

GL42 DIFFERENTIAL PRESSURE TRANSMITTER INSTALLATION & MAINTENANCE SHEET



WARNING READ BEFORE INSTALLATION

1. GENERAL:

A failure resulting in injury or damage may be caused by excessive overpressure, excessive vibration or pressure pulsation, excessive instrument temperature, corrosion of the pressure containing parts, or other misuse. Consult Ashcroft Inc., before installing if there are any questions or concerns.

2. OVERPRESSURE:

Pressure spikes in excess of the rated overpressure capability of the transducer may cause irreversible electrical and/or mechanical damage to the pressure measuring and containing elements.

3. STATIC ELECTRICAL CHARGES:

Any electrical device may be susceptible to damage when exposed to static electrical charges. To avoid damage to the transducer the operator/installer should follow proper ESD (electrostatic discharge) protection procedures before handling the pressure transducer.

4. DESCRIPTION

The Ashcroft® Model GL42 is a low differential pressure transmitter to be used on clean, dry, non-corrosive gases. It is available in two accuracy classes and its performance is traceable to the U. S. National Institute of Standards and Technology (NIST). The 7 or 5 located in the fifth position of the product code distinguishes a 1.0% from a 0.5% accuracy transmitter. Both unidirectional (e.g. 0 to +1.0 IW) or bi-directional (e.g. ± 2.0 IW) models are available.

5. SPECIFICATIONS

Reference condition: 77°F (25°C)

Accuracy*: $\pm 0.50\%$ or $\pm 1.00\%$ F.S. (URL)
(* includes linearity, hysteresis and repeatability)

Repeatability: $\leq \pm 0.1\%$ F.S.

Stability: $\leq 0.5\%$ F.S. / Year

Zero / Span Adjustment: $\pm 5\%$ F.S.

Standard-Ranges (Unidirectional):
0.10" to 25.00" in H₂O

Standard-Ranges (Bidirectional):
 ± 0.05 " to ± 15.0 " in H₂O

6. ENVIRONMENTAL SPECIFICATIONS

Enclosure Rating: IP65

Temperature Limits:

Operating: -4/158°F (-20/70°C)

Storage: -40/194°F (-40/90°C)

Compensated: 35/129°F (2/54°C)
(10-90% R.H. non-condensing)

Temperature Coefficients:

Zero & Span $\pm 0.06\%/K$ within 35/129°F (2/54°C)

Ref. 77°F (25°C)

FUNCTIONAL SPECIFICATIONS

Static (line) Pressure: All Pressure Ranges

Proof: 14.5 psi (1 bar)

Burst: 24.65 psi (1.7 bar)

Max. Static: 24.65 psi (1.7 bar)

8. ELECTRICAL SPECIFICATIONS

LCD Display: 4 Digit

LCD Screen Dimensions:

Width: 1.77" (45mm) / Height: 0.75" (19mm)

LCD Character Size:

Height: 0.21" (5.4mm) / Width: 0.45" (11.5mm)

Output Signal: 4-20 mA (2 wire)

Supply Voltage: 19-36 Vdc (Nominal 24 Vdc)

Rangeability / Adjustment: Zero: $\pm 1/3$ F.S.

CE-Compliance: EN 61000-4-2, EN 61000-4-3

9. MECHANICAL SPECIFICATIONS

Process Connection: Brass / Aluminum

1/8" Female NPT or 1/4" Male Barbed Fitting

Electrical Connection:

1/2" Female DIN Cable Conduit (Standard)

PG9 Cable Gland (Option)

Enclosure: Nylon

Cable Connection Socket: Nylon

Front Foil: Polyester

Electrical Connection: Screw Terminal

Weight: 9.9 oz (308 g)

Mounting:

Wall Mount (Standard)

DIN Rail (Option): EN 50022 / EN 50035 / EN 50045

Panel Mount (Option)

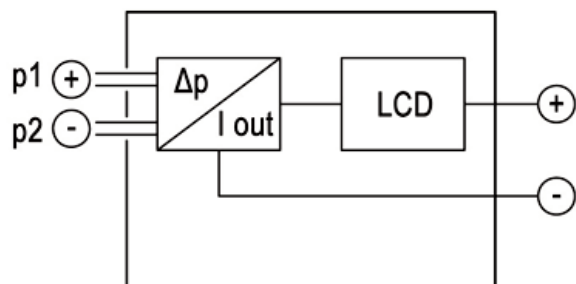
10. INTENDED USE

The GL42 is a 2-wire transmitter.

It is suitable for accurate measurement of low gauge, vacuum or differential pressure of non-conductive and non-corrosive gaseous media.

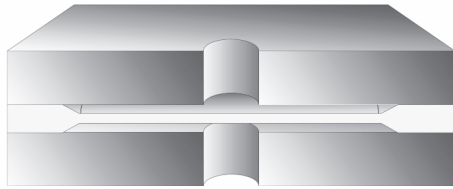
11. PRODUCT DESCRIPTION AND FUNCTION

a. Function diagram



b. Design and mode of operation

The transmitter is based on a capacitance sensor element with a micro machined differential capacitor using a patented silicon-on-glass technology. This ultra-thin single crystal diaphragm provides excellent sensor repeatability and stability.



Sensor cross section

The silicon diaphragm sensor has no glues or other organics to contribute a drift or mechanical degradation over time.

12. INSTALLATION AND ASSEMBLY

All supply lines should be arranged so that there are no mechanical forces acting on the device.

The GL42 is calibrated for vertical installation; however any installation position is possible. If an installation position other than vertical is selected, the zero-point signal can be corrected as shown in Section 13b.

a. Process connection

- By authorized and qualified personnel only.
- All lines need to be depressurized when the instrument is being connected.
- Appropriate steps must be taken to protect the device from pressure surges.
- Check the suitability of the device for the media to be measured.
- Maximum pressures shall be observed.
- Check that all connections are tight before use.

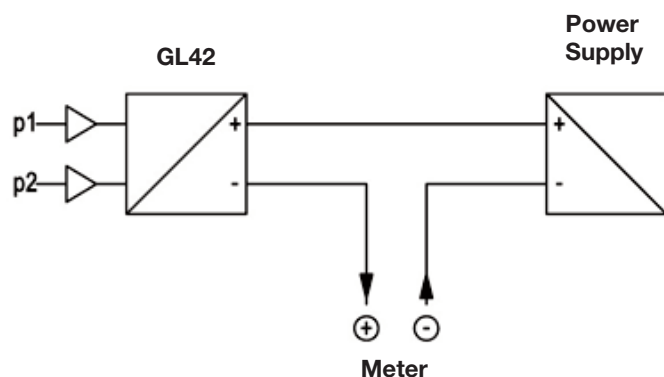
The pressure sensing lines need to be kept as short as possible and installed without sharp bends to avoid interfering delay times.

The pressure connections are marked with (+) and (-) symbols on the device. For differential pressure measurements, the higher pressure is connected to the (+) side and the lower pressure to the (-) side of the device.

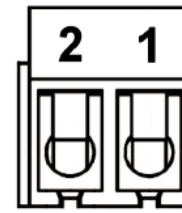
If during installation the pressure measuring lines are already under pressure, the zero-point cannot be checked and no settings can be adjusted. In these cases, the device should only be connected electrically first.

b. Electrical connection

- By authorized and qualified personnel only.
- The electrical connection of the device shall be performed according to local electrical codes
- Turn off power before connecting the device.



i. 2-wire circuit



Pin	Signal Name
2	+ Power Supply / Output Signal +Ub / +Sig
1	- Power Supply / Output Signal -Ub / -Sig

ii. Pin assignment

13. COMMISSIONING

All electrical supply, operating and measuring lines, and the pressure connections must have been correctly installed before commissioning. All supply lines are arranged so that there are no mechanical forces acting on the device.

Check that the pressure connections do not leak before commissioning.

a. Configuration of the LCD display

To configure the LCD display, remove the lid by unscrewing



the four screws on the front of the device. This gives you access to the DIP switch used for configuration.

S1	S2	S3	S4	S5	S6	S7	S8
Unit	Decimal Point	Attenuation	reserved				

The following overview shows the basic function of the individual switches:

Using the following switch settings, the display can now be configured at your discretion. Changes to the configuration via the DIP switch are shown immediately on the display.

A "1" equals the switch setting "ON"; a "0" means that the switch setting is "OFF".

Unit	S1	S2	S3	S4	S5	S6	S7	S8
inWC	0	0					X	X
mbar	1	0					X	X
kPa	0	1					X	X
Pa	1	1					X	X

Decimal Point	S1	S2	S3	S4	S5	S6	S7	S8
0			0	0			X	X
1.0			1	0			X	X
2.00			0	1			X	X
3.000			1	1			X	X

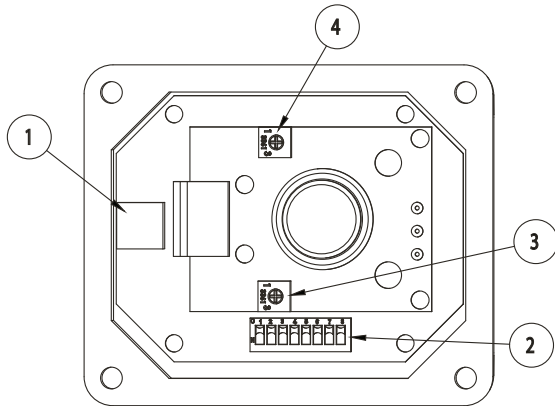
Display Damping	S1	S2	S3	S4	S5	S6	S7	S8
none					0	0	X	X
1 s					1	0	X	X
3 s					0	1	X	X
5 s					1	1	X	X

i. Switch settings

ii. Functional description of display damping

The damping only refers to the display value of the LCD display and not the power output signal of the GL42 2-wire differential pressure transmitter.

The display value is damped according to an e-function. The set damping time corresponds to a change of the displayed pressure value of 90% of the change of the input pressure.



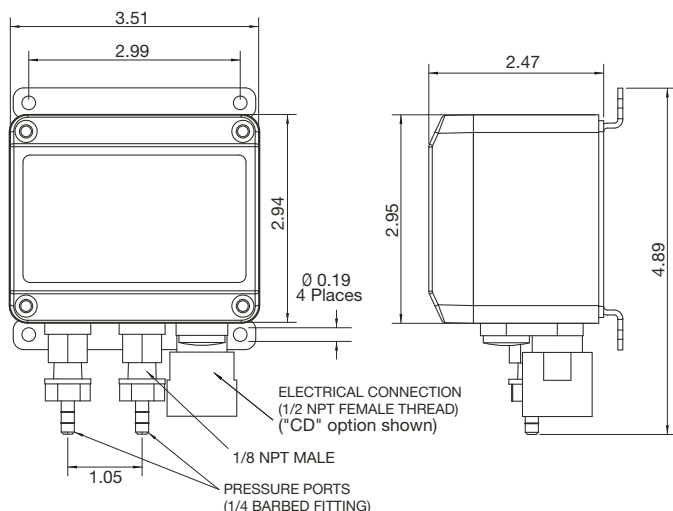
Item	Description
1	KL1 - PCB Terminal Block for power supply and signal output
2	S1 – DIP Switch for LCD Configuration
3	SPAN Adjustment Potentiometer
4	ZERO Adjustment Potentiometer

The final display value is achieved after a four-fold damping time.

b. Adjustment

To adjust the differential pressure transmitter, remove the lid by unscrewing the four screws on the front of the device.

The zero-point and the range can be adjusted via the potentiometer "ZERO" (zero-point) and "SPAN" (range). Ensure correct alignment of the sensor in terms of the subsequent installation to avoid position-dependent measuring deviations when used later.



14. MAINTENANCE

The device does not require maintenance. In order to ensure reliable operation and a long service life of the device we recommend regular checking of the device as follows:

- Check the function in connection with system components.
- Check the tightness of the pressure connection lines.
- Check the electrical connections.

The exact test cycles have to be adapted to the operating and environmental conditions. The operating manuals of all other devices are also to be observed if there is an interaction of different device components.

15. TRANSPORT

The product must be protected against severe impacts. Therefore transport is to be effected only in the packaging intended for transport.

16. SERVICE

All defective or faulty devices are to be sent directly to Ashcroft Inc. We would ask you to coordinate all device returns with our inside sales department. Our inside sales department will issue an RMA number and give instructions on how to ship the return.

WARNING

Remaining medium in and on dismantled measuring instruments may cause danger to persons, environment and equipment. Take reasonable precautions! Clean the instrument thoroughly if necessary.

To return the unit please choose the original packaging or a packaging intended for transport.

17. DISPOSAL

Incorrect disposal can put the environment at risk.

Kindly help us protecting the environment and dispose of or recycle the used products in accordance with the relevant regulations.

18. DIMENSIONED DRAWINGS

(All units in mm unless otherwise specified.)

