

# Mid-West<sup>®</sup> Instrument

## Model 116 DPI Installation and Operating Instructions



### INSPECTION

Before installation carefully check the Model Number on each instrument against the receiving paperwork and the intended application. Inspect for shipping damage and, if damaged, report it immediately. Verify when the unit is unpacked and in a vertical position that the pointer is on zero. **If the pointer is off zero see TROUBLE SHOOTING section 2 for instructions on zeroing the pointer.**

**NOTE:** BEFORE ATTEMPTING REPAIRS,  
CONTACT YOUR LOCAL MID-WEST  
REPRESENTATIVE OR OUR FACTORY.  
FAILURE TO DO SO WILL VOID ANY  
WARRANTY.



### PRODUCT DESCRIPTION

The Model 116 design for cryogenic applications are all-metal differential pressure gauges capable of operating at low differential pressures for up to 500 PSI of line pressure.

The DPI is equipped with a Bi-directional Over Pressure Relief Valve (OPV). When the Differential Pressure exceeds 130% of the range the OPV equalizes the pressure between the Hi and Lo sides. Dual top and bottom connections are provided as standard. The DPI is also equipped with a pointer zero "micro-adjust". If necessary the pointer can be re-zeroed.

**CAUTION:**



**Rapid pressurization can cause severe damage to the sensing element. Rapid pressure change (either increase or decrease) is a change in pressure occurring fast enough to drive the instrument full scale in one (1) second or less. See installation portion of this I.O.M. for guidance in how to prevent rapid pressurization.**

## **INSTALLATION**

Model 116 gauges are calibrated and tested prior to shipment and are ready for immediate installation. Use of the following installation procedures should eliminate potential damage and provide optimum trouble free operation.

### **1. CONNECTIONS**

Dual ¼" FNPT connections, top and bottom, are provided as standard but check paperwork for connections ordered. They are identified "high" and "low", for high pressure and low pressure. Be sure that one "high" and one "low" pressure connection gets plumbed to the proper connection on your system. The other two ports should either be plugged or plumbed as drains or bleeds, depending on whether the service is liquid or gas.

**NOTE: It is strongly recommended that a 3-valve manifold be used in plumbing your model 116 to your system. Properly used it should insure that your instrument is not over-ranged or damaged by pressure shocks during pressurization. It will facilitate later zeroing, ranging and calibration checking. It is good practice to purge or flush the instrument loop prior to connecting the instrument.**

**When pressurizing the instrument have the bypass valve open. Slowly open the high side and low side isolation valves. When the unit is pressurized close the bypass valve to obtain a DP reading.**

**When removing the instrument open the bypass valve prior to closing the high side and low side isolation valves. Leave the bypass valve open when venting the instrument.**

### **2. PANEL MOUNTING**

The Model 116 is designed for mounting through the **front** of the instrument panel and is normally provided with a panel mounting kit.

Make the cutouts as indicated in (Figure 1). Insert the gauge through the panel aligning the panel mounting studs with the holes in the panel. Install the nuts onto the studs and tighten securely.

## **TROUBLE SHOOTING**

### **1. Gauge does not indicate differential.**

- A. Check for proper hook up, high to high and low to low.
- B. Make certain that block valves are open and, if using a 3-valve manifold, that the equalizer (balance) valve is closed.
- C. If A and B check out correctly, loosen or disconnect the high pressure line to determine if there is pressure to the instrument.
- D. If there is pressure to the instrument, check to determine that there is a differential across the unit being monitored. If there is, contact the factory for assistance and for an "RGA" (returned goods authorization) number to return the instrument for repair or replacement.

### **2. Indicating pointer off zero. (With block valves closed, equalizer valve open, or no system differential.)**

- A. Tap gauge **lightly**.
- B. Make certain block valves are closed and equalizer valve is open.
- C. If A & B do not correct the "off zero" condition, remove the bezel and lens assembly by removing the (4) bezel screws. Grasp the pointer hub between the thumb and forefinger. Using a straight blade screw driver adjust the screw on the pointer clockwise to adjust the pointer upscale or counter clockwise to adjust the pointer downscale. Tap the gauge lightly to confirm the pointer is on zero. Reinstall the bezel and lens assembly.

## **RECALIBRATION AND/OR REPAIR**

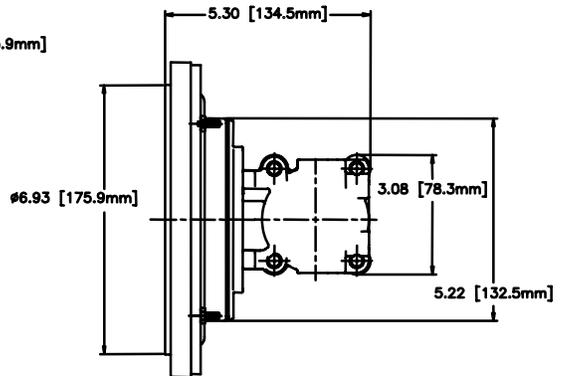
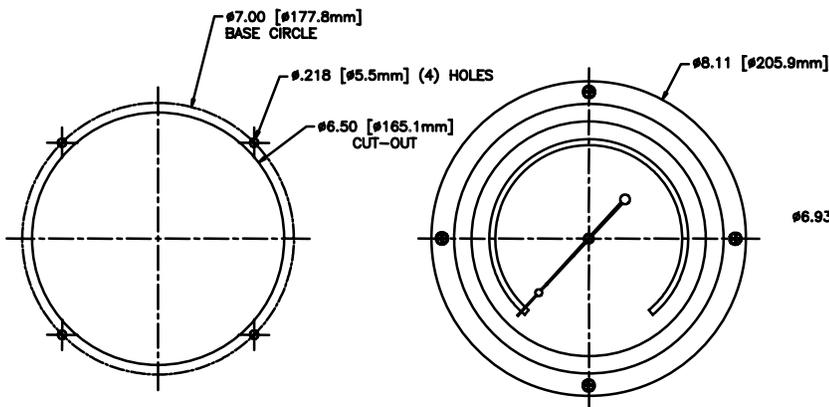
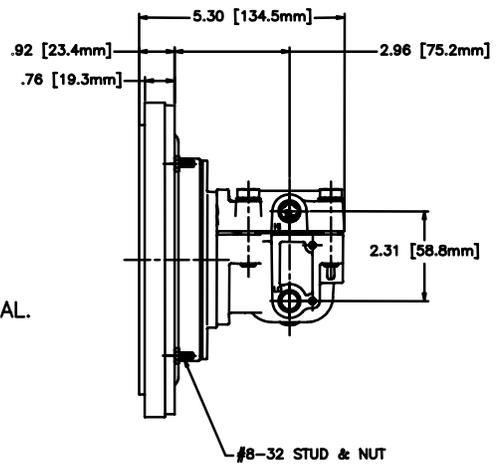
1. If recalibration or repair is required, secure an "RGA" (returned goods authorization) number from Mid-West Instrument and return the instrument to the factory.
2. If (1) is not practical, we recommend you discuss your problem with one of our customer service representatives and request a "technical service" manual. Please have both the model and serial numbers available before calling

## Model 116 Mounting Information & Dimensional Data

### PANEL MOUNT

**NOTES:**

1. DIMENSIONS SHOWN IN PARENTHESIS ARE IN MILLIMETERS.
2. MANUFACTURER RESERVES THE RIGHT TO CHANGE THE SPECIFICATIONS WITHOUT PRIOR NOTICE.
3. PIPE MOUNTING BRACKET OR WALL MOUNTING BRACKET OPTIONAL.
4. ALL DIMENSIONS ARE APPROXIMATE AND NOMINAL.  
(NOT TO SCALE)



**FIGURE 1**