

## **INSTALLATION INSTRUCTIONS**

### **VIBRATION TRANSMITTER**

WEATHER-PROOF; NEMA 4X

EXPLOSION-PROOF; CLASS I, GROUPS B, C & D

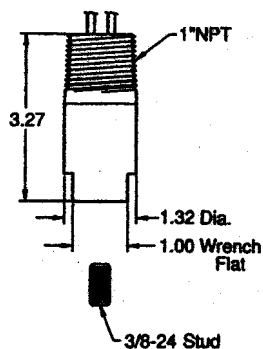
CLASS II, GROUPS E, F & G

CLASS III

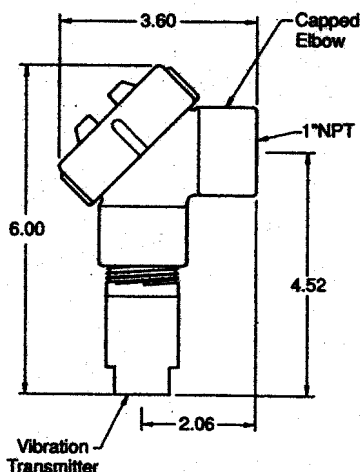


#### TOOLS NEEDED

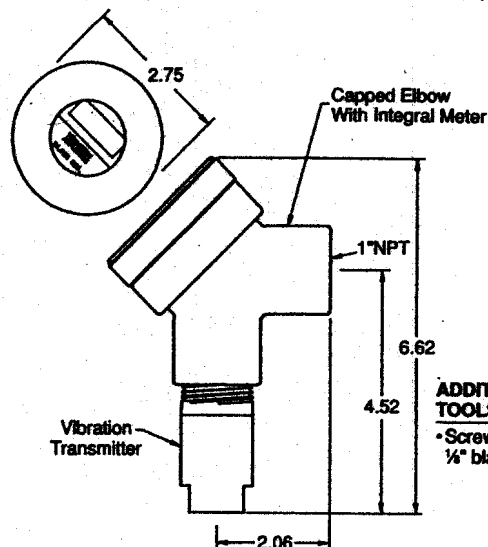
- Large Wrench
- Wire Cutters
- Wire Stripper
- 3/8 Allen Wrench (Mounting Stud)



Vibration Transmitter



Vibration Transmitter with Capped Elbow



Vibration Transmitter with Meter Assembly

#### ADDITIONAL TOOLS NEEDED

- Screwdriver 1/4" blade

## Step 1 - Mount the Transmitter

- The preferred mounting position for the Transmitter is on the bearing cap. If the Transmitter cannot be mounted on the bearing cap, find a location that is solidly connected to the bearing cap through webbing or supports. Avoid hollow locations such as covers or shrouds as this will result in readings that are not truly representative of the real vibration.
- Mount the Transmitter body perpendicular to the machine's shaft to measure radial vibration, or parallel to the shaft to measure axial vibration.
- The Transmitter includes a 3/8-24 stainless steel stud for attaching the Transmitter to the measured machine. The mounting hole for this stud must provide a **minimum** of 3/8" of thread engagement.

Although a flat mating surface is not required on the machine mounting point, the Transmitter base must fit solidly against the machine when tightened.

Tighten the 3/8-24 stud into the Transmitter body, then attach the Transmitter to the machine mounting hole with the 1" wrench flats on the Transmitter body. Do not exceed 255 in-lb of torque when tightening.

- The following mounting adapters are available as options:

Studs		Maximum Installation Torque, in-lb.
1/4-20		75
1/4-28		94
3/4-10		255
1/4 NPT		255
1/2 NPT		255
V Blocks		
1 5/8 x 1 5/8		9
2 1/4 x 2 1/4		on each of (4) #6-32 screws
Magnetic		
1 1/2 dia. x 2 3/16 long		-
Adapter Plates		
A variety of plates to fit existing hole patterns		94 (Plate to Transmitter Screw)

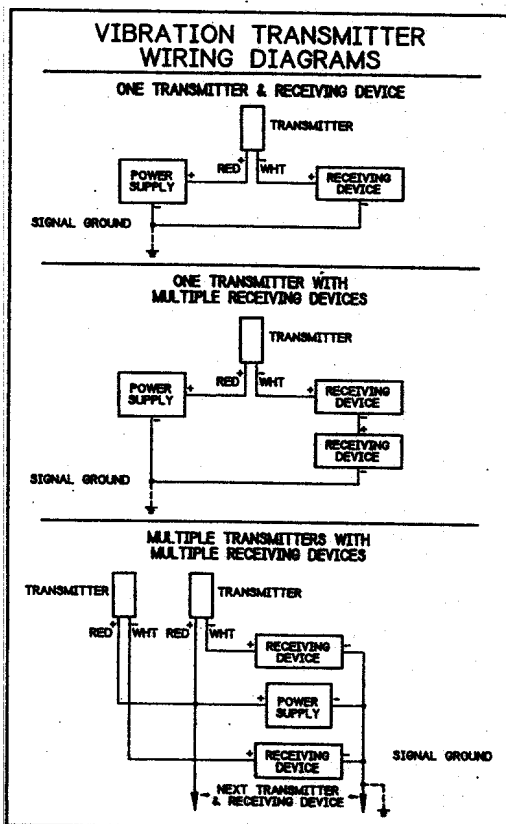
Follow the installation notes included with each of these adapter kits when mounting the Transmitter to the machine.

## Step 2 – Install Wiring Conduit

- Conduit can be attached:
  1. Directly to the Transmitter;
  2. To the Capped Elbow accessory;
  3. To the Meter Assembly accessory, or;
  4. To other wiring junction enclosures supplied by the user.
- Use of a flexible conduit connection is recommended between the Transmitter and rigid conduit, or conduit junction enclosures, that are securely fastened to points other than the measured machine.
- Use care not to exceed the **maximum recommended Transmitter mounting torque** when installing conduit, elbows or other wiring enclosures to the Transmitter.
- The user is to ensure that all installed conduit enclosures and fittings meet the classification of the user's installation area.

## Step 3 – Electrical Connections

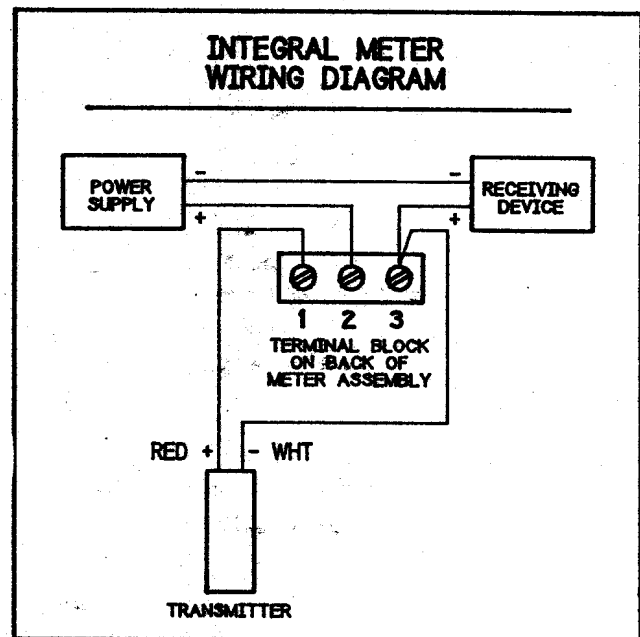
- Using one of the following diagrams, connect the Transmitter to the Power Supply and Receiving Device(s) being used.



- Be sure to use installation techniques that are consistent with the installed area's hazardous rating. A thread lubricating compound can be used on the cap threads to inhibit the entry of moisture.

## Step 3a – Electrical Connections, Vibration Transmitter with Meter Assembly

- Remove View Cap and Meter from Elbow, and connect as shown. Trim the Transmitter leads to approximately 6 inches in length. Keeping incoming leads as short as possible will ease the task of re-assembling the Meter.



- After making electrical connections, press the Meter back into Elbow with the Meter oriented to the desired viewing angle. Install and tighten View Cap securely.

## Step 4 – Determining Required Supply Voltage

- The **Transmitter** requires a **minimum supply voltage of 12VDC**, (16VDC when the elbow with integral meter is used), and a **maximum supply voltage of 36VDC**.

- The minimum required voltage ( $V_{PS}$ ) for the power supply to be used is calculated using the following formula:

$$V_{PS} = \frac{(\text{Total Loop Resistance})}{50} + V_{TM}$$

where:

$V_{PS}$  = Minimum Power Supply Voltage

Total Loop

Resistance = Resistance of all cable and receiving devices\* used in the Transmitter loop, in ohms.

$V_{TM}$  = Minimum voltage required by the Transmitter, (\* and receiving device).

\*Note: if receiving device used specifies a loop voltage drop rather than a resistance load, add the receiver's voltage drop to the  $V_{TM}$  value.

Typical resistance values for copper wire used to calculate loop resistance, are as follows:

AWG	Resistance, ohms/ft.
14	0.003
16	0.004
18	0.007
20	0.010
22	0.017

- Example:

For a Transmitter loop that has 500 feet total of 22AWG wire, and a receiving device load of 150 ohms, the minimum power supply voltage required would be:

$$V_{PS} = \frac{(500 \times .017) + 150}{50} + 12 = 15.2 \text{ VDC}$$

## Step 5 – Check the Installation

- Before applying power to the Transmitter, check the following:

- ☒ Are all wiring connections correct as shown?
- ☒ Is the Transmitter secured properly to the machine?
- ☒ Is a proper power supply voltage being used?
- ☒ Are all conduit connections tight and suitable for the area classification? (see Area Classification Note)

## Area Classification Note:

The Transmitter is weather-proof and explosion-proof to Class I, Groups B, C, and D; Class II, Groups E, F, and G; and Class III.

The Capped Elbow and Meter Assembly options were designed and are rated for Class I, Groups C and D; Class II, Groups E, F and G; and Class III.

## Accessories

The following accessories are available as an aid to installation of the Transmitter.

- Explosion-proof and dust-tight flexible conduit:
  - 12" long
  - 24" long
  - 36" long

The following Meters are available for Remote Vibration Readout requirements:

- Digital, NEMA 4X Enclosure
- Digital, Explosion-Proof Enclosure
- Digital, Panel Mount
- Analog, Panel Mount, Vertical
- Analog, Panel Mount, Horizontal

Note: All meters are loop powered and require no other external power source.

## Notes

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