



Acuity Series AC4060/AC4061 Amplified Low Pressure Sensor Module

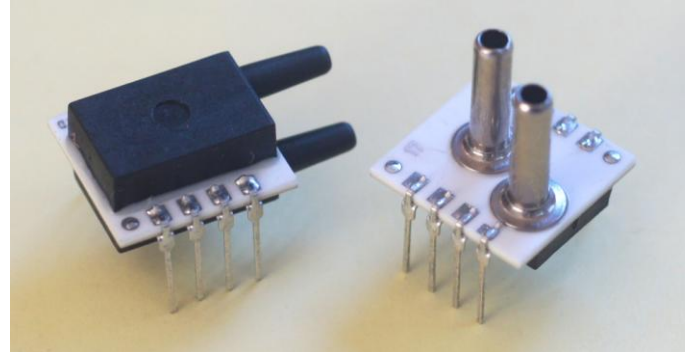
Acuity Incorporated
Fremont, California
USA 94539

The AC4060 series amplified pressure sensor is a new, extremely low-pressure amplified product featuring the Acuity AC3050 and AC3030 low pressure die. The sensor is calibrated either as a gauge device with the zero at 0.5 Volts and a full-scale span of 4.0 Volts or as a differential device with zero at 2.5 Volts and a span of +/- 2 Volts. The gauge part is the AC4060 while the differential part is the AC4061.

The sensor is available in one of two standard port configuration. Vertical ports are provided as well as side-ports for applications with limited access.

Because of the stability of the Acuity pressure sensing die, the AC4060 can use the full capability of the incorporated ASIC die while achieving at 2.5 mBar better than a 2.5% total accuracy in calibration over pressure from 0 to 70 C.

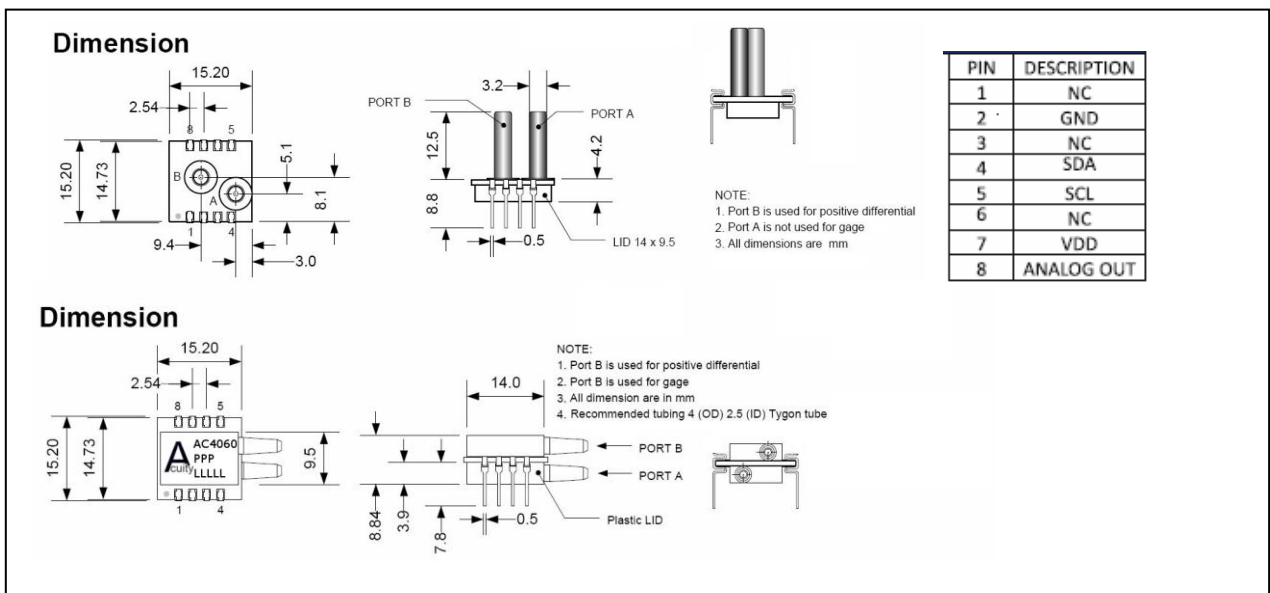
The sensor corrects the sensor signal with a multi-point calibration algorithm using a dedicated signal processor ASIC over temperature and pressure. It provides the



Standard Configuration of the AC4060-XXX and AC4061-XXX Amplified Pressure Sensor

calibrated and compensated analog output which enables the part to be used in stand-alone applications.

The small foot-print of the package allows easy positioning on printed circuit boards for imbedded OEM applications such as HVAC control and low-level respiration.





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Specification - AC4060 and AC4061	Acuity Amplified Low Pressure Sensor - 2.5 mBar				Note	Acuity Amplified Low Pressure Sensor - 5.0 mBar				Note	Acuity Amplified Low Pressure Sensor - 10 mBar				Note
Electrical Drive	Min	Nominal	Max	Unit		Min	Nominal	Max	Unit		Min	Nominal	Max	Unit	
Supply Voltage	4.5	5.000	5.5	Volts	1	4.5	5.000	5.5	Volts	1	4.5	5.000	5.5	Volts	1
Supply Voltage Absolute Maximum			6	Volts				6	Volts				6	Volts	
Supply Current		2.5		mA			2.5		mA			2.5		mA	
Output Drive Current	-1		1	mA		-1		1	mA		-1		1	mA	
Step Response Delay		25		mS			25		mS			25		mS	
Internal Conversion Resolution			12	bits (1 in 4096)				12	bits (1 in 4096)				12	bits (1 in 4096)	
Output Resolution			11	bits (1 in 2048)				11	bits (1 in 2048)				11	bits (1 in 2048)	
Electrical	Min	Typical	Max			Min	Typical	Max			Min	Typical	Max		
ZERO															
Zero at 25 C - AC4060	0.40	0.52	0.60	Volts	1	0.42	0.51	0.58	Volts	1	0.42	0.51	0.58	Volts	1
Zero at 25 C - AC4061	2.45	2.50	2.55	Volts		2.46	2.51	2.54	Volts		2.46	2.50	2.54	Volts	
Zero Error at 25 C (% FS)	-2.50	0.60	2.50	%FS		-2.00	0.40	2.00	%FS		-2.00	0.18	2.00	%FS	
Zero Error: 0 to 50 C (% FS)	-2.50	0.60	2.50	%FS		-2.50	0.40	2.50	%FS		-2.50	0.21	2.50	%FS	
SPAN															
Span at 25 C - AC4060	3.90	3.98	4.10	Volts	1	3.90	3.99	4.10	Volts	1	3.92	3.99	4.08	Volts	1
Span at 25 C - AC4061	1.95	1.99	2.05	Volts		1.95	1.99	2.05	Volts		1.96	2.00	2.04	Volts	
Span Error at 25 C (% FS)	-2.50	-0.50	2.50	%FS		-2.50	-0.30	2.50	%FS		-2.00	-0.28	2.00	%FS	
Span Error: 0 to 50 C (% FS)	-2.50	0.70	2.50	%FS		-2.50	0.40	2.50	%FS		-2.00	0.34	2.00	%FS	
Linearity	-0.50	0.13	0.50	%FS		-0.50	0.07	0.50	%FS		-0.30	0.11	0.30	%FS	
STABILITY		Typical					Typical					Typical			
Warm-up (1 hour after turn-on)		0.5		%FS			0.375		%FS			0.25		%FS	
Position Sensitivity		0.125		%FS			0.075		%FS			0.035		%FS	
Long-Term Drift (1 year)		0.75		%FS			0.625		%FS			0.375		%FS	
Mechanical Pressure	Min	Target	Max			Min	Target	Max			Min	Target	Max		
Full Scale Pressure Ranges		2.5		mBar			5		mBar			10		mBar	
Overpressure - Burst	>15X			FS Pressure		>15X			FS Pressure		>10X			FS Pressure	
Overpressure - Proof	>10X			FS Pressure		>10X			FS Pressure		>5X			FS Pressure	

1 Analog Output Ratiometric to Supply

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Specification - AC4060 and AC4061	Acuity Amplified Low Pressure Sensor - 20 mBar				Note	Acuity Amplified Low Pressure Sensor - 50 mBar				Note	Acuity Amplified Low Pressure Sensor - 100 mBar				Note
Electrical Drive	Min	Nominal	Max	Unit		Min	Nominal	Max	Unit		Min	Nominal	Max	Unit	
Supply Voltage	4.5	5.000	5.5	Volts	1	4.5	5.000	5.5	Volts	1	4.5	5.000	5.5	Volts	1
Supply Voltage Absolute Maximum			6	Volts				6	Volts				6	Volts	
Supply Current		2.5		mA			2.5		mA			2.5		mA	
Output Drive Current	-1		1	mA		-1		1	mA		-1		1	mA	
Step Response Delay		25		mS			25		mS			25		mS	
Internal Conversion Resolution			12	bits (1 in 4096)				12	bits (1 in 4096)				12	bits (1 in 4096)	
Output Resolution			11	bits (1 in 2048)				11	bits (1 in 2048)				11	bits (1 in 2048)	
Electrical	Min	Typical	Max			Min	Typical	Max			Min	Typical	Max		
ZERO															
Zero at 25 C - AC4060	0.42	0.51	0.58	Volts	1	0.42	0.50	0.58	Volts	1	0.42	0.50	0.58	Volts	1
Zero at 25 C - AC4061	2.46	2.51	2.54	Volts		2.46	2.50	2.54	Volts		2.46	2.50	2.54	Volts	
Zero Error at 25 C (% FS)	-2.00	0.34	2.00	%FS		-2.00	0.04	2.00	%FS		-2.00	0.06	2.00	%FS	
Zero Error: 0 to 50 C (% FS)	-2.00	0.22	2.00	%FS		-2.00	0.26	2.00	%FS		-2.00	0.26	2.00	%FS	
SPAN															
Span at 25 C - AC4060	3.92	3.99	4.08	Volts	1	3.92	3.99	4.08	Volts	1	3.92	3.99	4.08	Volts	1
Span at 25 C - AC4061	1.96	1.99	2.04	Volts		1.96	2.00	2.04	Volts		1.96	2.00	2.04	Volts	
Span Error at 25 C (% FS)	-2.00	-0.27	2.00	%FS		-2.00	-0.22	2.00	%FS		-2.00	-0.17	2.00	%FS	
Span Error: 0 to 50 C (% FS)	-2.00	0.29	2.00	%FS		-2.00	0.28	2.00	%FS		-2.00	0.26	2.00	%FS	
Linearity	-0.30	0.06	0.30	%FS		-0.30	0.12	0.30	%FS		-0.30	0.09	0.30	%FS	
STABILITY		Typical					Typical					Typical			
Warm-up (1 hour after turn-on)		0.25		%FS			0.25		%FS			0.25		%FS	
Position Sensitivity		0.0175		%FS			0.0117		%FS			0.007		%FS	
Long-Term Drift (1 year)		0.25		%FS			0.25		%FS			0.25		%FS	
Mechanical Pressure	Min	Nominal	Max			Min	Nominal	Max			Min	Nominal	Max		
Full Scale Pressure Ranges		20		mBar			50		mBar			100		mBar	
Overpressure - Burst	>10X			FS Pressure		>10X			FS Pressure		>10X			FS Pressure	
Overpressure - Proof	>5X			FS Pressure		>5X			FS Pressure		>5X			FS Pressure	

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<p>Ordering Information:</p> <p>AC406X-PPP-C</p> <p>Where: X = 0 for Gage or 1 for Differential</p> <p>PPP = Pressure Range</p> <p>C = T for Tube or S for Side-Port</p>	<table border="1"><thead><tr><th>Range</th><th>Full-Scale Pressure</th></tr></thead><tbody><tr><td>2P5</td><td>2.5 mBar</td></tr><tr><td>005</td><td>5 mBar</td></tr><tr><td>010</td><td>10 mBar</td></tr><tr><td>020</td><td>20 mBar</td></tr><tr><td>050</td><td>50 mBar</td></tr><tr><td>100</td><td>100 mBar</td></tr></tbody></table>	Range	Full-Scale Pressure	2P5	2.5 mBar	005	5 mBar	010	10 mBar	020	20 mBar	050	50 mBar	100	100 mBar
Range	Full-Scale Pressure														
2P5	2.5 mBar														
005	5 mBar														
010	10 mBar														
020	20 mBar														
050	50 mBar														
100	100 mBar														

Ship from Stock – Pressure ranges of 2.5 mBar, 5 mBar, 10 mBar and 50 mBar are routinely stocked in limited prototyping quantities. Other ranges are available with a typical 4 to 6 week lead-time. Consult Acuity Sales (Sales@acuitymicro.com) for current lead times.

Custom Ranges and Pressure Ports: Acuity will customize products to meet customer needs both in port configuration and pressure ranges on large orders. Consult Acuity Sales (Sales@acuitymicro.com) for details.

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