

Installation Instructions for the ASDX Series Silicon Pressure Sensors with Digital Output

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GENERAL INFORMATION

The ASDX Series are Silicon Pressure Sensors offering either an I²C or SPI digital interface for reading pressure over the specified full scale pressure span and temperature range. These sensors are fully calibrated and temperature compensated for sensor offset, sensitivity, temperature effects and non-linearity using an on-board Application Specific Integrated Circuit (ASIC). Calibrated output values for pressure are updated at approximately 1 kHz. These sensors are available to measure absolute, differential and gage pressures. The absolute versions have an internal vacuum reference and an output value proportional to absolute pressure. Differential versions allow application of pressure to either side of the sensing diaphragm. Gage versions are referenced to atmospheric pressure and provide an output proportional to pressure variations from atmosphere. These sensors are intended for use with non-corrosive, non-ionic working fluids such as air and dry gases.

SOLDERING

Limit soldering to 250 °C [482 °F] max., with a duration of 2 s to 4 s.

CLEANING

Proper cleaning fluids should be selected based on the type of contaminants to be removed. Honeywell recommends alcohols or fluorinated solvents. Do not immerse the sensor.

Table 1. Environmental Specifications

Parameter	Characteristic
Humidity	0% to 95% RH non-condensing
Vibration	10 G at 20 Hz to 2000 Hz
Shock	100 G for 11 ms
Life	1 million cycles minimum

Table 2. Specifications

Parameter	Min.	Typ.	Max.	Unit
Supply voltage:				
3.3 Vdc	3.0	3.3	3.6	Vdc
5.0 Vdc	4.75	5.0	5.25	
Supply current	2.0	3.5	5.0	mA
Compensated temperature range	0 [32]	-	85 [185]	°C [°F]
Operating temperature range	-20 [-4]	-	105 [221]	°C [°F]
Storage temperature range	-50 [-58]	-	125 [257]	°C [°F]
Proof pressure	2X operating pressure range minimum			
Burst pressure	3X operating pressure range minimum			
Startup time (power up to data ready)	-	2.8	7.3	ms
Response time	-	0.46	-	ms
I ² C address	-	0x28	-	-
Output resolution	12	-	-	bits
Digital clock frequency:				
I ² C	100	-	400	kHz
SPI	50	-	800	
External capacitance between VDD and ground	100	-	470	nF
Pull-up on SDA and SCL (I ² C output only)	1	-	-	kOhm
I ² C or SPI voltage level low	-	-	0.2	VDD
I ² C or SPI voltage level high	0.8	-	-	VDD

General Notes:

- The sensor is not reverse polarity protected. Incorrect application of excitation voltage or ground to the wrong pin may cause electrical failure.
- Proof pressure is the maximum pressure allowed without damaging calibration.
- Burst pressure is the maximum pressure allowed without damaging the sensor.
- The compensated temperature range is the temperature range (or ranges) over which the sensor will produce an output proportional to pressure within the specified performance limits.
- The operating temperature range is the temperature range over which the sensor will produce an output proportional to pressure but may not remain within the specified performance limits.
- Application of supply voltage above the maximum value can cause electrical failure.
- An external bypass capacitor is **required** across the supply voltage as close to the sensor supply pin as possible for correct sensor operation.

Figure 1. Mounting Dimensions and Pinout (For reference only. mm/[in])

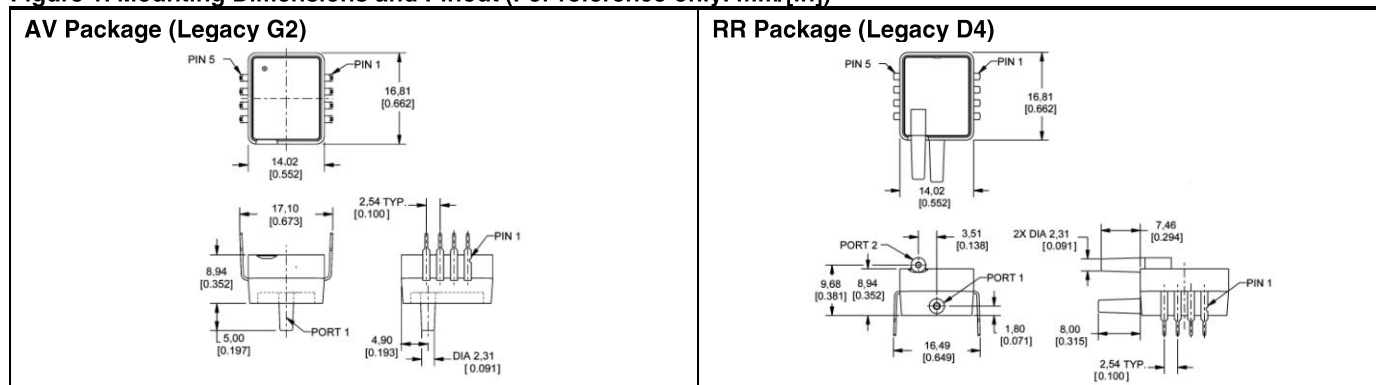


Figure 2. Mounting Dimensions and Pinout (For reference only. mm/[in]) Continued

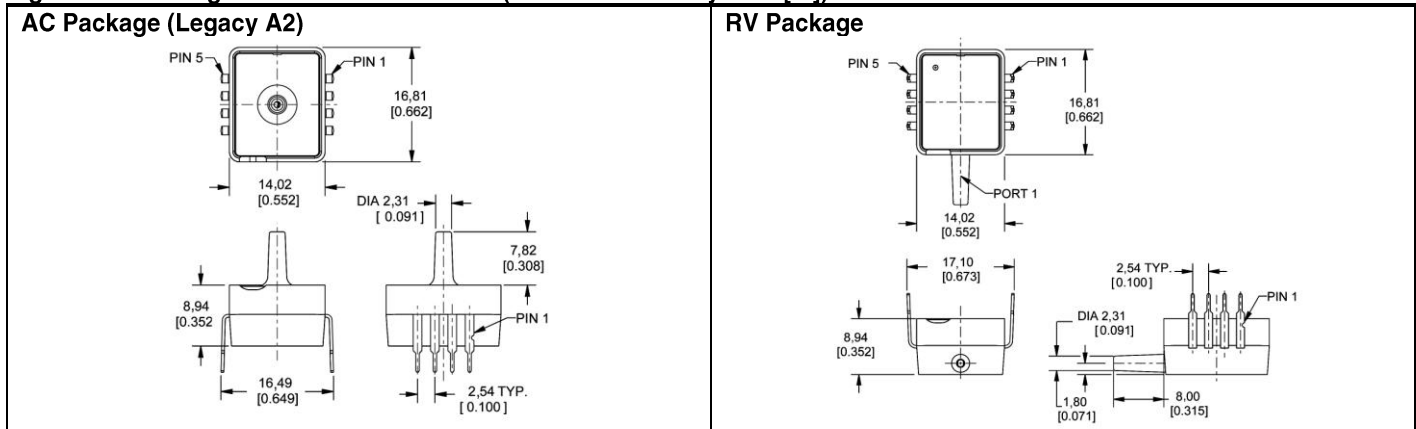


Table 3. Pinout

I ² C				SPI			
Pin	Definition	Type	Description	Pin	Definition	Type	Description
1	SDA	digital I/O	serial bidirectional data; data is clocked in or out on clock edge of SCL	1	MISO	digital output	"Master In Slave Out" - serial output data; data is clocked out on clock edge of SCK
2	SCL	digital input	serial clock input; used to clock data on SDA	2	SCK	digital input	serial clock input; used to clock data on MISO
3	GND	supply	power supply ground	3	GND	supply	power supply ground
4	N/C	not used	do not connect in the application	4	N/C	not used	do not connect in the application
5	SS	digital output	interrupt signal (conversion complete output)	5	SS	digital input	slave select
6	VDD	supply	power supply source	6	VDD	supply	power supply source
7	N/C	not used	do not connect in the application	7	N/C	not used	do not connect in the application
8	N/C	not used	do not connect in the application	8	N/C	not used	do not connect in the application

⚠ WARNING
PERSONAL INJURY
 DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.
Failure to comply with these instructions could result in death or serious injury.

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