

# AIRFLOW, FORCE & PRESSURE SENSORS

Product Range Guide



**Honeywell**

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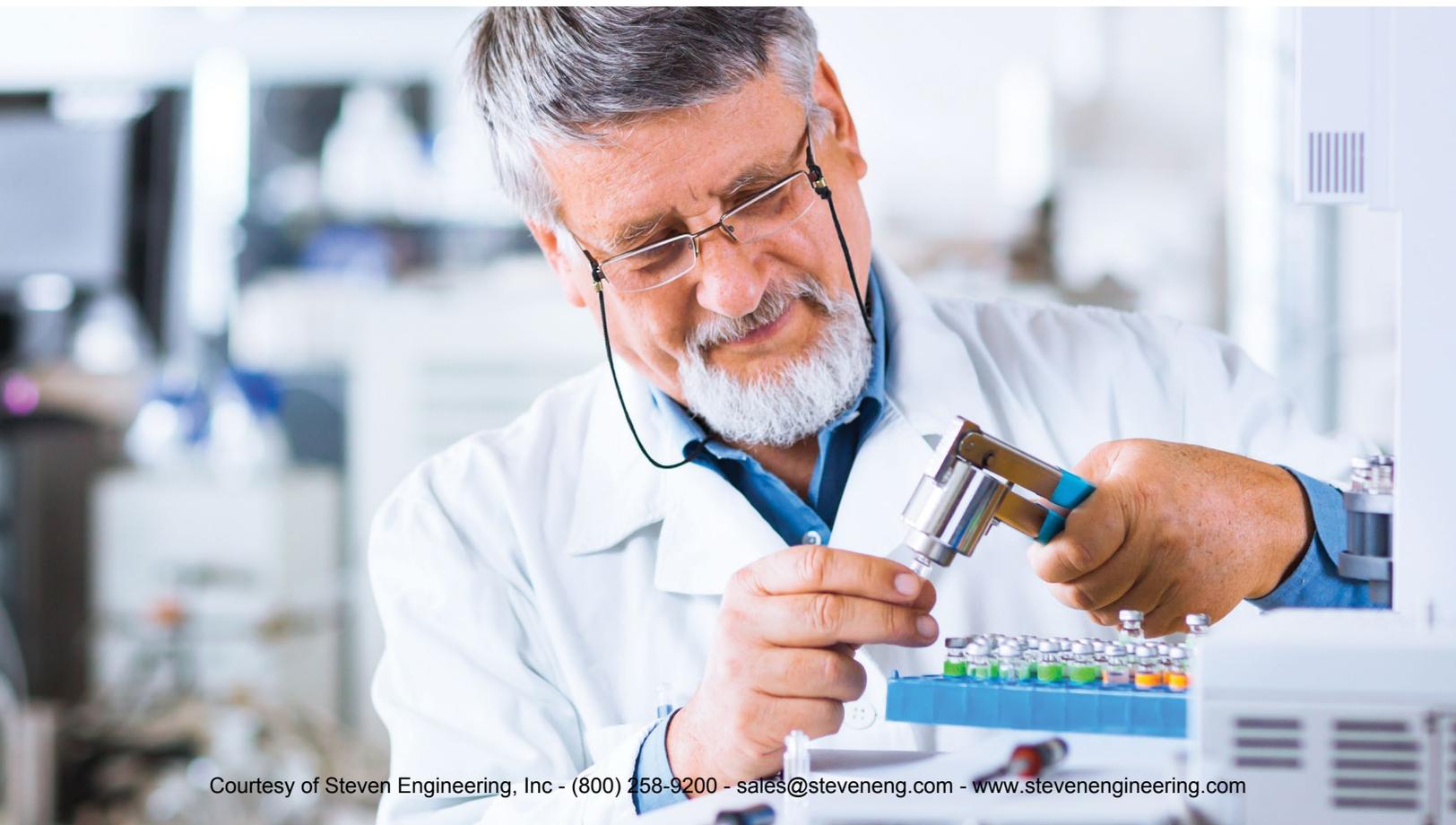
Honeywell sensor, switch, and control components are tailored to exact specifications for stronger performance, longer productivity, and increased safety. Enhanced accuracy and durability are built into every part, improving output and endurance. For our customers, this can reduce expenditures and operational costs. Our global footprint and channels help to competitively price such components for your chosen application and provide immediate technical support.

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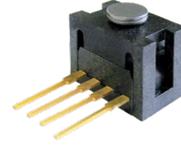
Global service, sourcing, and manufacturing. Industry-leading engineers. Value-added assemblies and solutions. A one-stop, full-service, globally competitive supplier.

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Measure the addition or backup of force, meaning the resistance of silicon-implemented piezoresistors will increase when flexed under applied force. Potential applications include infusion pumps, anesthesia monitors, blood pressure equipment, and more.



	MICROFORCE FMA SERIES	FSA SERIES	FSG SERIES
Signal conditioning	amplified	amplified	unamplified
Technology	silicon die (piezoresistive)	silicon die (piezoresistive)	silicon die (piezoresistive)
Output	SPI- or I <sup>2</sup> C-compatible digital	<ul style="list-style-type: none"> <li>ratiometric analog</li> <li>SPI- or I<sup>2</sup>C-compatible digital</li> </ul>	360 mV typ.
Force range	<b>N:</b> 5, 15, 25	<ul style="list-style-type: none"> <li><b>N:</b> 5, 7.5, 10, 15, 20, 25</li> <li><b>lb:</b> 1, 1.5, 2, 3, 5</li> <li><b>g:</b> 500, 750</li> <li><b>kg:</b> 1, 2</li> </ul>	0 N to 5 N, 0 N to 10 N, 0 N to 15 N, 0 N to 20 N
Overforce	3X force range	6804 g [15 lb]	60 N max. (range dependent)
Operating temperature range	-40°C to 85°C [-40°F to 185°F]	0°C to 70°C [32°F to 158°F]	-40°C to 85°C [-40°F to 185°F]
Compensated temperature range	5°C to 50°C [41°F to 122°F]	5°C to 50°C [41°F to 122°F]	-
Measurements (H x W x D)	2,54 x 5,0 mm x 5,0 mm [0.1 in x 0.20 in x 0.20 in]	8,25 mm x 17,36 mm x 25,02 mm [0.32 in x 0.86 in x 0.99 in]	9,04 mm x 12,70 mm x 18,14 mm [0.36 in x 0.50 in x 0.71 in]
Features	very small size, calibrated and temperature compensated using on-board Application Specific Integrated Circuit (ASIC), direct mechanical coupling of sphere,	calibrated and temperature compensated using on-board Application Specific Integrated Circuit (ASIC)	extremely low deflection, low repeatability and linearity error



	FSS SERIES	FSS-SMT SERIES	TBF BASIC SERIES	1865 SERIES
Signal conditioning	unamplified	unamplified	unamplified	unamplified
Technology	silicon die (piezoresistive)	silicon die (piezoresistive)	silicon die (piezoresistive)	silicon die (piezoresistive)
Output	360 mV typ.	360 mV typ.	mV	<ul style="list-style-type: none"> <li><b>current excitation:</b> 100 mV typ.</li> <li><b>voltage excitation:</b> 40 mV typ.</li> </ul>
Force range or pressure range	0 N to 5 N, 0 N to 10 N, 0 N to 15 N, 0 N to 20 N	0 N to 5 N, 0 N to 10 N, 0 N to 15 N, 0 N to 20 N	<ul style="list-style-type: none"> <li>1 bar to 10 bar</li> <li>100 kPa to 1 MPa</li> <li>15 psi to 150 psi</li> </ul>	0 psi to 5 psi, 0 psi to 10 psi, 0 psi to 15 psi, 0 psi to 25 psi, 0 psi to 30 psi
Overforce or overpressure	60 N max. (range dependent)	60 N max. (range dependent)	<ul style="list-style-type: none"> <li>17 bar max.</li> <li>1.70 MPa max.</li> <li>245 psi max. (all range dependent)</li> </ul>	60 psi max. (range dependent)
Operating temperature range	-40°C to 85°C [-40°F to 185°F]	-40°C to 85°C [-40°F to 185°F]	0°C to 50°C [32°F to 122°F]	-28°C to 54°C [-18°F to 129°F]
Compensated temperature range	-	-	0°C to 50°C [32°F to 122°F]	-1°C to 54°C [30°F to 129°F]
Measurements (H x W x D)	3,18 mm x 14,22 mm x 5,59 mm [0.13 in x 0.56 in x 0.22 in]	3,18 mm x 13,70 mm x 5,59 mm [0.13 in x 0.54 in x 0.22 in]	3,89 mm x 7 mm x 7 mm [0.15 in x 0.28 in x 0.28 in]	11,05 mm x 17,15 mm x 17,15 mm [0.44 in x 0.68 in x 0.68 in]
Features	low deflection, low voltage, direct mechanical coupling of sphere, small size	low deflection, low voltage, direct mechanical coupling of sphere, small size	pressure measurement for liquid media extremely small size, low power consumption	pressure measurement for liquid media, 8-pin DIP electrical connection

# AIRFLOW SENSORS

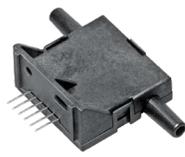
Contain advanced microstructure technology to provide a sensitive and fast response to flow, amount/direction of air or other gases. Potential applications include HVAC, gas metering, chromatography, vent hoods, and medical equipment.



	<b>HONEYWELL ZEPHYR™ HAF SERIES-HIGH ACCURACY ±50 SCCM TO ±750 SCCM</b>	<b>HONEYWELL ZEPHYR™ HAF SERIES-HIGH ACCURACY 10 SLPM TO 300 SLPM</b>
Signal conditioning	amplified, compensated	amplified, compensated
Technology	silicon die with thermally isolated heater	silicon die with thermally isolated heater
Flow/pressure range	±50 SCCM to ±750 SCCM	10 SLPM, 15 SLPM, 20 SLPM, 50 SLPM, 100 SLPM, 200 SLPM, 300 SLPM
Output	analog (Vdc), digital (I <sup>2</sup> C)	digital (I <sup>2</sup> C)
Power consumption	<ul style="list-style-type: none"> <li>• <b>3.3 Vdc:</b> 40 mW typ. (no load) (analog), 23 mW typ. (no load) (digital)</li> <li>• <b>5.0 Vdc:</b> 55 mW typ. (no load) (analog), 38 mW typ. (no load) (digital)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>3 Vdc:</b> 60 mW max.</li> <li>• <b>10 Vdc:</b> 200 mW max.</li> </ul>
Port style	long port, short port	manifold mount, 22 mm OD tapered male fitting, G 3/8 female threaded fitting
Media compatibility	dry non-corrosive gases	dry non-corrosive gases
Temperature range	<ul style="list-style-type: none"> <li>• <b>operating:</b> -20°C to 70°C [-4°F to 158°F]</li> <li>• <b>compensated:</b> 0°C to 50°C [32°F to 122°F]</li> </ul>	<ul style="list-style-type: none"> <li>• <b>operating:</b> -20°C to 70°C [-4°F to 158°F]</li> <li>• <b>compensated:</b> 0°C to 50°C [32°F to 122°F]</li> </ul>
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>• <b>long port:</b> 20 mm x 36 mm x 19,9 mm [0.79 in x 1.42 in x 0.78 in]</li> <li>• <b>short port:</b> 17,6 mm x 28,8 mm x 19,9 mm [0.69 in x 1.13 in x 0.78 in]</li> </ul>	110 mm x 54,4 mm x 54 mm [4.3 in x 2.14 in x 2.1 in] (22 mm OD, tapered male fitting - largest)
Features	high accuracy, high sensitivity at very low flows, high stability, low pressure, linear output; customizable, full calibration and temperature compensation	built-in bypass provides high performance, easy integration, and custom calibration



	<b>AWM5000 SERIES</b>	<b>AWM700 SERIES</b>
Signal conditioning	amplified	amplified
Technology	silicon die	silicon die
Flow/pressure range	0 SLPM to 5.0 SLPM, 0 SLPM to 10.0 SLPM, 0 SLPM to 15.0 SLPM, 0 SLPM to 20.0 SLPM	200 SLPM
Output	analog	analog
Power consumption	100 mW max.	60 mW max.
Port style	1/4 in-18 NPT	22 mm tapered
Media compatibility	dry gas only	dry gas only
Temperature range	<ul style="list-style-type: none"> <li>• <b>operating:</b> -20°C to 70°C [-4°F to 158°F]</li> <li>• <b>compensated:</b> 0°C to 50°C [32°F to 122°F]</li> </ul>	<ul style="list-style-type: none"> <li>• <b>operating:</b> -25°C to 85°C [-13°F to 185°F]</li> <li>• <b>compensated:</b> 10°C to 40°C [50°F to 104°F]</li> </ul>
Dimensions (H x W x D)	35,6 mm x 162,8 mm x 32,3 mm [1.40 in x 6.41 in x 1.27 in]	82,55 mm x 46,5 x 32,5 mm [3.25 in x 1.83 in x 1.28 in]
Features	sensitivity to low flows, enhanced response time, low power consumption, analog output, laser trimmed	sensitivity to low flows, enhanced response time, low power consumption, analog output, highly stable



AWM1000 SERIES	AWM2000 SERIES	AWM3000 SERIES	
unamplified, compensated	unamplified, compensated	amplified	Signal conditioning
silicon die	silicon die	silicon die	Technology
±200 SCCM, 1000 SCCM to -600 SCCM, ±5.0 mbar [2.0 inH <sub>2</sub> O]	±30 SCCM, ±200 SCCM, ±1000 SCCM, ±5.0 mbar [2.0 inH <sub>2</sub> O]	30 SCCM, 200 SCCM, 1000 SCCM, ±1000 SCCM, 0 mbar to 1.25 mbar [0 inH <sub>2</sub> O to 0.5 inH <sub>2</sub> O], 0 mbar to 5.0 mbar [0 inH <sub>2</sub> O to 2 inH <sub>2</sub> O], 5.0 mbar [2.0 inH <sub>2</sub> O]	Flow/pressure range
analog	analog	analog	Output
30 mW typ.	30 mW typ.	50 mW typ.	Power consumption
straight	straight	straight	Port style
dry gas only	dry gas only	dry gas only	Media compatibility
-25°C to 85°C [-13°F to 185°F]	-25°C to 85°C [-13°F to 185°F]	-25°C to 85°C [-13°F to 185°F]	Temperature range
12,7 mm x 54,4 mm x 31,5 mm [0.5 in x 2.14 in x 1.24 in]	12,7 mm x 54,4 mm x 31,5 mm [0.5 in x 2.14 in x 1.24 in]	12,7 mm x 54,4 mm x 31,5 mm [0.5 in x 2.14 in x 1.24 in]	Dimensions (H x W x D)
sensitivity to low flows, enhanced response time, low power consumption, analog output, bi-directional sensing capability	sensitivity to low flows, enhanced response time, low power consumption, analog output, bi-directional sensing capability	sensitivity to low flows, fast response time, low power consumption, analog output, amplified, bi-directional flow	Features



AWM4000 SERIES	AWM9000 SERIES	
unamplified (compensated) or amplified	uncompensated	Signal conditioning
silicon die	silicon die	Technology
±25.0 SCCM, 1.0 SLPM, 6.0 SLPM	±200 SCCM, ±5.0 mbar [2.0 inH <sub>2</sub> O]	Flow/pressure range
analog	analog	Output
60 mW max. or 75 mW max.	50 mW max.	Power consumption
manifold	parallel	Port style
dry gas only	dry gas only	Media compatibility
<ul style="list-style-type: none"> <li>operating inclusive: -40°C to 125°C [-40°F to 251°F]</li> <li>compensated: -25°C to 85°C [-13°F to 185°F]</li> </ul>	-25°C to 85°C [-13°F to 185°F]	Temperature range
12,7 mm x 30,5 mm x 30,2 mm [0.50 in x 1.2 in x 1.19 in]	13,08 mm x 30,48 mm x 27,94 mm [0.52 in x 1.2 in x 1.1 in]	Dimensions (H x W x D)
sensitivity to low flows, enhanced response time, low power consumption, analog output, laser trimmed	sensitivity to low flows, fast response time, low power consumption, analog output, bi-directional sensing capability	Features

# BOARD MOUNT PRESSURE SENSORS

Utilize a specialized piezoresistive, micro-machined, sensing element which allows part interchangeability, and enhanced performance, reliability, and accuracy.



	TRUSTABILITY™ RSC SERIES	TRUSTABILITY™ HSC SERIES	TRUSTABILITY™ SSC SERIES
Signal conditioning	amplified	amplified	amplified
Pressure range	<ul style="list-style-type: none"> <li>• ±1.6 mbar to ±10 bar</li> <li>• ±160 Pa to ±1 MPa</li> <li>• ±0.5 inH<sub>2</sub>O to ±150 psi</li> </ul>	<ul style="list-style-type: none"> <li>• ±1.6 mbar to ±10 bar</li> <li>• ±160 Pa to ±1 MPa</li> <li>• ±0.5 inH<sub>2</sub>O to ±150 psi</li> </ul>	<ul style="list-style-type: none"> <li>• ±1.6 mbar to ±10 bar</li> <li>• ±160 Pa to ±1 MPa</li> <li>• ±0.5 inH<sub>2</sub>O to ±150 psi</li> </ul>
Pressure reference	absolute, differential, gage	absolute, differential, gage	absolute, differential, gage
Output	24-bit digital SPI	<ul style="list-style-type: none"> <li>• <b>digital:</b> I<sup>2</sup>C, SPI</li> <li>• <b>analog:</b> Vdc</li> </ul>	<ul style="list-style-type: none"> <li>• <b>digital:</b> I<sup>2</sup>C, SPI</li> <li>• <b>analog:</b> Vdc</li> </ul>
Calibrated	yes	yes	yes
Temperature compensation	yes	yes	yes
Total error band	as low as ±0.25 %FSS depending on pressure range after customer auto-zero	±1 %FSS to ±3 %FSS depending on pressure range	±2 %FSS to ±5 %FSS depending on pressure range
Accuracy	±0.1 %FSS BFSL	±0.25 %FSS BFSL	±0.25 %FSS BFSL
Mounting option	DIP, SMT	DIP, SIP, SMT	DIP, SIP, SMT
Operating temperature range	-40°C to 85°C [-40°F to 185°F]	-20°C to 85°C [-4°F to 185°F]	-40°C to 85°C [-40°F to 185°F]
Compensated temperature range	-40°C to 85°C [-40°F to 185°F]	0°C to 50°C [32°F to 122°F]	-20°C to 85°C [-4°F to 185°F]
Dimensions (H x W x D)	varies by package style	varies by package style	varies by package style
Approvals	RoHS, WEEE	RoHS, WEEE	RoHS, WEEE
Features	uses a 24-bit analog-to-digital converter with integrated EEPROM, high resolution, high accuracy, industry-leading, accuracy, and flexibility; power consumption <10 mW typ.	industry-leading, long-term stability, total error band, accuracy and flexibility; high burst pressures and working pressure ranges; excellent repeatability; liquid media compatible on port 1	industry-leading, long-term stability, total error band, accuracy, and flexibility; high burst pressures and working pressure ranges; excellent repeatability; liquid media compatible on port 1



<b>TRUSTABILITY™ DPR SERIES</b>	<b>TRUSTABILITY™ TSC SERIES</b>	<b>TRUSTABILITY™ NSC SERIES</b>	
amplified	unamplified	unamplified	<b>Signal conditioning</b>
<ul style="list-style-type: none"> <li>• ±1.6 mbar to ±25 bar</li> <li>• ±160 Pa to ±2.5 kPa</li> <li>• ±0.5 inH<sub>2</sub>O to ±10 inH<sub>2</sub>O</li> </ul>	<ul style="list-style-type: none"> <li>• ±60 mbar to ±10 bar</li> <li>• ±6 kPa to ±1 MPa</li> <li>• ±1 psi to ±150 psi</li> </ul>	<ul style="list-style-type: none"> <li>• ±2.5 mbar to ±10 mbar</li> <li>• ±250 Pa to ±1 MPa</li> <li>• ±1 inH<sub>2</sub>O to ±150 psi</li> </ul>	<b>Pressure range</b>
differential, gage	differential, gage	absolute, differential, gage	<b>Pressure reference</b>
analog (Vdc)	analog (mV)	analog (mV)	<b>Output</b>
yes	yes	no	<b>Calibrated</b>
yes	yes	no	<b>Temperature compensation</b>
as low as ±0.25 %FSS depending on pressure range after customer auto-zero	-	-	<b>Total error band</b>
±0.25 %FSS BFSL	±0.25 %FSS BFSL	±0.25 %FSS BFSL	<b>Accuracy</b>
remote mount	DIP, SIP, SMT	DIP, SIP, SMT	<b>Mounting option</b>
-40°C to 85°C [-40°F to 185°F]	-40°C to 85°C [-40°F to 185°F]	-40°C to 85°C [-40°F to 185°F]	<b>Operating temperature range</b>
-20°C to 70°C [-4°F to 158°F]	0°C to 85°C [32°F to 185°F]	-	<b>Compensated temperature range</b>
22,7 mm x 63,5 mm x 33,38 mm [0.89 in x 2.5000 in x 1.3114 in] (sensor body only, does not include electrical terminations)	varies by package style	varies by package style	<b>Dimensions (H x W x D)</b>
RoHS	RoHS, WEEE	RoHS, WEEE	<b>Approvals</b>
designed to withstand tough applications environments such as those found in potential HVAC and other industrial applications, robust and durable housing; industry-standard mounting configuration and barbed ports; choice of electrical terminations	industry-leading, long-term stability allows customers the flexibility of sensor self calibration; liquid media compatible on port 1	industry-leading, long-term stability allows customers the flexibility of sensor self calibration; liquid media compatible on port 1	<b>Features</b>

# BOARD MOUNT PRESSURE SENSORS

Potential applications include dialysis equipment, blood analysis, centrifusion and oxygen and nitrogen gas distribution, HVAC devices, data storage, process controls, industrial machinery, pumps, food and beverage, and robotics.



	BASIC ABP SERIES	BASIC TBP SERIES
Signal conditioning	amplified	unamplified
Pressure range	<ul style="list-style-type: none"> <li>• ±60 mbar to ±10 bar</li> <li>• ±6 kPa to ±1 MPa</li> <li>• ±1 psi to ±150 psi</li> </ul>	<ul style="list-style-type: none"> <li>• ±60 mbar to ±10 bar</li> <li>• ±6 kPa to ±1 MPa</li> <li>• ±1 psi to ±150 psi</li> </ul>
Pressure reference	differential, gage	gage
Output	<ul style="list-style-type: none"> <li>• <b>digital:</b> I<sup>2</sup>C, SPI</li> <li>• <b>analog:</b> Vdc</li> </ul>	analog (mV)
Calibrated	yes	yes
Temperature compensation	yes	yes
Total error band	±1.5 %FSS BFSL	–
Accuracy	±0.25 %FSS BFSL	±0.25 %FSS BFSL
Mounting option	DIP, SMT, leadless SMT	DIP, SMT, leadless SMT
Operating temperature range	-40°C to 85°C [-40°F to 185°F]	-40°C to 125°C [-40°F to 257°F]
Compensated temperature range	0°C to 50°C [32°F to 122°F]	0°C to 85°C [32°F to 185°F]
Dimensions (H x W x D)	as small as 7 mm x 7 mm x 3,84 mm [0.276 in x 0.276 in x 0.151 in]	as small as 7 mm x 7 mm x 3,84 mm [0.276 in x 0.276 in x 0.151 in]
Approvals	RoHS, WEEE	RoHS, WEEE
Features	designed to provide a simple, cost-effective, basic performance, high quality solution for those medical and industrial applications where high performance, stability, and accuracy are not as critical; liquid media compatible on ports 1 and 2; food-grade compliant	designed to provide a simple, cost-effective, basic performance, high quality solution for those medical and industrial applications where high performance, stability, and accuracy are not as critical, liquid media compatible on port 1; food-grade compliant



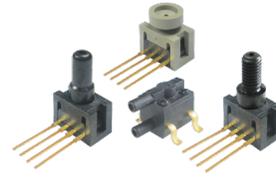
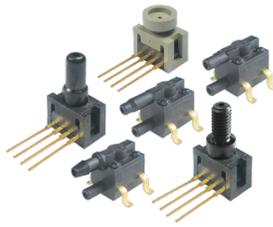
## BASIC NBP SERIES

## MICROPRESSURE MPR SERIES

unamplified	amplified	Signal conditioning
<ul style="list-style-type: none"> <li>• <math>\pm 60</math> mbar to <math>\pm 10</math> bar</li> <li>• <math>\pm 6</math> kPa to <math>\pm 1</math> MPa</li> <li>• <math>\pm 1</math> psi to <math>\pm 150</math> psi</li> </ul>	<ul style="list-style-type: none"> <li>• 60 mbar to 2.5 bar</li> <li>• 6 kPa to 250 kPa</li> <li>• 1 psi to 30 psi</li> </ul>	Pressure range
absolute, gage	absolute, gage	Pressure reference
analog (mV)	24-bit digital I <sup>2</sup> C, SPI	Output
no	yes	Calibrated
no	yes	Temperature compensation
–	as low as $\pm 1.5$ %FSS after customer auto-zero	Total error band
$\pm 0.25$ %FSS BFSL	$\pm 0.25$ %FSS BFSL	Accuracy
DIP, SMT, leadless SMT	leadless SMT	Mounting option
-40°C to 125°C [-40°F to 257°F]	-40°C to 85°C [-40°F to 185°F]	Operating temperature range
–	0°C to 50°C [32°F to 122°F]	Compensated temperature range
as small as 7 mm x 7 mm x 3,84 mm [0.276 in x 0.276 in x 0.151 in]	as small as 5 mm x 5 mm x 3,13 mm [0.20 in x 0.20 in x 0.12 in]	Dimensions (H x W x D)
RoHS, WEEE	REACH, RoHS	Approvals
designed to provide a simple, cost-effective, basic performance, high quality solution for those medical and industrial applications where high performance, stability, and accuracy are not as critical, liquid media compatible on port 1; food-grade compliant	designed to meet the requirements of higher volume medical (consumer and non-consumer) devices and commercial appliance applications; low power consumption; liquid media compatible; food-grade compliant	Features

# BOARD MOUNT PRESSURE SENSORS

Utilizes a specialized piezoresistive, micro-machined, sensing element which allows part interchangeability, and enhanced performance, reliability, and accuracy. Potential applications include medical, HVAC, data storage, industrial machinery, pumps, and robotics.



	24PC	26PC
Signal conditioning	unamplified	unamplified
Pressure range	<ul style="list-style-type: none"> <li>• SIP, DIP: 0.5 psi to 250 psi</li> <li>• SMT: 1 psi to 15 psi</li> </ul>	<ul style="list-style-type: none"> <li>• SIP, DIP: 1 psi to 250 psi</li> <li>• SMT: 1 psi to 15 psi</li> </ul>
Pressure reference	absolute, differential, wet-wet differential, gage	differential, wet-wet differential, gage
Output	mV	mV
Calibrated	no	yes
Temperature compensation	no	yes
Accuracy	linearity and hysteresis: 0.5% typ.	linearity and hysteresis: 0.5% typ.
Mounting options	DIP, SIP, SMT	DIP, SIP, SMT
Operating temperature range	-40°C to 85°C [-40°F to 185°F]	-40°C to 85°C [-40°F to 185°F]
Compensated temperature range	-	0°C to 50°C [32°F to 122°F]
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>• SIP, DIP: 27,94 mm x 12,7 mm x 16,0 mm [1.10 in x 0.5 in x 0.63 in]</li> <li>• SMT: 7,87 mm x 10,41 mm x 10,92 mm [0.31 in x 0.41 in x 0.43 in]</li> </ul>	<ul style="list-style-type: none"> <li>• SIP, DIP: 27,94 mm x 12,7 mm x 16,0 mm [1.10 in x 0.5 in x 0.63 in]</li> <li>• SMT: 7,87 mm x 10,41 mm x 10,92 mm [0.31 in x 0.41 in x 0.43 in]</li> </ul>
Approvals	RoHS, WEEE	RoHS, WEEE
Features	<ul style="list-style-type: none"> <li>• SIP, DIP: true wet/wet differential sensing, miniature package, operable after exposure to frozen conditions, choice of termination for gage sensors</li> <li>• SMT: true wet/wet differential sensing, pick-up feature, maximum peak reflow temperature of 260°C [500°F], end-point calibration, elastomeric construction</li> </ul>	<ul style="list-style-type: none"> <li>• SIP, DIP: true wet/wet differential sensing, miniature package, operable after exposure to frozen conditions, choice of termination for gage sensors</li> <li>• SMT: true wet/wet differential sensing; pick-up feature, maximum reflow temperature of 260°C [500°F], end-point calibration, elastomeric construction</li> </ul>

# BOARD MOUNT PRESSURE SENSORS

Features a sensing technology that utilizes a specialized piezoresistive, micro-machined, sensing element. Potential uses include measuring vacuum or positive pressure in medical and environmental applications.



	24PC FLOW-THROUGH SERIES	26PC FLOW-THROUGH SERIES
Signal conditioning	unamplified	unamplified
Pressure range	1 psi to 250 psi	1 psi to 100 psi
Pressure reference	flow-through gage	flow-through gage
Output	mV	mV
Calibrated	no	yes
Temperature compensation	no	yes
Accuracy	linearity and hysteresis: 0.75% typ.	linearity and hysteresis: 0.35% typ.
Mounting options	DIP, SIP	DIP, SIP
Operating temperature range	-40°C to 85°C [-40°F to 185°F]	-40°C to 85°C [-40°F to 185°F]
Compensated temperature range	-	0°C to 50°C [32°F to 122°F]
Dimensions (H x W x D)	8,89 mm x 25,65 mm x 12,7 mm [0.35 in x 1.01 in x 0.50 in]	8,89 mm x 25,65 mm x 12,7 mm [0.35 in x 1.01 in x 0.50 in]
Approvals	RoHS, WEEE	RoHS, WEEE
Features	miniature package, media flow-through port, operable after exposure to frozen conditions, choice of termination	

# HEAVY DUTY PRESSURE TRANSDUCERS



## MIP SERIES

## PX3 SERIES

Pressure port type	7/16-20 UNF 1/4 inch 45° Flare Female Schrader (SAE J512), G1/4 A-G (1179-3), G1/4 A-L (1179-2), M12 x 1.5 (ISO 6149-3), 1/4-18 NPT, (ANSI/ASME B1.20.1), 1/8-27 NPT, (ANSI/ASME B1.20.1)	7/16-20 UNF 1/4 inch 45° Flare Female Schrader (SAE J512), G1/4 A-G (1179-3), G1/4 A-L (1179-2), M12 x 1.5 (ISO 6149-3), 1/4-18 NPT, (ANSI/ASME B1.20.1), 1/8-27 NPT, (ANSI/ASME B1.20.1), brazable tube
Pressure reference	absolute, sealed gage	absolute, sealed gage
Construction	<b>wetted materials:</b> <ul style="list-style-type: none"> <li>• <b>port:</b> stainless steel 304L</li> <li>• <b>diaphragm:</b> stainless steel 316L</li> <li>• <b>external seal for ports:</b> nitrile (other materials available)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>threaded ports:</b> brass C36000 (lead (Pb) content: 3.7% max.)</li> <li>• <b>tube port:</b> copper UNS C12200 (lead (Pb) free)</li> </ul>
Pressure range	1 bar to 60 bar   15 psi to 870 psi	1 bar to 50 bar   15 psi to 700 psi
Output	<ul style="list-style-type: none"> <li>• <b>ratiometric:</b> 0.5 Vdc to 4.5 Vdc</li> </ul>	<ul style="list-style-type: none"> <li>• <b>ratiometric:</b> 0.5 Vdc to 4.5 Vdc, 0.33 Vdc to 2.97 Vdc</li> <li>• <b>current:</b> 4 mA to 20 mA</li> </ul>
Accuracy	±0.15 %FSS BFSL	±0.25 %FSS
Total error band	<ul style="list-style-type: none"> <li>• <b>up to ±0.75 %FSS:</b> -40°C to 125°C [-40°F to 257°F]</li> </ul>	<ul style="list-style-type: none"> <li>• <b>±1.0 %FSS:</b> -20°C to 85°C [-4°F to 185°F]</li> <li>• <b>±2.0 %FSS:</b> &lt;-20°C, &gt;85°C [&lt;-4°F, &gt;185°F]</li> </ul>
Amplified	yes	yes
Operating temperature range	-40°C to 125°C [-40°F to 257°F]	-40°C to 125°C [-40°F to 257°F]
Compensated temperature range	-40°C to 125°C [-40°F to 257°F]	-40°C to 125°C [-40°F to 257°F]
Electrical connector type	Metri-Pack 150 (UL V-0)	Metri-Pack 150 (UL V-0), DIN (Male, EN 175301-803C), cable harness (PVC or XLPE)
Dimensions (H x W x D)	50 mm x 22,0 mm [2.0 in x 0.87 in] max.	50 mm x 22,0 mm [2.0 in x 0.87 in]
Certifications/Approvals	drinking water approval: NSF/ANSI/CAN 61, CE, RoHS, REACH	RoHS, REACH, CE
Features	hermetically welded design supports almost any media without the use of an internal seal, sensors are designed to be used in harsh environments that see aggressive media, operates reliably in the presence of electromagnetic fields, such as wireless signals, RF communication, and electrical devices	survives frost exposure (commonly found in refrigeration systems), compatible wth common HFC (hydrofluorocarbon) refrigerants and next generation low global warming potential (GWP) refrigerants



## PX2 SERIES

## MLH SERIES

7/16-20 UNF 1/4 in 45° Flare Female Schrader,  
7/16-20 UNF 45° Flare Male, 7/16-20 UNF 37° Flare Male,  
G1/4, G1/8, M12 x 1.5, 1/4-18 NPT,  
1/8-27 NPT, 9/16-18 UNF, 7/16-20 UNF

1/4-18 NPT, 1/8-27 NPT, 7/16-20 UNF, 1/4 in 45° Flare Female Schrader with depressor, 1/2-14 NPT, R 1/4-19 BSPT, R 1/8-28 BSPT, 3/8-24 UNF with O-ring seal, 7/16-20 UNF with O-ring seal, 1/2-20 UNF with O-ring seal, 9/16-18 UNF with O-ring seal, M10x1 with O-ring seal, M12x1.5 with O-ring seal, M14x1.5 with O-ring seal, M16x1.5 with O-ring seal, M18x1.5 with O-ring seal, M20x1.5 with O-ring seal, G1/8-28 BSPP with bonded washer, G1/4-19 BSPP with bonded washer, G1/8-28 BSPP with elastomeric seal, G1/4-19 BSPP with elastomeric seal

absolute, sealed gage, vented gage

sealed gage, vented gage (relative)

Pressure port type

- **ports and housing:** 304 stainless steel
- **connector:** PBT 30% GF

- **port:** 304L stainless steel
- **diaphragm:** Haynes 214 alloy

Construction

1 bar to 70 bar | 100 kPa to 7 MPa | 15 psi to 1000 psi

6 bar to 550 bar | 50 psi to 8000 psi

Pressure range

- **ratiometric:** 5.0 V (10 %Vs to 90 %Vs, 5.0 V, 5 %Vs to 95 %Vs)  
3.3 V (10 %Vs to 90 %Vs, 3.3 V, 5 %Vs to 95 %Vs)
- **regulated:** 1 Vdc to 6 Vdc, 0.25 Vdc to 10.25 Vdc,  
0.5 Vdc to 4.5 Vdc, 1 Vdc to 5 Vdc
- **current:** 4 mA to 20 mA

- **ratiometric (from 5 Vdc excitation):** 0.5 Vdc to 4.5 Vdc
- **regulated:** 1 Vdc to 6 Vdc, 0.25 Vdc to 10.25 Vdc,  
0.5 Vdc to 4.5 Vdc, 1 Vdc to 5 Vdc
- **current:** 4 mA to 20 mA

Output

±0.25 %FSS

±0.25 %FSS (±0.5 %FSS on ranges below 100 psi)

Accuracy

- **±2 %FSS:** -40°C to 125°C [-40°F to 257°F]

- **±2 %FSS to ±15 %FSS**  
(depending on temperature range and termination type)

Total error band

yes

yes

Amplified

-40°C to 125°C [-40°F to 257°F]

-40°C to 125°C [-40°F to 257°F]

Operating temperature range

-40°C to 125°C [-40°F to 257°F]

- **ratiometric output:** -40°C to 125°C [-40°F to 257°F]
- **regulated and 4 mA to 20 mA outputs:** -40°C to 125°C [-40°F to 257°F] (See literature for operating and temperature compensation information.)

Compensated temperature range

Metri-Pack 150 (UL 94 HB or V-0 options), Micro M12,  
DIN, Deutsch, or cable harness (1 m, 2 m, 3 m, or 5 m)

Metri-Pack 150, Hirschmann, M12 x 1 (Brad Harrison micro),  
DIN 43650-C, 8 mm male, AMP Superseal 1.5, cable harness  
(1 m or 3 m), flying leads (6 in), Deutsch DTM04-3P (integral)

Electrical connector type

66 mm x 21,5 mm dia. [2.60 in x 0.84 in dia.]

27,0 mm x 27,0 mm x 55 mm [1.06 in x 1.06 in x 2.18 in]

Dimensions (H x W x D)

RoHS, CE

RoHS, CE, UL component recognition for USA/Canada:  
file no. E258956

Certifications/Approvals

designed for configurability, cost-effective, global support,  
industry-leading Total Error Band, durable,  
designed to Six Sigma standards, good EMC protection

all-metal wetted parts, no internal elastomeric seals, input reverse  
voltage protection, less than 2 ms response time, easy customization,  
exceeds CE heavy industrial EMC for use in areas of high RFI/EMI

Features

# HEAVY DUTY PRESSURE TRANSDUCERS



	13 MM SERIES	19 MM SERIES
<b>Pressure port type</b>	weld ring with back support, 1/8-27 NPT, 1/4-18 NPT, 7/16 UNF	weld ring with body O-ring, flush mount, flush mount with flange, 1/8-27 NPT, 1/4-18 NPT, 7/16 UNF, 1/4 BSPP, Euro O-ring, 1/4 VCR (female nut)
<b>Pressure reference</b>	absolute, sealed gage	absolute, gage, vacuum gage
<b>Construction</b>	wetted parts 316L SS	wetted parts 316L SS
<b>Pressure range</b>	0 psi to 500 psi through 0 psi to 5000 psi	0 psi to 3 psi through 0 psi to 500 psi
<b>Output</b>	0 mV to 100 mV (nominal)	0 mV to 100 mV (nominal)
<b>Accuracy</b>	±0.25 %BFSL max.	±0.25 %BFSL max.
<b>Total error band</b>	-	-
<b>Amplified</b>	no	no
<b>Operating temperature range</b>	-40°C to 125°C [-40°F to 257°F]	-40°C to 125°C [-40°F to 257°F]
<b>Compensated temperature range</b>	0°C to 82°C [32°F to 180°F]	0°C to 82°C [32°F to 180°F]
<b>Electrical connection</b>	ribbon cable	ribbon cable
<b>Dimensions (H x W x D)</b>	varies by body type	varies by body type
<b>Certifications/Approvals</b>	RoHS	RoHS
<b>Features</b>	isolated stainless steel package, voltage or current supply options	isolated stainless steel package, vacuum compatible



## SPT SERIES

1/8-27 NPT, 1/4-18 NPT, 7/16-20 UNF, 1/4-19 BSPP, 1/4 VCR gland	<b>Pressure port type</b>
absolute, gage, sealed gage, vacuum gage pressures	<b>Pressure reference</b>
wetted parts 316L SS	<b>Construction</b>
0 psi to 3 psi through 0 psi to 5000 psi	<b>Pressure range</b>
4 mA to 20 mA, 0 mV to 100 mV, 1 Vdc to 5 Vdc	<b>Output</b>
±0.25 %BFSL max.	<b>Accuracy</b>
-	<b>Total error band</b>
yes, amplified and unamplified	<b>Amplified</b>
-40°C to 85°C [-40°F to 185°F]	<b>Operating temperature range</b>
-10°C to 85°C [14°F to 185°F]	<b>Compensated temperature range</b>
bayonet connector, cable	<b>Electrical connection</b>
22,2 mm x 22,2 mm x length varies [0.875 in x 0.875 in x length varies]	<b>Dimensions (H x W x D)</b>
-	<b>Certifications/Approvals</b>
calibrated and temperature compensated, NEMA 4 design, rugged 316 stainless steel wetted parts	<b>Features</b>

# TEST & MEASUREMENT PRESSURE TRANSDUCERS



These sensors feature rugged, all welded, stainless steel construction and provide high accuracy, enhanced reliability, and measurement stability. Intrinsically safe options are available for hazardous environments. All are highly configurable for multiple accuracies, outputs, pressure ports, electrical terminations, and pressure ranges.

## FP5000 SERIES

**Pressure connection** 1/4-18 NPT female, 1/4-18 NPT male, 7/16-20 UNF male, G1/4 B female, G1/4-B male

**Measurement type** absolute, gage

**Construction** wetted parts Ha C276 and 316L SS: fully welded, oil filled

**Pressure range** 35 kPa to 10000 kPa, 10 in-H<sub>2</sub>O to 50 in-H<sub>2</sub>O, 1 bar to 350 bar, 0.5 psi to 5000 psi, 30 in-Hg

**Output** 4 mA to 20 mA, 0 Vdc to 5 Vdc, 0 Vdc to 10 Vdc

**Accuracy** 0.2 %FSS BFSL (standard accuracy), 0.1 %FSS BFSL (high accuracy)

	<b>Comp. temperature range</b>	<b>TEB for standard accuracy</b>	<b>TEB for high accuracy</b>
<b>Thermal effects error band</b>	0°C to 60°C [40°F to 140°F]	< ±0.75 %FSS	< ±0.5 %FSS
	-20°C to 80°C [0°F to 176°F]	< ±1.5 %FSS	< ±1.0 %FSS
	-40°C to 85°C [-40°F to 185°F]	< ±2.25 %FSS	< ±1.5 %FSS
	-40°C to 125°C [-40°F to 50°F]	< ±2.25 %FSS	< ±1.5 %FSS

**Amplified** yes

	<b>Connector</b>	<b>Operating temperature</b>	<b>Sealing</b>
<b>Operating temperature range</b>	PT-02A-10-6P	-40°C to 125°C [-40°F to 250°F]	IP67
	DIN FORM A	-40°C to 125°C [-40°F to 250°F]	IP65
	DIN FORM C	-40°C to 90°C [-40°F to 194°F]	IP65
	integral cable	-40°C to 80°C [-40°F to 176°F]	IP67

**Compensated temperature range** 0°C to 60°C [40°F to 140°F], -20°C to 80°C [0°F to 176°F], -40°C to 85°C [-40°F to 185°F], -40°C to 125°C [-40°F to 50°F]

**Electrical connection** PT-02A-10-6P, DIN FORM A, DIN FORM C, Integral cable

**Dimensions (H x W x D)** varies by pressure port and electrical connector type

**Certifications/Approvals** RoHS, CE approved

**Features** media-isolated piezoresistive silicon pressure sensor: compensated for sensor offset, sensitivity, temperature effects, and non-linearity to offer improved thermal stability and accuracy; Hastelloy® C276 and 316L stainless steel wetted parts provide durability with abrasive or corrosive media; full analog path, high speed, no digitization error signal; zero point null adjustment



**TJE**

**A-105**

1/4-18 NPT female, 1/4-18 NPT male,  
7/16-20 UNF female, 7/16-20 UNF male,  
G 1/4 male, 9/16-18 UNF female, VCR male, VCR female

7/16-20 UNF male, M12 x 1.5 male

**Pressure connection**

absolute, gage

gage

**Measurement type**

wetted parts 17-4 PH SS or 15-5 PH SS,  
304 SS case material, fully welded

wetted parts 17-4 PH SS, Iconel X-750, fully welded,  
flush diaphragm

**Construction**

1 psi to 60,000 psi

300 psi to 15,000 psi

**Pressure range**

4 mA to 20 mA, 0 Vdc to 5 Vdc, 0 Vdc to 10 Vdc, mV/V

4 mA to 20 mA, 1 Vdc to 5 Vdc, 1 Vdc to 10 Vdc, mV/V

**Output**

±0.10% full scale

±0.5% full scale

**Accuracy**

**Characteristic**

**Measure**

**Characteristic**

**Measure**

temperature, compensated

15°C to 70°C [60°F to 160°F]

temperature, compensated

-1°C to 70°C [30°F to 160°F]  
(amplified)  
15°C to 70°C [60°F to 160°F]  
(unamplified)

**Thermal effects error band**

temperature effect, zero

0.0025 %FS/°F

temperature effect, zero

0.015 %FS/°F (amplified)  
0.01 %FS/°F (unamplified)

temperature effect, span

0.0025 %Reading/°F

temperature effect, span

0.02 %reading/°F  
(amplified & unamplified)

sealing

hermetically sealed,  
IP68/NEMA 6P

sealing

-

yes, amplified and unamplified

yes, amplified and unamplified

**Amplified**

-70°C to 160°C [-100°F to 325°F] up to 1000 psi,  
-70°C to 120°C [-100°F to 250°F] 1500 psi and above

-29°C to 85°C [-20°F to 185°F] amplified  
-54°C to 149°C (-65°F to 300°F) unamplified

**Operating temperature range**

15°C to 70°C [60°F to 160°F], -20°C to 85°C [0°F to 185°F],  
-30°C to 55°C [-20°F to 130°F], -30°C to 90°C [-20°F to 200°F],  
20°C to 120°C [70°F to 250°F], 20°C to 160°C [70°F to 325°F],  
20°C to 200°C [70°F to 400°F], -50°C to 120°C [-65°F to 250°F]

15°C to 70°C [60°F to 160°F], 0°C to 55°C [30°F to 130°F],  
-30°C to 90°C [-20°F to 200°F], 20°C to 120°C [70°F to 250°F],  
20°C to 200°C [70°F to 400°F], -50°C to 120°C [-65°F to 250°F]

**Compensated temperature range**

Bendix PT 6-pin, Amphenol MS 6-pin, integrated cable,  
1/2-14 conduit with PVC cable, DIN 43650

Bendix PT 6 pin, integrated teflon cable,  
integrated submersible cable

**Electrical connection**

varies by pressure port and electrical connector type

varies by electrical connector type

**Dimensions (H x W x D)**

RoHS, CE approved

RoHS, CE approved

**Certifications/Approvals**

strain gage based transducer and features a unique "true gage"  
design that utilizes a second welded stainless steel diaphragm  
that hermetically seals the strain gage circuitry from atmospheric  
contamination. This design references the primary pressure sensing  
diaphragm to the atmosphere, and provides a stable zero regardless  
of the transducer environment

manufactured with a unitized stainless steel diaphragm. The  
advantage of this type of design is that a thin diaphragm and heavy  
sidewalls are made from one piece of stainless steel. This unitized  
diaphragm is rugged, but at the same time can be made thin enough  
to measure low pressures

**Features**

## FOR MORE INFORMATION

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