

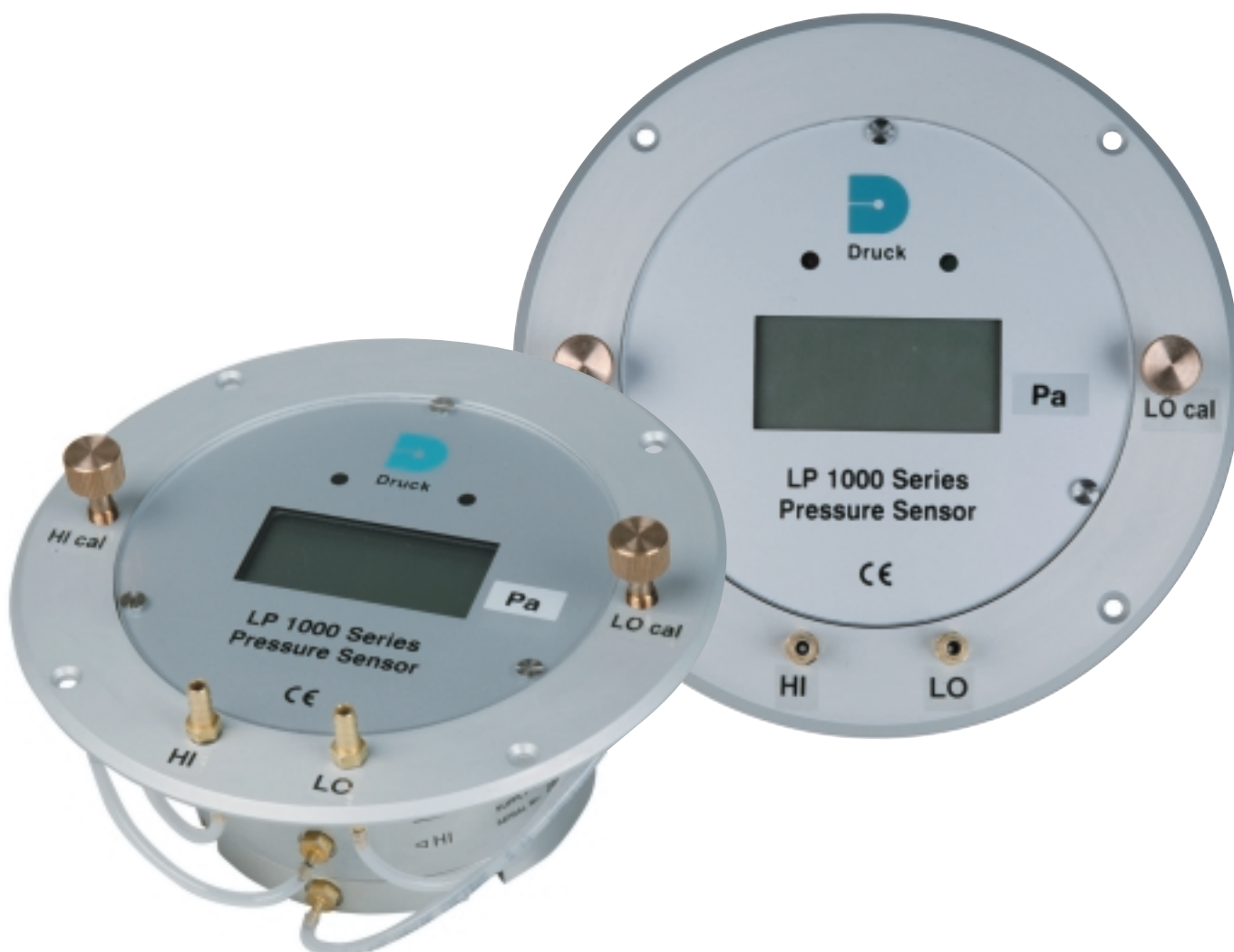


GE Druck

LP 1000 Series

Low Pressure Differential/Gauge Sensors

- Ranges from 0.25mbar to 70mbar
- Full wet/wet media compatibility uni or bi-directional
- Optional LCD, panel or wall mounting
- 0.5% accuracy standard, 0.25% optional
- Current or voltage outputs, duplicated to front (LCD models)
- Optional green or red status LEDs and square root extraction



LP 1000 Series

Low Pressure Differential/Gauge Sensors

Since 1972, Druck products have successfully applied technological innovation and application focus to a diverse and demanding world of pressure. Now part of GE Industrial Systems' Measurement & Sensing Technologies business, GE Druck manufactures a comprehensive range of pressure sensors and related test/calibration instruments for the field, workshop and laboratory.

The LP 1000 series of low differential/gauge pressure sensors is specifically designed for use in cleanroom, HVAC control and similar applications where the accurate and reliable monitoring of very low pressures is required. This includes wet/wet applications where the sensor may be exposed to aggressive and conductive fluids.

High Performance

The pressure sensing principle is variable inductance, providing maximum sensitivity for the measurement of very small pressure changes with minimal hysteresis and excellent repeatability. A low displacement diaphragm operates well within elastic and fatigue limits. For long term reliable performance it allows use over millions of pressure cycles with no zero drift and excellent resistance to shock and vibration.

The housing is a rugged yet lightweight anodized aluminium protected from dust and water ingress to IP64.

Ease of use

All models offer 2 wire current output or a selection of 3 wire voltage outputs. Removal of the electronics cover provides access to zero and span adjustment allowing minor offsets due to mounting position effect to be corrected. Damping adjustments can also be made, allowing the user to increase or decrease sensor response time.

The base model LP 1000 is a wall mounting unit without display. Integral LCD versions are available with a choice of bezel/panel and wall mounting configurations:

- **LP 1000-DW:** Square rear face bracket (suitable for direct wall mounting)
- **LP 1000-DA:** Circular Aluminium bezel (suits panel holes 4 1/2" - 4 13/16")
- **LP 1000-DS:** Circular Stainless Steel bezel (suits panel holes 4 1/2" - 4 13/16")
- **LP 1000-DC:** Complete front panel installation with two non-protruding switches and pressure ports to test/calibrate sensor in-situ.

For LCD versions the output signal is also brought forward onto the front PCB. This allows output measurement without disconnection of the process wiring e.g. LP 1000-DC model.

Additional Options

● Electrical Connections

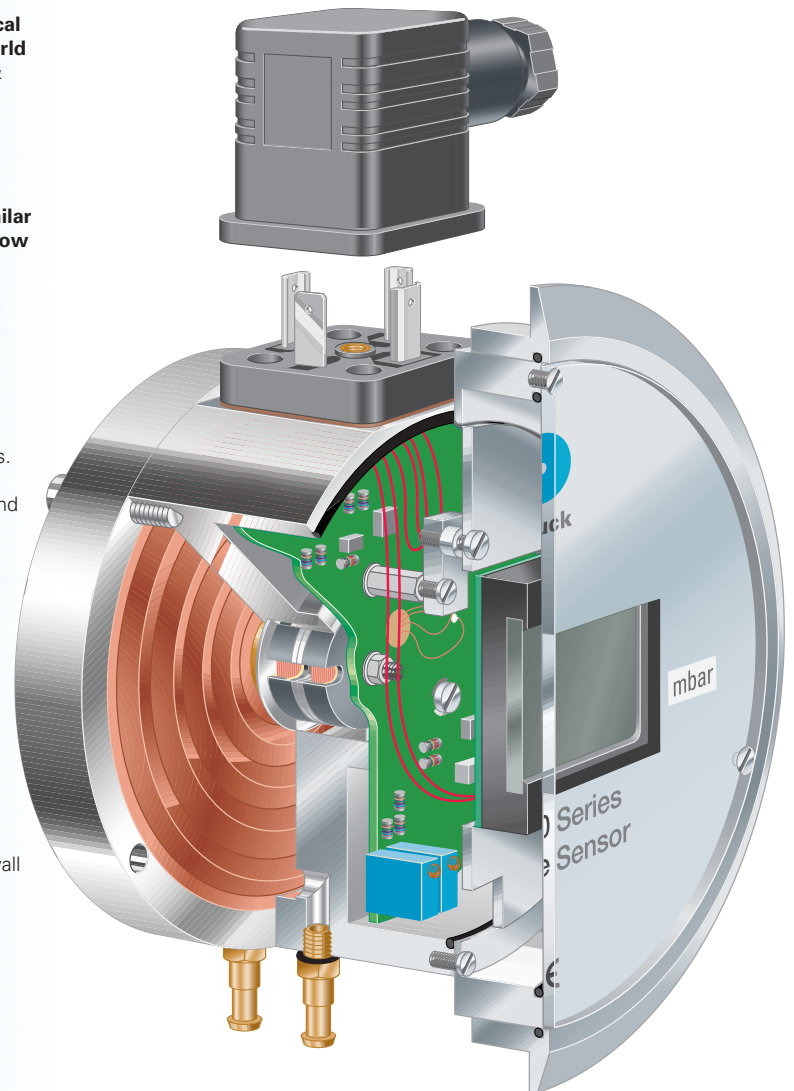
- DIN 43650A Plug with free mating socket (standard for all models except the -DC model)
- DIN C Plug with free mating socket (optional) for all models
- Screw Terminal outside body (standard in -DC model, optional on all other models).

● Optional status LEDs (LPX)

2 status LEDs (one green, one red) on LCD models. Factory set to user requirement - switch-over pressure within pressure range/ red on lower or higher pressure with switch-over pressure user-resettable by potentiometer

● Square-root extraction (LPX)

available for all LCD models (where status LEDs are not required).



STANDARD SPECIFICATIONS

Pressure Measurement

Operating Pressure Ranges

Standard full scale operating ranges available as below (mbar values).

Range	Overpressure	Max. Line Pressure	Range	Overpressure	Max. Line Pressure
0.25	250	2000	10.0	700	2000
0.5	250	2000	12.5	700	2000
1.0	250	2000	15.0	700	2000
1.25	250	2000	20.0	1200	2000
2.00	250	2000	25.0	1200	2000
2.5	250	2000	40.0	1200	2000
5.0	700	2000	50.0	1200	2000
6.25	700	2000	70.0	1200	2000
7.5	700	2000			

Zero and span adjustment

Site adjustable potentiometer trim: Zero: 0.3 mbar (0.25mbar to 2.5mbar ranges.) 1.5 mbar (5mbar to 15mbar ranges). 8 mbar (20mbar to 70mbar ranges). Span: 5% F.S. (all ranges).

Pressure Media

Gases and liquids compatible with aluminium, beryllium-copper and brass.

STANDARD SPECIFICATIONS

Output Signal (Uni-directional)

LPM: 0 - 2.5Vd.c. (3-wire)
 0 - 5Vd.c. (3-wire)
 1 - 6Vd.c. (3-wire)
 0 - 10Vd.c. (3-wire)
 LPX: 4 - 20mA (2-wire)

Output Signal (Bi-directional)

LPM: 2.5Vd.c. 2.5Vd.c. (3-wire)
 5Vd.c. 5Vd.c. (3-wire)
 LPX: 12mA 8mA (2-wire)

Supply Voltage

Without LCD: 10 - 30Vd.c. With standard LCD: 15 - 30 Vd.c.
 With LCD and LED: 20 - 30 Vd.c.
 With LCD and square root extraction: 15 - 30 Vd.c.
 Note: minimum 15 Vd.c. supply for 0 - 10 Vd.c. output.

Load Impedance

LPM 1000: 5k Ω minimum
 LPX 1000: $R_c < (V_s - 10)/20k\Omega$.

Damping of output signal

User accessible from 10msec to 2 sec

Performance

Accuracy

Combined Non-linearity, Hysteresis and Repeatability:
 0.5% of calibrated range (maximum). Optional 0.25%

Operating Temperature Range

0°C to 50°C.

Temperature Effects

Over the range of 0°C to 50°C:
 Ranges 0.25mbar to 1.25mbar: 0.02mbar
 Ranges 2mbar to 2.5mbar: 0.04mbar
 Ranges 5mbar to 7.5mbar: 0.12mbar
 Ranges 10mbar to 15mbar: 0.25mbar
 Ranges 20mbar to 35mbar: 0.5mbar
 Ranges 40mbar to 70mbar: 1.0mbar

Long Term Stability

At standard reference conditions the calibration will not change by more than 1% of calibrated range, averaged over 1 year.

Mounting Position Effect

No effect on span. Possible zero shift, up to a maximum of 0.2 mbar/90° change in orientation, correctable by potentiometer adjustment.
 Note: Factory adjusted with diaphragm oriented in the vertical plane.

Supply Sensitivity

0.05%F.S./volt maximum.

Insulation Resistance

>100 M Ω at 50Vd.c.

Humidity

0 - 100% RH, non-condensing.

Physical

Pressure Connections

10/32 UNF Female, M5 Female or 4mm ID tube connector.

Electrical Connection

DIN 43650A standard (except on DC model)
 Optional screw terminal (standard on DC model)
 Optional DIN C

Environmental Protection

Sealed to IP64 (except screw terminal).

CE Conformity

CE marked for EMC and EMI compliance.

Weight

450g - 900g approx., dependant upon configuration.

CALIBRATION STANDARDS

Instruments manufactured by Druck Limited are calibrated against precision calibration equipment traceable to International Standards.

ORDERING INFORMATION

LP 1000 without LCD

(1) Select model number:

Code	Output					
LPM	Voltage					
LPX	Current					
Code	Pressure Range					
10	Ranges from 0.25mbar to 2.5mbar					
15	Ranges from 5mbar to 15mbar					
18	Ranges from 20mbar to 70mbar					
Code	Configuration					
0	Gauge					
1	Differential					
Code	Pressure Connection					
0	10 - 32 UNF Female to 1/8" barbed fitting					
1	M5 Female					
2	M5 female to 4mm barbed fitting					
Code	Electrical Connection					
-C1	DIN A connector					
-C2	Screw terminal					
-C3	DIN C connector					
Code	Special Feature					
-S	Standard					
-Q	Square Root extraction (only LPX)					
LPX	15	1	2	-C1	Q	Typical Model No.

LP 1000 with LCD

(1) Select model number:

Code	Output						
LPX	Current						
LPM	Voltage						
Code	Pressure Range						
10	Ranges from 0.25mbar to 2.5mbar						
15	Ranges from 5mbar to 15mbar						
18	Ranges from 20mbar to 70mbar						
Code	Configuration						
1	Differential						
Code	Pressure Connection						
0	10 - 32 UNF Female to 1/8" barbed fitting						
2	M5 female to 4mm barbed fitting						
Code	Electrical Connections						
C1	DIN A connector						
C2	Screw terminal						
C3	DIN C connection						
Code	Special Feature						
-S	Standard						
-L	Green/Red status LEDs (only LPX)						
-Q	Square Root extraction (only LPX)						
Code	Options						
DA	LCD Indicator - Aluminium Bezel						
DS	LCD Indicator - Stainless Steel Bezel						
DW	LCD Indicator - Wall Mount bracket						
DC	LCD Indicator - Front panel mount and in-situ calibration						
LPX	10	1	2	-C2	L	DC	Typical Model No.

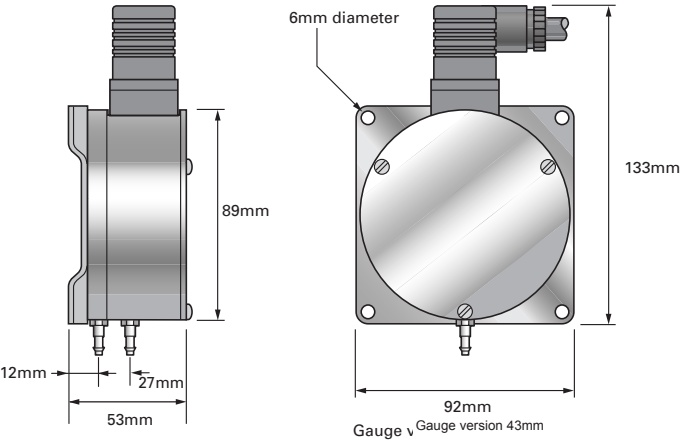
(2) State minimum and maximum operating pressure and corresponding output signal.

Continuing development sometimes necessitates specification changes without notice.

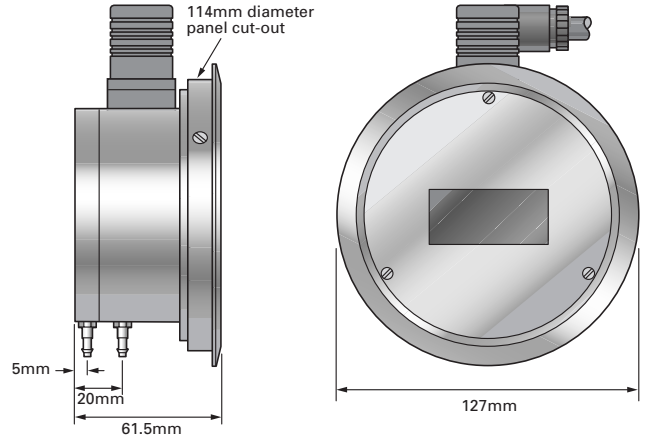
LP 1000 Series

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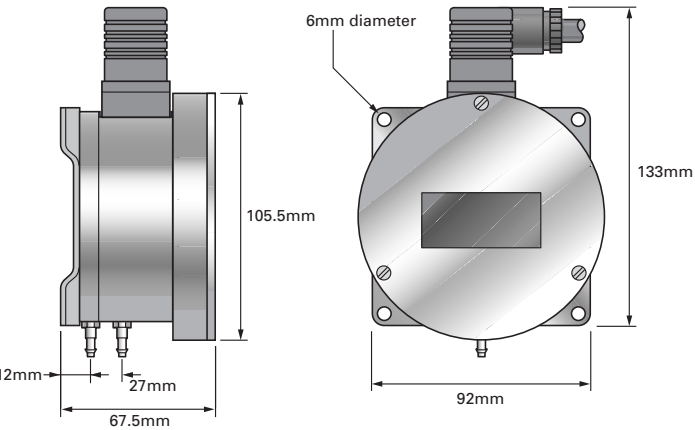
Typical installation drawings



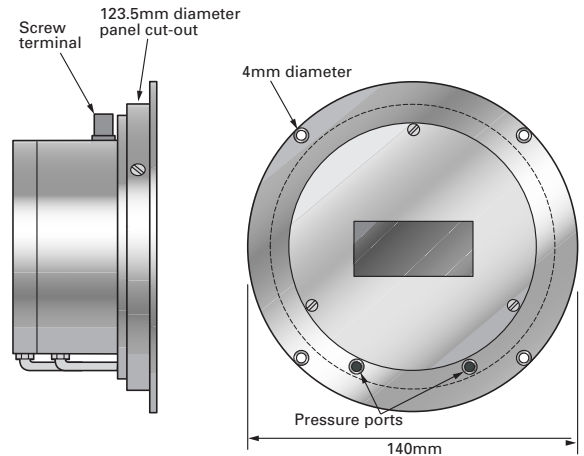
Model LP 1000 (without LCD)



Model LP 1000 DA



Model LP 1000 DW



Model LP 1000 DC

Selection of related products

Pictured from left to right:
 DPI 515 High Speed low pressure controller
 DPI 610/615LP Portable low pressure calibrator
 LP 9000 Precision low pressure sensor
 Pressurements V1600 Primary reference standard



For further information
 please refer to GE Druck.