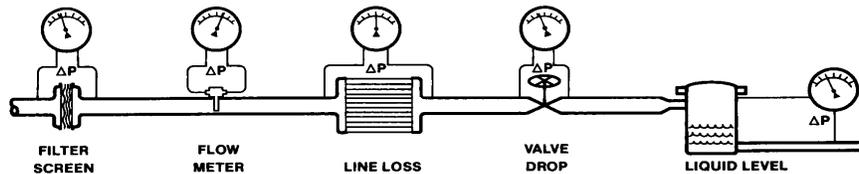


# Mid-West<sup>®</sup> Instrument



## MODEL 522 Installation and Operating Instructions

### SYMBOLS USED ON PRODUCT



Caution Risk of Danger. Please refer to this documentation when seen marked on the product.



Equipment protected throughout by double insulation.



This product is CE marked for conformance with the Low Voltage Directive (73/23/EEC)

### INSPECTION

Before installation check the receiving paperwork and the intended application for correct part number, materials of construction, working pressure, dial range, etc. If equipped with switches, check electrical rating. Inspect for shipping damage and, if damaged, report it immediately.

**NOTE - Before attempting repairs contact your local Mid-West Representative or our factory. Failure to do so will void any warranty.**

### INSTALLATION

The model 522 Indicating Differential Pressure Gauge / Switch is calibrated and tested prior to shipment and is ready for immediate installation. Use of the following installation procedures should eliminate potential damage and provide optimum trouble-free operation.

#### 1. PROCESS CONNECTIONS

1/4" FNPT are provided as standard but check paperwork for connections ordered. There are two connections on the body identified as "hi" and "lo" for high pressure and low pressure. Be sure these get plumbed to the proper connections on your system. Improper connection will not damage the instrument, but it will not function properly.

#### 2. INSTRUMENT LOCATION

On liquid service the instrument should be mounted **below** the process connections to facilitate self-bleeding. On gas service it should be located **above** the process connections to promote self-draining. If the process contains particulates, a "pigtail" loop or drop leg (manometer "U-tube" configuration) in the tubing will minimize the possibility of it migrating into the instrument.

### MATERIALS:

**Elastomers:** As specified on the order

**Body:** As specified on the order

**Internals:** Acetal, Ceramic, & SS

**Switch:** Flame Retardant VALOX & Flame Retardant Epoxy

**Connector:** Polyamide 6, 30% Glass Fill, Flame Retardant

### ELECTRICAL (LE OPTION)



**WARNING: ELECTRICAL CONNECTIONS SHOULD BE PERFORMED BY QUALIFIED PERSONNEL AND MEET REPRESENTATIVE NATIONAL ELECTRICAL CODE.**

**IT IS RECOMMENDED TO REMOVE POWER TO THE SWITCH PRIOR TO MAKING SET POINT ADJUSTMENTS.**

**CAUTION: THIS DEVICE DOES NOT REQUIRE POWER TO OPERATE. CONNECTION DIRECTLY ACROSS A MAINS POWER SOURCE MAY DAMAGE THE SWITCH.**

The SPST (Single Pole Single Throw) switch is intended for on / off control or status input to devices that have load characteristics within the ratings of 60 Watts max, 3 A max., 240 VAC / VDC maximum. **The product of the switching voltage and current shall not exceed 60 W.**

The adjustable switch supplied with your order can be re-adjusted between 40% and 95% of the full scale range of the gauge by loosening the two adjustment screws and sliding the switch assembly. Sliding the switch to the left (facing the dial front) decreases the switch set point. Re-tighten the switch adjust locking screws while applying light pressure to assembly to keep it from rotating or shifting.

#### **Interface:**

The DIN interface conforms to DIN 43 650A / ISO 4400 and **when mated** provides an IP65 rated protection class. The right angle mating connector is supplied with the gauge upon order. Clocking (orientation) can be changed by prying out the insert and rotating the insert to the desired clocking (90 ° increments).

Wiring to the SPST switch is between terminals 1 & 2.

### CE Marking Statements:

This product is CE marked in compliance with the Low Voltage Directive to EN-61010-1.

This product shall not be placed in an Explosive atmosphere as defined by the ATEX Directive 94/9/EC except if evaluated to be "Simple Apparatus" and it is installed in an intrinsically safe system.

This product may be classified as simple apparatus. However, the evaluation to the relevant portions of the applicable standards and clearly identifying the product as simple apparatus shall be the responsibility of the end user.

### Pressure Equipment Directive:

The Pressure Equipment Directive has been determined to be **non applicable for CE marking**. These products are manufactured in accordance with article 3, paragraph 3 of the directive, "sound engineering practice". They fall below category I for non-hazardous gases, hazardous liquids, & non-hazardous liquids. This product also falls below category I for hazardous gases at or below 200 bar.

### Simple Apparatus NEC 504.2

This product meets the simple apparatus definition as defined in NEC 504.2 of Article 504 (Intrinsically Safe Systems). Because of this classification, equipment listing is not required (504.4) and ordinary wiring methods shall be permitted (504.20) provided it is installed in an Intrinsically Safe System. Proper installation of this product in a hazardous location to the applicable requirements is the responsibility of the end user / equipment installer.

## SPECIFICATIONS

**WORKING PRESSURE:** 1000 PSI (69 bar) for Aluminum and Stainless Steel  
500 PSI (34.5 bar) for Acetal

**PROOF PRESSURE:** 2000 PSI (139 bar) for Aluminum and Stainless Steel  
1000 PSI (69 bar) for Acetal

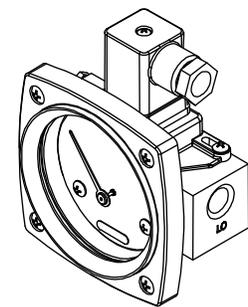
**MAX. DIFFERENTIAL PRESSURE (HI TO LOW):** 200 PSID (13.8 bar)

**ACCURACY:** ±5 % of Full Scale

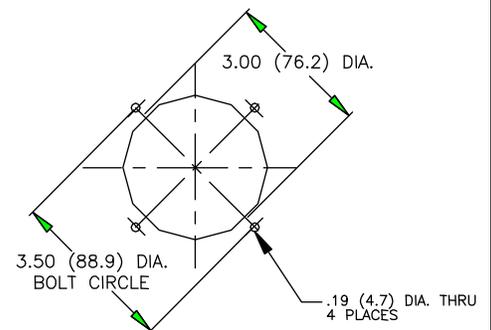
**TEMPERATURE LIMITS:** -40 °F (-40 °C) to 200 °F (93 °C). These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

**STANDARDS:** All Model 522 Series differential pressure gauges either conform to and/or are designed to the requirements of the following standards:

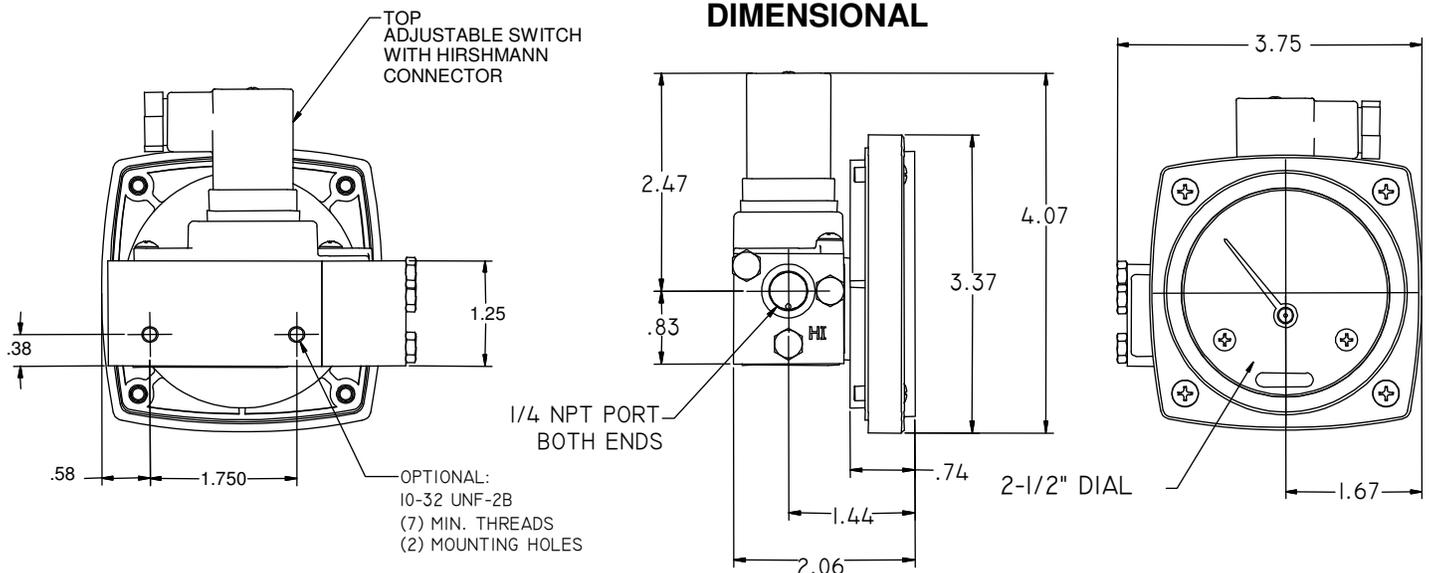
ASME B1.20.1	CSA-C22.2 No. 14
ASME B40.1	NEMA Std. 250
EN-61010-1	UL Std. No. 50 & 508



PANEL CUT-OUT

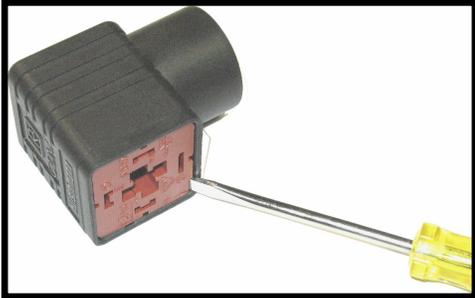


## DIMENSIONAL

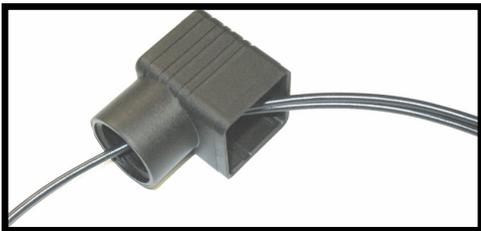


## Mating Connector: Connection Instructions

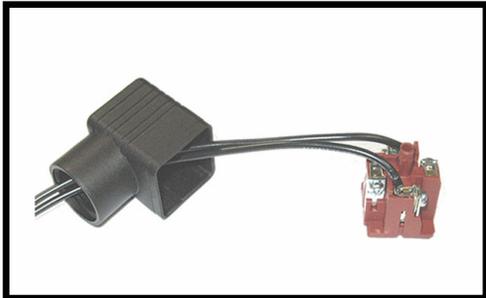
(Note: Delivered connector may appear different from item pictured)



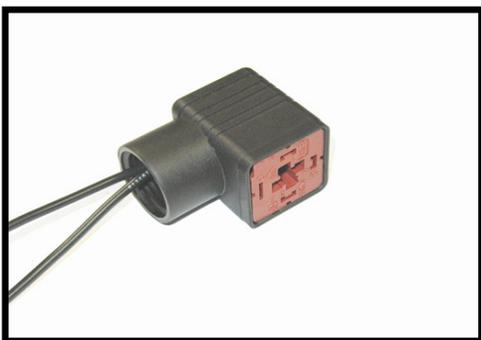
**Remove the plug-in connector from the gauge assembly and using a screwdriver pry out the insert from the connector shell.**



**Insert connection wires through the connector shell as shown.**



**Strip wire lead ends and connect to terminal locations 1 & 2 as shown. Terminals are marked.**



**Insert terminal connection insert into connector shell. Rotate if necessary to the desired clocking.**

# Mid-West<sup>®</sup>

**Instrument**

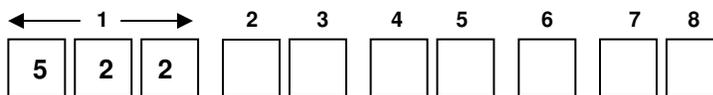
6500 Dobry Dr. Sterling Heights, MI 48314  
(586)254-6500 FAX (586) 254-6509  
E-mail sales@midwestinstrument.com

Printed in the U.S.A.

### Standard Model Specifications: 522-AA-02-00

1000 PSIG Working Pressure, Aluminum body, 316L Stainless Steel, Ceramic & Acetal Internal Parts  
 Buna-N Diaphragm and Seals, 1/4" FNPT End Connections  
 2-1/2" Round Black on White Dial w/ Engineered Plastic Case & Shatter Resistant Acrylic Lens  
 Accuracy ±5% Full Scale(Ascending)

**Range 0-5 PSID to 0-50 PSID (0.35 to 3.5 bar)**



Basic Model

Range: \_\_\_\_\_



<b>2</b>	<b>Material</b>
<b>A</b>	Aluminum Body / 316 Stainless Steel, Ceramic & Acetal moving components
<b>S</b>	316 S.S. Body / 316 Stainless Steel, Ceramic & Acetal moving components
<b>P</b>	Acetal (Plastic) Body / 316 Stainless Steel, Ceramic & Acetal moving components
<b>3</b>	<b>Dial Size &amp; Type</b>
<b>A</b>	2-1/2" Round, Black on White Dial w/Engrd. Plastic Dial Case. <b>(Standard)</b>
<b>T</b>	Non-Indicating DP Switch Only
<b>4</b>	<b>Seal Materials</b>
<b>0</b>	Buna-N
<b>1</b>	Viton®-A Registered Trademark of Dupont
<b>5</b>	<b>Process Connections</b>
<b>2</b>	1/4" FNPT End Connections
<b>6</b>	<b>Options</b>
<b>O</b>	None
<b>A</b>	(2)10-32 Mounting Holes, Spaced 1.75" apart. x .330" Deep
<b>7</b>	<b>Electrical Configuration</b>
<b>O</b>	None
<b>L</b>	(1) Switch in Std. enclosure with plug-in connector (DIN43650/IP65-PG11) NEMA 4X Available with SPST 60W N.O. Electricals Only! <b>Switch adj. 40 to 95% (F.S. Ascending)</b>
<b>8</b>	<b>Electrical Specifications</b>
<b>E</b>	SPST 60W 3.0 Amp 240 VAC/VDC <b>(Normally Open)</b>

Factory Preset of switch available at no charge

Mid-West understands that in today's demanding environment, flexibility, quick response time and the ability to ship most of our product line in 2 weeks or less is essential to our customers. Standard configurations can be customized and modified to suit our customer's needs for ease of installation or retrofit.

If you are in need of additional information please visit our web site at [www.midwestinstrument.com](http://www.midwestinstrument.com) or contact us toll free at **1-800-648-5778** and one of our knowledgeable sales coordinators will be happy to assist you...