

Fan Monitoring System

- Reduces unexpected downtime
- Assists with planned maintenance
- Monitors process and critical fan components
- Communicates with building automation systems



BUILDING VALUE IN AIR.



Greenheck's Fan Monitoring System (FMS) is designed to allow facilities and maintenance managers the ability to stay connected with their critical ventilation products. The FMS package includes a pre-programmed monitor along with a wide selection of commonly applied sensors to monitor the overall equipment health, plan maintenance, and monitor energy usage.

Fan Monitoring System Benefits

- Pre-programmed electronics with commonly applied sensors
- Applicable to any fan type in easy to access or remote locations
- Connects with Building Management System (BMS)
- Customizable to unique installations and applications
- Schedule maintenance based on operation, not calendar dates

Applications

- Hospitals
- Critical care
- Commercial buildings
- Manufacturing facilities
- Critical process exhaust
- Pharmaceuticals

System Integration



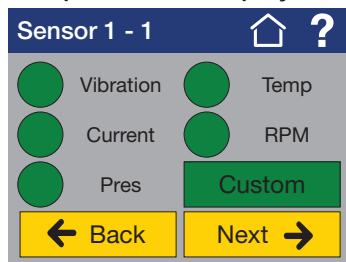
Monitor

The monitor is pre-programmed with fault setting for alarms. Critical equipment information is sent to the BMS for trend analysis indicating system condition. Data is accessed through local display and analog outputs.

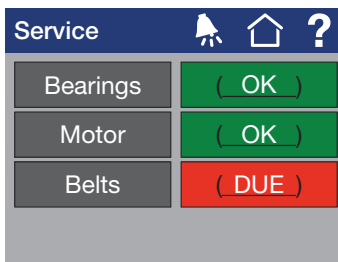
- Easy to use LCD touch screen
- Programmable maintenance reminders
- Analog output for connection to BMS
- NEMA-4 weatherproof enclosure



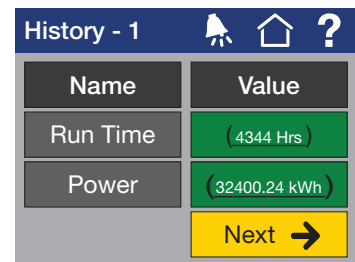
Sample Screen Displays



Selection of Service Types Per Sensor Package



Service Reminders/ Maintenance Schedules



Fan Operation/Actual Runtime/Energy Usage

Sensor Kit + Monitor = Fan Monitoring System

Sensor Kits		Monitor
Pressure 	RPM 	
Current 	Airstream Temperature 	
Vibration 	Bearing Temperature 	

Monitoring System Packages	Sensor Kits						Package Description
	Vibration	RPM	Current	Bearing Temperature	Airstream Temperature	Pressure	
Bearing Vibration - Standard Single Sensor - Critical Double Sensor	● ●						Determine bearing health through BMS trend analysis with real-time vibration levels and receive high level vibration alarms. Single sensor for tracking one fan bearing, average between two fan bearings or to detect motor vibration. Two sensors track vibration levels on both fan bearings or one fan bearing and motor for higher level of detection and protection.
Current Only			●				Measure current flowing to the motor. Package provides actual run time hours, maintenance notifications, real-time and cumulative energy usage and operation alarms.
Current and Vibration	●		●				Kit combination confirms fan operation, actual run time, maintenance notifications, energy usage and vibration readings for trending fan condition and alarms.
Fan RPM Only		●					Provides maintenance notifications through actual run time and monitors fan speed with confirmation of operation and alarms for over/under speed condition.
Bearing Temperature				● ●			Cost effective means to analyze bearing health. Increasing temperature levels indicate component wear. Package provides temperature values for BMS trend analysis and high temperature alerts for two bearings.
Fan RPM and Vibration	●	●					Package provides notifications for maintenance through actual run time, verifies fan speed, tracking single fan bearing condition plus receive alarms for exceeding vibration or RPM limits.
Fan RPM and Current		●	●				Track actual fan operation hours, receive maintenance notifications, monitor real-time and cumulative energy usage, verify fan speed with alarms for RPM limits.
Airstream Temperature and Pressure					●	●	Real-time temperature and pressure values validate processes are within operation tolerances. Fan monitor also provides high and/or low level alerts.
System Pressures						● ●	Two sets of pressure kits allow measurement of multiple duct or differential pressure combinations. Package gives real-time process or system conditions and alarms for out of tolerance limits.

● = Single Sensor ●● = Two Sensors

Fan Monitoring System

Fan Monitor

- NEMA-4 and IP56 Enclosure Rating
- Factory calibrated, plug and play wiring
- 120-240 Vac or 24 Vac/Vdc input voltage
- Two analog sensor inputs using any of the following:
 - 4-20 mA, 0-10 Vdc, 2-10 Vdc
- Three selectable isolated outputs matched to inputs:
 - 4-20 mA, 0-10 Vdc, 2-10 Vdc
- Temperature Range: -4 to 140°F (-20 to 60°C)
- LCD display with user-friendly touch panel interface
- English or Metric readings
- ETL Listed

Vibration Sensor Kit

Kit includes: vibration sensor, base and cable

- Velocity vibration sensor, corrosion resistant stainless steel casing
- Temperature Range: -40 to 185°F (-40 to 85°C)
- Output Signal: 4-20 mA
- Accuracy: 5% transverse sensitivity, ±2% repeatability

Current Sensor Kit

Kit includes: one (1) current sensor (100 amps max), polycarbonate enclosure

- Current sensor with analog output, operating power induced from monitored wiring
- NEMA-4/4X (IP 66/67) polycarbonate mounting enclosure
- Temperature Range: 5 to 104°F (-15 to 40°C)
- Output Signal: 0 to 10 Vdc
- Maximum Motor Current: 0-50 or 0-100 Amps
- Maximum Distance from Fan Monitor: 100 feet (30 m)
- Accuracy: ±1%, 2 to 100% FSO

Pressure Sensor Kit

Kit includes: one (1) pressure sensor and two (2) static pressure probes

- Differential pressure transmitter
- Two (2) pressure probes with stainless steel tip and integral mounting bracket
- NEMA-4X (IP 66) enclosure for transmitter
- Temperature Range: 0 to 150°F (-18 to 66°C)
- Output Signal: 0 to 10 Vdc
- Accuracy: ±1%

Bearing Temperature Sensor Kit

Kit includes: single thermocouple, transmitter and conduit enclosure

- J type thermocouple terminal ring with wiring
 - 4 ft. (1.2 m) length
- Push button temperature transmitter with LED for visual sensor fault and programming mode
- NEMA-4X (IP 66) transmitter mounting enclosure
- Temperature Range:
 - Temperature Terminal Ring: 32 to 482°F (0 to 250°C)
 - Transmitter: -4 to 158°F (-20 to 70°C)
- Output Signal: 4-20 mA
- Accuracy: ±0.9°F (±0.5°C)

Airstream Temperature Sensor Kit

Kit includes: one (1) thermocouple (max. 212°F, 100°C), transmitter, conduit enclosure

- Thermocouple stainless steel construction
- Push button temperature transmitter with LED for visual sensor fault and programming mode
- NEMA-4X (IP 66) with supplied mounting enclosure
- Temperature Range:
 - Temperature Probe: -148 to 212°F (-100 to 100°C)
 - Transmitter: -4 to 158°F (-20 to 70°C)
- Output Signal: 4-20 mA
- Accuracy: ±0.9°F (±0.5°C)

RPM Sensor Kit

Kit includes: one (1) proximity sensor, transmitter and cable harness

- Inductive proximity sensor with nickel plated brass construction
- Frequency to analog converter and transmitter
- NEMA-4X (IP 67) transmitter enclosure:
- Temperature Range: 32 to 120°F (0 to 50°C)
- Output Signal: 4-20 mA
- Maximum Distance from Fan Monitor: 100 feet (30 m)
- Accuracy: ±0.1%

Our Commitment

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Specific Greenheck product warranties are located on greenheck.com within the product area tabs and in the Library under Warranties.



Prepared to Support
Green Building Efforts

