

Digital Differential
Pressure Gauge
Switch

USER GUIDE

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Getting Started

Description

The Digital Differential Pressure Gauge Switch combines a gauge and a switch in one unit, which allows the user to program a wide range of monitoring and switching parameters to suit specific applications.

Display

- The LCD display shows the actual Differential Pressure (DIF) and the pressure differential trigger setting (SET) continuously when power is connected. When the switch contacts are closed, this is indicated by displaying "On".
- Display resolution:
 - 1 PSI in the range 0-99psi
 - 0.1 BAR in the range 0.0-7.0 BAR

Mechanical

- 2 inch (52 mm) diameter
- Operating temperature -10° C to 60° C
- Dust and water tight according to IP 66 specifications
- Outdoor UV protection
- Front panel cover protection
- Maximum "H" pressure 200 PSI / 14 BAR
- "H" pressure \geq "L" press

Electrical

- Power supply 9-24 VDC or 12-24 VAC
- Low power indication: LO P on display
- Dry contact (N.O.) 0.5 A at 24 VAC
- Internal memory retains settings when power is not supplied.

Mounting

- 2 ft /60 cm. 4 wire cable
- Red (+) and Black (-) to power supply
- Green and White to N.O. contacts
- Pressure ports 1/8" BSP /NPT male
- "H" pressure port marked on housing

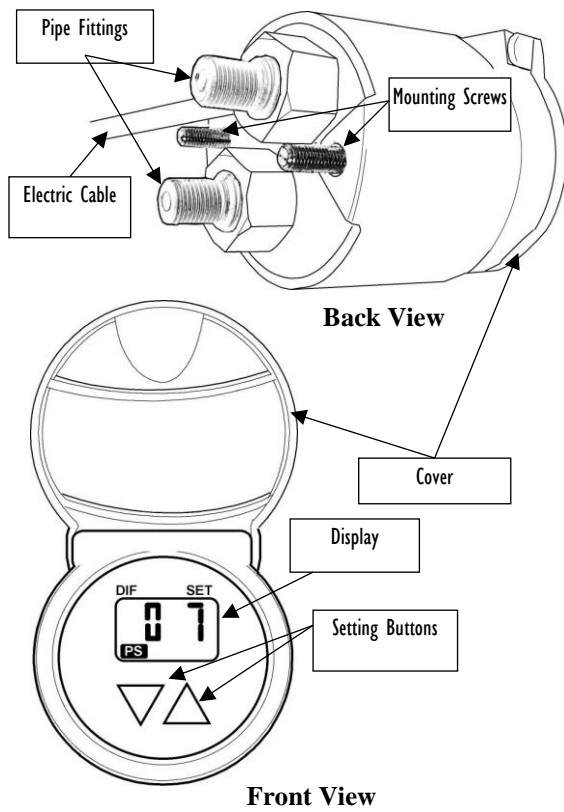
Programmable Settings

- Manual operation
- PSI or BAR display
- Time interval between pressure measurements
- Contact closed time
- Zero calibration

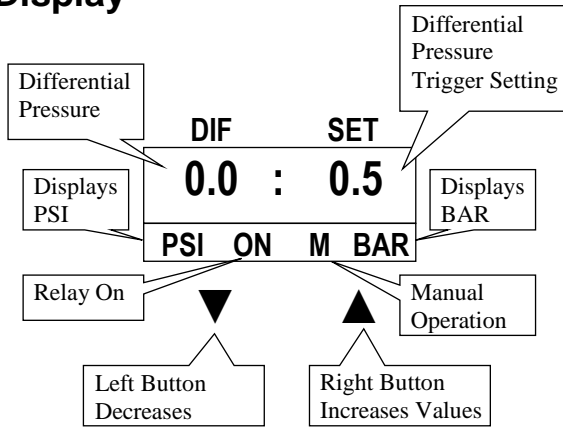
Default Factory Settings

- Units of measurement: PSI
- Differential pressure trigger (SET): 7 PSI
- Time interval between measurements: 25 seconds
- Contact closed time: A

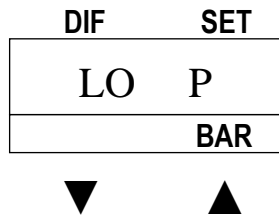
Parts Identification



Display



Low Power Display

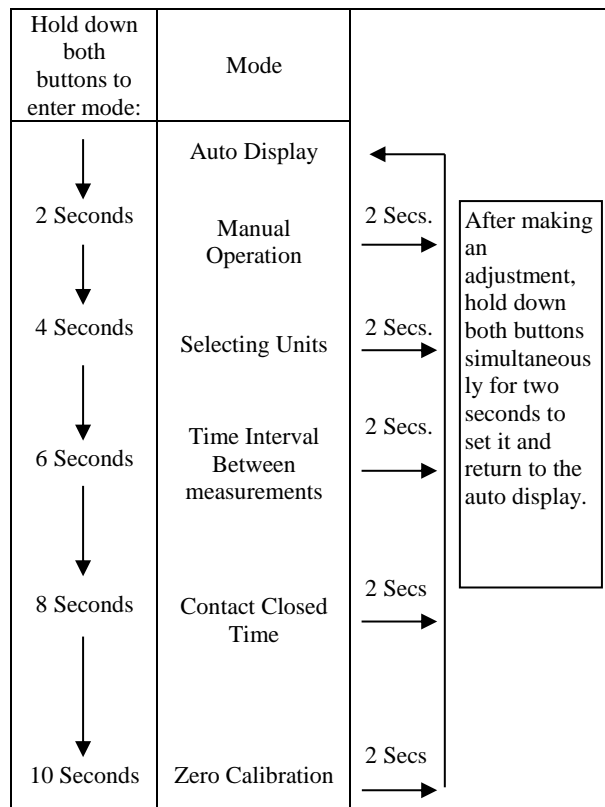


Programming

General—Using the Arrow Buttons

- To enter settings press and hold both buttons simultaneously.
- Use the left button ▼ for decreasing settings, selecting BAR measurements, and for turning off the device in the Manual mode.
- Use the right button ▲ for increasing settings, selecting PSI measurements, and for turning on the device in the Manual mode.
- After making an adjustment, holding the two buttons at the same time for 2 seconds, sets the adjustment and returns the display to the auto display.
- If the buttons are not held down for the full 2 seconds, until the auto display appears, no changes are made to the previous settings.
- When making an adjustment, if the buttons are not pressed for 30 seconds, the auto display appears and no changes are made to the previous settings.

Flow Chart for Settings

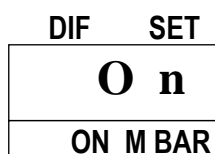


Manual Operation

1. Press both buttons for 2 seconds until the letter M flashes and the word "ON" appears.
2. Select ON or OFF. The left button ▼ selects OFF. The right button ▲ selects ON.
3. Hold the two buttons simultaneously for 2 seconds to set the selection. If you selected manual ON, M and ON will appear on the display. If you selected manual OFF only the M appears in the bottom row of the display.



Manual OFF



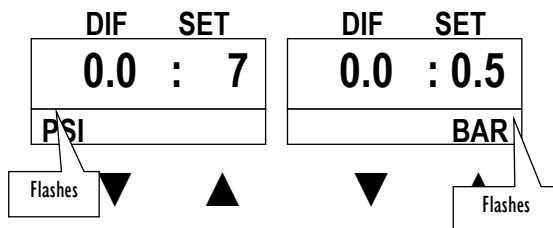
Manual ON

Manual Operation ON time

- If you selected A (t = A) as the contact closed time setting, the contacts will close and remain closed until the third pressure differential pressure measurement takes place, then will open or close according to the pressure differential.
- If you selected contact closed time “t” as a specific time in seconds, for example 10 seconds, then the contacts will close for 10 seconds.

Selecting Units of Measure

1. Press the two buttons simultaneously for 4 seconds until PSI or BAR flashes.

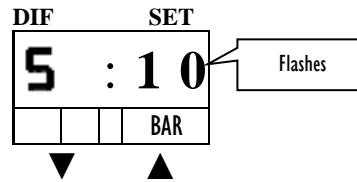


Setting Readings in PSI Setting Readings in BAR

2. Press ▲ to switch from PSI to BAR.
3. Press ▼ to switch from BAR to PSI.
4. Set the selection by pressing on the two buttons simultaneously for 2 seconds.

Time Interval between Measurements

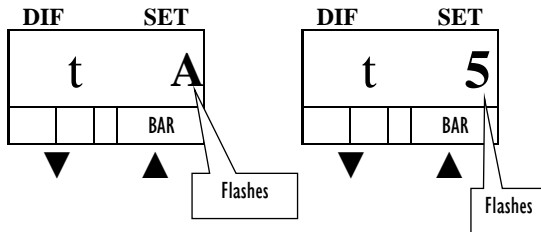
The device checks pressure differential every few seconds. This interval may be set by the user. The longer the interval is between measurements, the lower the power consumption and the greater the battery life. The time interval may be set for any value from 0.5 to 99 seconds (0.5 appears as A). Press the two buttons simultaneously for 6 seconds, until the following display appears:



1. Using the buttons, add or subtract time until you reach the desired time interval selection. In this example, 10 seconds has been selected.
2. Set by holding the two buttons down simultaneously for 2 seconds, until the display returns to the basic screen.

Contact Closing Time

1. When the pressure differential is greater than or equal to the setting ($DIF \geq SET$) the switch contacts are closed for the period of time “t” in seconds. This closed time may be set as follows: A, or any value from 1 to 99 seconds. A=closed time depending on the interval between measurements “S” and is explained in the chart which follows these steps.
2. Press the two buttons simultaneously for 8 seconds until one of the following appears on the display:

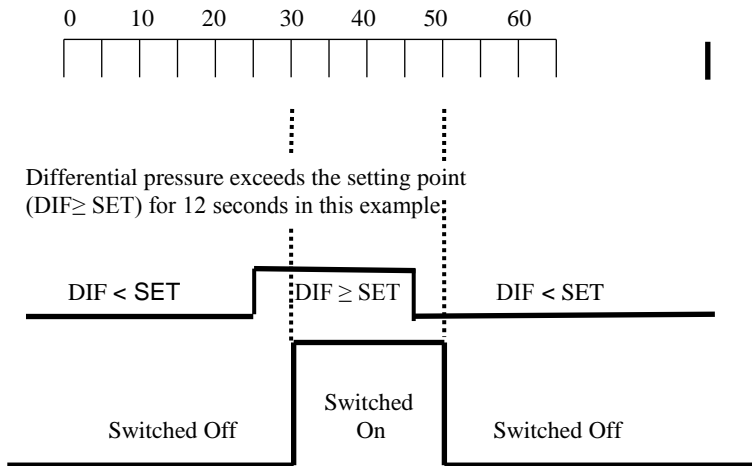


3. Use the buttons to adjust the time or to select A: ▼ to decrease, ▲ to increase.
4. Press the two buttons simultaneously for 2 seconds until the basic display appears, to set the selection.

Contact Closed Time = A

The below diagram shows how the relay "ON" time is dependent upon the interval time setting when the contact closing time is set to "A" (t = A):

For example, the interval between measurements "s" is set at 10 seconds.



The relay is switched ON only when the gauge "knows" that a differential pressure change has taken place, and will not be switched ON or OFF between measuring samples, which in this case results in an ON time of 20 seconds.

Zero Calibration Set

The pressure sensor should read zero when the pressure differential is zero. To check the calibration, remove the two pipe fittings from H and L. The pressure reading when the fittings are open to the atmosphere and there is no pressure differential between them should be "0". If not, set the reading to "0" as follows:

1. Press the two buttons at the same time and hold for 10 seconds until the following display appears:



The pressure differential reading (here 0.1 BAR) flashes.

2. Press the two buttons at the same time for 2 seconds until the auto display appears and will now show 0.0.