STI

Vibration Monitoring and Machine Protection Systems

1010 East Main Street, League City, TX 77573   Phone: 281.334.0766   Fax: 281.334.4255
www.stiweb.com / www.stiwebstore.com

STI Vibration Monitoring Inc.

Condition Monitoring Custom Products

Case History
Kinetic UPS Monitoring using HMI

Problem:

The customer needed a solution for monitoring of a multiple large 2.1 mw Kinetic UPS Systems made up of a Marine Diesel Engine, Motor/Generator, Over-run Clutch and Enclosed Flywheel. The flywheel is kept at a constant RPM by the motor/generator and during a power outage the kinetic energy of the flywheel is used to drive the motor/generator until the diesel engine starts and comes up to speed on the over-run clutch.

X&Y Accelerometers were to be mounted at all rolling element bearings and proximity probes at the Flywheel. Speed, Displacement, Velocity and Acceleration Enveloping (gE) were to be monitored. In addition bearing, motor and flywheel temperatures along with several pressures were to be monitored. The OEM also requested custom calculations and alarming based on their own algorithms for the flywheel.

Solution:

A modern HMI (Human Machine Interface) based system was recommended based on Wonderware's Intouch Software. CMCP500 Series Transmitters were used to convert the dynamic vibration signals to a usable output for the I/O Modules. Temperatures and pressures were wired directly to I/O Modules. Relay Modules were provided for alarms.

A custom enclosure was engineered and integrated to house the CMCP500 Series Transmitters, Field I/O, Power Supplies and Relay Modules. Intermediate terminal blocks were provided to make field connection of sensor wiring easy. All modules were mounted on a back panel using DIN rail and the system was completely integrated and tested at STI's Houston facility.

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The painted steel window enclosure I/O was connected to an industrial panel mounted touch screen color PC using an Ethernet Cat5e cable. STI provided a custom application program using 6 standard screens and a single custom screen (not shown). All monitoring is performed by the HMI software where up to 4 alarms can be set for each parameter. On alarm the HMI signals the appropriate relay. In addition the HMI system provides historical trending for up to one year.

Moving between screens is intuitive by using common touch buttons at the bottom of each screen. Global Alarm Indicators alert the user to changes on whichever screen they are on. Alarm set points are easy to adjust and password protected.
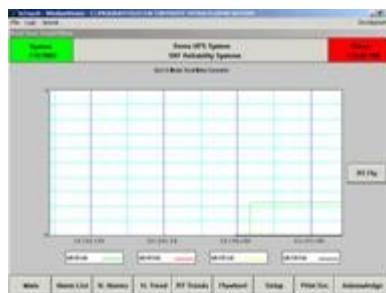

Main Mimic

Current Alarm List

Historical Alarm List

Real Time Trend

Historical Trend

Setup Screen(s)

Please contact us for information concerning your application. We will be more than happy to work with you to provide a solution that meets your needs.