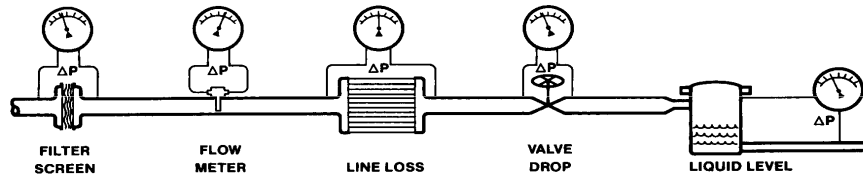


Mid-West[®] Instrument



Model 116 DPI Switch

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.

**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 standard unit is equipped with a single SPDT switch which can be set on decreasing pressure from 3% to 100% of the Full Scale Range of the gauge. A switch adjust screw and a switch lock screw is accessible after removal of the lens and bezel (removal of 4 screws)

Interface to the snap acting micro-switch is via color coded 18 AWG flying leads and a ½' FNPT conduit connection. The assembly does not need power to operate.

The DPIS is also 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 DPIS is also equipped with a pointer zero "micro-adjust". If necessary the pointer can be re-zeroed.

Made specifically for the "cryo" market, the cast pressure containing elements reduce the overall weight in half when compared to competitor gauges.

INSTALLATION

All Mid-West "DPIS" alarm-controls are calibrated and tested prior to shipment and are ready for immediate installation.

1. CONNECTIONS – Unit is equipped with dual ¼" FNPT connections top & bottom. Be sure that one "high" and one "low pressure connection is plumbed to the proper connection on your system. The remaining two ports should either be plugged or plumbed as bleeds.

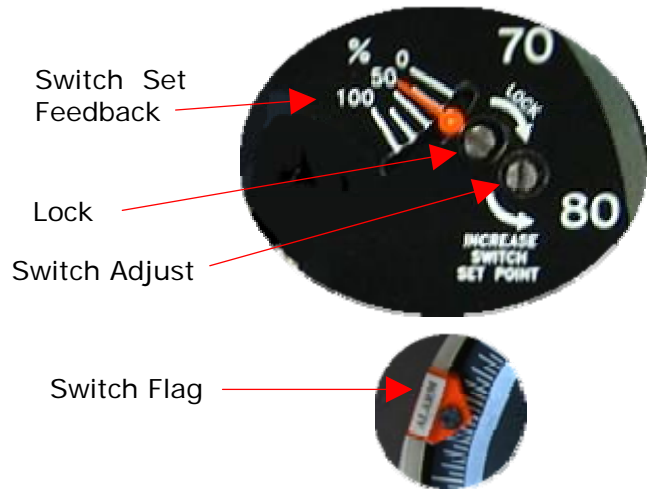
2. ELECTRICAL – Unit is supplied with a ½" FNPT conduit hub located at the bottom of the unit (facing the dial). An appropriate connector must be installed before making connections to the wire leads provided. 18" color coded flying leads are provided for interface to the switch. Wire functionality is defined as follows with zero differential pressure applied to the instrument.

White: Common
Black: Normally Closed
Red: Normally Open

CAUTION: FOLLOW ALL ELECTRICAL CODE REQUIREMENTS FOR VOLTAGE, AC OR DC SUPPLY AND ENVIRONMENTAL CONDITIONS AS REQUIRED LOCALLY.

NOTE: INSTALL THE FRONT COVER AND BEZEL ASSEMBLY AFTER SWITCH ADJUSTMENT AND DO NOT LEAVE THE UNIT OUTDOORS WITHOUT A CONNECTOR IN THE ELECTRICAL OPENING OR THE UNIT MAY BE DAMAGED FROM ENVIRONMENTAL CONDITIONS.

SETPOINT ADJUSTMENT The switch is adjustable for decreasing differential pressures from 3% to 100% of the full scale range of the gauge. The adjustment screw the set point lock screw, the switch set feedback, and the switch set flag are located inside the enclosure to protect against unauthorized adjustment. Before opening the unit to make a set point adjustment, check plant operating procedures and electrical codes. For weatherproof units, remove the (4) bezel screws and the bezel assembly.



Setpoint Adjustment (Bezel and lens removed)

1. Unlock the switch set by turning lock screw approximately ½ turn CCW. Adjust the set point adjust screw CW until the set point feedback is well below the desired switch point. Slowly turn switch adjust screw CCW until the Switch feedback near the desired switch point.
2. With an appropriate pressure source and switch continuity checker / meter, apply pressure to the unit and verify the switch set point. If a more precise set is required perform sequence 3.
3. Apply pressure to the unit until the desired set point pressure is reached. To set the switch on decreasing pressure, reduce the set point of the switch (Turn CW) until there is continuity between the White and Red wires (if continuity to start skip this step). Slowly increase the set point (adjust CCW) until there is no continuity between the White and Red leads.
4. Tighten the lock mechanism (Rotate CW). Verify the switch set.
5. Loosen switch flag screw and manually adjust to actual switch setting. Retighten flag screw.

Note: In most cases the lock mechanism will increase the switch point 1-2% as the lock is engaged. For a more accurate set, set reduce your set pressure by 1-2% of the FSR when setting the switch.

Replace the bezel assembly and screws.

Specification (Preliminary)

ELECTRICAL

Input Voltage:	None required		
Set Pointers:	Quantity:	1	
	Adjust:	3% to 100 % of Full Scale	Set on Decreasing
Output(s):	Contact(s):	1 SPDT	
	Contact Rating:	4 Amps Maximum	@ 30 VDC
		3 Amps maximum	@ 240 VAC
		5 Amps	@ 120 VAC
Temperature:	Operating:	-20F to +185 F	
Environment:	Standard:	Weather-proof Housing	NEMA 4
Electrical Interface:	Standard:	18" ., 18 Awg., 600V, 105 C, color coded wire leads	½" FNPT
Gauge Accuracy:	2%	Including effects of the switch	
Switch Repeatability:	2%	Max.	

MECHANICAL:

Material: Body; Brass
Moving Parts: 316/L SS, Ceramic, & Brass
Bezel, Housing: Anodized Al

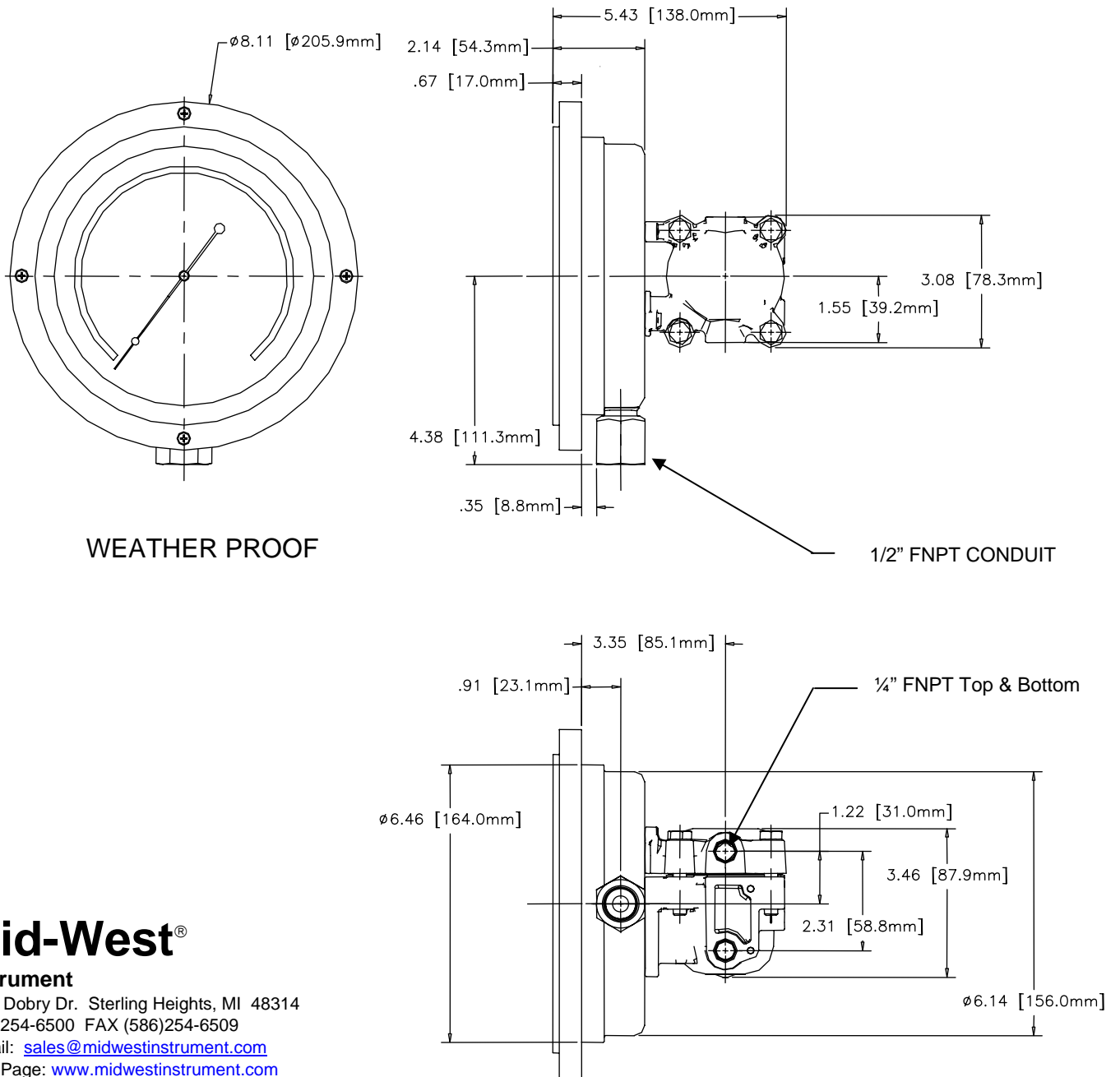
Ports: ¼" FNPT Top & Bottom

Working Pressure: 500 PSID
Proof Pressure: 2500 PSI

Dial: Black Aluminum with White lettering
Pointer: White Aluminum, micro adjust
Environmental: NEMA 4X

MANUFACTURER RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT PRIOR NOTICE

FIGURE 2: DIMENSIONAL DATA



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