# **MICRO-MACHINED** SILICON TRANSDUCERS WET/WET DIFFERENTIAL PRESSURE MODELS



mV/V. O to 5 or O to 10 Vdc. or 4 to 20 mA Outputs **Uni-Directional Ranges** 0-25 mbar to 0-70 bar

#### Differential Series

- 5-Point NIST Traceable Calibration
- Precision Micro-Machined Silicon Core
- ✓ High Stability, Low Drift
- Welded Stainless Steel Construction
- 316L SS Wetted Parts
- Digital Dynamic Thermal **Compensation Across Temperature** and Pressure Range
- ✓ Premium Temperature Performance
- **✓** Broad Compensated Temperature Range
- ✓ Durable, 1 Million Cycle Life
- Ruggedized with Secondary Containment
- Customized Specifications Available

Get all the great performance characteristics of the Micro-Machined Silicon Transducers in these wet/ wet differential pressure models. These rugged stainless steel transducers are ideal for tough industrial automotive, or aerospace applications requiring a wet/ wet transducer. They can be used in test benches, filter monitoring, hydraulic, flow, or water/wastewater applications, as well as factory or pneumatic air, pitot tubes, air speed and other industrial or aerospace applications. The solid state silicon core and all stainless steel wetted parts will provide long, reliable service life with excellent long term stability. To obtain their high accuracy and stability, the PXM409 Series use state of the art digital mapping of the temperature, pressure and output performance of the silicon sensor in conjunction with a custom ASIC to provide dynamic thermal compensation across the temperature and pressure parameters.

#### **COMMON SPECIFICATIONS**

Accuracy: 0.08% BSL linearity, hysteresis and

repeatability combined

**Minimum Resistance Between Transducer Body** 

and Any Wire: 100  $\text{M}\Omega$ **Operating Temperature:** 

mV/V and 5 to 10 Vdc Output: -45 to 121°C (-49 to 250°F)

**mA Output:** -45 to 115°C (-49 to 239°F) **Compensated Temperature Range:** 

25 to 350 mb: -17 to 85°C (1 to 185°F) 1 to 70 bar: -29 to 85°C (-20 to 185°F) Thermal Accuracy: Zero % Shift over compensated temperature range 25 to 350 mb: ±1.00% ±1.00% 1 to 70 bar: ±0.50% ±0.50%



PXM409-001BDWUV, bar range, 10 mV/V output, shown smaller than actual size.



PXM459, M12 connector.



**Electrical** 

PXM409, 2 m (6') cable.



PXM419, mini DIN.



# **MICRO-MACHINED** SILICON TRANSDUCERS WET/WET DIFFERENTIAL PRESSURE MODELS

Pressure Cycles: 1 million minimum Long Term Stability (1-Year): ±0.1% full scale typical

Bandwidth: DC to 1 kHz typical

Response Time: <1 ms

CE Compliant: Meets EN61326-1: 2006

for industrial locations

Shock: 50 g, 11 mS half sine, vertical and

horizontal axis

Vibration: 5-2000-5 Hz, 30 minute cycle,

Curve L, Mil-Spec 810 figure 514-2-2, vertical and horizontal axis Wetted Parts: 316L stainless steel

Line/Static Pressure: 35 bar maximum applied to both sides simultaneously

#### **Proof Pressure (Differential):**

25 mb range = 10 times range 70 mb range = 6 times range

170 mb to 50 bar ranges = 4 times range

70 bar range = 3 times range

#### **Hi Side Containment Pressure**

(Differential):

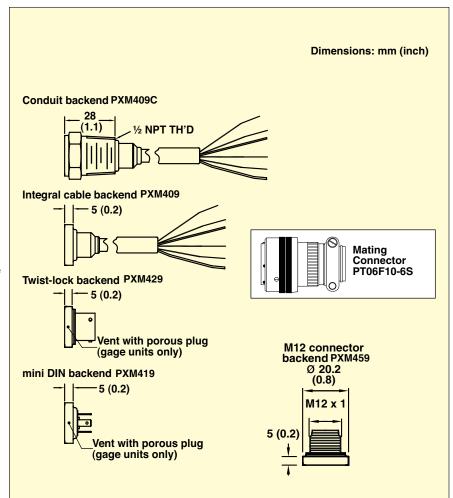
Ranges 25 mb to 350 mb: to 70 bar Ranges 1 to 70 bar: to 200 bar

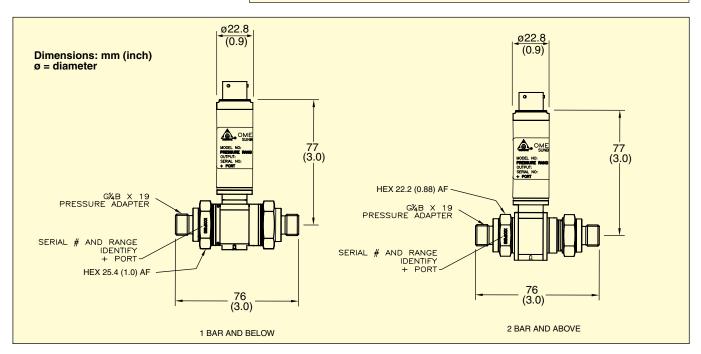
Pressure Ports: G1/4 male **Electrical Terminations: PX409:** 2 m (6') cable

**PX409C:** 2 m (6') cable with ½ NPT

conduit thread PX419: mini DIN

(mating connector included) PX459: M12 connector Weight: 200 g (7 oz) maximum





# WET/WET DIFFERENTIAL PRESSURE MODELS UNI-DIRECTIONAL RANGES WITH mV/V OUTPUTS



## UNI-DIRECTIONAL mV/V SPECIFICATIONS

Output: 10 mV/V ratiometric Supply Voltage: 5 to 10 Vdc Current Draw: 5 mA @ 10 Vdc Input Impedance: 1000 to 5000  $\Omega$  Output Impedance: 5000  $\Omega$  ±10% typical

Zero Balance:

Ranges ≤ 170 mb: ±1% typical (2% maximum) Ranges > 170 mb: ±0.5% typical (1% maximum)

Span Setting:

Ranges ≤ 170 mb: ±1% typical (2% maximum) Ranges > 170 mb: ±0.5% typical (1% maximum)

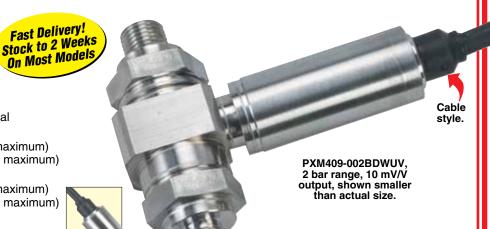
#### **CABLE TERMINATION\***

To Order		
RANGE (Metric)	MODEL No. G ¼ Male th'd	DESCRIPTION
WET/WET DI	FFERENTIAL PRES	SURE
25 mbar (hPa)	PXM409-025HDWUV	25 mbar w/w Diff Pressure
70 mbar (hPa)	PXM409-070HDWUV	70 mbar w/w Diff Pressure
170 mbar (hPa)	PXM409-170HDWUV	170 mbar w/w Diff Pressure
350 mbar (hPa)	PXM409-350HDWUV	350 mbar w/w Diff Pressure
1 bar	PXM409-001BDWUV	1 bar w/w Diff Pressure
2 bar	PXM409-002BDWUV	2 bar w/w Diff Pressure
3.5 bar	PXM409-3.5BDWUV	3.5 bar w/w Diff Pressure
7 bar	PXM409-007BDWUV	7 bar w/w Diff Pressure
10 bar	PXM409-010BDWUV	10 bar w/w Diff Pressure
17.5 bar	PXM409-17.5BDWUV	17.5 bar w/w Diff Pressure
35 bar	PXM409-035BDWUV	35 bar w/w Diff Pressure
50 bar	PXM409-050BDWUV	50 bar w/w Diff Pressure
70 bar	PXM409-070BDWUV	70 bar w/w Diff Pressure

<sup>\*</sup> To order conduit fitting backend change model number from "PXM409" to "PXM409C", no additional cost.

#### MINI DIN TERMINATION

MINI BILL TERMINATION			
RANGE (Metric)	MODEL No. G ¼ Male th'd	DESCRIPTION	
WET/WET DIF	FERENTIAL PRESS	SURE	
25 mbar (hPa)	PXM419-025HDWUV	25 mbar w/w Diff Pressure	
70 mbar (hPa)	PXM419-070HDWUV	70 mbar w/w Diff Pressure	
170 mbar (hPa)	PXM419-170HDWUV	170 mbar w/w Diff Pressure	
350 mbar (hPa)	PXM419-350HDWUV	350 mbar w/w Diff Pressure	
1 bar	PXM419-001BDWUV	1 bar w/w Diff Pressure	
2 bar	PXM419-002BDWUV	2 bar w/w Diff Pressure	
3.5 bar	PXM419-3.5BDWUV	3.5 bar w/w Diff Pressure	
7 bar	PXM419-007BDWUV	7 bar w/w Diff Pressure	
10 bar	PXM419-010BDWUV	10 bar w/w Diff Pressure	
17.5 bar	PXM419-17.5BDWUV	17.5 bar w/w Diff Pressure	
35 bar	PXM419-035BDWUV	35 bar w/w Diff Pressure	
50 bar	PXM419-050BDWUV	50 bar w/w Diff Pressure	
70 bar	PXM419-070BDWUV	70 bar w/w Diff Pressure	



#### **M12 TERMINATION**

RANGE	MODEL No.	
(Metric)	G ¼ Male th'd	DESCRIPTION
WET/WET DIF	FERENTIAL PRESS	SURE
25 mbar (hPa)	PXM459-025HDWUV	25 mbar w/w Diff Pressure
70 mbar (hPa)	PXM459-070HDWUV	70 mbar w/w Diff Pressure
170 mbar (hPa)	PXM459-170HDWUV	170 mbar w/w Diff Pressure
350 mbar (hPa)	PXM459-350HDWUV	350 mbar w/w Diff Pressure
1 bar	PXM459-001BDWUV	1 bar w/w Diff Pressure
2 bar	PXM459-002BDWUV	2 bar w/w Diff Pressure
3.5 bar	PXM459-3.5BDWUV	3.5 bar w/w Diff Pressure
7 bar	PXM459-007BDWUV	7 bar w/w Diff Pressure
10 bar	PXM459-010BDWUV	10 bar w/w Diff Pressure
17.5 bar	PXM459-17.5BDWUV	17.5 bar w/w Diff Pressure
35 bar	PXM459-035BDWUV	35 bar w/w Diff Pressure
50 bar	PXM459-050BDWUV	50 bar w/w Diff Pressure
70 bar	PXM459-070BDWUV	70 bar w/w Diff Pressure

Comes complete with 5-point NIST traceable calibration certificate. **Ordering Examples: PXM409-007BDWUV**, 0 to 7 bar uni-directional wet/wet differential pressure range, 10 mV/V output, 0.08% accuracy, G¼ fittings, 2 m (6') cable.

**PXM419-001BDWUV**, 0 to 1 bar uni-directional wet/wet differential pressure range, 10 mV/V output, 0.08% accuracy,  $G^{1/4}$  fittings, mini DIN connector.

**PXM459-025HDWUV**, 0 to 25 mbar uni-directional wet/wet differential pressure range, 10 mV/V output, 0.08% accuracy,  $G^{1/4}$  fittings, M12 connector.

#### CONNECTIONS—mV/V OUTPUT

PXM4	59 M12	PXM419	MINI DIN	PXM409	CABLE
Pin A	+EXC	Pin 1	+EXC	Red	+EXC
Pin B	-EXC	Pin 2	-EXC	Black	-EXC
Pin C	+SIG	Pin 3	+SIG	White	+SIG
Pin D	-SIG	Pin 4	-SIG	Green	-SIG



# WET/WET DIFFERENTIAL PRESSURE MODELS

### UNI-DIRECTIONAL RANGES WITH 0 to 5 Vdc OUTPUTS

## UNI-DIRECTIONAL VOLTAGE OUTPUT SPECIFICATIONS

Output Voltage/Supply Voltage: 0 to 5 Vdc/ 10 to 30 Vdc; 0 to 10 Vdc/15 to 30 Vdc (change "5V" to "10V" in model number)

Current Draw: 10 mA maximum

Maximum Current Output: 2 mA (= 2500  $\Omega$ 

minimum load resistance) Output Impedance: 100  $\Omega$ 

Zero Balance:

Ranges > 170 mb:  $\pm 0.5\%$  typical (1% maximum) Ranges  $\leq$  170 mb:  $\pm$ 1% typical (2% maximum)

Span Setting:

Ranges > 170 mb:  $\pm 0.5\%$  typical (1% maximum) Ranges ≤ 170 mb: ±1% typical (2% maximum)

#### **CABLE TERMINATION\***

To Order						
RANGE (Metric)	MODEL No. G ¼ Male th'd	DESCRIPTION				
WET/WET DIF	FERENTIAL PRESS	URE				
25 mbar (hPa)	PXM409-025HDWU5V	25 mbar w/w Diff Pressure				
70 mbar (hPa)	PXM409-070HDWU5V	70 mbar w/w Diff Pressure				
170 mbar (hPa)	PXM409-170HDWU5V	170 mbar w/w Diff Pressure				
350 mbar (hPa)	PXM409-350HDWU5V	350 mbar w/w Diff Pressure				
1 bar	PXM409-001BDWU5V	1 bar w/w Diff Pressure				
2 bar	PXM409-002BDWU5V	2 bar w/w Diff Pressure				
3.5 bar	PXM409-3.5BDWU5V	3.5 bar w/w Diff Pressure				
7 bar	PXM409-007BDWU5V	7 bar w/w Diff Pressure				
10 bar	PXM409-010BDWU5V	10 bar w/w Diff Pressure				
17.5 bar	PXM409-17.5BDWU5V	17.5 bar w/w Diff Pressure				
35 bar	PXM409-035BDWU5V	35 bar w/w Diff Pressure				
50 bar	PXM409-050BDWU5V	50 bar w/w Diff Pressure				
70 bar	PXM409-070BDWU5V	70 bar w/w Diff Pressure				

To order conduit fitting backend change model number from "PXM409" to "PXM409C", no additional cost.

#### MINI-DIN TERMINATION

RANGE (Metric)	MODEL No. G ¼ Male th'd	DESCRIPTION
WET/WET DI	FERENTIAL PRESS	SURE
25 mbar (hPa)	PXM419-025HDWU5V	25 mbar w/w Diff Pressure
70 mbar (hPa)	PXM419-070HDWU5V	70 mbar w/w Diff Pressure
170 mbar (hPa)	PXM419-170HDWU5V	170 mbar w/w Diff Pressure
350 mbar (hPa)	PXM419-350HDWU5V	350 mbar w/w Diff Pressure
1 bar	PXM419-001BDWU5V	1 bar w/w Diff Pressure
2 bar	PXM419-002BDWU5V	2 bar w/w Diff Pressure
3.5 bar	PXM419-3.5BDWU5V	3.5 bar w/w Diff Pressure
7 bar	PXM419-007BDWU5V	7 bar w/w Diff Pressure
10 bar	PXM419-010BDWU5V	10 bar w/w Diff Pressure
17.5 bar	PXM419-17.5BDWU5V	17.5 bar w/w Diff Pressure
35 bar	PXM419-035BDWU5V	35 bar w/w Diff Pressure
50 bar	PXM419-050BDWU5V	50 bar w/w Diff Pressure
70 bar	PXM419-070BDWU5V	70 bar w/w Diff Pressure



#### **M12 TERMINATION**

RANGE	MODEL No.	•
(Metric)	G ¼ Male th'd	DESCRIPTION
WET/WET DIE	FERENTIAL PRESS	URE
25 mbar (hPa)	PXM459-025HDWU5V	25 mbar w/w Diff Pressure
70 mbar (hPa)	PXM459-070HDWU5V	70 mbar w/w Diff Pressure
170 mbar (hPa)	PXM459-170HDWU5V	170 mbar w/w Diff Pressure
350 mbar (hPa)	PXM459-350HDWU5V	350 mbar w/w Diff Pressure
1 bar	PXM459-001BDWU5V	1 bar w/w Diff Pressure
2 bar	PXM459-002BDWU5V	2 bar w/w Diff Pressure
3.5 bar	PXM459-3.5BDWU5V	3.5 bar w/w Diff Pressure
7 bar	PXM459-007BDWU5V	7 bar w/w Diff Pressure
10 bar	PXM459-010BDWU5V	10 bar w/w Diff Pressure
17.5 bar	PXM459-17.5BDWU5V	17.5 bar w/w Diff Pressure
35 bar	PXM459-035BDWU5V	35 bar w/w Diff Pressure
50 bar	PXM459-050BDWU5V	50 bar w/w Diff Pressure
70 bar	PXM459-070BDWU5V	70 bar w/w Diff Pressure

Comes complete with 5-point NIST traceable calibration certificate. Note: To order 0 to 10 Vdc output, change "5V" to "10V" in model number, no additional cost.

Ordering Examples: PXM409-007BDWU5V, 0 to 7 bar uni-directional wet/wet differential pressure range, 0 to 5 Vdc output, 0.08% accuracy, G1/4 fittings, 2 m (6') cable.

PXM419-001BDWU5V, 0 to 1 bar uni-directional wet/wet differential pressure range, 0 to 5 Vdc output, 0.08% accuracy, G1/4 fittings, mini

PXM459-025HDWU5V, 0 to 25 mbar uni-directional wet/wet differential pressure range, 0 to 5 Vdc output, 0.08% accuracy,  $G^{1/4}$  fittings, M12 connector.

#### CONNECTIONS—VOLTAGE OUTPUT

PXM459 M12		PXM419	MINI DIN	PXM40	9 CABLE
Pin A	+EXC	Pin 1	+EXC	Red	+EXC
Pin B	-COM	Pin 2	-COM	Black	-EXC
Pin C	+SIG	Pin 3	+SIG	White	+SIG
Pin D	No Conn	Pin 4	No Conn	Green	No Conn

# WET/WET DIFFERENTIAL PRESSURE MODELS UNI-DIRECTIONAL RANGES WITH 4 to 20 mA OUTPUTS

NEW

Cable style.

PXM409-350HDWUI,

0 to 350 mbar range, 4 to 20 mA

output, shown smaller than actual size.

### UNI-DIRECTIONAL MA SPECIFICATIONS

Fast Delivery! Stock to 2 Weeks On Most Models

Output: 4 to 20 mA

Supply Voltage: 9 to 30 Vdc; [9 to 20 Vdc above  $105^{\circ}$ C (229°F)] Max Loop Resistance: (Vs-9) x 50  $\Omega$ 

Zero Balance:

Ranges > 170 mb: ±0.5% typical (1% maximum) Ranges ≤ 170 mb: ±1% typical (2% maximum)

Span Setting:

Ranges > 170 mb: ±0.5% typical (1% maximum) Ranges ≤ 170 mb: ±1% typical (2% maximum)

#### **CABLE TERMINATION\***

To Order			
RANGE (Metric)	MODEL No. G ¼ Male th'd	DESCRIPTION	
WET/WET DIF	FERENTIAL PRESS	SURE	
25 mbar (hPa)	PXM409-025HDWUI	25 mbar w/w Diff Pressure	
70 mbar (hPa)	PXM409-070HDWUI	70 mbar w/w Diff Pressure	
170 mbar (hPa)	PXM409-170HDWUI 170 mbar w/w Diff Pr		
350 mbar (hPa)	PXM409-350HDWUI	350 mbar w/w Diff Pressure	
1 bar	PXM409-001BDWUI	1 bar w/w Diff Pressure	
2 bar	PXM409-002BDWUI	2 bar w/w Diff Pressure	
3.5 bar	PXM409-3.5BDWUI	3.5 bar w/w Diff Pressure	
7 bar	PXM409-007BDWUI	7 bar w/w Diff Pressure	
10 bar	PXM409-010BDWUI	10 bar w/w Diff Pressure	
17.5 bar	PXM409-17.5BDWUI 17.5 bar w/w Diff Press		
35 bar	PXM409-035BDWUI 35 bar w/w Diff Pressure		
50 bar	PXM409-050BDWUI	50 bar w/w Diff Pressure	
70 bar	PXM409-070BDWUI	70 bar w/w Diff Pressure	

<sup>\*</sup> To order conduit fitting backend change model number from "PXM409" to "PXM409C", no additional cost.

#### MINI DIN TERMINATION

RANGE	MODEL No. G ¼ Male th'd	DESCRIPTION
(Metric) WET/WET DIF	FERENTIAL PRES	
25 mbar (hPa)	PXM419-025HDWUI	25 mbar w/w Diff Pressure
70 mbar (hPa)	PXM419-070HDWUI	70 mbar w/w Diff Pressure
170 mbar (hPa)	PXM419-170HDWUI	170 mbar w/w Diff Pressure
350 mbar (hPa)	PXM419-350HDWUI	350 mbar w/w Diff Pressure
1 bar	PXM419-001BDWUI	1 bar w/w Diff Pressure
2 bar	PXM419-002BDWUI	2 bar w/w Diff Pressure
3.5 bar	PXM419-3.5BDWUI	3.5 bar w/w Diff Pressure
7 bar	PXM419-007BDWUI	7 bar w/w Diff Pressure
10 bar	PXM419-010BDWUI	10 bar w/w Diff Pressure
17.5 bar	PXM419-17.5BDWUI	17.5 bar w/w Diff Pressure
35 bar	PXM419-035BDWUI 35 bar w/w Diff Pressur	
50 bar	PXM419-050BDWUI	50 bar w/w Diff Pressure
70 bar	PXM419-070BDWUI	70 bar w/w Diff Pressure

#### **M12 TERMINATION**

_		
RANGE (Metric)	MODEL No. G ¼ Male th'd	DESCRIPTION
WET/WET DIF	FERENTIAL PRES	SURE
25 mbar (hPa)	PXM459-025HDWUI	25 mbar w/w Diff Pressure
70 mbar (hPa)	PXM459-070HDWUI	70 mbar w/w Diff Pressure
170 mbar (hPa)	PXM459-170HDWUI	170 mbar w/w Diff Pressure
350 mbar (hPa)	PXM459-350HDWUI	350 mbar w/w Diff Pressure
1 bar	PXM459-001BDWUI	1 bar w/w Diff Pressure
2 bar	PXM459-002BDWUI	2 bar w/w Diff Pressure
3.5 bar	PXM459-3.5BDWUI	3.5 bar w/w Diff Pressure
7 bar	PXM459-007BDWUI	7 bar w/w Diff Pressure
10 bar	PXM459-010BDWUI	10 bar w/w Diff Pressure
17.5 bar	PXM459-17.5BDWUI	17.5 bar w/w Diff Pressure
35 bar	PXM459-035BDWUI	35 bar w/w Diff Pressure
50 bar	PXM459-050BDWUI	50 bar w/w Diff Pressure
70 bar	PXM459-070BDWUI	70 bar w/w Diff Pressure

Comes complete with 5-point NIST traceable calibration certificate. **Ordering Examples: PXM409-007BDWUI,** 0 to 7 bar uni-directional wet/wet differential pressure range, 4 to 20 mA output, 0.08% accuracy, G½ fittings, 2 m (6') cable.

**PXM419-001BDWUI**, 0 to 1 bar uni-directional wet/wet differential pressure range, 4 to 20 mA output, 0.08% accuracy,  $G^{1/4}$  fittings, mini DIN connector.

**PXM459-025HDWUI,** 0 to 25 mbar uni-directional wet/wet differential pressure range, 4 to 20 mA output, 0.08% accuracy,  $G^{1/4}$  fittings, M12 connector.

#### **CONNECTIONS—CURRENT OUTPUT**

<u> </u>					
PXM459 M12		PXM419 MINI DIN		PXM409 CABLE	
Pin A	+SUP	Pin 1	+SUP	Red	+SUP
Pin B	-SUP	Pin 2	-SUP	Black	-SUP
Pin C	No Conn	Pin 3	No Conn	White	No Conn
Pin D	No Conn	Pin 4	No Conn	Green	No Conn

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