



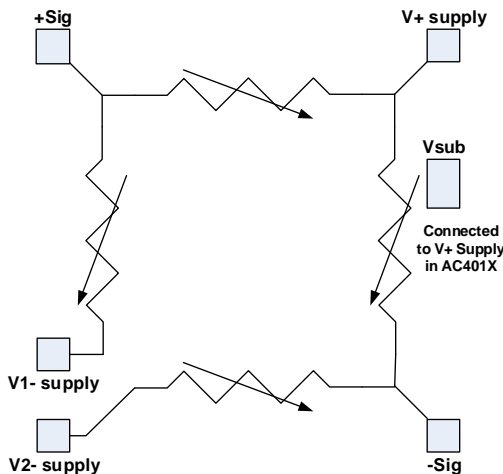
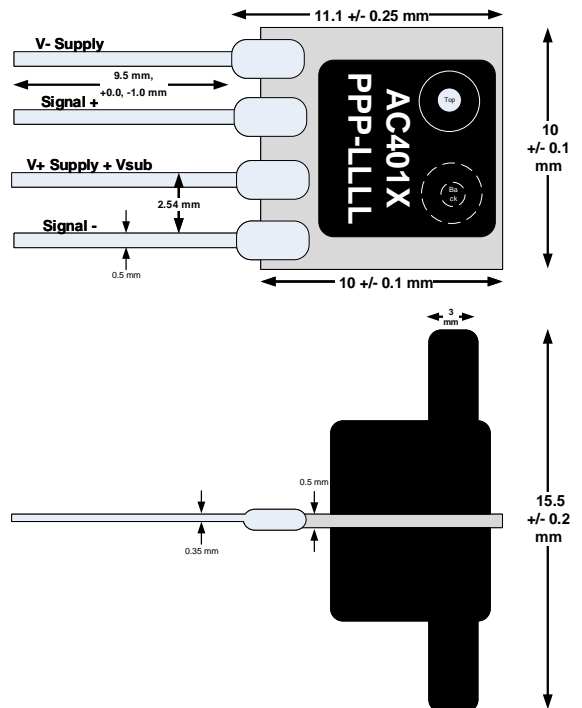
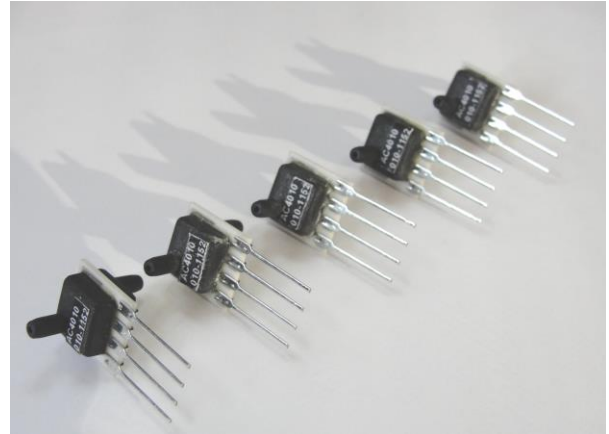
# Acuity Series AC401X 10 to 500 mbar Packaged Sensor Die

**Acuity Incorporated**  
Fremont, California  
USA 94539

The AC401X series packaged pressure die is a single in-line package (SIP) with 4 pins and differential pressure ports. It is meant for applications where a simple package is needed but where additional signal processing will likely be used to connect the sensor to other electronics.

The package houses an Acuity low pressure sensor. For pressures 20 mBar and higher, an AC3030 die is used in the AC4010. For the 10 mBar range, an AC3050 die is used. Two versions of the 10 mBar part are available. The AC4010-010 offers the same linearity as the AC3050 while the AC4015-010 offers the improved linearity of the AC3055, typically used for passive compensation schemes, but at a slight decrease in sensitivity.

Suitable for a wide range of uses, it is particularly designed for low-pressure differential sensing in such applications as HVAC, air-flow, and a variety of industrial pressure and flow applications.



**Equivalent Circuit Diagram**

## Acuity AC401X Low-Pressure Packaged Pressure Die

+ Sig increases and -Sig decreases when pressure is applied to the top of the package.

Top side is label side and side with the larger solder-pads.



**Acuity Incorporated**  
 Fremont, California  
 USA 94539

Specification	Acuity Low Pressure Sensor – AC401X				Note
	Min	Nominal	Max		
<b>Electrical</b>					
<b>Resistance</b>					
Bridge resistance - 3.5k	3.25	3.70	4.25	kohms	1
TCR	2300	2800	3100	ppm/degree C	2
Resistance Ratiometricity	-1.0	0.1	1.0	%	3
<b>Offset</b>					
Offset - No Pressure	-100.0	0.0	25.0	mV	1
Offset Ratiometricity	-0.2	0	0.2	mV/V	3
TCO	-25	2	25	microV/V/degree C	2
<b>Leakage</b>					
Current Leakage - individual	0.1	1.2	20	nA	4
<b>Sensitivity</b>					
Span	30	55	82	mV	5
TCS	-2100	-1800	-1400	ppm/degree C	2
Pressure Nonlinearity	-0.75	0.15	0.75	%	6,7
Pressure Nonlinearity - F/B	-1.25	0.15	1.25	%	8
<b>Mechanical Pressure</b>					
Full Scale Pressure Ranges	10, 20, 50, 100, 200, and 500			mBar	9
Overpressure - Burst	>20X			FS Pressure	10
Overpressure - Proof	>15X			FS Pressure	10

**Note**

- 1 Measured at 5.0 volts
- 2 Measured at +25 and +70 °C, normalized by reading at 25 °C
- 3 Measured at -2.5 and 5.0 Volts, normalized by reading at 5.0 volts
- 4 Measured from VSub substrate contact to any Resistor Pad at 10 V
- 5 Full scale output at 5 Volt drive and rated pressure
- 6 1/2 TBNL (Terminal Base Nonlinearity at 0, 50%, and 100% FS) with topside pressure
- 7 AC4015 has 2.5 better linearity than AC4010 but with 85% of nominal output of AC4010. It is currently only available on 10 mBar parts.
- 8 Ratio of sensitivity with +FS and - FS pressures applied
- 9 For custom pressure ranges, consult Acuity.
- 10 For 200 and 500 mBar parts, Burst Pressure is >5X and Proof Pressure is >3X
- 11 For the AC401X package, the Vsub is tied to V+ Supply. This prevents the use of the AC401X AC driven applications. This option can be left out on custom orders. Consult the factory.

**Ordering Information:**

**AC401X-PPP**

where x = 0 for normal linearity  
 = 5 for better linearity, currently available only on 10 mBar only

PPP = 010 for 10 mBar,  
 = 020 for 20 mBar,  
 = 050 for 50 mBar,  
 = 100 for 100 mBar,  
 = 200 for 200 mBar, and  
 = 500 for 500 mBar

Acuity reserves the right to make changes to its products and specifications at any time, without notice. All sales are made pursuant to Acuity's standard terms and conditions of sale. While the information in this publication has been checked, Acuity makes no representations or warranties other than as specifically set forth in the terms and conditions of sale. Acuity assumes no responsibility for the use of any information or products described herein, conveys no license under any patent or other right, and makes no representation that the information or products are free of patent infringement. Acuity does not recommend the use of any of its products in life support or other critical applications. Products are not authorized for use in such applications and customer assumes the full risk of any such use. Acuity and the Acuity logo are trademarks of Acuity, Inc. © Copyright Acuity, Incorporated.