

## PT500 Electro-Mechanical Vibration Switch

### Introduction

The PT500 is an economical solution that provides basic vibration protection for rotating reciprocating machines. The PT500 uses an inertia sensitive mechanism which actuates internal micro-switch contacts when the vibration level exceeds the adjustable set point.

The PT500 start-up delay feature prevents the switch from activating during the higher vibration levels present during the start-up of the machine. The set point may be adjusted closer to the vibration levels present during normal operation or running speed of the machine.

The PT500 is your “one stop shopping” for all electro-mechanical vibration switch applications. This unique design has the required environmental and hazardous area approvals. The universal mounting plate will mount in existing mounting holes when replacing older mechanical vibration switches.

Applications:

- ✓ Pumps
- ✓ Motors
- ✓ Industrial Fans
- ✓ Heat Exchangers/ Cooling Towers
- ✓ Engines
- ✓ Reciprocating Compressors
- ✓ Centrifuges
- ✓ Rock or Coal Crushers

### Features

- ✓ Easy replacement of existing vibration switches
- ✓ Universal mounting plates and studs
- ✓ NEMA 4X, IP65 environmental rating
- ✓ Wide temperature range of -40°C to 100°C
- ✓ Local and remote reset
- ✓ Start-up delay
- ✓ SPDT, (2) SPDT and gold contact options
- ✓ Hazardous area approvals: CSA, ATEX, CE



### Specifications

**Function:** Armature mechanism trips on high vibration and operates snap action switch.

**Vibration Range:** See How to Select “C”

**Frequency Range:** 0 to 3600 rpm

**Set Point Adjust:** 0 to 100% of range. External set point adjustment.

**Local Reset:** For field local reset of the switch

**Remote Reset with Start-up Delay:** Applying reset coil voltage at start-up holds mechanism from tripping delay for 20-30 seconds, after which, the switch is automatically activated.

**Reset Coil Power Supply:**

95 - 250VAC@100mA, 50-60Hz or

20 - 30VDC @ 200mA

**Temperature Limit:** -40°C to +100°C

**Enclosure:** Casted Aluminum (copper free)

**Coating:** Standard plastic coating for all casted aluminum parts outside. Mounting plate, mounting stud and local reset are 304 stainless steel.

**Environmental Rating:** NEMA 4X, IP65

**Switch Contact(s) Rating (normal):**

15A, 125VAC, 250VAC, 480VAC

1/8 HP 125VAC; 1/4 HP 250VAC;

1/2A, 125VDC

1/4A, 250VDC

**Switch Contact(s) Rating (gold contact):**

0.1A, 125VAC

0.1A, 30VDC

**Hazard Rating:** See order information

# Electronic, Digital and Mechanical Vibration Switches

## Physical

### Temperature

Operation: -40°C to + 100°C (-40°F to +212°F)

Storage: -50°C to + 120°C (-58°F to +248°F)

### Dimensions

See attached drawing

### Weight

4kg (8 lbs)

## Order Information

### PT500-ABC-DE

#### A: Hazardous Area

A = 0: CE Mark

A = 1: Multiple Approvals (D=0 - 1)

CSA: Class I, Div 1, Groups B+H<sub>2</sub>, C & D

Class II, Div 1, Groups E, F, G & T4T6

ATEX: II2GD EEx dIIB+ H<sub>2</sub>T4T6

CE Mark

A = 5: Multiple Approvals (D=5)

CSA: Class I, Div 1, Groups A, B, C & D

Class II, Div 1, Groups E, F, G & T4T6

ATEX: II2GD EEx dIIC T4T6

CE Mark

#### B: Relay Contact

B = 1: SPDT

B = 2: (2) SPDT

B = 3: SPDT (gold plated contact)

B = 4: (2) SPDT (gold plated contacts)

#### C: Full Scale

C = 1: 5g

C = 2: 2g

C = 3: 10g

#### D: Remote Reset with Start-Up Inhibit; Local Reset

D = 0: Local Reset Only

D = 1: Remove Reset and Inhibit; Local Reset

D = 5: Remove Reset and Inhibit; No Local Reset

#### E: Conduit Entries/ Mounting Plate or Mounting Stud

E = 1: 3/4" NPT, Mounting Plate PT500-13

E = 3: 3/4" NPT, Mounting Plate PT500-14

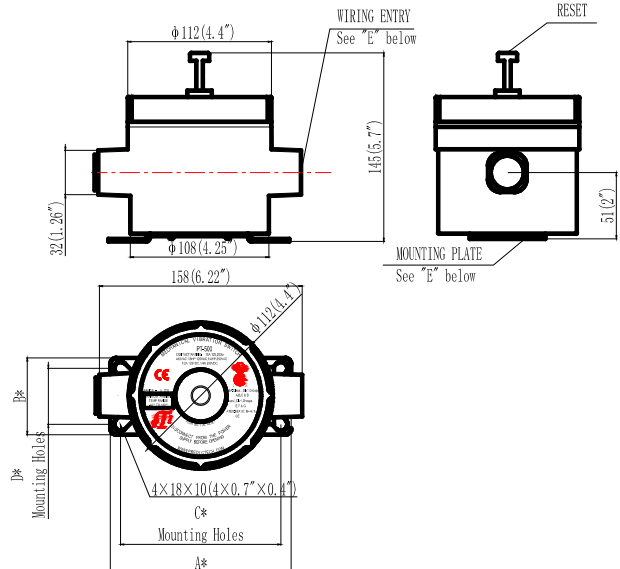
E = 4: M20x1.5, Mounting Plate PT500-14

E = 5: M20x1.5, Mounting Plate PT500-13

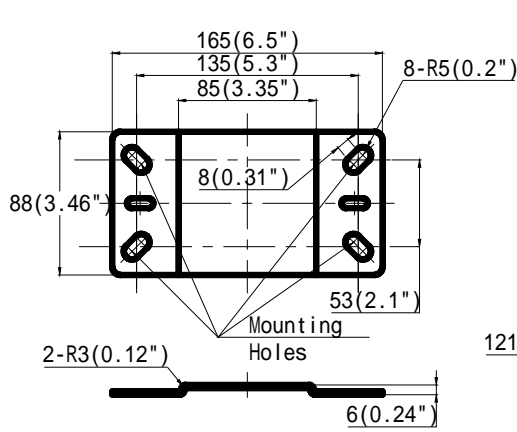
E = 6: 3/4" NPT, Mounting Stud 3/4" NPT

E = 7: M20x1.5, Mounting Stud M20x1.5

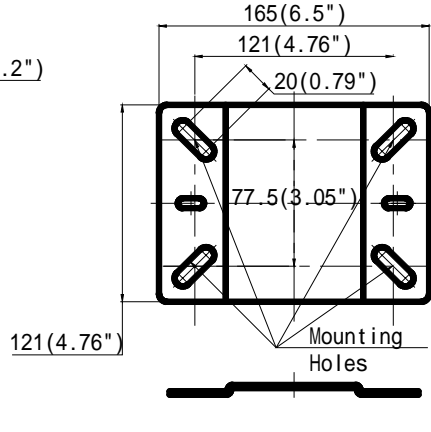
## Mechanical Outline Drawing



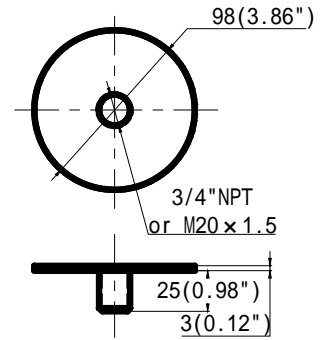
**Mounting Plate, Mounting Studs and Other Accessories**



**PT500-13**



**PT500-14**



**PT500-15 (3/4" NPT)**

**PT500-17 (M20 x 1.5)**



**3/4" NPT seal  
PT500-18**

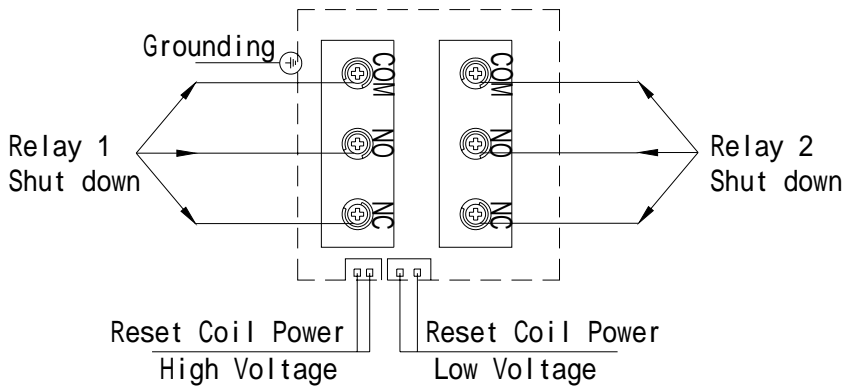
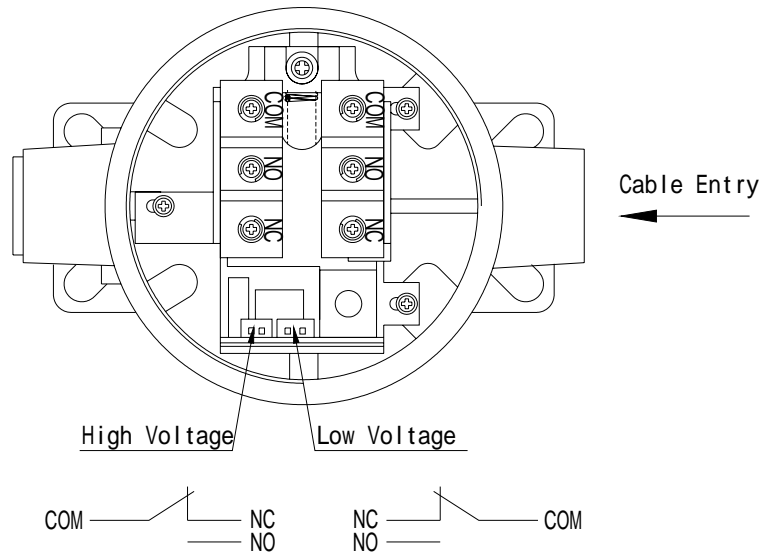


**3/4" NPT cable feedthrough  
PT500-19**



**Remote reset circuit  
PT500-20**

**Field-Wiring Diagram**



## VS102 Electronic Vibration Switch

### Introduction

The VS102 Electronic Vibration Switch is designed to be the cost effective solution for vibration switch applications. The VS102's unique and rugged design is suitable for harsh environments and hazardous areas. It has a universal mounting feature, relays or triacs, and a 4-20mA output.

### Applications

- ✓ Pumps
- ✓ Motors
- ✓ Industrial Fans
- ✓ Heat Exchangers/ Cooling Towers
- ✓ Engines
- ✓ Reciprocating Compressors
- ✓ Centrifuges
- ✓ Rock or Coal Crushers

### Features

- ✓ Direct replacement for mechanical switches with universal mounting plates and studs
- ✓ 4-20mA output
- ✓ Dual alarms with relays or triacs
- ✓ NEMA 4X, IP65 environmental rating
- ✓ Hazardous area approvals: CSA, ATEX, CE

### Specifications

**Frequency Range:** 2 to 1000 Hz

**Alarms:** Dual alarms

Dry-contact relay: 5A 230VAC/115VAC

Triac: 5A 230VAC. Optically Isolated, Standard NC

**Temperature Limit:** -40°C to +85°C

**Power Supply:**

95 - 250VAC@100mA, 50-60Hz, or

22 - 30VDC @ 200mA

**Enclosure:** Cast Aluminum (copper free)

**Coating:** Standard plastic coating for all casted aluminum parts outside. Mounting plate, mounting stud and local reset are 304 stainless steel.

**Environmental Rating:** NEMA 4X, IP65

**Hazard Rating:** See order information



### Physical

Temperature

Operation: -40°C to +85°C

Storage: -50°C to +100°C

Dimensions

See attached drawing

Weight

4kg (8 lbs)

# *Electronic, Digital and Mechanical Vibration Switches*

## Order Information

\* Factory Default

### VS102-ABCD-EFGG

#### A: Alarms

- A = 0: Dual SPDT Relays
- A = 1\*: Single SPDT Relay
- A = 2: Single SPST Triac, NO
- A = 3: Dual SPST Triacs, NO
- A = 4: Single SPST Triac, NC
- A = 5: Dual SPST Triacs, NC

#### B: Conduit Entries

- B = 0\*: 3/4" NPT
- B = 1: M20x1.5

#### C: Mounting Plate or Mounting Stud

- C = 0\*: Mounting Plate PT500-13
- C = 1: Mounting Plate PT500-14
- C = 2: Mounting Stud 1/2" NPT
- C = 3: Mounting Stud M20x1.5

#### D: Power Supply

- D = 0\*: 115VAC or 230VAC
- D = 1: 24VDC

#### E: Hazardous Area Approvals

- E = 0\*: CE Mark
- E = 1: Multiple approvals
  - CSA: Class I, Div 1, Groups B+H<sub>2</sub>, C & D
  - Class II, Div 1, Groups E, F, G & T4T6
  - ATEX: II 2GD EExIIB+H<sub>2</sub>T4T6
  - CE Mark
- E = 2 (no local reset):
  - CSA: Class I, Div 1, Groups A, B, C & D
  - Class II, Div 1, Groups E, F, G & T4T6
  - ATEX: II 2GD EEx dIICT4T6
  - CE Mark

#### F: 4-20mA Outputs

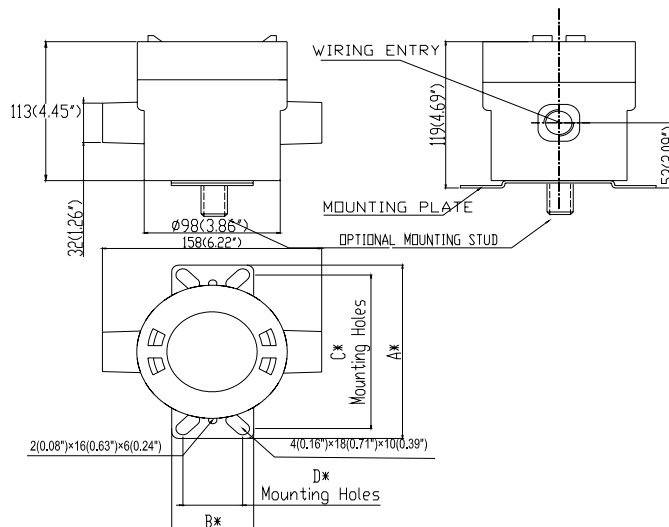
- F = 0: None
- F = 1\*: 4-20mA

#### GG: Full Scale

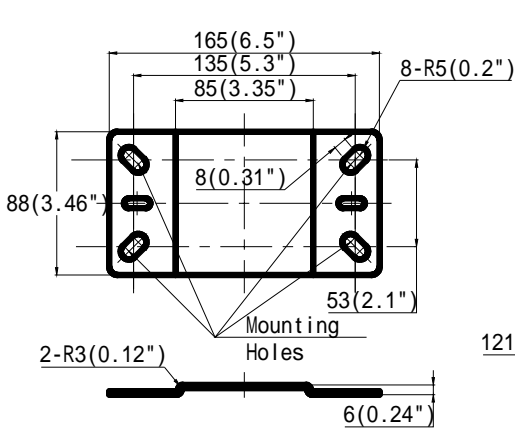
- GG = 00\*: 0 - 50mm/s (2.0ips) pk
- GG = 01: 0 - 100mm/s (4.0ips) pk
- GG = 02: 0 - 25mm/s (1.0ips) pk
- GG = 03: 0 - 12.5 mm/s (0.5ips) pk
- GG = 04: 0 - 50mm/s (2.0ips) rms
- GG = 05: 0 - 100mm/s (4.0ips) rms
- GG = 06: 0 - 25mm/s (1.0ips) rms
- GG = 07: 0 - 12.5 mm/s (0.5ips) rms
- GG = 08: 0 - 10mm/s (2.0ips) rms

## VS102 Mechanical

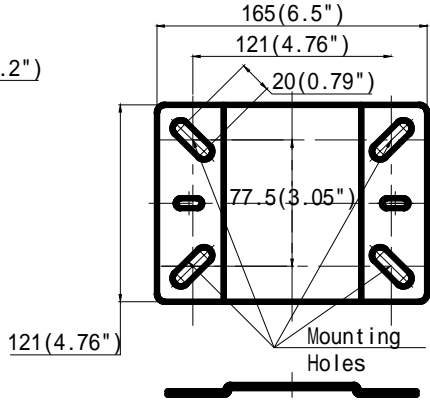
## Outline Drawing



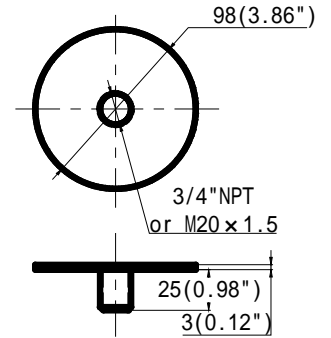
**Mounting Plate, Mounting Studs and Other Accessories**



**PT500-13**



**PT500-14**



**PT500-15 (3/4" NPT)  
PT500-17 (M20 x 1.5)**



**3/4" NPT seal  
PT500-18**



**3/4" NPT cable feedthrough  
PT500-19**



**Local reset button  
PT580-2**



**Field-Wiring Diagram**

