AS-320 Datasheet

Next Generation Real-time Vibration Monitor for Machinery Protection

NEXT GENERATION VIBRATION PROTECTION

The AS-320 is a high performance, compact and flexible vibration protection system with all of the capabilities of expensive rack-based systems.

Far from a simple machinery monitor, the AS-320 incorporates an on-board digital signal processor for real-time advanced analysis and protection.

INTELLIGENT ALARMING AND SHUTDOWN

Easily programmable machinery health criteria can be combined via Boolean expressions to create advanced and intelligent alarms that control 4-20 mA and relay outputs. These alarm outputs can be used for remote machinery monitoring and shut down by a control system.

STATE OF THE ART HARDWARE

This unit can simultaneously capture up to 20 dynamic signals using highly accurate 24-bit analog to digital converters.

COMPACT AND INDUSTRIAL DESIGN

Specifically designed for industrial applications, this rugged unit can be mounted close to the machinery skid; minimizing sensor wiring, reducing ground loops, cable attenuation and cross talk. Mounting options include DIN rail or bulkhead configurations.

INIHIBIT AND TRIP MULTIPLY

The AS-320 supports INHIBIT and TRIP MULTIPLY inputs to allow external systems to inhibit alarms and increase alarm thresholds.

ETHERNET CONNECTIVITY

The AS-320 communicates to a PC via a standard 10/100Mb Ethernet port connection (RJ45). The hardware can be configured with an optional fiber optic Ethernet port that allows long distance transmission of data up to 2 km (1.2 miles).

SENSOR SUPPORT

This unit supports a wide range of industrial sensors, including accelerometers, displacement (proximity) probes and pressure transducers.

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ALARM SETTINGS

Alarm Types	Danger Alert
Alarming Signals	Dynamic Channels Phase Markers Current Inputs
Criteria	RMS Peak Peak to Peak, Overall 1X Amplitude 1X Phase Not 1X 2X Amplitude Gap Spectrum Window Energy Band, Speed Reverse Rotation Current Input Threshold
Boolean Logic	AND, OR, NOT
# of Diagnoses	25 Boolean Expressions
Threshold Types	Upper Lower In-Range Out-Of-Range
Latch Types	Latching and Non-Latching
Alarm Delay Time	0 to 600 seconds
Trip Multiply Factor	1 to 10
Trip Multiply Delay	0 to 600 seconds

ANALOG INPUTS

Number of Analog Inputs	2, 4, 6, 8, 10, 12, 14, 16, 18, 20
A/D Resolution	24 Bits
Sampling	All inputs simultaneously sampled
Dynamic Range	110 dB (typical)
Signal-to-Noise Ratio	110 dB (typical)
Input Voltage	-24 V to +24 V
Input Voltage Protected	-30 V to +30 V
Input Impedance	100 KOhm
Frequency Spans	10, 20, 40, 50, 100, 200, 400, 500, 1000, 2000, 4000, 5000
Amplitude Error	Less than 1%
Phase Error	± 1° between channels
Connector Type	Terminal Strip
Input Circuit	Single ended
Programmable Coupling	AC, DC, and IEPE
IEPE Power	3.5 mA, from 24 VDC
AC Coupled Cutoff Frequency	Variable - Frequency Span / 6400

PHASEMARKER INPUTS

Number of Tachometers	0, 2, 4
Speed Range	1 to 1,000,000 RPM
Minimum Pulse Width	1 microsecond
Voltage Range	-24 V to +24 V
Trigger Threshold	-24 V to +24 V
Trigger Slope	Rising or Falling
Pulses Per Revolution	0.01 to 10,000
RPM Error	< 0.01% (24 – 60k rpm) < 0.13% (60k – 1,000k rpm)
Input Impedance	100 KOhm
Connector Type	Terminal Strip
Programmable Coupling	AC or DC
Programmable Hysteresis	0.224 V and 0.517 V

DIGITAL INPUTS

Connector Type	2-Pin Terminal Plug Isolated contact closure sensing Biased internally
Actions	Inhibit Trip Multiple Reset Alarm Latch
Activation	<1k Ohm (shorted)
De-activation	>10k Ohm (open)
Isolation	Common mode (2500Vpeak)

DIGITAL OUTPUTS

Connector Type	3-Pin Terminal Plug Normally Open (N.O.) Common (COM) Normally Closed (N.C.)
Trigger On	Danger and Alert Alarms Diagnosis
Relay Type	1 Form C, SPDT
Contact Rating	6A @ 28 Vdc or 300 Vac
Operating Time	5 msec typical
Release Time	2 msec typical
Max Switched Power	180 W or 1800 VA
Max Switched Current	6A
Max Switched Voltage	150 Vdc or 300 VAC

4-20mA ANALOG INPUTS

Connector Type	3-Pin Terminal Plug (+, -, E) + = 4-20mA Loop Input - = 4-20mA Loop Output E = Chassis ground
Type	Isolated input
Isolation	Common mode (2500 Vpeak)
Resolution	10 uA
Sampling Rate	100 Hz
Resistance	160 Ohm

4-20mA ANALOG OUTPUTS

Connector Type	3-Pin Terminal Plug (+, -, E) + = 4-20mA Loop Source - = 4-20mA Loop Return E = Chassis ground
Type	Non-isolated output, All outputs share common
Resolution	10 uA
Update Rate	Typical 10 msec (process loading dependent)
Loop Supply Voltage	24 Vdc supplied internally
Loop Resistance (external load)	800 Ohm maximum

DATA STREAM AND CONFIGURATION PORT

Configuration Protocol	Ethernet 100 Base-TX, IEEE 802.3u
Configuration Connector	Option EC = RJ45 (CAT 5/6 cable) Option EF = Fiber Optic LC receptacle (62.5/125um multimode fiber)
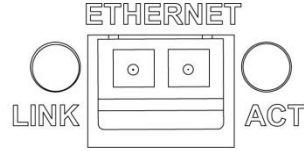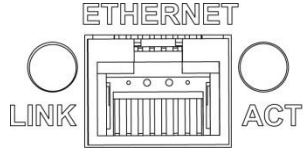
MODBUS PORT

Control Interface Protocol	Modbus RTU (RS-232)
Control Interface Connector	DB-9
Baud Rate	9600, 19200
Output Data	208 Holding Registers 236 Coils
Input Actions	Inhibit Trip Multiply Reset Latch
Output Status	Health OK Alarms Diagnosis Heartbeat Sensor Quality Relay Status

ENVIRONMENTAL
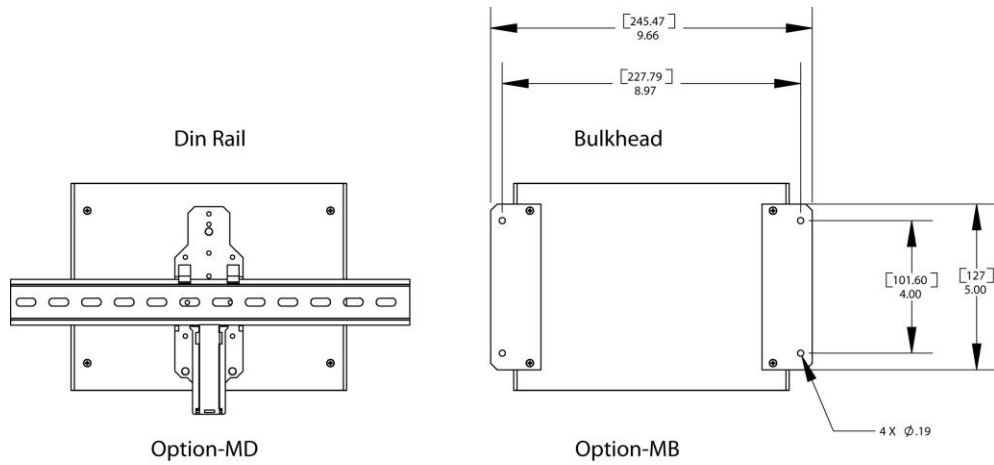
Operating Temperature	0 °C to 60 °C (32 °F to 140 °F)
Storage Temperature	-55 °C to 80 °C (-67 °F to 176 °F)
Relative Humidity	10 to 85%
Vibration (Sine wave)	5 G (5 -500 Hz)

POWER INPUT

Voltage Range	+10 Vdc to +24 Vdc
Power	8 W typical for 10 input model

Mounting Options

Option -MD	DIN Rail
Option -MB	Bulkhead

AS-320 – 2 to 10 Input Model

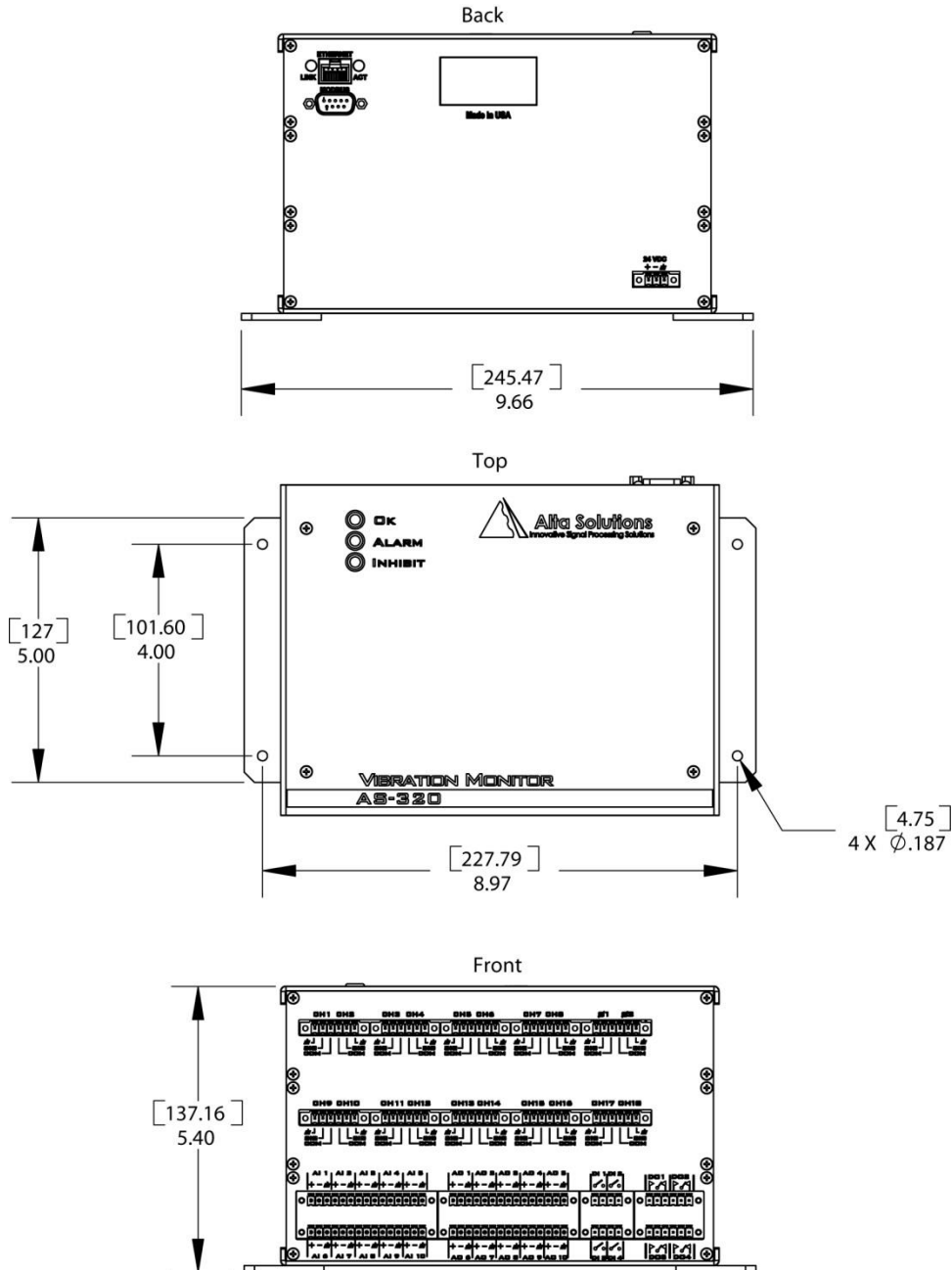| Dimensions (Width)	245 mm (9.66")
Dimensions (Depth)	228 mm (8.97")
Dimensions (Height)	94 mm (3.70")
Weight	1.6 kg (3.9 lbs)
Construction	Anodized Aluminum Chassis
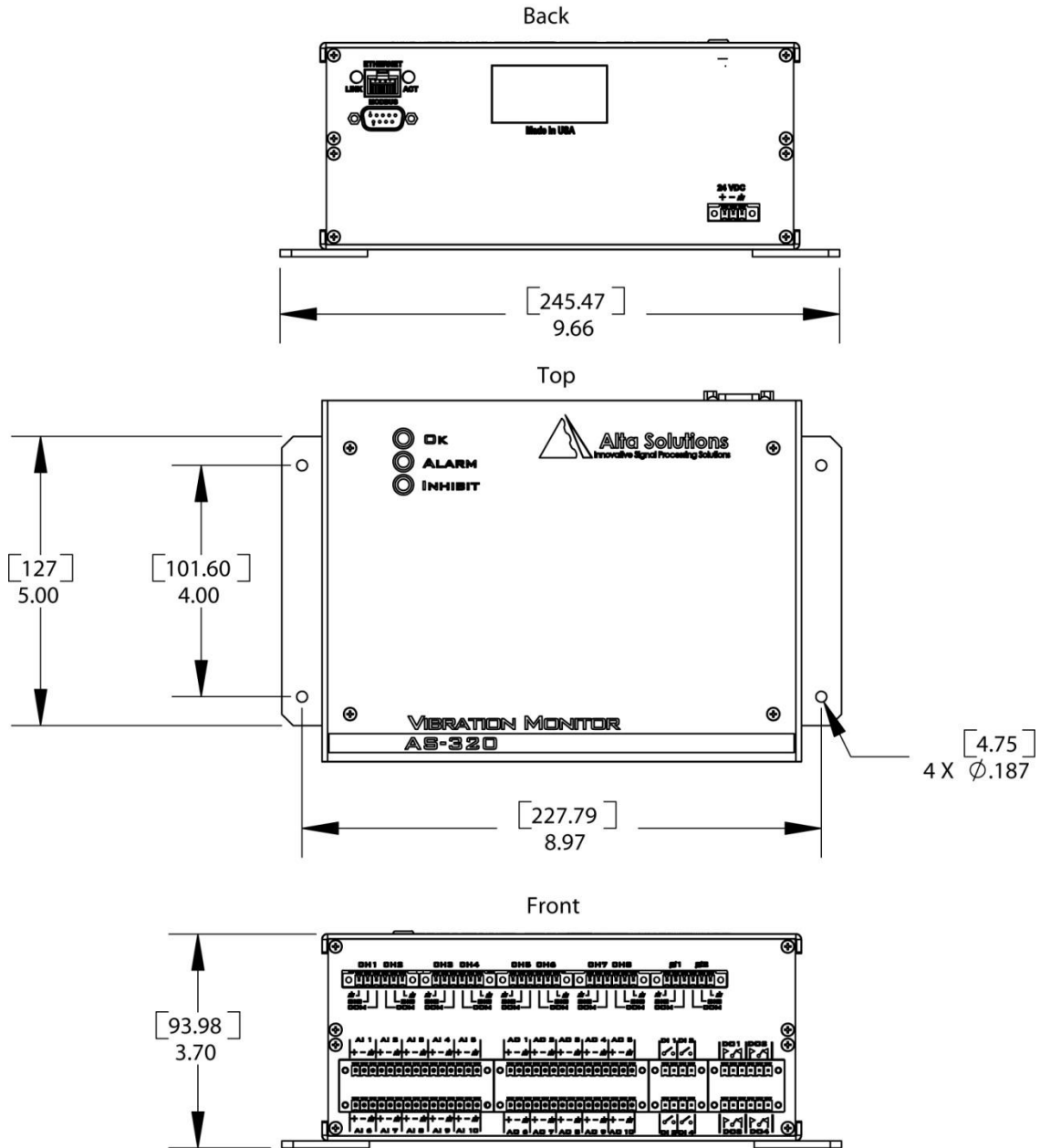
Dimension Legend: [mm] inches

AS-320 – 12 to 20 Input Version

Dimensions (Width)	245 mm (9.66")
Dimensions (Depth)	228 mm (8.97")
Dimensions (Height)	137 mm (5.4")
Weight	1.6 kg (3.9 lbs)
Construction	Anodized Aluminum Chassis

Dimension Legend: [mm] inches

ORDERING INFORMATION

Ordering Model Number Format: AS-320-CXX-PX-IX-EX-PX-MX

Analog Channels Inputs	C02, C04, C06, C08, C10, C12, C14, C16, C18, C20 *Note: Combined analog and phase markers cannot exceed 20 inputs.*
Phase Marker/Speed Inputs	P0, P2, P4
Input Type	IT = Terminal Strips
Ethernet Connector Type	EC = Copper EF = Fiber Optic
Power Input	PT = Power Terminal Strip
Mounting	MB = Bulkhead MD = DIN Rail

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