



StressWave Technology

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StressWave's SWANguard intelligent condition monitoring module provides integration with DCS & PLC and asset management systems

SWANguard: Intelligent Condition Monitoring

All equipment must function at optimal levels. Regardless of when failure occurs during an asset's life cycle, the failure starts as small discrepancies that progress to larger issues, eventually resulting in secondary damage, unacceptable operating conditions or even catastrophic failure. Traditional condition monitoring techniques such as vibration analysis do not provide a clear indication of problems until late in the failure process, are complex and costly, and perform poorly with low-speed machinery or in very noisy environments. SWANguard is a state of the art condition monitoring device that insures peak performance and to maintains high availability, without the issues of other condition monitoring techniques.

SWANguard offers a cost effective way for monitoring the mechanical condition of equipment for early detection of mechanical degradation and wear. The patented Curtiss-Wright Stress Wave Analysis technology (SWAN™) is ideal for applications where the equipment being monitored is subject to changing operating conditions. The SWANguard module uses sound instead of motion to identify and directly measure friction and mechanical deterioration. These stress wave measurements provide a direct measurement of the friction and wear, even early in a machines life cycle.

Depending on a system's complexity, a single SWANguard module can monitor one or more sets of equipment. For simple devices, such as small pumps, a single sensor may suffice. The SWANguard takes continuous stress wave measurements and computes an aggregate friction/wear value called SWE (Stress Wave Energy). The SWE value is a real-time indication of the level of friction/wear being experienced by the machine or component.

By trending this value over time it is possible to see when mechanical degradation is beginning, when actual damage occurs, and when remaining operating life is rapidly decreasing. SWE can even identify lubrication problems and operational factors that place high or excessive stress and wear on the equipment.

A SWANguard module can be treated as a "smart sensor/analyzer" and act as a friction transmitter, with its SWE value(s) being passed to a DCS, PLC or condition monitoring system as analog inputs, or via the serial MODBUS port. External annunciation can be connected to the contact outputs to provide an alert/warning as SWE rises to elevated or excessive levels.

StressWave's SWANguard module provides additional important benefits including easy and low cost installation, minimal training, simple configuration via the MODBUS link, and the earliest detection of mechanical and lubrication degradation of most condition monitoring software.

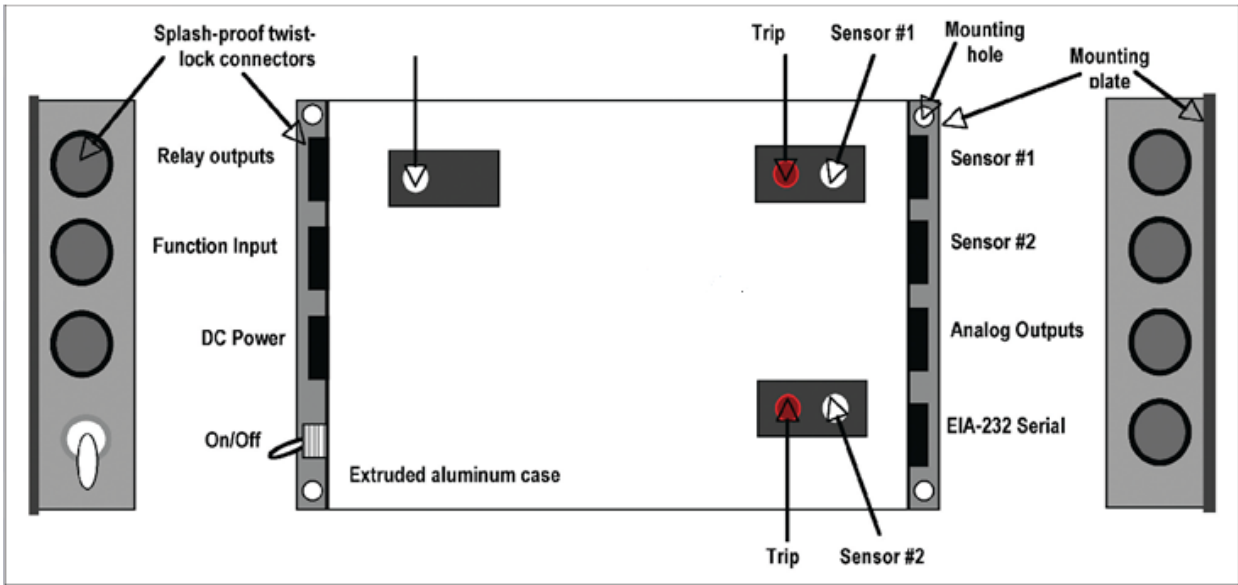


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SWANGuard Features

- Two (2) to eight (8) sensor density per module
- AC or DC power supply options
- External tachometer input and trigger input
- Indicator LEDs
- Terminal block or pre-built, twist-lock cable terminations
- External mounting environmental packaging
- Analog output (4-20 ma) signal for each sensor's SWE value
- Contact outputs triggered by user-selected thresholds
- Serial MODBUS communications for configuration and data
- Detection of open and shorted sensors
- Long-term internal storage of SWE/SWPA history data

SWANGuard Options

- EIA/RS-485 serial multi-drop communications
- Spread spectrum wireless communications
- Fiber Optic communications
- 10/100baseT ETHERNET communications
- Special-voltage power supply
- UPS power supply
- NEMA 12, 4, 4X rated enclosures
- Warning contact NO or NC
- Analog (telephone) modem
- Interposing relay

Two-Sensor Type SWANGuard Enclosure Connections and Indicators

- Operating temperature: 0 – 60 °C
- Operating humidity: 5 – 95% Non-condensing
- Dimensions (extruded aluminum case): 9.25" x 6.75" x 2.30"
- Power consumption: 10 – 30 VDC (6 Watts @ 24 VDC)
- Cable length to sensors: 5' to 300'
- Non volatile storage: FLASH memory
- Baud rates: 9.6 to 33.6 Kbps
- SWE level tri-color LEDs: one per sensor
- Contact output trip LEDs one per output relay
- System status LED: one
- Contact inputs: Tach/ RPM and Trigger
- Communications protocol: MODBUS RTU "slave"
- SWE or SWPA output as 4-20 ma analog(s)
- Alert and Warning contact outputs Form-C

