



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

## Physical description

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

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

## Electrical data (voltage)

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

## Electrical data (current)

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

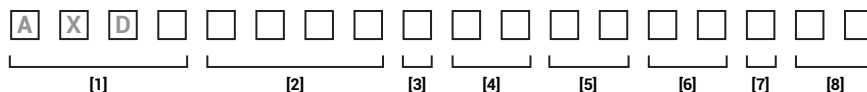
Full Scale Range (PSI)	Standard				High overpressure option			
	AXD1 (17-4SS)		AXDH (316LSS)		AXD1 (17-4SS)		AXDH (316LSS)	
	Proof Pressure (PSI)	Burst Pressure (PSI)	Proof Pressure (PSI)	Burst Pressure (PSI)	High Proof Pressure (PSI)	High Burst Pressure (PSI)	High Proof Pressure (PSI)	High Burst Pressure (PSI)
1	2	250	N/A	N/A	N/A	N/A	N/A	N/A
2	4	250	N/A	N/A	N/A	N/A	N/A	N/A
5	10	250	N/A	N/A	N/A	N/A	N/A	N/A
10	20	500	N/A	N/A	N/A	N/A	N/A	N/A
15	30	500	N/A	N/A	N/A	N/A	N/A	N/A
25	50	500	40	300	300	3,000	100	2500
50	100	750	75	500	800	5,000	150	4000
100	200	1,000	150	750	1,000	5,000	300	4000
250	500	2,000	350	1500	2,000	8,000	750	4000
500	1,000	3,000	700	2000	2,500	10,000	1000	4000
1,000	2,000	5,000	1300	3000	4,000	10,000	2000	5000
3,000	4,500	7,500	N/A	N/A	N/A	N/A	N/A	N/A
5,000	7,500	10,000	N/A	N/A	N/A	N/A	N/A	N/A
10,000	12,500	20,000	N/A	N/A	N/A	N/A	N/A	N/A
-14.7 (Vacuum)	15	500	10	N/A	N/A	N/A	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, ±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	NN None
AXDH 316L SS	001P <sup>4</sup>	0 to 1	001B	1	040m	40	C Compound	1M 1/8" NPT Ext.	24 0.5 - 5.5 VDC	06 <sup>6</sup> 6 ft/2m Cable	C 11 point cal cert
	002P <sup>4</sup>	0 to 2	002B	2	070m	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	3	150m	150	V Vacuum gauge	1F <sup>4</sup> 1/8" NPT Int.	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	7	700m	700		2F <sup>4</sup> 1/4" NPT Int.		P1 3 Pin Packard	Y Clean for oxygen
	015P	0 to 15	010B	10				L4 <sup>4</sup> 1/4" Int. SAE w/ Schrader		M4 M12, 4 Pin	
	025P <sup>5</sup>	0 to 25	020B	20						A1 1/2" NPT Conduit	
	050P <sup>5</sup>	0 to 50	035B	35							
	100P <sup>5</sup>	0 to 100	070B	70							
	250P <sup>5</sup>	0 to 250	140B	140							
	500P <sup>5</sup>	0 to 500	250B	250							
	10CP <sup>5</sup>	0 to 1,000	400B	400							
	30CP <sup>4,5</sup>	0 to 3,000	700B	700							
	50CP <sup>4,5</sup>	0 to 5,000	Z01B	-1							
	10KP <sup>4,5</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

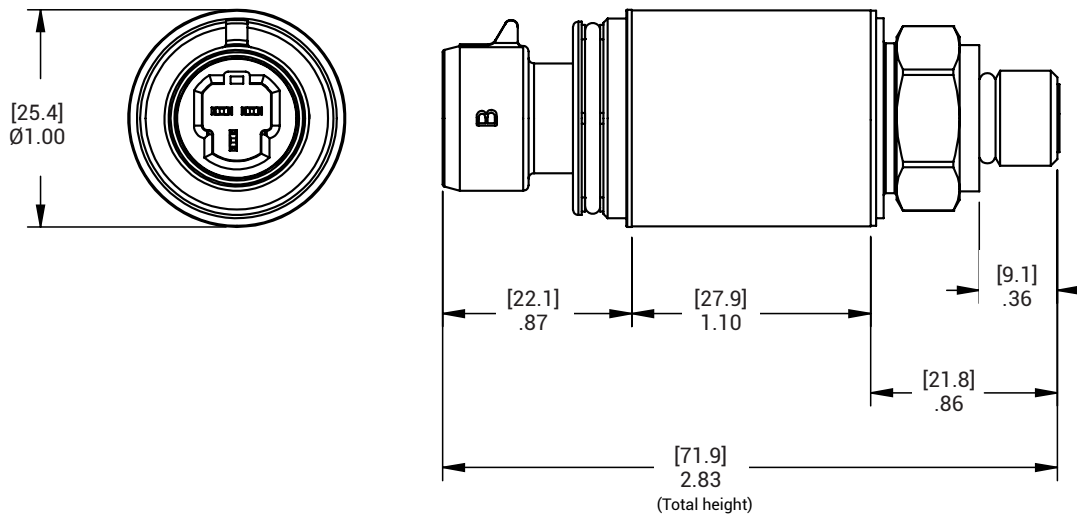
<sup>6</sup>High temperature limit of the cable is 185°F (85°C)

<sup>7</sup>Total error band ≤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

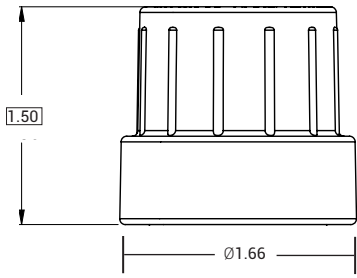
## Dimension example:



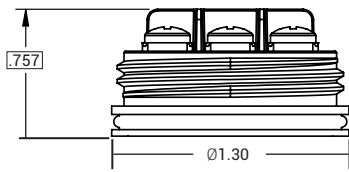
\*Shown with 7/16" SAE Ext. fitting (J7) and 3 Pin Packard termination (P1).

[mm]  
inches

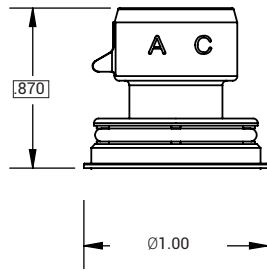
## Electrical termination dimensions



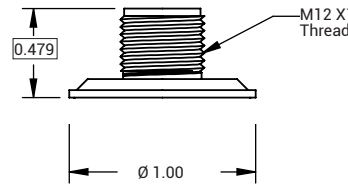
With conduit cover installed



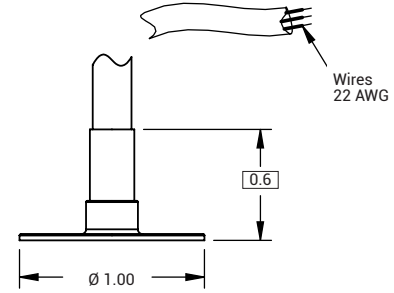
Exposed terminals (with conduit cover removed)



Packard connector, 3 pin ("P1")



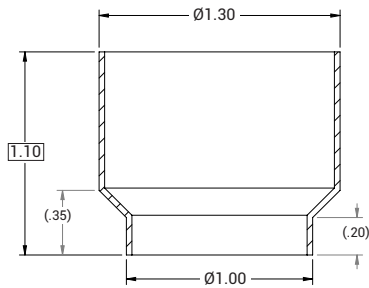
M12 connector ("M4")



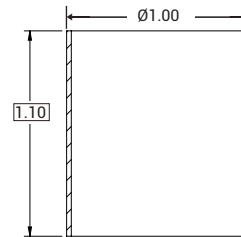
Cable xx Ft. ("xx") (e.g. "02")

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

## Housing dimensions

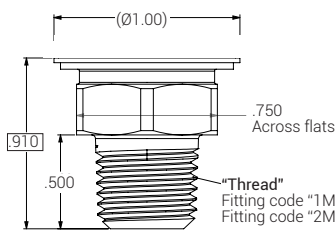


Funnel housing (only "A1" electrical termination)

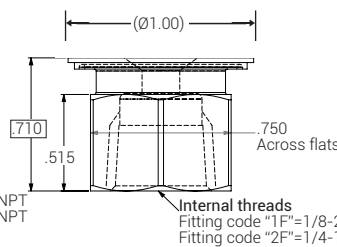


Cylinder housing

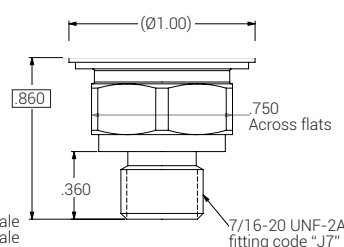
## Fitting connection dimensions



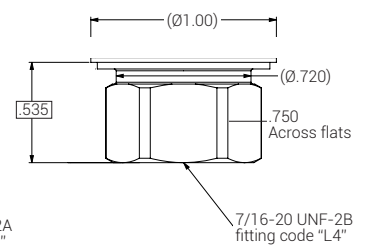
Fitting: **Male NPT**  
Code: **("1M,2M")**  
Torque: **2-3 TFFT\***



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



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



Fitting: **1/4 SAE, Female, 45 deg. Schrader**  
Code: **("L4")**  
Torque: **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