A6220 Shaft Eccentricity Vibration Monitor for AMS 6500 Machinery Health Monitor

A6220

The Shaft Eccentricity Monitor is designed for high reliability for the plant's most critical rotating machinery. This 1-slot monitor is used together with other AMS 6500 monitors to build a complete API 670 machinery protection monitor. Applications include steam, gas, compressors and hydro turbomachinery.

The main functionality of the Shaft Eccentricity Monitor is to accurately monitor shaft eccentricity and reliably protect machinery by comparing vibration parameters against alarm setpoints, driving alarms and relays.

Shaft eccentricity monitoring consists of a displacement sensor either mounted through the bearing case or mounted internally on the bearing housing with an eccentricity collar near the thrust bearing as the target. The displacement sensor is a non-contact sensor measuring shaft movement proportional to shaft bowing or bent shaft, below 600 rpm.

Shaft eccentricity monitoring is an important measurement on large sleeve bearing machines for predictive and protection monitoring.

The AMS 6500 Machinery Health Monitor is an integral part of PlantWeb® and AMS software.

PlantWeb provides operations integrated machinery health combined with the Ovation® and DeltaV™ process control system. AMS software provides maintenance personnel advanced predictive and performance diagnostic tools to confidently and accurately determine machine malfunctions early.

Transducer Inputs	
Number of Inputs	Two, independent
Type of Inputs	Eddy current, differential
Emerson Sensor Inputs	Part number: 6422, 6423, 6424, 6425
Isolation	Galvanically separated from power supply
Input Resistance	>100 kΩ
Input Voltage Range	-1 to 23 VDC
Input Frequency Range	0.017 - 70 Hz (102 - 4200 rpm)

- Two-channel, 3U size, 1-slot plug-in module decreases cabinet space requirements in half from traditional four-channel 6U size cards
- API 670 compliant, hot swappable module
- Remote selectable limit multiply and trip bypass
- Front and rear buffered and proportional outputs, 0/4-20 mA output, 0 - 10 V output
- Self-checking facilities include monitoring hardware, power input, hardware temperature, sensor and cable
- Use with displacement sensor 6422, 6423, 6424 and 6425, driver CON XXX and key monitoring module

Measuring Range	
Range	Continuously adjustable with the configuration software
Smallest Range	0 - 400 mV peak
Largest Range	0 - 8000 mVpeak
Sensor Power Supply	■ Separate buffered sensor supply ■ Galvanically separated from all system voltages and system supply voltage ■ Open and short circuit proof
Nominal Voltage	-26.7 VDC
Available Current	Nominal 20 mA, maximum 35 mA
Front Panel Outputs	
Green LED's	Two LED's, indicates channel OK separately for each channel
Red LED's	Four LED's, indicates alert and danger separately for each channel
Front Panel Buffered Outputs	Two, identical to transducer sensor inputs -1 to - 24 V, >100 kΩ load, freq. range 0 - 16 kHz (-3db)
Mini DIN Configuration Socket	■ Module interface connection for configuration and parameter and status monitoring ■ RS-232
Handle	Easily remove card and provide plate for module and sensor identification
Analysis	
Measurement Modes	■ Hot configurable (60 second settling time) Peak to peak ■ Min/max measurement ■ Continuous gap measurement
Configurable Parameters	■ Measuring range ■ Engineering units ■ Sensor sensitivity

Rear Outputs Available	
Current Mode Outputs	■ 0/4-20 mA output for each channel proportional to main value ■ Open/short circuit proof
Permissible Load	<500 Ω
Accuracy	±1% of full scale
Settling Time	Configurable, 0 - 10 seconds
Voltage Mode Outputs	■ 0 - 10 VDC output proportional to main value for each channel ■ Open/short circuit proof
Permissible Load	>10 kΩ
Rear Buffered Outputs	Raw buffered output signal, AC and DC Open/short circuit proof
Frequency Range	0 Hz - 16 kHz (-3 dB)
Permissible Load	>10 kΩ
DC Voltage Outputs	■ 0 - 10 VDC output proportional to the shaft position (gap) ■ Open/short circuit proof
Accuracy	±1% of range
Permissible Load	>10 kΩ
Alarm Setpoints Alarm Time Delays	
Alert	■ Selectable normally open, normally closed 0 - 5 second delay per channel ■ 0 - 36 second delay with A6740 relay card ■ Selectable to be blocked on channel not OK ■ Adjustable range 5 - 100% of full scale value ■ Resolution 1% of full scale value ■ Alarm hysteresis on decreasing signal value, 0 - 20% of full scale value
Danger	■ Selectable normally open, normally closed 0 - 5 second delay per channel ■ 0 - 36 second delay with A6740 relay card ■ Selectable to be blocked on channel not OK ■ Adjustable range 5 - 100% of full scale value ■ Resolution 1% of full scale value ■ Alarm hysteresis on decreasing signal value, 0 - 20% of full scale value

OK	Self checking (normally closed): ■ Power supply, sensor, cable, module checking, overload, internal temperature, system watchdog Green LED: ■ Off when not OK ■ During delay time, LED flashes ■ Reason for not OK can be read from communication bus
Limit Multiply	Remote, relay input, 1.00-4.99 factor
Trip Bypass	Remote, relay input
Environmental, General	
Module	IP 00, DIN 40050
Front Plate	IP 21, DIN 40050
Climate	DIN 40040 class KTF
Operating Temperature	0° - 65°C (32° - 149°F)
Storage Temperature	-30° - 85°C (-22° - 185°F)
Relative Humidity	5 - 95%, non-condensing
Vibration	■ IEC 68-2, part 6 ■ 0.15 mm, 10 - 55 Hz ■ 19.6 mm/s2, 55 - 150 Hz
Shock	■ IEC 68-2, part 29 ■ 98 m/s2 peak, 16 ms
EMC Resistance	EN50081-1 / EN50082-2
Power Consumption	Max. 6 W, 250 mA at 24 VDC
Configuration	Password protected

A6220 Dimensions:

PCB/EURO card format according to
DIN 41494, 100 x 160mm (3.937 x 6.300in)

Width: 30.0mm (1.181in) (6 TE)

Height: 128.4mm (5.055in) (3 HE)

Length: 160.0mm (6.300in)

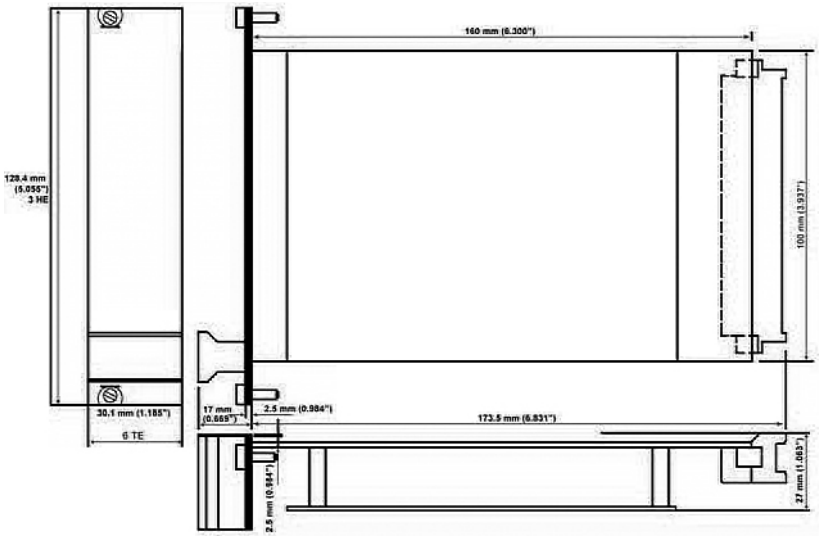
Net Weight: app 320g (0.705lbs)

Gross Weight: app 450g (0.992lbs)
includes standard packing

Packing Volume: app 2.5dm³ (0.08ft³)

Space
Requirements: 1 slot

14 modules fit into each 19" rack



Ordering Information

Model Number	Product Description
A6220	Dual-channel Eccentricity Vibration Monitor