



# Model AXD

## Industrial Pressure Transducer

### Features

- High accuracy sensor
- High overpressure ratings
- IP67 rated design
- Non-oil filled design
- Wide temperature range -40°C to 125°C
- Long-term stability: <0.5%/Year
- Exceptional EMI/RFI
- Small footprint 1" diameter
- Rugged design withstands high shock & vibration
- NIST traceable calibration
- Wide operating voltage 9 VDC to 30 VDC
- Reverse Excitation Protection
- CE & RoHS compliant
- 17-4 or 316L stainless steel

### Applications

- Fuel cell OEMs
- Industrial OEM equipment
- CNG/LNG applications
- Hydraulic systems
- Compressor control
- HVAC/R equipment

The Accusense Model AXD pressure sensor is designed for Industrial and OEM customers who require high performance, reliability and versatility at an affordable price. It offers exceptional  $\pm 0.25\%$  FS accuracy for pressure ranges as low as 1 PSI up to 10,000 PSI to meet a multitude of demanding applications. The Model AXD features all stainless steel wetted materials 17-4PHSS when ordered as "AXD1" or 316LSS when ordered as "AXDH". AXD also offers many pressure and electrical connections to satisfy challenging installation requirements. The AXD features an optional patented overpressure stop to protect the transducer against unexpected spikes or in high pulsation applications.

### Trusted reliability

The Model AXD is designed and built to withstand demanding applications. The industrial non-oil filled construction, with optional positive overpressure stop, enables sensor to recover from overpressure conditions up to 10X rated range with burst pressure ratings up to 100x. The AXD's capacitive technology offers worry free operation vs. oil-filled designs, which have a high cost of failure if oil leaks into the application and contaminates costly equipment.

### High performance at an affordable price

The Model AXD's capacitive sensor design offers test & measurement grade accuracy at a low price point. The sensor comes standard with  $\pm 0.25\%$  FS accuracy in ranges from 1 PSI to 10,000 PSI, exceeding most competitive products. The unit offers expanded performance through thermal compensation, bringing the TEB to 1.5% FS.

### Flexibility for many applications

The Model AXD offers many pressure and electrical fittings, covering many installation configurations. This minimizes additional engineering time to accommodate the sensor, allowing for earlier project completion and quicker time to market.



## Specifications

### Performance data

Accuracy RSS <sup>1</sup>	±0.25% FS
Response time	5 millisecond
Long term stability	±0.5% FS/yr

### Thermal effects

	AXD1	AXDH
Compensated Range	-4 to +176°F (-20 to +80°C)	-4 to +176°F (-20 to +80°C)
Zero Shift (code "F")	±2% FS/100°F (±1.8% FS/50°C)	±3%/100°F (±2.7% FS/ 50°C)
(code "Z")	±0.5% FS/100°F (±0.45%/50°C)	±0.75%/100°F (±0.67% FS/ 50°C)
Span Shift (Range >50 PSI)	±1% FS/100°F (±1.4% FS/50°C)	±2% FS/100°F (±1.8% FS/ 50°C)
(Range ≤50 PSI)	±1.5% FS/100°F (±2% FS/50°C)	±2% FS/100°F (±1.8% FS/ 50°C)

### Physical description

Pressure fittings	See ordering information	
Vent (gauge units)	Through cable or termination	
Electrical connection	See ordering information	
Environmental rating		
Elec. Termination code	P1 (gauge) P1 (sealed)	IP66/NEMA4X "xx" cable, M4, A1 IP67/NEMA6
Case material	304 stainless steel	
Wetted materials	AXD 1 AXD H	17-4PHSS, 17-7PHSS 316L stainless steel
Weight (approx.)	5 oz	

### Pressure media

Gases or liquids compatible with 17-4 PH<sup>2</sup> or 316L stainless steel.

<sup>1</sup>RSS of Non-Linearity (BFSL), Non-Repeatability and Hysteresis at 70°F

<sup>2</sup>Hydrogen not recommended for use with 17-4 PH stainless steel. Use 316L SS version.

<sup>3</sup>High temperature limit of the cable is 185°F (85°C)

<sup>4</sup>Shift in output reading <0.05 psi/g typical; pressure port axis only

<sup>5</sup>Mil-Std. 202, Method 213B, Cond. C

<sup>6</sup>Mil-Std. 202, Method 204, Cond. C

### Environmental data

Operating <sup>3</sup> temperature	-40 to +257°F (-40 to +125°C)
Storage temperature	-40 to +257°F (-40 to +125°C)
Acceleration	10g Maximum <sup>4</sup>
Shock <sup>5</sup>	200g Operating
Vibration <sup>6</sup>	20g 50-2000 Hz

### Electrical data (voltage)

Excitation	Code "24"	9 to 30 VDC
	Code "45"	(5VDC) 4.8-8.1 VDC
	Code "2E"	13.5-30 VDC
	Reverse excitation protected	
Power consumption	<0.15 watts (approx. 5mA @24VDC)	
Output <sup>7</sup>	See ordering information <sup>8</sup>	
Output impedance	100 ohms	
Circuit	3-wire (Exc, Out, Com)	

### Electrical data (current)

Circuit	2-Wire
Output <sup>9</sup>	4 to 20 mA <sup>10</sup>
External load	0 to 800 ohms
Min. supply voltage (VDC)	9 + 0.02 x (Resistance of receiver plus line)
Max. supply voltage (VDC)	30 + 0.004 x (Resistance of receiver plus line)

### Certifications

CE, EMC Directive (2014/30/EU), EN/IEC 61326-1,  
& EN/IEC 61326-2-3:2012 Industrial

<sup>7</sup>Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater

<sup>8</sup>Zero output factory set to w/in ±25mV. Span (FS) output factory set to w/in ±50mV.

<sup>9</sup>Calibrated at factory with a 24VDC loop supply voltage and 250ohm load.

<sup>10</sup>Zero output factory set to w/in ±0.08mA. Span (FS) output factory set to w/in ±0.16mA.

Specifications subject to change without notice.

## Overpressure capability

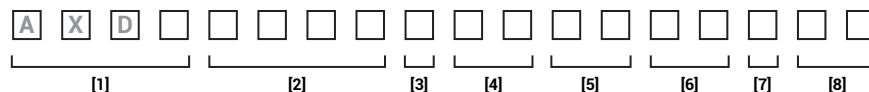
Full Scale Range (PSI)	Standard		High overpressure option	
	AXD1 (17-4SS)	AXDH (316LSS)	AXD1 (17-4SS)	AXDH (316LSS)
	Proof Pressure (PSI)	Burst Pressure (PSI)	High Proof Pressure (PSI)	High Burst Pressure (PSI)
1	2	250	N/A	N/A
2	4	250	N/A	N/A
5	10	250	N/A	N/A
10	20	500	N/A	N/A
15	30	500	N/A	N/A
25	50	500	300	2500
50	100	750	800	4000
100	200	1,000	1,000	4000
250	500	2,000	2,000	4000
500	1,000	3,000	2,500	4000
1,000	2,000	5,000	4,000	5000
3,000	4,500	7,500	N/A	N/A
5,000	7,500	10,000	N/A	N/A
10,000	12,500	20,000	N/A	N/A
-14.7 (Vacuum)	15	500	N/A	N/A

Note: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable.

## Ordering information

Example part number: AXDH025PGJ711P1FNN;

Model AXD with 316L Stainless Steel Wetted Materials, 0 to 25 PSIG, Gauge pressure, 7/16" SAE Ext. fitting, 4 to 20 mA output, 3 Pin Packard,  $\pm 0.25\%$  FS Accuracy, No Options.



[1]	[2]						[3]	[4]	[5]	[6]	[7]	[8]
Model	Pressure range						Pressure type	Pressure fitting <sup>1,3</sup>	Output <sup>5</sup>	Elec. termination	Accuracy	Options <sup>2</sup>
AXD1 17-4 SS	Range code	PSI	Range code	BAR	Range code	mBar	G Gauge	2M 1/4" NPT Ext.	11 4 to 20 mA	02 <sup>6</sup> 2 ft/0.5m Cable	F $\pm 0.25\%$ FS	NN None
AXDH 316L SS	001P <sup>4</sup>	0 to 1	001B <sup>4</sup>	1	040M <sup>4</sup>	40	C Compound	1M 1/8" NPT Ext.	24 0.5 - 5.5 VDC	06 <sup>6</sup> 6 ft/2m Cable	Z <sup>7</sup> $\pm 0.25\%$ FS + Enhance thermal comp	C 11 point cal cert
	002P <sup>4</sup>	0 to 2	002B <sup>4</sup>	2	070M <sup>4</sup>	70	S Sealed gauge	J7 7/16" SAE Ext.	2E 0.5 to 10.5 VDC (13.5 VDC Exc. Min)	12 <sup>6</sup> 12 ft/4m Cable		H <sup>8</sup> High overpressure option
	005P <sup>4</sup>	0 to 5	003B <sup>4</sup>	3	150M <sup>4</sup>	150	V Vacuum gauge	L4 <sup>4</sup> 1/4" Int. SAE w/ Schrader	45 0.5 to 4.5 VDC (5 VDC Exc.)	25 <sup>6</sup> 25 ft/8m Cable		R <sup>9</sup> Pressure restrictor
	010P <sup>4</sup>	0 to 10	007B <sup>4</sup>	7	700M <sup>4</sup>	700				P1 3 Pin Packard		Y Clean for oxygen
	015P <sup>4</sup>	0 to 15	010B <sup>4</sup>	10						M4 M12, 4 Pin		
	025P <sup>4</sup>	0 to 25	020B <sup>4</sup>	20						A1 1/2" NPT Conduit		
	050P <sup>4</sup>	0 to 50	035B <sup>4</sup>	35								
	100P <sup>4</sup>	0 to 100	070B <sup>4</sup>	70								
	250P <sup>4</sup>	0 to 250	140B <sup>4</sup>	140								
	500P <sup>4</sup>	0 to 500	250B <sup>4</sup>	250								
	10CP <sup>4</sup>	0 to 1,000	400B <sup>4</sup>	400								
	30CP <sup>4</sup>	0 to 3,000	700B <sup>4</sup>	700								
	50CP <sup>4</sup>	0 to 5,000	Z01B <sup>4</sup>	-1								
	10KP <sup>4</sup>	0 to 10,000										
	Z01P <sup>4</sup>	0 to -14.7										

<sup>1</sup>Units higher than 5k PSI are only available with a 1/4" NPT male fitting

<sup>2</sup>Both boxes must be filled in alphabetical order:

- If No options: N + N
- If 1 option: Option Code + N
- If 2 options: Option Code + Option Code

<sup>3</sup>Consult Setra for other pressure fittings

<sup>4</sup>Not available with AXDH (316L SS)

<sup>5</sup>Consult Setra for other available outputs

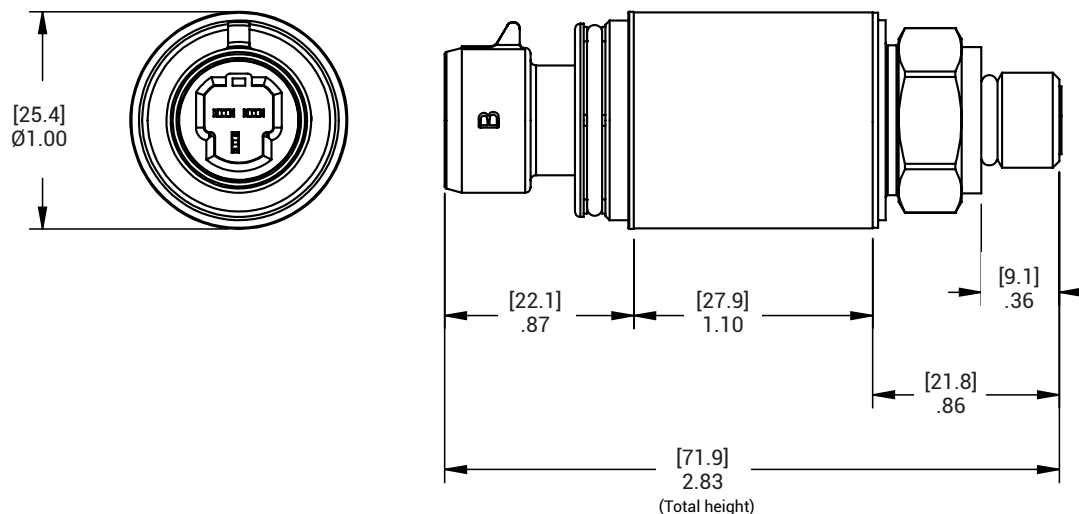
<sup>6</sup>High temperature limit of the cable is 185°F (85°C)

<sup>7</sup>Total error band  $\leq 1.5\%$ FS

<sup>8</sup>High overpressure option available for ranges 25 to 1000 psi

<sup>9</sup>Pressure restrictor option available on pressure fitting codes "2M", "1M" only

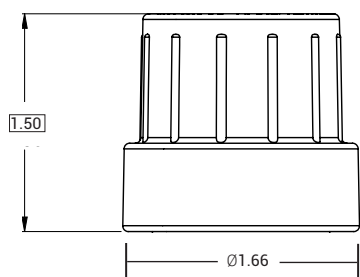
## Dimension example:



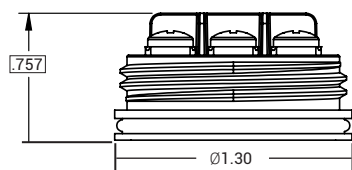
\*Shown with 7/16" SAE Ext. fitting (J7) and 3 Pin Packard termination (P1).

[mm]  
inches

## Electrical termination dimensions

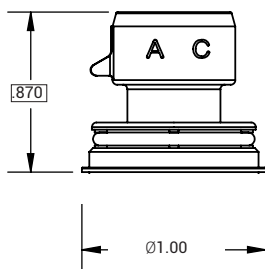


With conduit cover installed

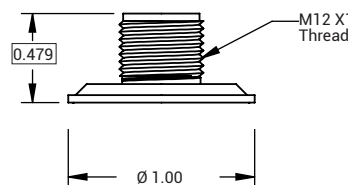


Exposed terminals  
(with conduit cover removed)

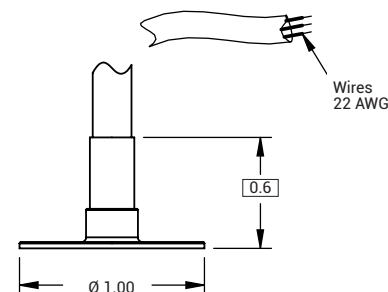
Elec. Term: **1/2" Male conduit w/ terminal strip**  
Code: **("A1")**



**Packard connector, 3 pin**  
**("P1")**

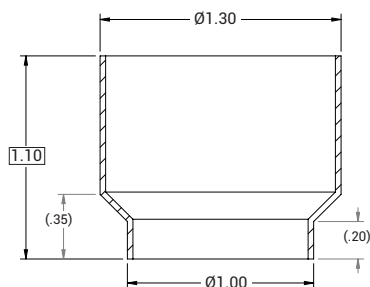


**M12 connector**  
**("M4")**

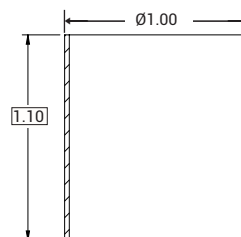


**Cable xx Ft. ("xx")**  
**(e.g. "02")**

## Housing dimensions

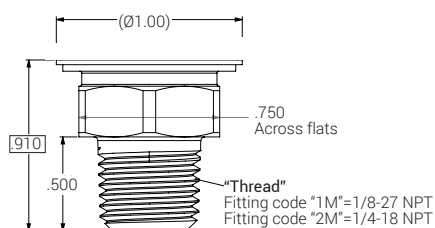


**Funnel housing**  
**(only "A1" electrical termination)**

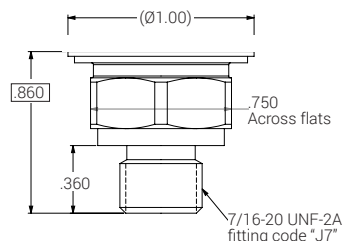


**Cylinder housing**

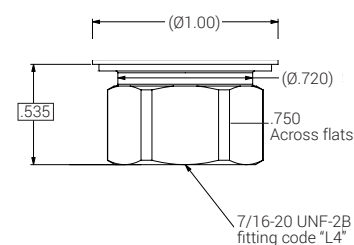
## Fitting connection dimensions



Fitting: **Male NPT**  
Code: **("1M,2M")**  
Torque: **2-3 TFFT\***



**7/16-20 SAE, Male**  
**("J7")**  
**13.3 to 14.75 lb-ft (18-20 Nm)**



**1/4 SAE, Female, 45 deg. Schrader**  
**("L4")**  
**13.3 to 14.75 lb-ft (18-20 Nm)**

**Total height= Electrical termination height + Housing height + Fitting connection height**  
**(dimensions boxed above)**

**\*Turns from finger tight**