A6500-UM – Configured for Shaft Relative Vibration

The Shaft Relative Vibration Mode is designed for extremely high reliability for the plant's most critical rotating machinery. This functionality is used together with other CSI A6500 ATG monitors to build a complete API 670 machinery protection monitor. Applications include steam, gas, compressors, and hydro turbo machinery.

The main functionality of the Shaft Relative Vibration measurement is to accurately monitor Shaft Relative Vibration and reliably protect machinery by comparing vibration parameters against alarm setpoints, driving alarms, and relays.

Shaft Relative Vibration consists of a displacement sensor either mounted through the bearing case, or mounted internally on the bearing housing, with the rotating shaft being the target.

The displacement sensor is a non-contact sensor measuring shaft position and movement. Since the displacement sensor is mounted to the bearing, the monitored parameter is said to be shaft relative vibration, that is, shaft vibration relative to the bearing case.

Shaft relative vibration is an important measurement on all sleeve bearing machines for predictive and protection monitoring. Shaft relative vibration should be selected when the machine case is massive as compared with the rotor, and the bearing case is not expected to vibrate between zero and production-state machine speeds. Shaft absolute is sometimes selected when the bearing case and rotor mass are more closely equal, where it is more likely that the bearing case will vibrate and impact shaft relative readings.

Transducer Inputs	
Number of Inputs	Two, independent or combined monitoring modes
Type of Inputs	Eddy current, differential
Emerson Sensor Inputs	Part number: PR6422, PR6423, PR6424, PR6425
Isolation	Galvanically separated from power supply
Input Resistance	>100kΩ
Input Voltage Range	-1 V to -22 V
Input Frequency Range	0 Hz to 18.75 kHz configurable

- 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 – 20mA output.
- Self-checking facilities include monitoring hardware, power input, hardware temperature, sensor, and cable.
- Use with displacement sensors PR6422, PR6423, PR6424, PR6425, and driver CON 011/91, 021/91,041/91.

Measuring Range	
Range	Continuously adjustable with the configuration software
Smallest Range	0–400mV
Largest Range	0–8000mV
Sensor Power Supply	Open/short circuit proof
Nominal Voltage	-23.25 V/-26.0 V DC
Available Current	Nominal 20mA, maximum 35mA
Front Panel Outputs	
Green LEDs	Two LEDs, indicates channel OK separately for each channel
Red LEDs	Two LEDs, indicates alert and danger separately for each channel
Front Panel Buffered Outputs	Two, identical to transducer sensor inputs AD and DC, >100kΩ load, freq. range 0...18.75khz
Handle	Easily remove card and provide plate for module and sensor identification
Analysis	
Measurement Modes	Zero to peak Peak to peak Independent dual-channel or combined dual-channel modes Smax (combined) (DIN 45670A) Smax peak to peak (combined) (DIN 45670B, VDI 2059) Smax 0–peak Y. X (independent) (API 670)
Analysis Parameters	½x, 1 – 10x and phase angle of same Available through ModBus TCP/IP output

Rear Outputs Available	
Current Mode Outputs	0/4-20mA output for each channel proportional to main value - For example, both ouputs are identical combined for Smax (combined mode) - For example, both ouputs are independent for Y and X (independent mode) Open/short circuit proof
Permissible Load	<500Ω
Accuracy	±1% of full scale
Settling Time	Configurable, 0 – 10 seconds
Rear Buffered Outputs	Raw buffered output signal, AC and DC Open/short circuit proof
Frequency Range	0 Hz to 18.75 kHz
Permissible Load	>100kΩ

A6500-UM – Configured for Case Piezoelectric Vibration

The Case Piezoelectric Vibration Mode is designed for high reliability for your plant's most critical rotating machinery monitoring case vibration from accelerometer sensors. This 1-slot monitor is used together with other CSI A6500 ATG monitors to build a complete API 670 machinery protection monitor. Applications include steam, gas, compressors, and hydro turbo machinery.

The main functionality of the Case Peizoelectric Vibration Monitor is to accurately monitor case vibration and reliably protect machinery by comparing vibration parameters against alarm setpoints, driving alarms, and relays.

Case Piezoelectric Vibration sensors, sometimes called case absolute (not to be confused with shaft absolute), are accelerometers, or velometers, with the output in acceleration or velocity. The case vibration monitor provides vibration monitoring for the bearing case in g's acceleration or velocity, mm/sec (in/sec). Since the sensor is mounted on the case, the resultant vibration of the case can be influenced by many different sources including rotor movement, foundation and case stiffness, blade vibration, adjacent machines, etc.

When replacing field sensors, many seismic sensors are being replaced with piezoelectric-type.

Case measurements are mandatory in nuclear power applications. Case measurements with piezoelectric sensors are also common for rolling element bearing machines and gearboxes. Emerson recommends the piezoelectric sensor and piezoelectric sensor monitor for use when updating both field sensors and monitors.

- 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.
- Self-checking facilities include monitoring hardware, power input, hardware temperature, sensor, and cable.
- Use with piezoelectric accelerometers and velometer sensors.

Transducer Inputs	
Number of Inputs	Two, independent, differential inputs
Type of Inputs	Piezoelectric (accelerometer or velometer)
Input Resistance	>100kΩ
Input Voltage Range	+1 V to +23 V
Signal Input Voltage Range	16 – 9500mV peak to peak
Input Frequency Range (Accelerometer)	0 Hz to 18.75 kHz configurable
Input Frequency Range (Velometer)	0 Hz to 18.75 kHz configurable
Sensor Supply	Accelerometer, constant current, 0 – 8mA, +25 V

Configurable Parameters	Measuring range RMS or zero to peak Sensitivity Alert and Danger Filter frequency range
Sensor Power Supply	Open/short circuit proof
Front Panel Outputs	
Green LEDs	Two LEDs indicate channel OK separately for each channel
Red LEDs	Four LEDs, indicates alert and danger separately for each channel
Front Panel Buffered Outputs	Two, identical to transducer sensor inputs, AD and DC, >100kΩ load, freq. range 0...18.75khz
Handle	Easily remove card and provide plate for module and sensor identification
Analysis	
Measurement Modes	Independent dual-channel
Accelerometer Sensor	PeakVue value or time waveform Up to eight configurable filter bands
Velocity Sensor	Up to eight configurable filter bands
Analysis Parameters	½x, 1 – 10x and phase angle of same Available through ModBus TCP/IP output
Rear Outputs Available	
Module Current Outputs	0/4-20mA output for each channel proportional to main value For example, RMS or zero to peak Open/short circuit proof
Permissible Load	<500kΩ
Accuracy	±1% of full scale
Setting Time	Configurable, 0 – 10 seconds.
Rear Buffered Outputs	Raw buffered output signal, AC and DC Open/short circuit proof
Frequency Range	0 Hz to 18.75 kHz
Permissible Load	>100kΩ

A6500-UM – Configured for Shaft Absolute Vibration

The Shaft Absolute Vibration Mode is designed for high reliability for the plant's most critical rotating machinery. This one-slot monitor is used together with other CSI 6500 ATG monitors to build a complete API 670 machinery protection monitor. Applications include steam, gas, compressors, and hydro turbo machinery.

The main functionality of the Shaft Absolute Vibration measurement is to accurately monitor shaft absolute vibration and reliably protect machinery by comparing vibration parameters against alarm setpoints, driving alarms, and relays.

The Shaft Absolute Transducer System consists of a relative displacement sensor and a case-mounted vibration sensor located in the same external housing. The displacement sensor is a non-contact sensor measuring shaft position and movement relative to the case, and the case-mounted vibration sensor measures case absolute relative to free space.

The two sensors are phase compensated for the different units and mathematically subtracted to get absolute displacement of the shaft relative to free space.

Shaft Absolute Vibration is an important measurement on all sleeve bearing machines for predictive and protection monitoring. Shaft absolute vibration should be selected when the bearing case and the rotor mass are closely matched, as the bearing case may have significant movement during machine operation.

Transducer Inputs	
Number of Inputs	Two, independent or combined monitoring modes
Type of Inputs	Eddy current, seismic or piezoelectric, differential
Emerson Sensor Inputs	Channel 1 part numbers: PR6422, PR6423, PR6424, PR6425 Channel 2 part numbers: Select from accelerometers and velocity transducers
Isolation	Galvanically separated from power supply

- 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.
- Front and rear buffered and proportional outputs, 0/4-20 mA output.
- Self-checking facilities include monitoring hardware, power input, hardware temperature, sensor, and cable.
- For connecting one displacement sensor and one seismic, or piezoeletric sensor, so that the combined output is shaft absolute relative to free space.
- Use with displacement sensor PR6422, PR6423, PR6424, PR6425, and driver CON 011/91, 021/91, 041/91, and case-mounted piezoelectric velocity sensor.

Channel 1 Displacement Sensor	
Input Resistance	>100kΩ
Input Voltage Range	-1 V to -22 V
Input Frequency Range	0 Hz to 18.75 kHz configurable
Smallest Range	0 – 400mV peak to peak
Largest Range	0 – 2000mV peak to peak
Sensor Power Supply	Open/short circuit proof
Nominal Voltage	-23.25 V/-26.0 V DC
Available Current	Nominal 20mA, maximum 35mA
Channel 2 Case Vibration Sensor	
Input Resistance	>100kΩ
Input Voltage Range	+1 to +23 V resp. -10 V... +15 V
Signal Input Voltage Range	311-9500mV peak to peak
Input Frequency Range	0 Hz to 18.75 kHz configurable
Sensor Supply for Accelerometer	Constant current, 0-8mA, +25 V resp. +12 V
Sensor Power Supply for Accelerometer	Open/short circuit proof
Front Panel Outputs	
Green LEDs	Two LEDs, indicates channel OK separately for each channel
Red LEDs	Two LEDs, indicates alert and danger separately for each channel
Front Panel Buffered Outputs	Two: - Channel 1, -1 – -22 V, >100kΩ load, freq. range 0...18.75khz - Channel 2, +1... +23 V resp. -10 V +15 V freq. range 0...18.75khz
Handle	Easily remove card and provide plate for module and sensor identification

Analysis	
Measurement Modes	Hot configurable Zero to peak Peak to peak Independent dual-channel or combined dual-channel modes
Configurable Parameters	Measuring range RMS, zero to peak or peak to peak Sensitivity Alert and Danger Filter frequency ranges
Analysis Parameters	1/2x, 1-10x and phase angle of same Available through ModBus TCP/IP output
Rear Outputs Available	
Current Mode Outputs	0/4-20 mA output for each channel proportional to main value - For example, both ouputs are identical combined for Smax (combined mode) - For example, both ouputs are independent for Y and X (independent mode) Open/short circuit proof
Permissible Load	<500Ω
Accuracy	±1% of full scale
Settling Time	Configurable, 0 – 10 seconds
Rear Buffered Outputs	Raw buffered signal, AC and DC Open/short circuit proof
Frequency Range Channel 1	0 Hz to 18.75 kHz
Frequency Range Channel 2	0 Hz to 18.75 kHz
Permissible Load	>100kΩ
Accuracy	±1% of range

A6500-UM – Configured for Thrust and Rod Position, Differential and Case Expansion, Valve Position

The A6500-UM can operate in 3 distinct modes: thrust position, differential expansion, or rod position.

The Thrust position mode accurately monitors thrust position and reliably provides machinery protection by comparing the measured axial shaft position against alarm set-points, driving alarms, and relay outputs.

Shaft thrust monitoring is one of the most critical measurements on turbomachinery. Sudden and small axial movements should be detected in 40msecs or less to minimize or avoid rotor-to-case contact.

Redundant sensors and voting logic are recommended. Thrust bearing temperature measurement is highly recommended as a complement to thrust position monitoring.

Shaft thrust monitoring consists of one to three displacement sensors mounted in the axial direction parallel to the shaft at the shaft-end or thrust collar. The displacement sensor is a non-contact sensor that measures shaft position.

For extremely critical safety applications, the A6250 monitor provides triple-redundant thrust protection built on the SIL 3-rated overspeed system platform.

The A6500-UM can also be configured for differential expansion measurements. As both the case and rotor grow due to changes in thermal conditions at turbine start-up, differential expansion delivers a measure of the relative difference between mounted displacement sensors on the case and the sensor target on the shaft. If the case and shaft grow at approximately the same rate, then the differential expansion remains close to the desired value of zero. The differential expansion measurement mode supports tandem/complementary or cone/ramp modes.

Another measurement that can be configured is average rod drop mode - used to monitor rider band wear in reciprocating compressors. Over time, rider bands wear in horizontal reciprocating compressors due to the force of gravity acting on the horizontally-oriented piston in the compressor cylinder. If the rider band wears beyond spec, the piston can contact the cylinder wall and cause incremental machine damage and possible failure.

By mounting at least one displacement probe to measure the piston rod position, you will receive notification when the piston drops - an indication of rider band wear. You can then set shutdown protection thresholds for automatic trip. The average rod drop parameter can be factored to represent the actual rider band wear, or with no factor applied, rod drop will represent the actual movement of the piston rod.

Another measurement is for case expansion and valve position. This works with using LVDT sensors that are connected through the A6500-LC signal converter. It converts the carrier frequency signal of the LVDT into a -2 – -18V signal comparable to a typical eddy current signal.

- Two-channel, 3U size, 1-slot plug-in module decreases cabinet space requirements in half from traditional four-channel 6U size cards.
- API 670 and API 618 compliant, hot swappable module.
- Front and rear buffered and proportional outputs, 0/4 – 20mA output.
- Self-checking facilities include monitoring hardware, power input, hardware temperature, simplifies and cable.
- Built-in software linearization easing sensor adjustment after installation.
- Use with displacement sensor PR6422, PR6423, PR6424, PR6425, and driver CON XXX.
- Use A6500-LC signal converter to connect our LVDT sensors for case expansion and valve position measurement.

Transducer Inputs	
Number of Inputs	Two, independent
Type of Inputs	Eddy current differential
Emerson Sensor Inputs	Part number: PR6422, PR6423, PR6424, PR6425, PR 9350 LVDT together with A6500-LC
Isolation	Galvanically separated from power supply
Input Resistance	>100kΩ
Input Voltage Range	-1 V to -22 V
Input Frequency Range	0 – 8Hz (10Hz, -3dB)
Measuring Range	
Range	Continuously adjustable with the configuration software Also includes measuring range invert
Sensor Power Supply	Separate buffered sensor supply galvanically separated from all system voltage and system voltage supply Open/short circuit proof
Nominal Voltage	-23.25 V
Available Current	Nominal 20mA, maximum 35mA
Front Panel Outputs	
Green LEDs	Two LEDs, indicates channel OK separately for each channel
Red LEDs	Four LEDs, indicates alert and danger separately for each channel
Front Panel Buffered Outputs	Two, identical to transducer sensor inputs -1 – 22V, >100kΩ load
Handle	Easily remove card and provide plate for module and sensor identification
Analysis	
Measurement	Axial shaft movement Axial shaft position Measures cone, ramp and collar differential expansion Measures radial shaft position and bend Measures tandem configurations Measures conical disc with temperature compensation or radial displacement compensation Measures average rod position
Configurable Parameters	Measuring range Engineering units Sensitivity Alert and Danger

Rear Outputs Available	
Current Mode Outputs	0/4-20mA output for each channel proportional to main value - For example, both outputs are identical for combined mode Tandem/ Cone and assigned to the relevant channel for the modes Dual Channel or Min/Max - For example, Open/short circuit proof
Permissible Load	<500Ω
Accuracy	±1% of full scale
Settling Time	Configurable, 0 – 10 seconds
Rear Buffered Outputs	Raw buffered output signal, AC and DC Open/short circuit proof
Frequency Range	0 Hz to 18.75 kHz
Permissible Load	>100kΩ

A6500-UM – Configured for Shaft Eccentricity

The Shaft Eccentricity Mode is designed for high reliability for the plant's most critical rotating machinery. This 1-slot monitor is used together with other CSI 6500 ATG 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 Measurement is to accurately monitor shaft eccentricity and reliably protect machinery by comparing vibration parameters against alarm set- points, 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 600RPM.

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

Transducer Inputs	
Number of Inputs	Two, independent
Type of Inputs	Eddy current differential
Emerson Sensor Inputs	Part number: PR6422, PR6423, PR6424, PR6425
Isolation	Galvanically separated from power supply
Input Resistance	>100kΩ
Input Voltage Range	-1 V to -22 V
Input Frequency Range	0.017 – 70Hz (102 – 4200RPM)
Measuring Range	
Range	Continuously adjustable with the configuration software
Smallest Range	0 – 400mV peak
Largest Range	0 – 8000mV peak
Sensor Power Supply	Open/short circuit proof
Nominal Voltage	-23.25 V
Available Current	Nominal 20mA, maximum 35mA

- 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 – 20mA output.
- Self-checking facilities include monitoring hardware, power input, hardware temperature, sensor, and cable.
- Use with displacement sensor PR6422, PR6423, PR6424, and PR6425, driver CON XXX and key signal.

Front Panel Outputs	
Green LEDs	Two LEDs, indicates channel OK separately for each channel
Red LEDs	Two LEDs, indicates alert and danger separately for each channel.
Front Panel Buffered Outputs	Two, identical to transducer sensor inputs -1 – - 22V, >100kΩ load, freq. range 0...18.75khz
Handle	Easily remove card and provide plate for module and sensor identification
Analysis	
Measurement Modes	Peak to peak, Min/max Continuous gap (60 second settling time)
Configurable Parameters	Measuring range Engineering units Sensor sensitivity
Rear Outputs Available	
Current Mode Outputs	0/4 – 20mA output for each channel proportional to main value Open/short circuit proof
Permissible Load	<500Ω
Accuracy	±1% of full scale
Settling Time	Configurable, 0 – 10 second
Rear Buffered Outputs	Raw buffered outputs signal, AC and DC Open/short circuit proof
Frequency Range	0 Hz to 18.75 kHz
Permissible Load	>100kΩ

A6500-UM – Configured for Speed and Key

The Speed and Key Mode is designed for high reliability for the plant's most critical rotating machinery monitoring speed, phase, zero speed, and direction of rotation. This 1-slot monitor is used together with the CSI A6500 ATG monitors to build a complete API 670 machinery protection monitor. Applications include steam, gas, compressors, and hydro turbo machinery.

The Speed and Key measurement can be configured for redundant mode where automatic switchover from primary to backup tach is possible. Sensor gap voltage and pulse counting/comparison are monitored to trigger switchover. When the Speed and key measurement is operating in redundant mode, the main and failover key or speed displacement sensor must be installed in the same axial plane to ensure phase continuity upon failover.

Speed measurements consist of a displacement sensor mounted internally to the machine with the target being a toothed wheel, a keyway or gear rotating on the shaft. The purpose of the speed measurement is to alarm on zero speed, monitor for reverse rotation and provide a speed measurement to track process conditions for advanced analysis.

Key, or phase measurements, also consist of a displacement transducer but must have a once-per-revolution target, not a toothed wheel or gear for a target. The phase measurement is a critical parameter when looking for machine health changes.

- 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.
- Rear buffered proportional outputs, 0/4 – 20mA output.
- Self-checking facilities include monitoring hardware, power input, hardware temperature, sensor, and cable.
- Use with displacement sensor PR6422, PR6423, PR6424, PR6425, and driver CON XXX.

Transducer Inputs	
Number of Inputs	Two, independent
Type of Inputs	Eddy current differential
Emerson Sensor Inputs	Part number: PR6422, PR6423, PR6424, PR6425
Isolation	Galvanically separated from power supply
Input Resistance	>100kΩ
Input Voltage Range	-1 V to -22 V
Input Frequency Range	0 Hz to 18.75 kHz, 65,535RPM
Measuring Range	
Range	Continuously adjustable with the configuration software
Smallest Range	2V
Largest Range	0-30V
Sensor Power Supply	Separate buffered sensor supply Galvanically separated from all system voltages and system supply voltage Open/short circuit proof
Nominal Voltage	DC -23.25 V/-26.0 V
Available Current	Nominal 20mA, maximum 35mA

Front Panel Outputs	
Green LEDs	Two LEDs, indicates channel OK separately for each channel
Yellow LEDs	Four LEDs, indicates alert and danger separately for each channel
Front Panel Buffered Outputs	Two, signal input level AC and DC, >100kΩ load, frequency range 0Hz – 18.75 kHz
Handle	Easily remove card and provide plate for module and sensor identification
Analysis	
Measurement Modes	Speed Key
Speed Measurements with each Channel	Forward and reverse rotation with trigger wheel (1 – 255 trigger marks), max, freq. 20kHz
Pulse Width Time Window	5 – 10msec
Key Pulse Detection with each Channel	One key mark on the shaft Possible with multiple key marks, but phase will change with each start-up
Zero Speed Monitor with each Channel	Detects zero speed of trigger wheel with 1 – 255 trigger marks Measures time between two pulses in a configurable range of 1 – 1700 seconds, forward or reverse direction
Both Channels in Combined Use	Detects direction of rotation of two trigger marks of which one is phase shifted Detects a difference between the speed of two trigger wheels, difference adjustable in number of RPM
Rear Outputs Available	
Current Mode Outputs	0/4 – 20mA output for each channel Proportional to main value Open/short circuit proof
Permissible Load	<500Ω
Accuracy	±1% of full scale
Setting Time	Configurable, 0 – 10 seconds
Pulse Outputs	0Hz – 20kHz output for each channel Open/short circuit proof

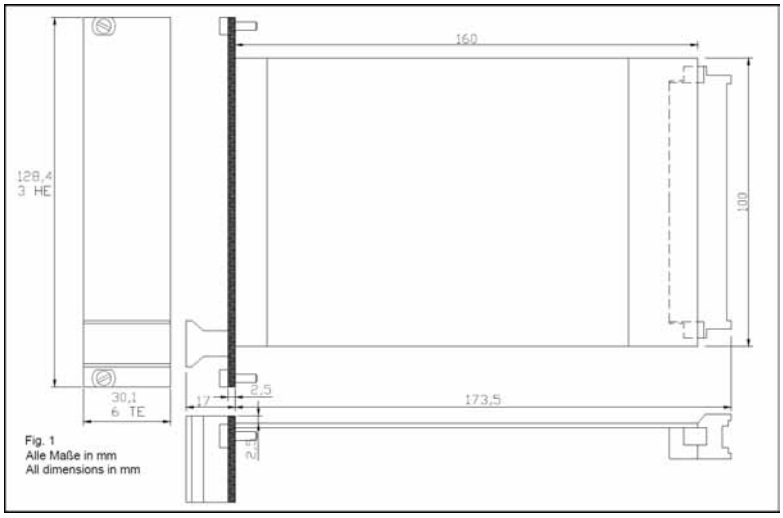
Environmental, General	
Protection Class	IP20 IEC 60529
Operating Temperature	-20° to 70°C (-4° to 158°F)
Storage Temperature	-40° to 85°C (-40° to 185°F)
Relative Humidity	5 – 95%, non condensing
Vibration	IEC 60068-2-6 0.15mm, 10-55Hz 20 m/s², 55-150Hz
Shock	IEC 60068-2-27 150 m/s² 4000 shocks per axis
EMC Resistance	IEC 61326-1
Power Consumption	Max. 6W
Configuration	Password protected
Alarm Setpoints Alarm Time Delays, General	
Alert	Selectable normally open, normally closed. 0-5 second delay per channel. 0-36 second delay with A6500-RC 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

CSI 6500 Machinery Health™ Monitor

Dimensions:

IEC 60297
PCB/EURO card format according to
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 200g (0.441lbs)
Gross weight:	app 330g (0.728lbs) 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
A6500-UM	Universal Measurement Card

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