

## Silicon Pressure Sensors

### SURSENSE™ Ultra Low Pressure Sensor

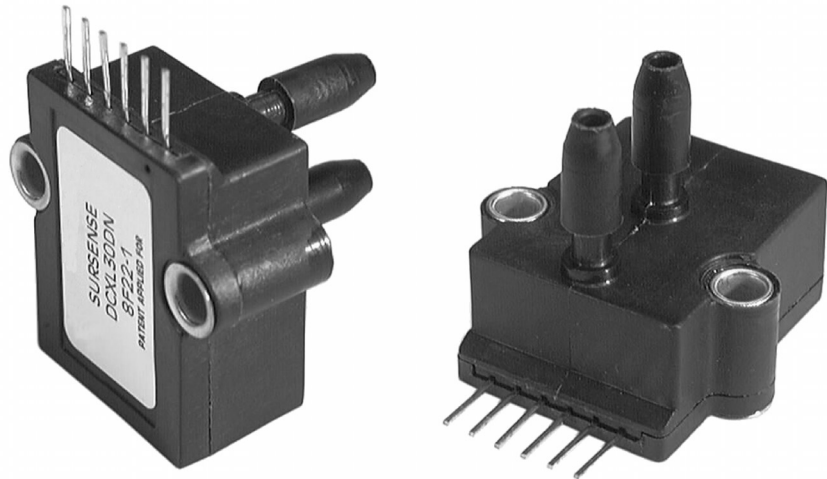
### DCXL Series

#### FEATURES

- Temperature Compensated  
0 °C to 50 °C  
[32 °F to 122 °F]
- Available in Gage and  
Differential Pressure  
Ranges
- Combined Linearity and  
Hysteresis Error  
< ± 0.25 % Span

#### TYPICAL APPLICATIONS

- Medical Applications
- HVAC
- Industrial Instrumentation
- Environmental Controls



#### GENERAL DESCRIPTION

The SURSENSE™ line of ultra low pressure sensors is based upon a proprietary technology designed to reduce all output offset or common mode errors.

These sensors use a silicon micromachined sensing element which features a unique stress concentration enhanced structure to provide a highly stable linear output that is proportional to applied pressure. Output offset errors due to changes in temperature, warm-up, long term stability and position sensitivity have all been significantly reduced when compared to conventional sensors.

The DCXL Series sensors provide a precision calibrated ratiometric millivolt output with SURSENSE enhanced stability. Each sensor features calibrated offset, full scale span and thermal error calibration to ensure the highest possible accuracy for flow pressure measurement. These highly stable sensors feature an industry standard ported package with improved

Product is patented by US patent 6023978.

#### **⚠ WARNING**

##### **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

#### **⚠ WARNING**

##### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

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## DCXL Series

### DCXL ELECTRICAL SPECIFICATIONS at 12 Vdc excitation at 25 °C [77 °F]

	Min.	Typ.	Max.	Units
Excitation Voltage	3.0	12.0	16.0	Vdc
Span except DCXL01DN	19.0	20.0	21.0	mV
Span DCXL01DN	9.0	10.0	11.0	mV
Null	-500	0	500	μV
Offset Temperature Shift 0 °C to 50 °C [32 °F to 122 °F] <sup>1</sup> except DCXL01DN	-150	--	150	μV
Offset Temperature Shift 0 °C to 50 °C [32 °F to 122 °F] <sup>1</sup> DCXL01DN	-250	0	250	μV
Span Temperature Shift 0 °C to 50 °C [32 °F to 122 °F] <sup>1</sup>	-200	0	200	μV
Linearity, Hysteresis Error <sup>2</sup>	--	0.05	0.25	% Span
Operating Temperature	-25 [-13]	--	85 [185]	°C [°F]
Storage Temperature	-40 [-40]	--	125 [257]	°C [°F]
Offset Warm-up Shift <sup>4</sup> except DCXL01DN	--	±50	--	μV
Offset Warm-up Shift <sup>4</sup> DCXL01DN	--	±100	--	μV
Offset Position Sensitivity (±1g) except DCXL01DN, DCXL05DN, DCXL10DN	--	±5	--	μV
Offset Position Sensitivity (±1g) DCXL01DN	--	±50	--	μV
Offset Position Sensitivity (±1g) DCXL05DN, DCXL10DN	--	±10	--	μV
Offset Long Term Stability (1 year) except DCXL01DN	--	±100	--	μV
Offset Long Term Stability (1 year) DCXL01DN	--	±200	--	μV

Note 1: Shift is relative to 25 °C [77 °F]

Note 2: Measured at ½ full scale rated pressure using BFSL

Note 3: Shift is within the first hour of excitation applied to the device.

### DCXL SERIES PRESSURE RATINGS IN H<sub>2</sub>O (by catalog listing)

DCXL-	01D	05D	10D	20D	30D
Operating Pressure Range	1.0	5.0	10.0	20.0	30.0
Maximum Overpressure	100	150	150	300	450
Common Mode	50	50	50	50	50

### DCXL SERIES RESISTANCE (by catalog listing)

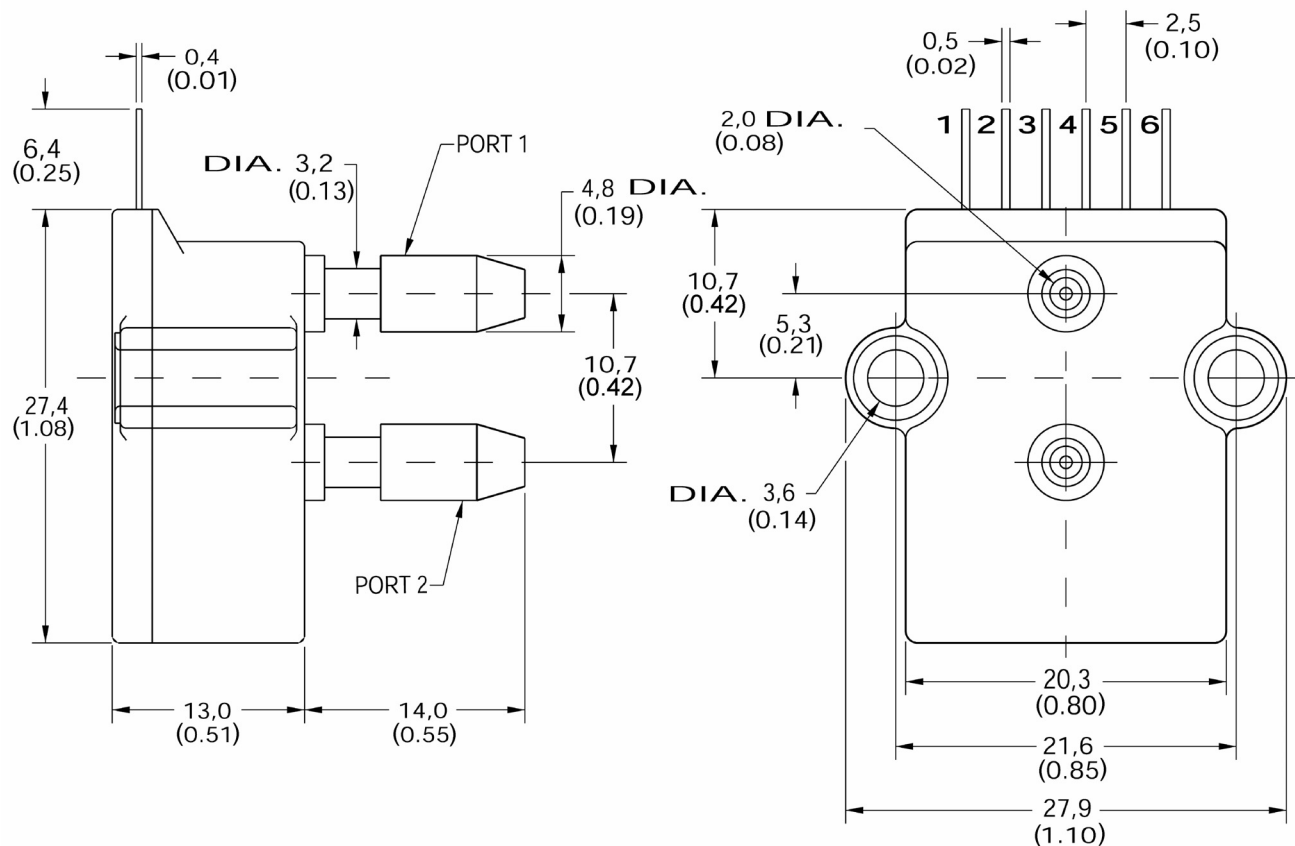
DCXL	01D	05D	10D	20D	30D	Unit
Input Resistance	4.5	10	13	10	12	kΩ
Output Resistance	1.5	1.5	1.5	2	1.5	kΩ

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PHYSICAL DIMENSIONS for reference only mm [In]



### APPLICATION INFORMATION

Media compatibility, wetted materials

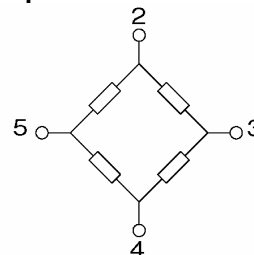
<b>Port 1</b>	<b>Dry Gases Only.</b> Media must be compatible with epoxy based adhesive, silicone, nylon housing.
<b>Port 2</b>	<b>Dry Gases Only.</b> Media must be compatible with nylon housing, epoxy adhesive and silicon.

### Pressure Compatibility:

Measures differential or gage pressure and vacuum. Pressure may be applied to either port. For pressure to the low pressure port, the output polarity is reversed.

**RATIOMETRIC OUTPUT:** The output voltage of the sensor is ratiometric, proportional, to the excitation voltage. For this model sensor, all specifications will change proportionally to any changes in the excitation voltage. The excitation may vary between 3 Vdc to 16 Vdc. All specifications will nominally be changed by a ratio of V Excitation/12.0 Vdc. For example: if the excitation voltage is 5.0 Vdc, then both the full scale output voltage and the offset voltage nominal would be 5/12th the specified value.

### Equivalent Circuit



### Pinout

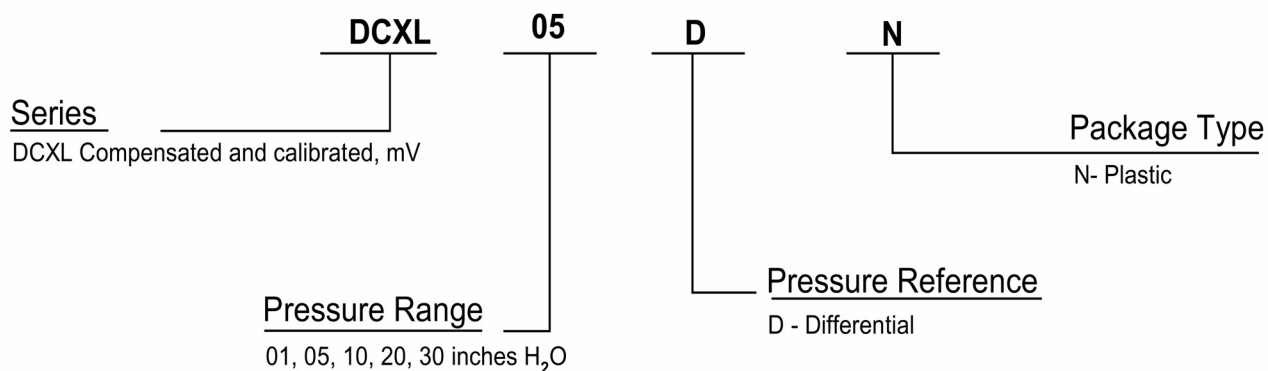
1. N/C
2. +V Supply
3. +V Output
4. -V Supply
5. -V Output
6. N/C

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### DCXL SERIES ORDER GUIDE



### WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. **The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

For application assistance, current specifications, or name of the nearest Authorized Distributor, contact a nearby sales office. Or call:

1-800-537-6945 USA/Canada

1-815-235-6847 International

#### FAX

1-815-235-6545 USA

#### INTERNET

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**Honeywell**

### Sensing and Control

[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

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