

# Low pressure differential transducer model DXLdp

Variable SiGlas™ capacitance transducer with the repeatability of a micro-machined, ultra-thin silicon diaphragm  
Accuracy 0,25 %; 0,5 % and 1 % F.S.

## Features

- The exclusive patented Ashcroft® SpoolCal™ actuator provides in-place system calibration without disturbing process tubes
- Front access test jacks provide on-line signal reference without removing wiring
- LED range status indicators for instant troubleshooting information
- DIN Rail Mount – dramatically reduces installation and calibration costs
- 2:1 range turndown options
- On-board voltage regulation allows use of lower cost, unregulated power supply



## Ranges

0 ... 0,25 mbar up to 0 ... 125 mbar dp  
±0/0,125 mbar up to ±0/62,5 mbar dp

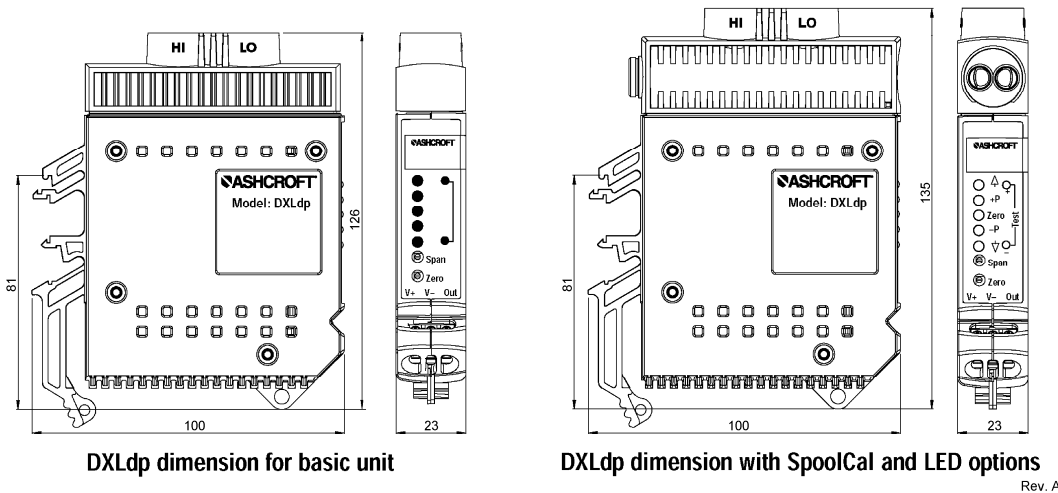
## Applications

High reliability HVAC, bio-pharm, biotech,  
room pressurization and control,  
velocity pressure

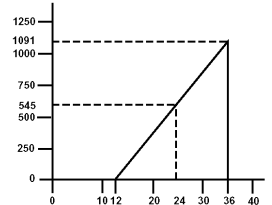
| Technical specification                   | DXLdp  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
|---|--|------------------------|------|-------|------|-----|-------|-----|-----|-------|-----|-----|-----------------------|--------|-------|------|-------|------|----|-------|-----|-----|-------|
| Measuring principle                       | Differential Si-glass/aluminum capacitor with single crystal silicon diaphragm   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Ranges                                    | <table border="1"> <tr> <td>unidirectional in mbar</td> <td>0,25</td> <td>0,5</td> <td>1,0</td> <td>2,5</td> <td>5</td> <td>10</td> <td>25</td> <td>50</td> <td>100</td> <td>125</td> </tr> <tr> <td>bidirectional in mbar</td> <td>±0,125</td> <td>±0,25</td> <td>±0,5</td> <td>±1,25</td> <td>±2,5</td> <td>±5</td> <td>±12,5</td> <td>±25</td> <td>±50</td> <td>±62,5</td> </tr> </table> | unidirectional in mbar | 0,25 | 0,5   | 1,0  | 2,5 | 5     | 10  | 25  | 50    | 100 | 125 | bidirectional in mbar | ±0,125 | ±0,25 | ±0,5 | ±1,25 | ±2,5 | ±5 | ±12,5 | ±25 | ±50 | ±62,5 |
| unidirectional in mbar                    | 0,25   | 0,5                    | 1,0  | 2,5   | 5    | 10  | 25    | 50  | 100 | 125   |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| bidirectional in mbar                     | ±0,125   | ±0,25                  | ±0,5 | ±1,25 | ±2,5 | ±5  | ±12,5 | ±25 | ±50 | ±62,5 |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Turn down                                 | Optional 2:1   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Overpressure                              |  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Proof pressure in bar                     | 0,7  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Burst pressure in bar                     | 1,7  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Static pressure in bar                    | 1,7  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Pressure type                             | Differential, gauge, vacuum and compound   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Process connection                        | ¼" barbed fittings, 1/8 NPT female, according to ANSI/ASME B1.20.1, optional SpoolCal™ process valve actuator (provides in-place calibration, monitoring, zero adjustment), others on request  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Medium                                    | Clean and dry air, non conducting and non corrosive gases  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Material                                  |  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Process connection                        | Brass  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Sensor element                            | Silicon, aluminum, glass   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Case                                      | Polycarbonate, glass filled (UL94-V-1)   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Power supply, reverse polarity protected  | 12 ... 36 VDC  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Output signal                             | 4-20 mA (2-wire)<br>1-5/6 VDC (3-wire)<br>0-5/10 VDC (3-wire)  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Max. loop resistance for 4-20 mA          | ≤ (U <sub>B</sub> - 12 V) / 0,022 A  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Supply current                            | Max. 10 mA for VDC output, max. 20 mA for 4-20 output signal   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Optical process diagnostics               | Optional 5 coloured status-LED, indicating zero pressure, in range and out of range  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Accuracy according to DIN 16 086          | 0,25 %; 0,5 % or 1,0 % F.S. (terminal point)   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Repeatability                             | 0,03 % for 0,25 % accuracy; 0,05 % for 0,5 % accuracy; 0,1 % for 1,0 % accuracy  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Electrical resolution                     | 1 x 10 <sup>-4</sup> F.S.  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Long term stability                       | ≤ 0,5 % F.S./year  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Response time (10 ... 90 %)               | 250 ms (10 ms or 1 s on request)   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Warm-up time                              | 15 sec   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Permissible                               |  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Operation temperature                     | -29 ... 70 °C  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Storage temperature                       | -40 ... 82 °C  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Compensated temperature range             | 2 ... 57 °C  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Temperature influence                     | ±0,36 % / 10 K (ref. 20 °C)  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Mounting position error (zero adjustable) | ≤ 0,1 % for p ≥ 1,25 mbar, ≤ 0,25 % for p < 1,25 mbar  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Adjustments                               | Zero ±5 % F.S., Span ±3 % F.S., front accessible   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| CE-mark/EMC                               | Compliant to EN 61326, Annex A (1997)  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Electrical connection                     | Terminals  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Test jacks                                | Optional front access test jacks on-line for data access without disturbing wiring   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Mounting                                  | DIN rail types EN 50022, EN 50035 and 50045  |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Protection according EN 60 529/IEC 529    | IP40   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |
| Weight in kg                              | 0,16   |                        |      |       |      |     |       |     |     |       |     |     |                       |        |       |      |       |      |    |       |     |     |       |

All specifications are subject to change without notice.

## General dimensions in mm



Load Limitations 4-20mA Output  
Loop Resistance (Ω)



DXLdp dimension for basic unit

DXLdp dimension with SpoolCal and LED options

Rev. A

### Option (DL):

LED for quick process diagnostics:

- zero pressure                      center amber LED
- in range ±                         adjacent green LED's
- out of range ±                    adjacent red LED's

Includes: front access test jacks on-line for data access without disturbing wiring

### Option (21):

2:1 turn down, 0,25 % accuracy is maintained on initialized range.

### Option (PV):

SpoolCal™ process valve actuator provides in-place system calibration without disturbing process tubes. From Off position the removable SpoolCal™ actuator tool provides the following functions:

- A 90 degree clockwise rotation puts the DXLdp in the CAL mode isolating it from the process and allowing direct external pressure input.
- A 90 degree counter clockwise rotation puts the DXLdp in the MONITOR mode to tee the process pressure to the DXLdp sensor and out, providing external measurement or recording capabilities.

## Order information

| Type        | Accuracy   | Process connection   | Output signal                                 | Electrical connection      | Ranges in mbar  | Options   |  |   |
|-------------|------------|----------------------|---|----------------------------|---|---|--|---|
| DX<br>DXLdp | (3) 0,25 % | (F01) 1/8 NPT female | (42) 4-20 mA                                  | (ST) Terminals<br>16-24AWG | <b>Unidirectional</b><br>(P25MB) 0/ 0,25<br>(P5MB) 0/ 0,5<br>(1MB) 0/ 1,0<br>(2P5MB) 0/ 2,5<br>(5MB) 0/ 5<br>(10MB) 0/ 10<br>(25MB) 0/ 25<br>(50MB) 0/ 50<br>(100MB) 0/ 100<br>(125MB) 0/ 125 | (NH) Tagging wired  |  |   |
|             | (5) 0,5 %  | (MB2) ¼" barbed male | (15) 1-5 VDC                                  |                            |   |   | <b>Bi-directional</b><br>(P13MBL) ±0,125<br>(P25MBL) ±0,25<br>(P5MBL) ±0,5<br>(1P3MBL) ±1,25<br>(2P5MBL) ±2,5<br>(5MBL) ±5<br>(13MBL) ±12,5<br>(25MBL) ±25<br>(50MBL) ±50<br>(63MBL) ±62,5 | (DL) Status LED and front access test jacks |
|             | (7) 1,0 %  |                      | (16) 1-6 VDC<br>(05) 0-5 VDC<br>(10) 0-10 VDC |                            |   |   |  |   |
|             |            |                      |   |                            |   | (PV) SpoolCal™ process valve actuator                               |  |   |
|             |            |                      |   |                            |   | (21) Turndown 2:1   |  |   |
|             |            |                      |   |                            |   | (X1) Fast response time (10 ms)                                     |  |   |
|             |            |                      |   |                            |   | (X2) Slow response time (1 s)                                       |  |   |
|             |            |                      |   |                            |   | (RH) Calibration report for 1 %, (as standard with 0,5 % and 0,25%) |  |   |
|             |            |                      |   |                            | ranges in Pa, kPa, mmH <sub>2</sub> O or in. H <sub>2</sub> O on request  |   |  |   |

## Order example

| Type | Accuracy | Process connection | Output signal | Electrical connection | Range | Options |
|------|----------|--------------------|---------------|-----------------------|-------|---------|
| DX   | 3        | F01                | 42            | ST                    | 1MB   | DL=PV   |

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