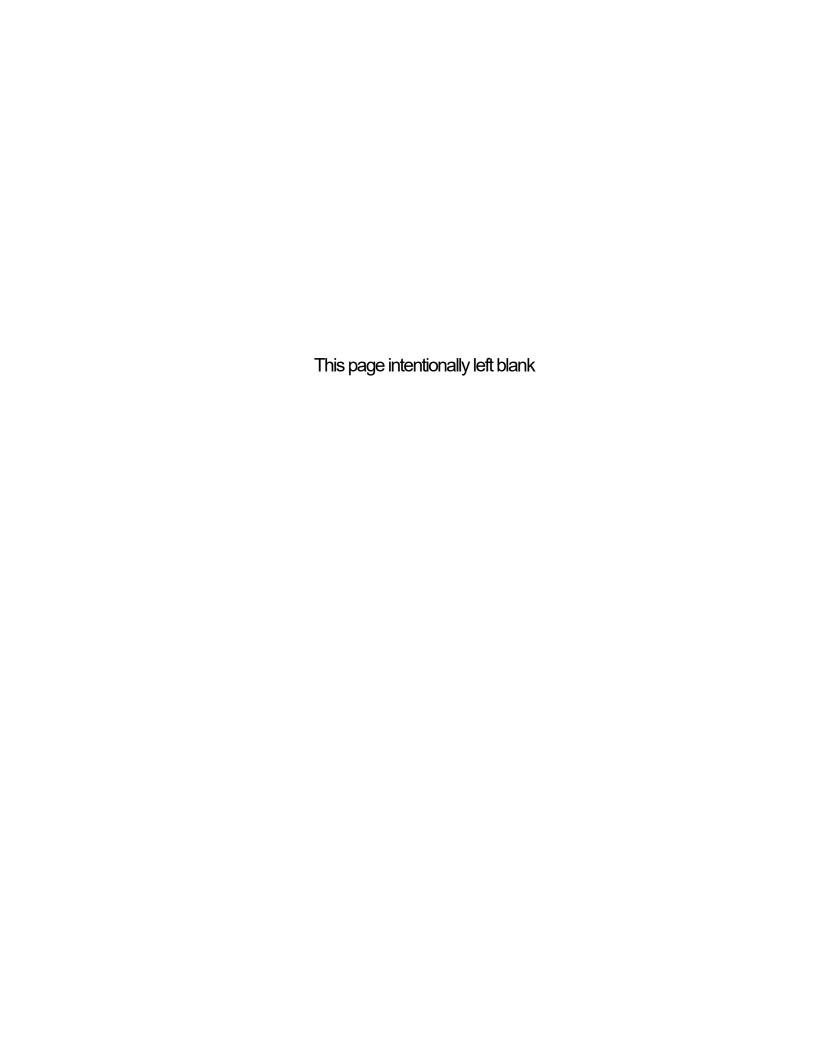


Differential Pressure Gauge Kits

IOM Manual



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Section 1 How to Use This Manual

Safety Considerations:

This chapter includes important information that must be read and understood by all persons installing, using, or maintaining this equipment. While this manual is designed to aid personnel in the correct and safe installation, operation, and maintenance of the systems described. Personnel must consider all actions and procedures for potential hazards or conditions that may not have been anticipated in the written procedures. If a procedure cannot be performed safely, it must not be performed until appropriate actions can be taken to ensure the safety of equipment and personnel. The procedures in this manual are not designed to replace or supersede required or common sense safety practices. All safety warnings listed in any documents applicable to equipment and parts used in or with the system described in this manual must be read and heeded before commencing work on any part of the system.



NOTE: Refer to all ATEX, CSA, IECEx, NEC, NFPA and UL certificates for any Special Conditions of Use. If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule of the certificate.



NOTE: Review all material and safety information in this manual and install in accordance with this document and all other applicable ATEX, CSA, IECEX, NEC, NFPA and UL standards.



WARNING: Failure to follow appropriate safety procedures or inappropriate use of the equipment described in this manual can lead to injury of personnel or equipment damage.



WARNING – EXPLOSION HAZARD – Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.

The following symbols are used throughout this manual to alert users to potential hazards or important information. *Failure to heed the warnings and cautions listed herein can lead to injury and equipment damage.*

Document Label Definitions Used To Indicate Potential Hazards		
Symbol	Label	Description
<u> </u>	WARNING:	Consists of conditions, practices, or procedures that must be observed to prevent injury or equipment damage.
<u> </u>	CAUTION:	Risk of electric shock or high temperature parts may result in injury if proper precautions are not taken.
	NOTE:	Emphasizes important or essential information.

Locating Information:



NOTE: In the interest of completeness, manuals and drawings included with the system may provide information pertaining to options not included with your equipment. Information in application notes supersedes general information in these documents. Information can be located in this manual using any of the following aids.

- 1. Table of Contents
- 2. Getting Help

General Safety and Operating Information:

This section contains general safety and operating information applicable to electrical equipment installed within hazardous locations. This information must be understood by all persons installing, using, or maintaining the electrical equipment. This information is designed to aid personnel in safe installation, operation, and maintenance of any Differential Pressure Gauge Kit offered by Purge Solutions, Inc. It is not designed to replace or limit appropriate safety measures applicable to work performed by personnel. Any additional safety and operating measures that are required must be determined by and followed by personnel performing work on the electrical equipment.



WARNING: Deviation from the specified instruction or procedure steps can result in equipment malfunction, equipment damage, or injury to personnel.



WARNING: Return unit to factory for any repairs or replacement of parts, customer not permitted. This will void all warranties and hazardous area certification(s).

General Precautions:

Protective eyewear (glasses with side shields or goggles as appropriate) must be worn when servicing any part of electrical equipment. Hot components should be allowed to cool before servicing if possible. Other appropriate equipment or clothing must be used as required by the type of work performed. All applicable regulations and procedures must be followed for the work performed. **Before** beginning any work on the equipment, carefully consider all the potential hazards and ensure that appropriate measures are taken to prevent injury to personnel or equipment damage.



CAUTION: Electrical equipment components may be hot even when power is not applied. Take appropriate precautions to prevent injury from contact with hot items.



CAUTION: Applicable permits must be obtained and appropriate precautions must be taken to prevent possible injury to personnel or equipment damage when installing or maintaining this equipment.

Electrical Power:

Appropriate precautions must be taken to prevent sparks that may ignite combustible materials that may be present in the enclosure environment that the Differential Pressure Gauge Kits will be installed. Precautions must also be taken to prevent electrical shock if the enclosure is opened. Power circuit breakers and wiring must be sized properly for the required current. All wiring installations must meet applicable electrical codes.

System Location:

All Purge Solutions, Inc. Purge Differential Pressure Gauge Kits must be installed in a suitable location. All Purge Solutions, Inc. Differential Pressure Gauge Kits must not be installed in an area classification for which it is not rated and must be protected from temperature extremes and potentially high vibration. All Differential Pressure Gauge Kits from Purge Solutions, Inc. should not be mounted in an area with potentially high vibration. All Differential Pressure Gauge Kits from Purge Solutions, Inc. must be attached securely and appropriately at its final installation as instructed in this manual.

Purge Systems:

Electrical equipment may use purging to ensure safe operation when installed within a hazardous location. The protective gas purge supply must be clean, dry, and free from hydrocarbons or corrosive materials. All protective gas purge supply pressures must be set correctly and all electrical equipment enclosure doors must be closed securely. Purged enclosures must not be opened unless power is removed from the electrical equipment or the area is known to be non-hazardous.



CAUTION: Electrical equipment enclosures using any Purge Solutions, Inc. purge option must not be opened unless power is removed from the electrical equipment or the area is known not to contain explosive materials.

Specifications

Features		
Ingress Protection = NEMA 4X (IP66)		
All mounting hardware comes standard		
Differential pressure gauge range is 0.0 to 1.0 Inch H2O (2.5 mbar) in 0.1 Inch H20 (0.2 mbar) increments		

Normal Operating Conditions		
Dilution Cycle Time To Energizing Electrical Equipment	Typically, dilution cycle time is to ensure that at least five (5) times the volume of free space in the enclosure of protective gas supply is exchanged before power is applied to the electrical equipment. Ten (10) times volumes for motors, generators and other rotating electrical machinery.	
Minimum Enclosure Pressure	Purge pressure being maintained above 0.50 inches H2O (1.25 mbar) in electronics enclosure being monitored.	



WARNING: The number of exchanged volumes may be higher in some situations.

Utility Requirements		
Minimum Purge Gas Supply Pressure to Purge Gas Inlet Kit Pressure Regulator	20 psig (1.4 Bar) (Suggested minimum purge gas supply pressure to compensate for enclosure leak rate)	
Maximum Purge Gas Supply Pressure to Purge Gas Inlet Kit Pressure Regulator	150 psig (10.3 Bar) (Certification maximum pressure rating)	
Purge Protective Gas Supply Quality	Water and oil-free, - 40°F (- 40°C) dew point, particles ≤ 5µ, ISA grade hydrocarbon free	

Environmental Conditions		
Operating Temperature Range	-20°F to 120°F (6.6°C to 48.9°C)	
Operating Temperature Range	-25.9°F to 138°F (-3.4°C to 58.9°C)	
Used and Mounted	For Indoor and Outdoor Use	

Material Specifications

All mounting brackets, tubing and hardware is constructed from 316 Stainless Steel

Differential pressure gauge housing is constructed from glass filled nylon

Differential pressure gauge lens is constructed from polycarbonate



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Differential Pressure Gauge Kit Model Number Matrix	
Mounting Location	Model Number
Bottom Enclosure Mount	PSO-DPG-B
Left Side Enclosure Mount	PSO-DPG-L
Right Side Enclosure Mount	PSO-DPG-R
Top Enclosure Mount	PSO-DPG-T

<u>Introduction</u>

Description:

For purge / pressurization applications that require the internal enclosure purge pressure to be displayed; Purge Solutions, Inc. offers four all stainless steel Differential Pressure Gauge Kit, which can be mounted on the side, top or bottom of an enclosure. Model number PSO-DPG-L is our left side mount version, model number PSO-DPG-R is our right side mount version, model number PSO-DPG-T is our top mount version and model number PSO-DPG-B is our bottom mount version.



WARNING: Failure to heed the following information may lead to injury of personnel or equipment damage.



CAUTION: Electrical equipment components may be hot even when power is not applied. Take appropriate precautions to prevent injury from contact with hot items.



WARNING: Failure to allow adequate cooling of electrical equipment components with hot surfaces before opening the purged enclosure can lead to injury of personnel or equipment damage.

<u>Installation</u>

Differential Pressure Gauge Kit Installation Procedure:

Purge Solutions, Inc. all stainless steel Differential Pressure Gauge Kit, which can be mounted on the side, top or bottom of an enclosure. Model number PSO-DPG-L is our left side mount version, model number PSO-DPG-R is our right side mount version, model number PSO-DPG-T is our top mount version and model number PSO-DPG-B is our bottom mount version.

Review all of the material in this manual prior to installing and interfacing Differential Pressure Gauge Kit. If you have any questions, please contact your local Purge Solutions, Inc. representative or the factory (refer Getting Help page 62). Refer to Differential Pressure Gauge Kit, bottom mount, drawing number PSO-DPG-B (page 48), Differential Pressure Gauge Kit, left side mount, drawing number PSO-DPG-L (page 49), Differential Pressure Gauge Kit, right side mount, drawing number PSO-DPG-R (page 50) or Differential Pressure Gauge Kit, top mount, drawing number PSO-DPG-T (page 51) hole sizes and locations required to interface and mount unit to enclosure.

All Differential Pressure Gauge Kits mounting bracket, fittings, tubing and mounting hardware are constructed of 316 stainless steel. Differential pressure gauge housing is constructed of glass filled nylon with a polycarbonate lens. Differential pressure gauge range is 0 to 1.0 Inch H2O (2.5 mbar) in 0.1 inch H2O (0.2 mbar) increments with a working temperature range of 20°F (6.6°C) to + 120°F (+ 48.9°C)

Step 1:

Make sure that area surrounding the enclosure the Differential Pressure Gauge Kit to be installed is known to be non-hazardous.

Step 2:

Make sure that all power is removed from the electrical equipment located in the enclosure where the Differential Pressure Gauge Kit will be installed.

Step 3:

Choose a mounting location for the Differential Pressure Gauge Kit on the enclosure. The chosen location should permit adequate viewing of the Differential Pressure Gauge Kit pressure gauge and interface for servicing.

Step 4:

Use Mounting Hole Pattern (drawing number PSO-DPG-B, page 10, PSO-DPG-L, page 11, PSO-DPG-R, page 12 or PSO-DPG-T, page 13) to accurately locate the mounting holes. Use the Mounting Hole Template to draw a 1 to 1 scale drawing. Tape the 1 to 1 scale drawing to the *outside* of enclosure. The required hole locations can then be transferred and / or marked using the centers of the holes as shown on the 1 to 1 scale drawing.

Step 5:

Drill or punch all holes, per the sizes specified on the Mounting Hole Pattern (drawing number PSO-DPG-B, page 10, PSO-DPG-L, page 11, PSO-DPG-R, page 12 or PSO-DPG-T, page 13).

Step 6:

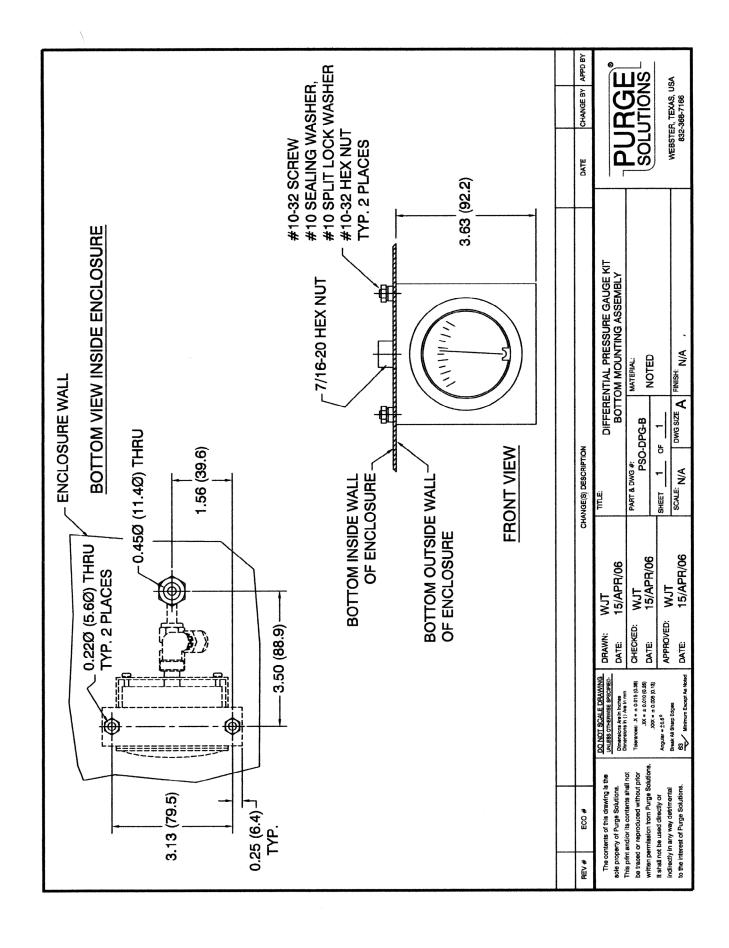
After required mounting holes have been drilled or punched into enclosure, align the Differential Pressure Gauge Kit to the mounting holes fabricated in Step 5.

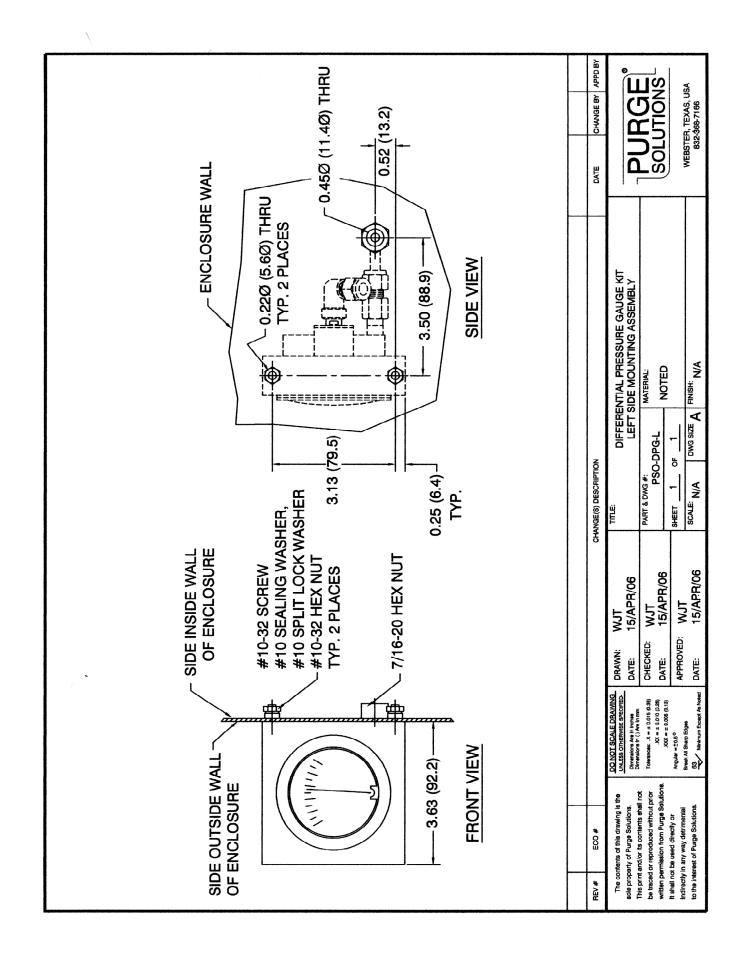
Step 7:

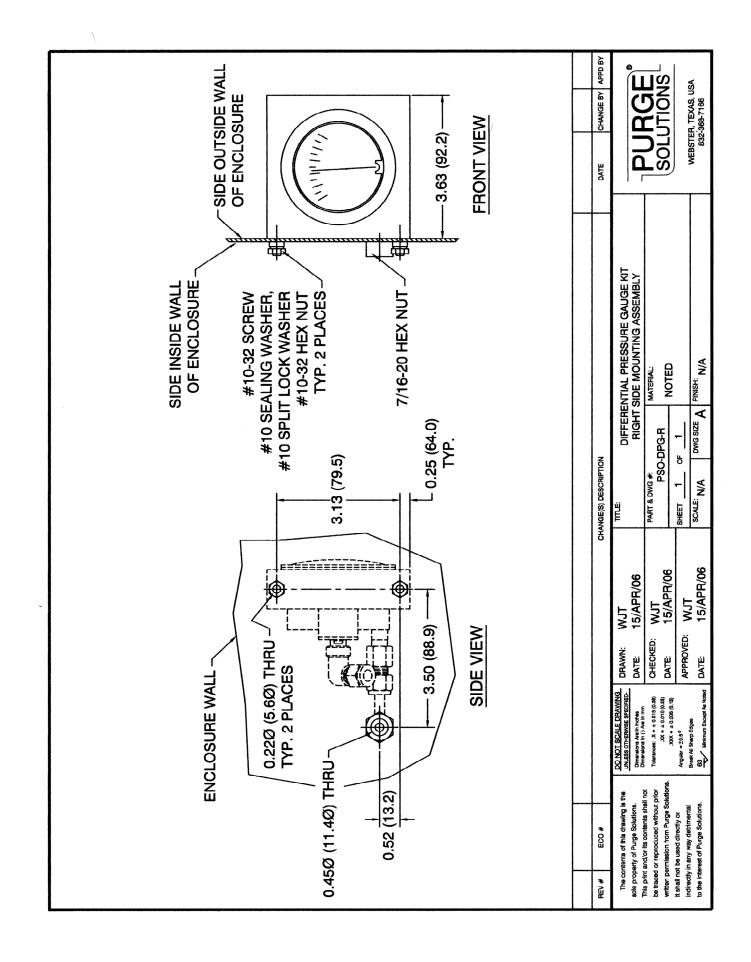
Using the fastening hardware provided with the unit, mount the Differential Pressure Gauge Kit to enclosure. Tighten fastening hardware until all seals are completely compressed against the surface of the enclosure.

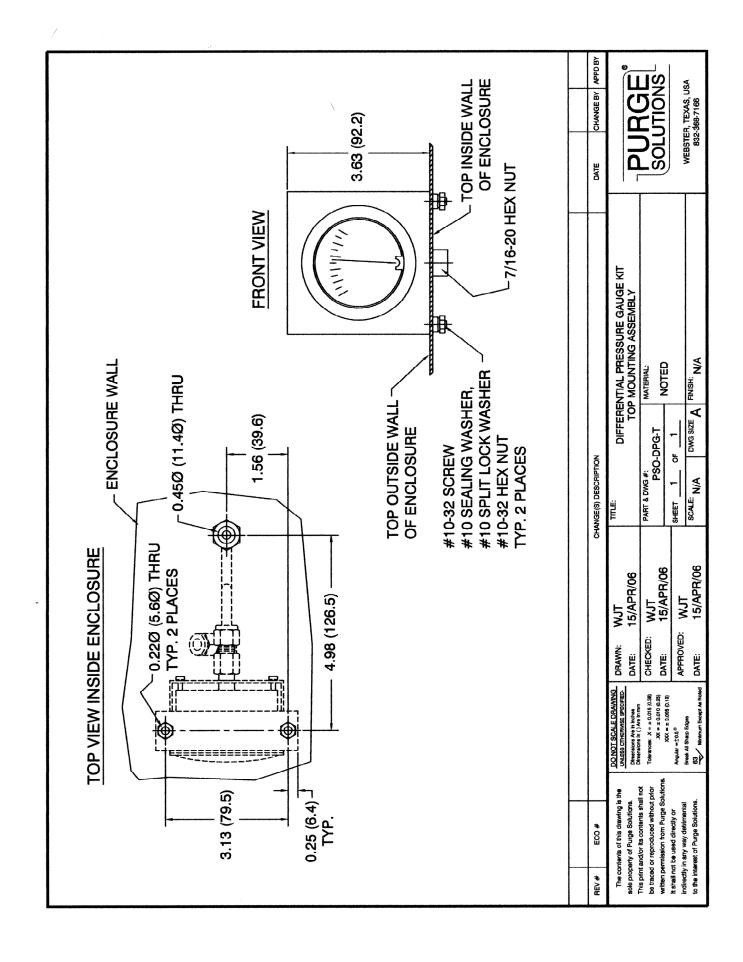
Step 8:

After all Differential Pressure Gauge Kit fastening hardware has been properly tightened, the Differential Pressure Gauge Kit is ready to monitor the enclosure internal purge pressure.









Getting Help

Getting Help:

Answers to many questions concerning any optional products we offer are in this manual. If a problem or question is encountered that is not covered in the documentation provided, assistance is available Monday through Friday (except holidays), from 8 a.m. to 5 p.m. United States central time. To obtain assistance by telephone call Purge Solutions, Inc. at 832-368-7166.

For assistance during times other than normal business hours, consult our World Wide Web Internet site at **http://www.purgesolutions.com**. This site includes equipment information, news releases, videos and other information. E-mail can be sent to **info@purgesolutions.com**.

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