

Anomaly Detection System

The SignalPro™ Anomaly Detection System is a data driven modeling engine that increases the 'signal to noise' ratio of data from mechanical or other systems. It provides early indication of subtle changes in system behavior - such as from system degradation or sensor calibration drift. SignalPro is especially useful in systems that have high inherent variability in the expected measurements due to operating conditions such as load level, speed, ambient temperature, etc. SignalPro effectively cancels out the normal operational variation to find the 'unwanted' or unexpected variation.

Where can SignalPro be applied?

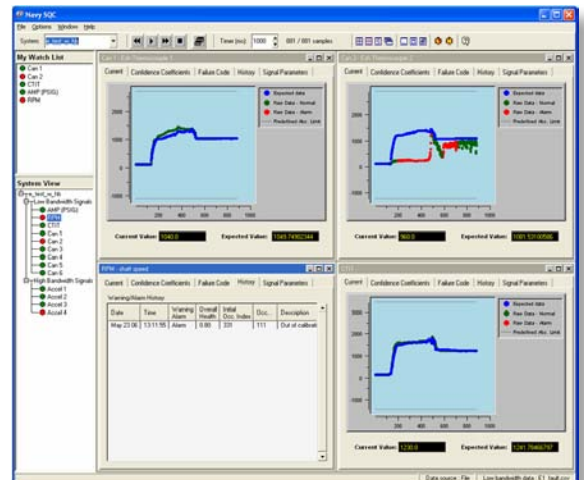
SignalPro can be applied by itself or in conjunction with on-line condition or performance monitoring platforms, data historians, manufacturing process tracking software, control systems and a variety of other applications.

SignalPro has been applied to:

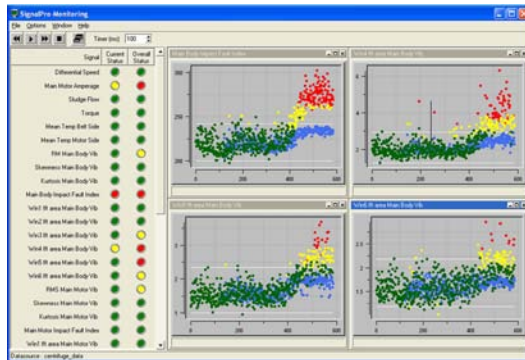
- Aircraft gas turbines on test stands – engine diagnostics and signal monitoring
- Shipboard sensor validation for both low and high-bandwidth signals
- Power plant performance monitoring
- Water treatment - condition monitoring
- Helicopter engine health assessment, diagnostics and prognostics
- Shipboard gas turbines – compressor fouling detection



Shipboard Sensor Validation Application



Water Treatment Application



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SignalPro provides a cost-effective solution for monitoring critical assets

Features:

- SignalPro increases the signal to noise ratio to identify system problems - giving advanced warning to enable operational changes, avoid increased damage, and optimize scheduling of maintenance.
- SignalPro can be used to recover signals – when a raw measurement drops out due to a sensor failure, the SignalPro calculation can substitute for the measurement until the sensor can be repaired.
- SignalPro calculates the expected value for every sensor in the system to make system troubleshooting and root cause analyses easier.
- SignalPro provides a cost-effective solution for monitoring critical assets.
- Because the model is data-driven, it is easy to update and enhance the system without needing a full physical modeling effort.
- Because SignalPro is typically integrated into your existing operational systems, you do not need to learn a new GUI from a separate monitoring software package. SignalPro will deliver information to the right people at the right time.
- SignalPro can model any system; all SignalPro needs is previous data over the operating range - the historical data set is the model. Unlike traditional neural network approaches, “retraining” the system for a new set of historical data is internal to the software, and is very fast.

Summary

In run-time, when actual sensor measurements deviate from where they should be at the current operating condition, the SignalPro™ model output will vary from the measured data, giving early actionable indication of either system or sensor degradation.

