hall-effect, and magnetic sensors

8 Galvanically separated speed inputs to support measurement chains in hazardous areas

9 SIL2 and SIL3 capable; certified by design

10 0.25 Hz – 35 kHz frequency response

11 API 670-compliant

12 Safety alarms drive two independent DPST relays (Relay 1 and Relay 2)

13 Front-panel LED status indicators

14 Password-protected configuration for enhanced cybersecurity

15 Non-safety alarms drive two independent SPST relays (Relay 3 and Relay 4)

16 10-year proof test interval

17 Redundant power inputs

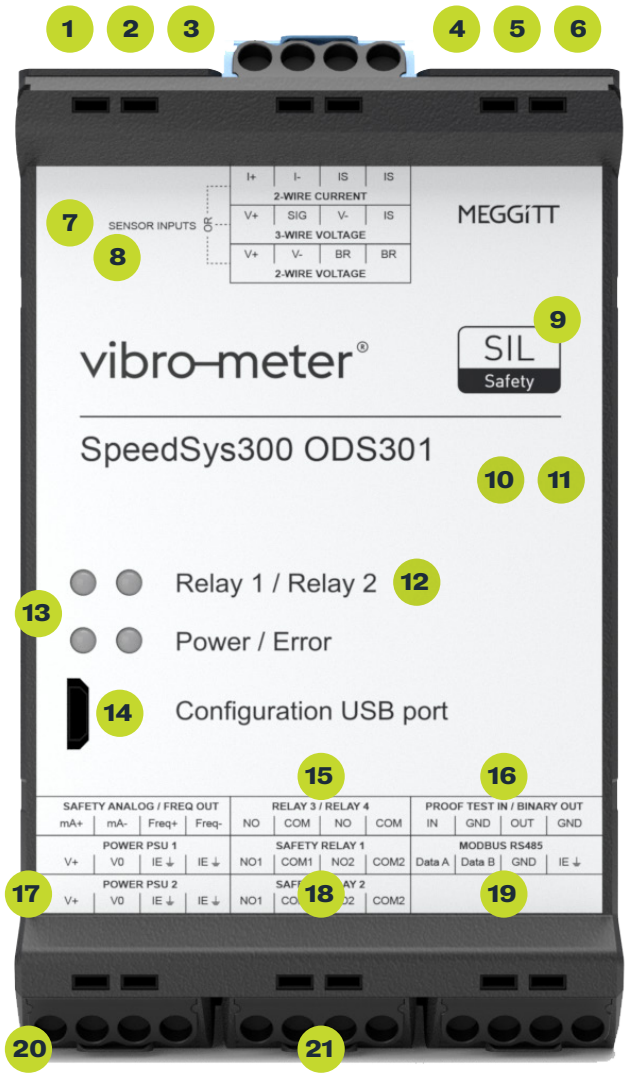
18 Four (4) independent alarm setpoints (two safety and two non-safety)

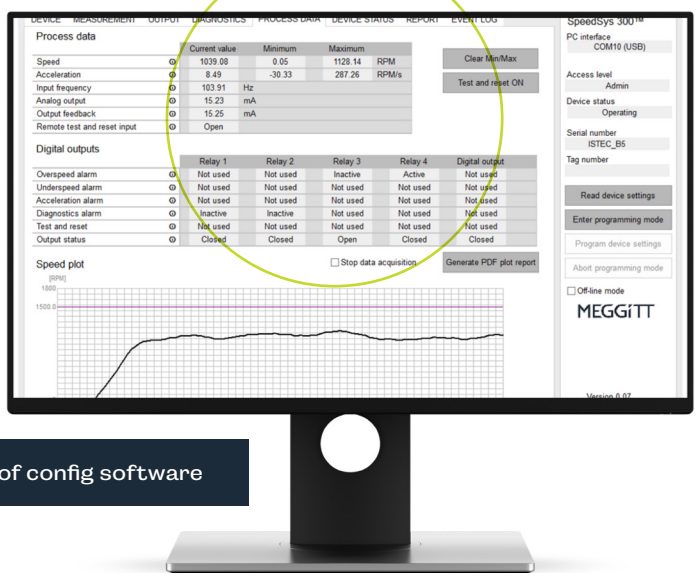
19 Modbus RTU serial data interface for connection to DCS, PLC, and other automation platforms

20 Compact size (188 x 117 x 68 mm)

21 Removable connectors for ease of wiring

22 Global approvals





Screen capture of config software

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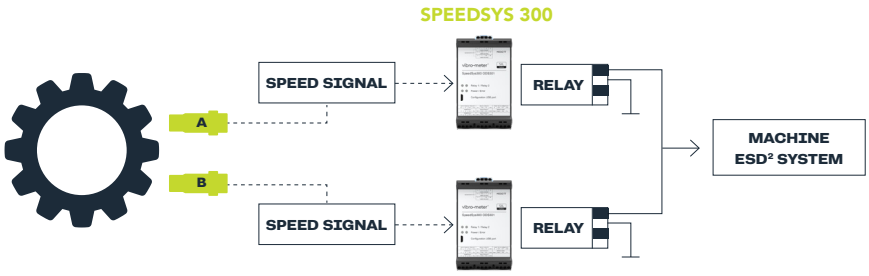
Completely flexible

For non-critical applications that can benefit from basic speed protection but do not require redundancy, a simple, single-loop solution can meet Sil 2.

1oo1 for SIL2 in non-critical applications

SIL2 1oo1
See note 1

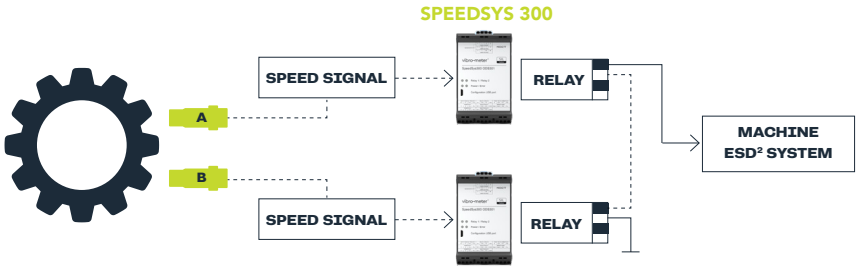
Adding a second SpeedSys300 and employing AND voting provides 2oo2 protection, retaining SIL 2 while reducing the likelihood of a spurius trip compared to an arrangement when only a single loop is used.



2oo2 for SIL2 with improved STR[3]

SIL2 2oo2
See note 1

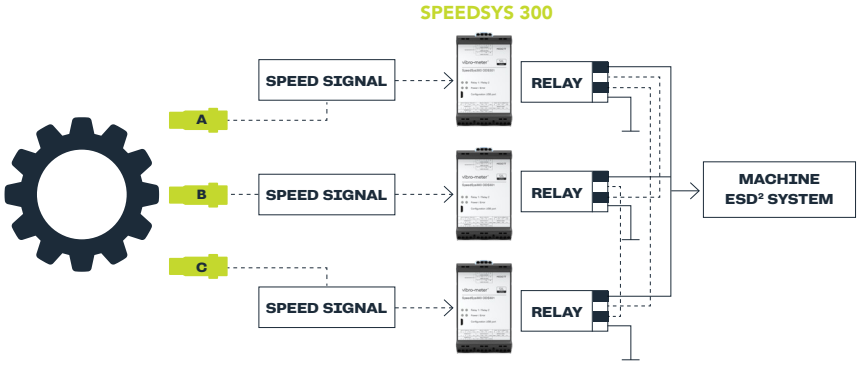
By employing OR voting instead of AND voting, two SpeedSys300 modules can better guard against missed trips because either system can now trip the machine during an an overspeed event. However, although 1oo2 voting reduces the likelihood of a missed trip and thus elevates the system configuration to SIL 3, it also elevates the likelihood of a spurious trip.



1oo2 for SIL3 and improved PFD_{avg}[3]

SIL3 1oo2
See note 1

By moving to a 2oo3 arrangement using three SpeedSys300 modules, both false trips and missed trips can be optimally reduced without pitting one against the other as in other configurations. This arrangement is recommended for highly critical applications such as large steam turbines.



2oo3 for SIL3 and balanced PFD_{avg} / STR

SIL3 2oo3
See note 1

Notes:

1) All relay depictions and wiring connections assume normally energized relays with contacts closed when channel is in non-alarm state.

2) ESD = Emergency Shutdown

3) See pages 9-10 for a detailed discussion of STR and PFD_{avg}

ENGINEERED SOLUTIONS

While the SpeedSys300 may be at the core of our overspeed offerings, we know that most customers are not interested in a do-it-yourself box of parts. They need an engineered solution.

A solution that brings together all of the necessary components into an integrated, functional whole. Sensors, field wiring, overspeed detection devices, documentation, configuration, and the know-how to make it all work together in a SIL-rated environment that minimizes not just missed trips, but false trips.

We understand. That's exactly why we provide engineered solutions.

We also understand that OEMs and end users have different needs. OEMs want a solution that can be configured once and deployed across many identical or similar machines, delivering right-sized protection capabilities with a right-sized feature set, a right-sized price, rock-solid reliability, and SIL certification. End users want many of the same things, but often with special features to address the realities of incumbent machinery with special needs. When retrofitting, a physical package that fits in the same space as the old system is often important – and functionality that replicates the outgoing system while interfacing with minimal changes to existing control and automation equipment.

Our engineered solutions start with a deep understanding of your needs and a willingness to tailor our offering accordingly – whether you need something that will be replicated many times or something that is unique. Whether you have needs for measurements like creep detection on a hydro machine or reverse rotation on a machine with dry gas seals or a customized number of safety relays – in addition to basic overspeed functionality – our engineered solutions are designed to address such needs. And, they use standard building blocks for overspeed detection, logic solving, and local indication – all in a SIL-rated package that has the flexibility to accommodate any type of speed sensing input.

Contact your local vibro-meter sales professional today to learn more. *

- 1oo2 or 2oo3 configurations with support for up to 3 speed measurement chains
- Proximity, Hall-Effect, or Variable Reluctance (magnetic pickup) Sensors
- SIL3 capable in 2oo3 configurations; SIL 2 for 1oo2 configurations
- Available with or without Dynamic Control for global System Diagnostics
- Standard (2) or custom type and number of safety relays
- Standard (6) or custom type and number of auxiliary relays
- Standard (3) or custom type and number of analog outputs
- Standard (3) or custom number of individual frequency outputs (processed raw speed signal)

- Redundant power supply inputs with options for 110VAC, 230VAC, and high-voltage DC supplies
- Local or remote HMI (speed indicators / system status)
- Digital communications with other control and automation platforms via industry-standard protocols
- Machine state-based capabilities via digital logic inputs
- Standard or custom faceplate to match existing mounting provisions and dimensions
- Reset button
- Proof Test button
- Standard or customized connectors

INTEGRATION
WITHOUT RISK

Knowing the status of your overspeed system is vital – but without compromising its protective features or exposing it to cybersecurity vulnerabilities.

Many customers choose to wire the SIL-rated 4-20mA output into a separate PLC, SCADA, or DCS environment where it can conveniently display current speed from each SpeedSys300 module. And, because each safety relay is DPST, it can be wired to both the safety loop and an annunciation loop to ensure that when the safety alarms change state, the condition is conveyed securely.

The Modbus interface allows digital communications to retrieve the same current value and status data from the device as via analog means, but also provides rich additional data such as error codes and operating parameters such as peak speeds, acceleration rates, alarm setpoint values, and more. However, the Modbus interface does not expose the device to vulnerabilities – data can only be read via this interface and the device cannot be placed in test mode, setpoints cannot be changed, and configuration cannot be changed. Instead, this level of access can only be done by those with physical access to the device via its local USB port accompanied by the SpeedSys300 configuration software. Multiple SpeedSys300 units can be connected via a single Modbus RS-485 interface, and each can be programmed with a separate Modbus address allowing a single DCS communications gateway to address any connected SpeedSys300. *

MEGGiTT

About us

Meggitt pioneered high performance sensing and condition monitoring solutions for extreme environments. After working with the world's turbine manufacturers for more than 60 years, Meggitt through vibro-meter portfolio remains master of all aspects of the condition monitoring and machinery protection disciplines.
From high performance sensing, data acquisition and management to the high speed digital networking and the signal processing algorithms that can deliver diagnostics for prescriptive maintenance solutions.

Meggitt PLC

Headquartered in the United Kingdom, Meggitt PLC is an international group operating in North and South America, Europe and Asia. Known for its specialised extreme environment engineering, Meggitt is a world leader in aerospace, energy and defence markets.
An 11,000-strong workforce serves customers from around 40 manufacturing facilities and regional offices worldwide.

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