

## SURSENSE<sup>®</sup> Ultra Low Pressure Sensors

Millivolt Output  
High Accuracy Compensation  
Full Scale Pressure Ranges

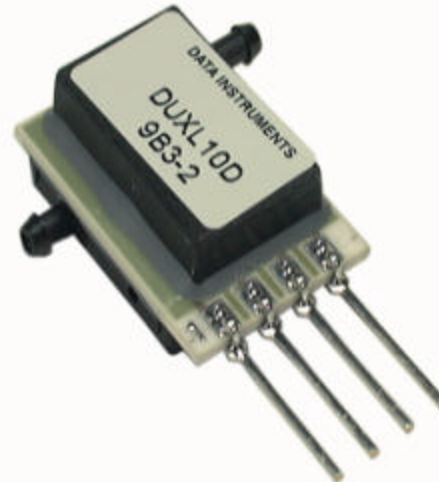
## DUXL Series

### FEATURES

- Position Sensitivity to  $\pm 5$  mV/g, typical
- Offset Warm-up Drift  $< \pm 10$  mV, typical
- Operating Temperature Range  $-25$  °C to  $+85$  °C
- Available in Gage and Differential Pressure Ranges
- Long Term Stability  $< \pm 100$   $\mu$ V, typical

### TYPICAL APPLICATIONS

- Handheld Instrumentation
- Airflow Controllers
- Medical Monitors
- Smart Microvalves and Switches
- Level Indicators



The DUXL line of ultra low pressure sensors is based upon SURSENSE<sup>®</sup>, a proprietary technology, which reduces 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 DUXL Series sensors provide a ratiometric millivolt output and are housed in a low profile miniature ported package. These sensors are intended for those applications where customized external signal conditioning is required or available from other sources. The low profile outline is ideal for portable applications where small size is critical.

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 product installation information.
- 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.**

# SURSENSE<sup>®</sup> Ultra Low Pressure Sensors

## Millivolt Output

*DUXL Series*

### DUXL Electrical Specifications at 4.5 Vdc Excitation, 25 °C

	Min.	Typ.	Max.	Units
Excitation Voltage	3.0	4.5	8.0	V
Span*except DUXL01D, DUXL05D	15	30	45	mV
Span*DUXL01D	4.0	6.0	8.0	mV
Span*DUXL05D	15	22.5	30	mV
Null	-10	0	+10	mV
Offset Temperature Shift (0 °C to +50 °C [+32 °F to +122 °F])**	--	100	--	μV
Span Temperature Shift (0 °C to +50 °C [+32 °F to +122 °F])**	--	100	--	μV
Linearity, Hysteresis Error***	-0.5	0.1	+0.5	%Span
Temperature Coefficient of Resistance	--	2600	--	ppm/°C
Temperature Coefficient of Sensitivity	--	-2200	--	ppm/°C
Storage Temperature	-25	--	+85	°C
Storage Temperature	-40	--	+125	°C
Offset Warm-up Shift****	--	+10	--	μV
Offset Position Sensitivity (±1g) DUXL01D, DUXL05D	--	+15	--	μV
Offset Position Sensitivity (±1g) DUXL10D	--	+10	--	μV
Offset Position Sensitivity (±1g) DUXL20D, DUXL30D	--	+5	--	μV
Offset Long Term Stability ( 1 year)	--	±100	--	μV
Input Resistance	--	+2.0	--	KO

\*Note 1: The voltage added to the offset voltage at full scale pressure. Nominally the output voltage range is 1.0 V to 6.0 V.

\*\*Note 2: Shift is relative to 25 °C

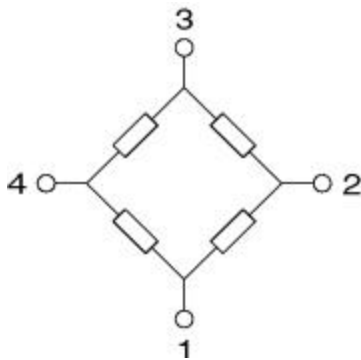
\*\*\*Note 3: Measured at ½ full scale rated pressure using BFSL

\*\*\*\*Note 4: Shift is within the first hour of excitation applied to the device.

### DUXL SERIES Pressure Ratings—inches H<sub>2</sub>O (by Catalog Listing)

DUXL-	01D	05D	10D	20D	30D
Operating Pressure Range	1.0	5.0	10.0	20.0	30.0
Proof	100	100	150	200	300
Burst	200	200	300	400	600
Common Mode	50	50	50	50	50

### Equivalent Circuit



### Pinout

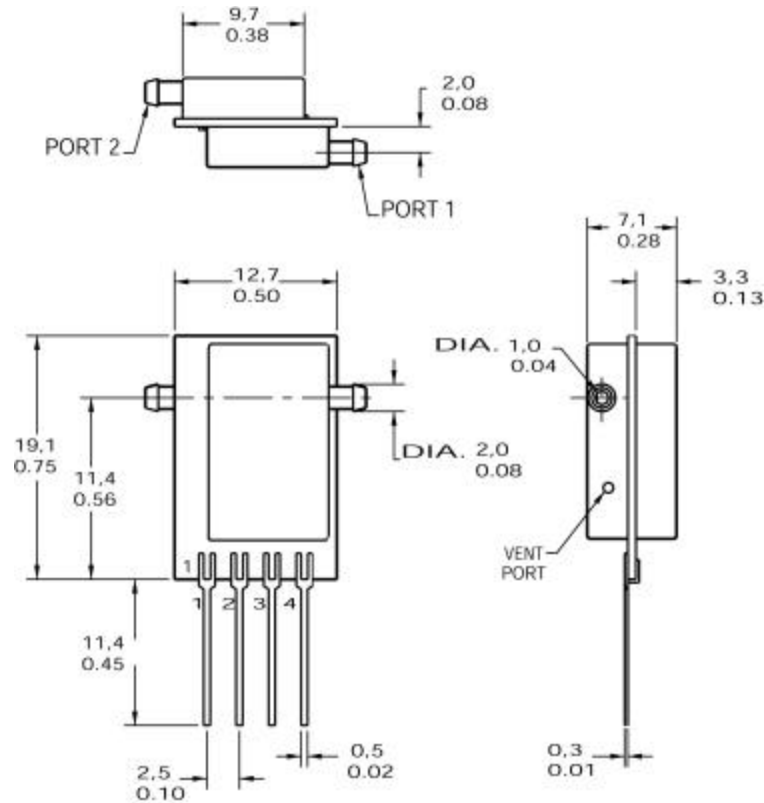
1. -V Supply
2. +V Output
3. +V Supply
4. -V Output

# SURSENSE® Ultra Low Pressure Sensors

## Millivolt Output

*DUXL Series*

**MOUNTING DIMENSIONS** (for reference only) mm/in  
**DUXL SERIES, DUXL CERAMIC PACKAGE**



### APPLICATION INFORMATION

#### MEDIA COMPATIBILITY, WETTED MATERIALS

<b>Port 2</b>	<b>P2 Port:</b> Media must be compatible with nylon housing, epoxy adhesive and silicon.
<b>Port 1</b>	<b>P1 Port: Dry Gases Only.</b> Media must be compatible with epoxy based adhesive.

**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.

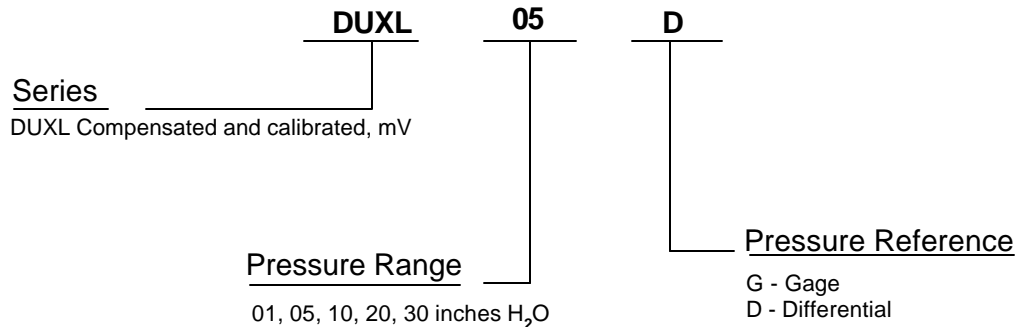
# SURSENSE® Ultra Low Pressure Sensors

## Millivolt Output

*DUXL Series*

### DUXL SERIES ORDER GUIDE

(Not all product combinations are released.)



### WARRANTY/REMEDY

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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.

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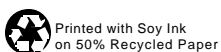
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### INTERNET

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