

# VIBRATION MONITOR

Model 401

## FEATURES

- Monitors Vibration (Displacement or Velocity)
- Meter Provides Continuous Display
- Monitors Two Pickups (Levels at either pickup may be read)
- Two Setpoints - Limit 1 and Limit 2
- Adjustable Time Delay Prevents False Alarms
- 120 to 120,000 RPM Speed Range
- .001 to 100 Mills or Inches/Sec.

## APPLICATIONS

- Fans, Motors, Pumps
- Turbines, Generators, Compressors
- Condition Monitoring

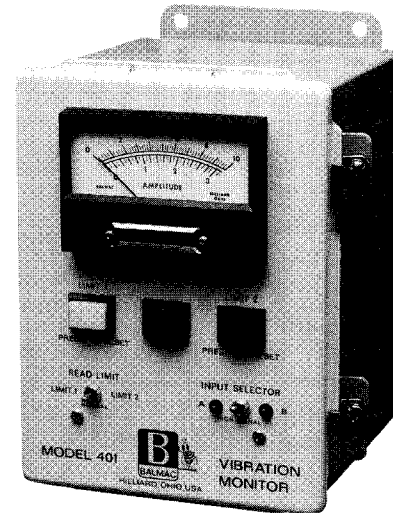
## DESCRIPTION

The Model 401 provides reliable vibration monitoring for rotating equipment operating at speeds from 120 to 120,000 RPM. Applications include: fans, pumps, motors, turbines, compressors, centrifuges, blowers, generators and other rotating machinery found in processing plants, pumping operations, automotive assembly, power generation, engineering and marine operations.

The Model 401 reads out directly in vibration displacement (mils) or velocity (in/sec) on a large analog panel meter. The 401 uses two Model 158 (or Model 160) Vibration Pickups to monitor two points simultaneously. A signal from either input that exceeds a preset limit will trip the output relay. Typically, the 401 has two adjustable limits: one for a warning alarm and one for shutdown.

### Model 158 and 160 Vibration Pickups

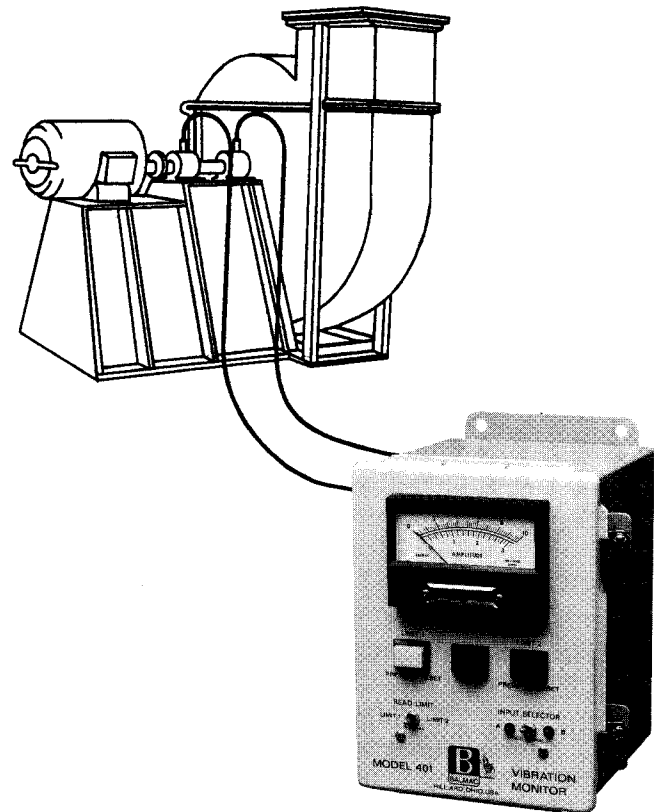
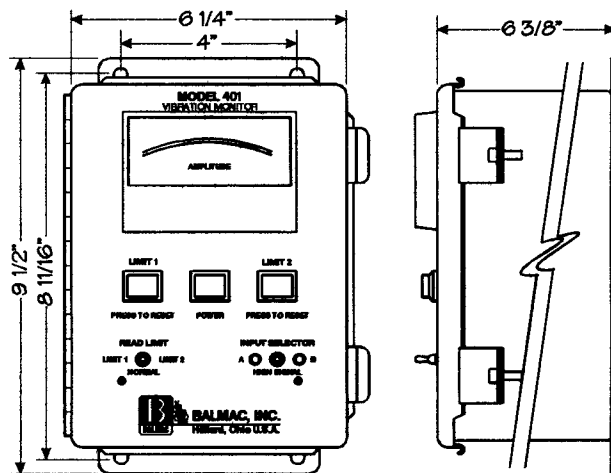
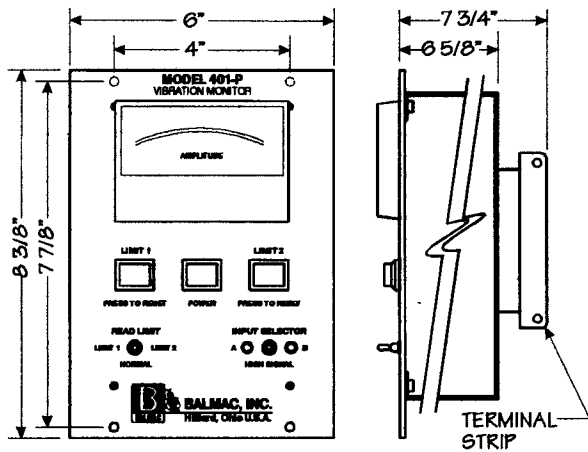
The Model 158 is a general purpose velocity vibration transducer. Two Model 158's are normally mounted directly on a machine to provide vibration input signals to the Model 401 monitor.



(Top) Model 401 features easy-to-read analog meter, LED Limit Alarms, and toggle switches for limit selection and verification. (Bottom) Model 401-P Panel Mount version shown with Model 158 Pickups and Cable.

The Model 158 is encased in a rugged anodized aluminum case and is hermetically sealed. Shielded cables connect each 158 to a remotely located Model 401. The 158s have a self-generated output and require no additional electronics.

The Model 160 is an integrated electronic velocity vibration transducer that may be used in place of the Model 158. The Model 160 expands the frequency response range to 2.5 Hz on the low end (150 RPM). The Model 160 is smaller in size for applications with restricted access.



### SPECIFICATIONS - Model 401

INPUTS	(2) Two Balmac Model 158 Velocity Pickups. Model 401 can be calibrated to most vibration transducers.
FREQUENCY	120 to 120,000 RPM (2 - 2000 Hz)
OUTPUT	0-1 Vdc for 0 to Full Scale Reading
RELAY ACTION	(2) Two Relays - (Limit 1 & 2) Form C Contacts - 3 A 110 Vac
POWER	100 - 130 Vac, 200 - 260 Vac optional 50/60 Hz
SIZE	
Stand Alone	6.25" x 9.5" x 6.375"
Panel Mount	6" x 8.375" x 7.75"
ENCLOSURE	NEMA 12
WEIGHT	10 lb (4.4 kg)
DISPLAY	Displacement (Mils), Velocity (in/sec). Available in Metric version. (401M)
AMPLITUDE RANGE	0.1; 0.3; 1; 3; 10; 30; 100 (English) 3; 10; 30; 100; 300; 1000; 3000 (Metric)
LIMIT SETTINGS	(2) Two (Limit 1 & 2), 10% to 100% Full Scale
TIME DELAY	(2) Two (Limit 1 & 2), 1 to 10 seconds
RELAY ACTION	Latch or Non-Latch
TERMINALS	Accept #12 AWG Wire

### SPECIFICATIONS: Model 158 Vibration Pickup

SENSITIVITY	278 mV (RMS) in/sec (peak) +5% at 20°C
VELOCITY RANGE	0.25 inch (Peak-to-Peak)
FREQUENCY	9 - 2000 Hz (540 to 120,000 RPM)
COIL RESISTANCE	7500 Ohms +10%
COIL CONNECTIONS	Between Pin-A to Pin-C
GROUNDING	Case Grounded / Pin-B
TEMPERATURE	-20°F to +250°F (-29°C to +121°C)
SHOCK LIMIT	1,000 g's
WEIGHT	10.9 oz (309 grams)
CASE MATERIAL	Anodized Aluminum
MOUNTING	1/4-20 x 3/8" tapped hole
OUTPUT CONNECTOR	3-Pin, Amphenol MS 97-3102A- 10SL-3P
MATING CABLE	
CONNECTOR	3-Pin, Amphenol MS 97-3106A- 10SL-3S
CABLING	EPDM Rubber Jacket, Belden 8413

For additional information, request Model 158 or 160 Velocity Vibration Transducer specification sheet.