

HIGH ACCURACY INDUSTRIAL WET/WET DIFFERENTIAL WITH 2000 PSI LINE PRESSURE/5000 PSI SAFE OVERPRESSURE

**Differential Pressure 0-5 to 0-250 psi
Unidirectional and Bidirectional Outputs
0 to 5 and ± 5 Vdc Output
0 to 10 and ± 10 Vdc Output
4 to 20 and 4-12-20 mA Output**

PX509HL Series



PX509HL shown with inline flange, PX539 DIN connector and universal mounting bracket, shown smaller than actual size



- ✓ **High 0.08% Accuracy with NIST Traceable Calibration Certificate**
- ✓ **Low Differential Pressure at High Line Pressures, 2000 psi Standard**
- ✓ **Line Pressure Error Compensation 0.3% (FS) per 1k psi**
- ✓ **Solid State Sensor for Long Term Stability**
- ✓ **316L SS Wetted Parts and Welded Stainless Steel Construction**
- ✓ **Shock and Vibration Rated**
- ✓ **Ruggedized Containment Pressures up to 10,000 psi**
- ✓ **Demountable Electrical Termination**

Applications

- ✓ **Process Control**
- ✓ **Flow and Level Measurement**
- ✓ **Filter Monitoring**
- ✓ **Oil and Gas**
- ✓ **Pipeline Monitoring**

The PX509HL Series industrial differential pressure transducers are rugged shock and vibration rated with high accuracy and are specifically designed to provide long life in demanding industrial areas. The compensated overload range minimizes errors induced by large line pressures.

Features include welded stainless steel construction, user accessible potentiometers for zero and span, and demountable electrical terminations or a fixed conduit fitting without trim pots.

They are temperature compensated over a broad range providing excellent thermal properties and high long term stability. A precision micromachined silicon sensor is at the core and provides a very stable reading with exceptional high accuracy of 0.08% and a broad compensated range of -29 to 85°C (-20 to 185°F) on most ranges.

Modular construction allows for fast delivery of most configurations, customized models also can be developed quickly to suit your exact needs. PX509's ordered with the ½ NPT conduit fitting (PX509C) do not have a demountable termination and side accessible trim pots are optional.

SPECIFICATIONS

Calibration: 5-point NIST traceable calibration with zero and span values

Accuracy: $\pm 0.08\%$ best straight line (linearity, hysteresis and repeatability combined) calibrated in vertical direction with fitting down; compound gage models calibrated in positive direction only

Setting Accuracy for Conduits

Without Trim Pots:

Zero: $\pm 0.5\%$ full scale typical
 $\pm 1\%$ maximum (for ranges ≤ 2.5 psi)
 $\pm 1\%$ typical $\pm 2\%$ maximum)

Span: $\pm 0.5\%$ full scale typical
 $\pm 1\%$ maximum (for ranges ≤ 2.5 psi mb)
 $\pm 1\%$ typical $\pm 2\%$ maximum)

Operating Temperature Range:

-40 to 85°C (-40 to 185°F)

Compensated Temperature Range:

Ranges ≤ 5 psi: -17 to 85°C (0 to 185°F)
Ranges > 5 psi: -29 to 85°C (-20 to 185°F)

Temperature Compensation: Zero and Span Effects Over Compensated Range

Range ≤ 5 psi:

Zero: 1%

Span: 1%

Ranges > 5 psi:

Zero: 0.50%

Span: 0.50%

Compensated Line Pressure Range: 0 to 2000 psi

Line Pressure Compensation: Zero and Span Effects

Zero: 0.3% full scale/1000 psi

Span: 0.3% full scale/1000 psi

Minimum Isolation between Case and Output Terminations:

100M Ω @ 50 Vdc

Pressure Cycles: 1 million, minimum

Long Term Stability (1-Year):

$\pm 0.1\%$ full scale typical

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

Bandwidth: DC to 1 kHz typical

Response Time: < 10 ms

CE Compliant: Meets industrial emissions and immunity standard EN61326-1, EN61326-2-3 industrial level 2

Amplified Voltage Output

0 to 5/ ± 5 Vdc: 10 to 32 Vdc, 10 mA

0 to 10/ ± 5 Vdc: 16 to 32 Vdc, 10 mA

4 to 20/4-12-20 mA Output

Output: 4 to 20 mA dc

Supply: 16 to 32 Vdc maximum loop resistance Ohms = $(V_s - 10) \times 50$

Environmental Protection: IP65 or IP67 depending upon electrical termination

Safe Overpressure: 5000 psi

Burst Pressure: 10,000 psi

Pressure Connection: $\frac{1}{4}$ NPT female

Wetted Parts: 316L SS

Weight: 285 g (10 oz) typical

ELECTRICAL TERMINATION STYLES

Code 09



PX509 2 m (6') cable with flying leads insert "0"

09C



PX509C cable with $\frac{1}{2}$ NPT conduit connector (no trim pots, not demountable)

09CP



PX509CP cable with $\frac{1}{2}$ NPT conduit connector and side accessible trim pots

09CW



PX509CW 3 m (10') submersible cable with $\frac{1}{2}$ NPT conduit connector (no trim pots, not demountable)

09CPW



PX509CPW 3 m (10') submersible cable with $\frac{1}{2}$ NPT conduit connector and side accessible trim pots (not demountable)

Code 19



PX519 mini DIN connector (mating connector included)

29



PX529 twist-lock 6 pin connector

39



PX539 large DIN connector (mating connector included)

49



PX549 glass to metal sealed solder pins (sealed gage models only)

59



PX559 M12 connector, M12 cables sold separately

BIDIRECTIONAL AND UNIDIRECTIONAL DIFFERENTIAL RANGES 5 V_{dc} OUTPUT SELECT FROM 10 ELECTRICAL TERMINATIONS

PX509HL 0 to 5 and ±5 V_{dc} Outputs

- ✓ High 0.08% Accuracy
- ✓ 5-Point NIST Traceable Calibration Standard
- ✓ 316L SS Wetted Parts



To Order	
RANGE (psi)	0 to 5 V _{dc} OUTPUT (±5 V _{dc})
BIDIRECTIONAL DIFFERENTIAL RANGES (BIDIRECTIONAL OUTPUT)	
±5	PX5[*]HL-005DWB5V-[*]
±15	PX5[*]HL-015DWB5V-[*]
±30	PX5[*]HL-030DWB5V-[*]
±50	PX5[*]HL-050DWB5V-[*]
±100	PX5[*]HL-100DWB5V-[*]
±150	PX5[*]HL-150DWB5V-[*]
±250	PX5[*]HL-250DWB5V-[*]
UNIDIRECTIONAL DIFFERENTIAL RANGES	
0 to 5	PX5[*]HL-005DWU5V-[*]
0 to 15	PX5[*]HL-015DWU5V-[*]
0 to 30	PX5[*]HL-030DWU5V-[*]
0 to 50	PX5[*]HL-050DWU5V-[*]
0 to 100	PX5[*]HL-100DWU5V-[*]
0 to 150	PX5[*]HL-150DWU5V-[*]
0 to 250	PX5[*]HL-250DWU5V-[*]

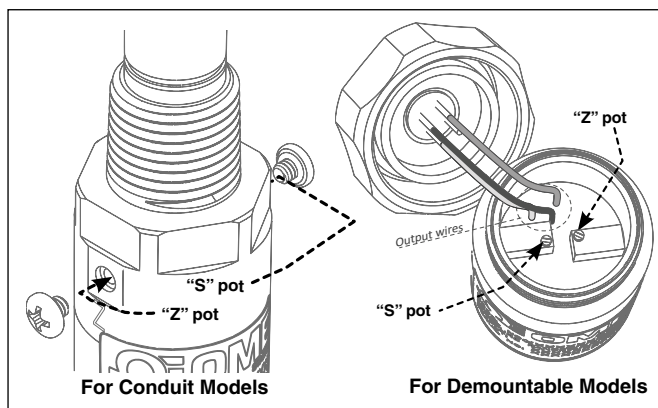
Comes complete with 5-point NIST traceable calibration.

Ordering Examples: PX509HL-015DWB10V-S, 2 m (6') cable termination, ±15 psi bidirectional differential range with ±10 V_{dc} output and standard flange.

PX509CHL-005DWU10V-S, 2 m (6') cable termination with ½ NPT conduit fitting, 0 to 5 psi unidirectional differential range, 0 to 10 V_{dc} output and standard flange.

PX519HL-100DWB5V-R, mini-DIN connector, ±100 psi bidirectional differential range with ±5 V_{dc} output and right-angle flange.

OUTPUT TRIM POT LOCATION†



† For applicable models.

SELECTABLE TERMINATION STYLES

[*] SELECT	MODEL NO.	ELECTRICAL TERMINATION
09	PX509HL	Cable with flying leads 2 m (6')
09C	PX509CHL	Cable 2 m (6'), with ½ NPT conduit connector (no trim pots, not demountable)
09CP	PX509CPHL	Cable 2 m (6') with ½ NPT conduit connector and side accessible trim pots (not demountable)
09CW	PX509CWHL	Submersible cable, 3 m (10') with ½ NPT conduit connector (no trim pots, not demountable)
09CPW	PX509CPWHL	Submersible cable, 3 m (10') with ½ NPT conduit connector and side accessible trim pots (not demountable)
19	PX519HL	Mini-DIN connector (mating connector included)
29	PX529HL	Twist-lock 6 pin connector
39	PX539HL	Large DIN connector
49	PX549HL	Glass to metal sealed solder pins
59	PX559HL	M12 connector
[**] SELECT	FLANGE STYLE	
-S	Standard flange, ¼ NPT female side pressure ports	
-I	Inline flange, ¼ NPT female inline pressure ports (DIN standard 19213)	
-R	Right angle flange, ¼ NPT female right angle pressure ports (DIN standard 19213)	

ACCESSORIES	
MODEL NO.	DESCRIPTION
M12C-PVC-4-S-F-5	PVC cable, straight 4-pin M12 female connector one end, flying leads one end, 5 m (16.4') long, for PX559
M12C-PVC-4-R-F-5	PVC cable, right angled 4-pin M12 female connector one end, flying leads one end, 5 m (16.4') long, for PX559
PXHL-RA-MB	Universal right-angle mounting bracket

BIDIRECTIONAL AND UNIDIRECTIONAL DIFFERENTIAL RANGES 10 Vdc OUTPUT SELECT FROM 10 ELECTRICAL TERMINATIONS

PX509HL 0 to 10 and $\pm 10\text{ Vdc}$ Outputs

- ✓ High 0.08% Accuracy
- ✓ 5-Point NIST Traceable Calibration Standard
- ✓ 316L SS Wetted Parts



To Order	
RANGE (psi)	0 to 10 Vdc OUTPUT ($\pm 10\text{ Vdc}$)
BIDIRECTIONAL DIFFERENTIAL RANGES (BIDIRECTIONAL OUTPUT)	
± 5	PX5[*]HL-005DWB10V-[*]**
± 15	PX5[*]HL-015DWB10V-[*]**
± 30	PX5[*]HL-030DWB10V-[*]**
± 50	PX5[*]HL-050DWB10V-[*]**
± 100	PX5[*]HL-100DWB10V-[*]**
± 150	PX5[*]HL-150DWB10V-[*]**
± 250	PX5[*]HL-250DWB10V-[*]**
UNIDIRECTIONAL DIFFERENTIAL RANGES	
0 to 5	PX5[*]HL-005DWU10V-[*]**
0 to 15	PX5[*]HL-015DWU10V-[*]**
0 to 30	PX5[*]HL-030DWU10V-[*]**
0 to 50	PX5[*]HL-050DWU10V-[*]**
0 to 100	PX5[*]HL-100DWU10V-[*]**
0 to 150	PX5[*]HL-150DWU10V-[*]**
0 to 250	PX5[*]HL-250DWU10V-[*]**

Comes complete with 5-point NIST traceable calibration.

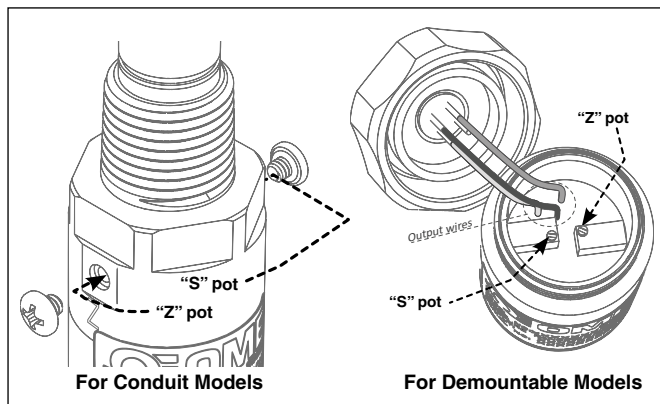
Ordering Examples: PX509HL-015DWB10V-S, 2 m (6') cable termination, $\pm 15\text{ psi}$ bidirectional differential range with $\pm 10\text{ Vdc}$ output and standard flange.

PX509CHL-005DWU10V-S, 2 m (6') cable termination with $\frac{1}{2}$ NPT conduit fitting, 0 to 5 psi unidirectional differential range, 0 to 10 Vdc output and standard flange.

SELECTABLE TERMINATION STYLES

[*] SELECT	MODEL NO.	ELECTRICAL TERMINATION
09	PX509HL	Cable with flying leads, 2 m (6')
09C	PX509CHL	Cable 2 m (6'), with $\frac{1}{2}$ NPT conduit connector (no trim pots, not demountable)
09CP	PX509CPHL	Cable 2 m (6') with $\frac{1}{2}$ NPT conduit connector and side accessible trim pots (not demountable)
09CW	PX509CWHL	Submersible cable, 3 m (10') with $\frac{1}{2}$ NPT conduit connector (no trim pots, not demountable)
09CPW	PX509CPWHL	Submersible cable, 3 m (10') with $\frac{1}{2}$ NPT conduit connector and side accessible trim pots (not demountable)
19	PX519HL	Mini-DIN connector (mating connector included)
29	PX529HL	Twist-lock 6 pin connector
39	PX539HL	Large DIN connector
49	PX549HL	Glass to metal sealed solder pins
59	PX559HL	M12 connector
[**] SELECT	FLANGE STYLE	
-S	Standard flange, $\frac{1}{4}$ NPT female side pressure ports	
-I	Inline flange, $\frac{1}{4}$ NPT female inline pressure ports (DIN standard 19213)	
-R	Right angle flange, $\frac{1}{4}$ NPT female right angle pressure ports (DIN standard 19213)	

OUTPUT TRIM POT LOCATION†



† For applicable models.

ACCESSORIES	
MODEL NO.	DESCRIPTION
M12C-PVC-4-S-F-5	PVC cable, straight 4-pin M12 female connector one end, flying leads one end, 5 m (16.4') long, for PX559
M12C-PVC-4-R-F-5	PVC cable, right angled 4-pin M12 female connector one end, flying leads one end, 5 m (16.4') long, for PX559
PXHL-RA-MB	Universal right-angle mounting bracket

BIDIRECTIONAL AND UNIDIRECTIONAL DIFFERENTIAL RANGES *mA* OUTPUT SELECT FROM 10 ELECTRICAL TERMINATIONS

PX509HL 4 to 20 and 4-12-20 mA Outputs

- ✓ High 0.08% Accuracy
- ✓ 5-Point NIST Traceable Calibration Standard
- ✓ 316L SS Wetted Parts



To Order	
RANGE (psi)	4 to 20 mA OUTPUT (4-12-20 mA)
BIDIRECTIONAL DIFFERENTIAL RANGES (BIDIRECTIONAL OUTPUT)	
±5	PX5[*]HL-005DWBI-[*]
±15	PX5[*]HL-015DWBI-[*]
±30	PX5[*]HL-030DWBI-[*]
±50	PX5[*]HL-050DWBI-[*]
±100	PX5[*]HL-100DWBI-[*]
±150	PX5[*]HL-150DWBI-[*]
±250	PX5[*]HL-250DWBI-[*]
UNIDIRECTIONAL DIFFERENTIAL RANGES	
0 to 5	PX5[*]HL-005DWUI-[*]
0 to 15	PX5[*]HL-015DWUI-[*]
0 to 30	PX5[*]HL-030DWUI-[*]
0 to 50	PX5[*]HL-050DWUI-[*]
0 to 100	PX5[*]HL-100DWUI-[*]
0 to 150	PX5[*]HL-150DWUI-[*]
0 to 250	PX5[*]HL-250DWUI-[*]

Comes complete with 5-point NIST traceable calibration.

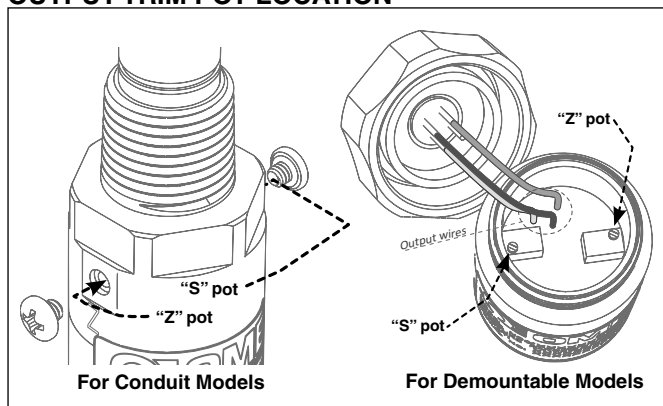
Ordering Examples: PX509HL-015DWUI-S, 2 m (6') cable termination, ±15 psi unidirectional differential range with 4 to 20 mA output and standard flange.

PX519HL-100DWBI-R, mini-DIN connector, ±100 psi bidirectional differential range with 4-12-20 mA output and right-angle flange.

SELECTABLE TERMINATION STYLES

[*] SELECT	MODEL NO.	ELECTRICAL TERMINATION
09	PX509HL	Cable with flying leads, 2 m (6')
09C	PX509CHL	Cable 2 m (6'), with ½ NPT conduit connector (no trim pots, not demountable)
09CP	PX509CPHL	Cable 2 m (6') with ½ NPT conduit connector and side accessible trim pots (not demountable)
09CW	PX509CWHL	Submersible cable, 3 m (10') with ½ NPT conduit connector (no trim pots, not demountable)
09CPW	PX509CPWHL	Submersible cable, 3 m (10') with ½ NPT conduit connector and side accessible trim pots (not demountable)
19	PX519HL	Mini-DIN connector (mating connector included)
29	PX529HL	Twist-lock 6 pin connector
39	PX539HL	Large DIN connector
49	PX549HL	Glass to metal sealed solder pins
59	PX559HL	M12 connector
[**] SELECT	FLANGE STYLE	
-S	Standard flange, ¼ NPT female side pressure ports	
-I	Inline flange, ¼ NPT female inline pressure ports (DIN standard 19213)	
-R	Right angle flange, ¼ NPT female right angle pressure ports (DIN standard 19213)	

OUTPUT TRIM POT LOCATION†



† For applicable models.

ACCESSORIES	
MODEL NO.	DESCRIPTION
M12C-PVC-4-S-F-5	PVC cable, straight 4-pin M12 female connector one end, flying leads one end, 5 m (16.4') long, for PX559
M12C-PVC-4-R-F-5	PVC cable, right angled 4-pin M12 female connector one end, flying leads one end, 5 m (16.4') long, for PX559
PXHL-RA-MB	Universal right-angle mounting bracket

PX509HL SERIES CONFIGURATIONS



PX509HL with right angle flange



**PX509HL with standard flange
with side ports**



PX509HL with inline flange



**(L to R) Standard flange with side
ports, inline flange and right angle
flange (and four mounting bolts)**

**All images shown
smaller than
actual size.**

HIGH OVERLOAD INDUSTRIAL DIFFERENTIAL WITH TRIM POTS AND DEMOUNTABLE ELECTRICAL TERMINATION

PX509 CABLE CONNECTION		
COLOR	5/10 Vdc	mA
BLACK	– Supply	– Supply
WHITE	Output +	NC
GREEN	Output –	NC
RED	+ Supply	+ Supply

PX519/PX539/PX549 PINOUTS		
PIN	5/10 Vdc	mA
1	+ Supply	+ Supply
2	– Supply	– Supply
3	Output +	NC
4	Output –	NC

NC = No Connection.

PX529 PINOUT		
PIN	5/10 Vdc	mA
A	+ Supply	+ Supply
B	– Supply	– Supply
C	Output +	NC
D	Output –	NC
E	NC	NC
F	NC	NC

DIFFERENTIAL
PRESSURE TRANSDUCERS
B

