

**Introduction :**

D11 series are based on piezoresistive silicon pressure sensors packaged in a 316L stainless steel housing. The sensing package utilizes silicon oil to transfer pressure from the 316L diaphragm to the sensing element. This digital output pressure sensor supports I<sup>2</sup>C and SPI interface protocols, may come in a 3.3 or 5.0Vdc supply voltage.

It is designed for o-ring mounting for the applications where compatibility with corrosive media is required. A custom ASIC is used for temperature compensation, offset correction, and provides a digital output of 10~90% or 5~95%. The circuit was designed with reverse polarity protection.

**Features:**

- Low cost OEM
- Pressure range:0~7kPa~35MPa
- ±0.5% Total Error Band
- Compatible with corrosive media
- Standard mounting size (Ø19mm)
- I<sup>2</sup>C or SPI Interface protocols
- Reverse polarity protection

**Applications:**

- Process control
- Fresh and waste water measurements
- Medical instruments
- Pressure transmitters



**Performance Specifications**

Supply Voltage: 3.3Vdc

Ambient Temperature: 25° C (unless otherwise specified)

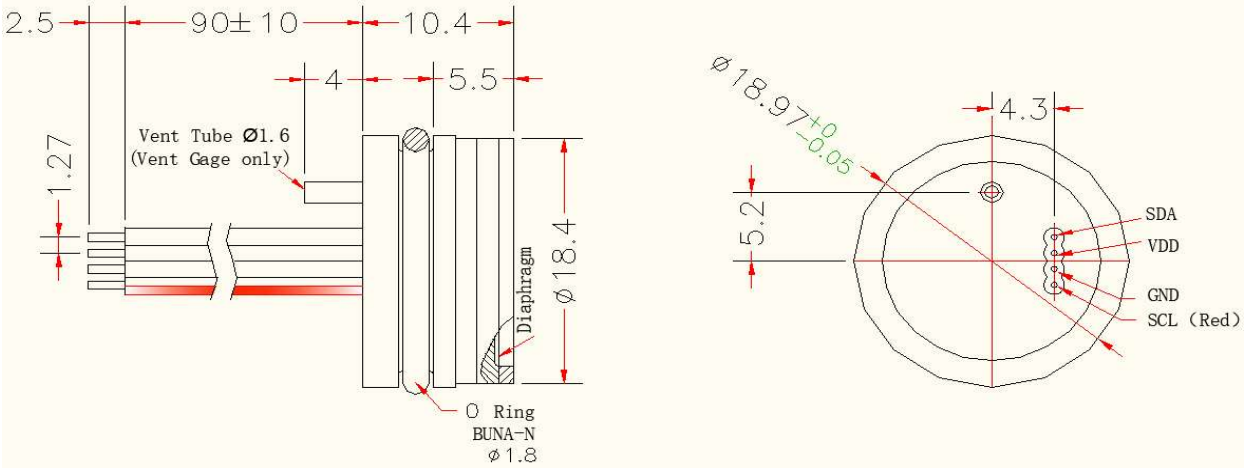
Parameters		Min.	Typical	Max.	Notes
Interface Type		I <sup>2</sup> C (ADDR, 0X28H)			SPI (optional)
Accuracy (%FS)		-0.1	±0.05	0.1	combined linearity, hysteresis and repeatability.
Total Error Band (%FS)	≤100Kpa	-0.75	±0.5	0.75	includes calibration errors and temperature effects over the compensated range.
	>100Kpa	-0.5	±0.3	0.5	
Output Type		10% -- 90% (A type)			5%~95%(B type) Optional
Zero Pressure Output			666		Count Hex
Full Scale Pressure Output (FS)			399A		
Resolution - Pressure (%FS)		0.008			14bits
Temp. Accuracy (°C)		-2		2	over the compensated temperature range
Resolution - Temp. (°C)			0.1		8~11bits
Operating Temp. (°C)		-40		125	
Compensated Temp. (°C)	≤10kPa	0		50	
	>10kPa	-10		70	
Input Voltage (V)		2.7	3.3	5.5	
Current consumption	Non-Sleep		2.7mA		default (See Note1)
	Sleep mode		2µA		optional
Load Resistance (KΩ)		10			
Insulation Resistance (MΩ/250V)		50			
Response Frequency (HZ)			2K		
Pressure Range		0~7kPa~35MPa			See ordering information

Overpressure	≤20kPa	10 times of rated pressure	
	>20kPa	2 times of rated pressure	
Media - Pressure	Liquids and gases compatible with 316L Stainless Steel		

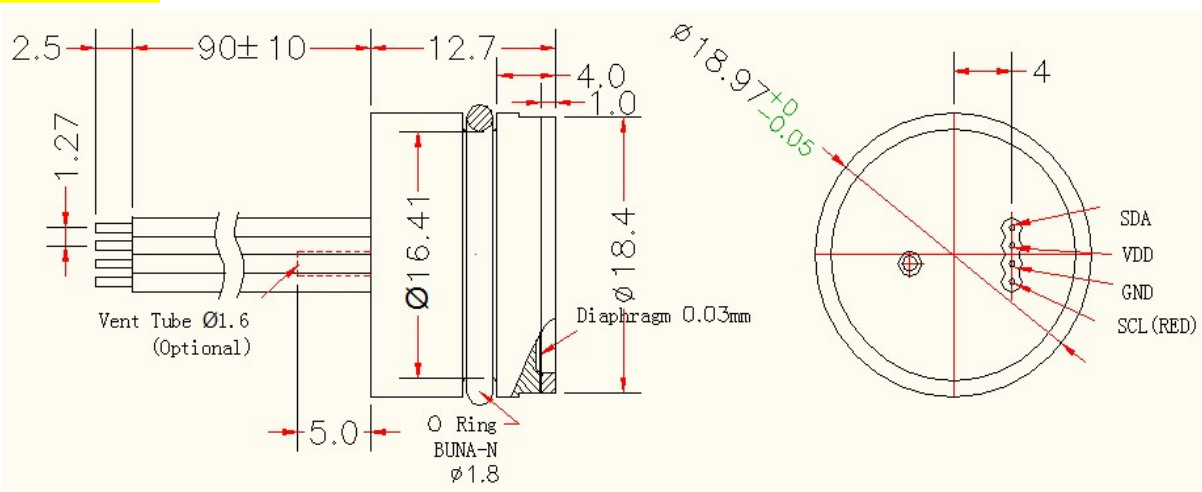
**Note1:** Reduce response frequency can reduce the current consumption accordingly, Pls. contact factory if you want this option.

**Dimensions (mm) :**

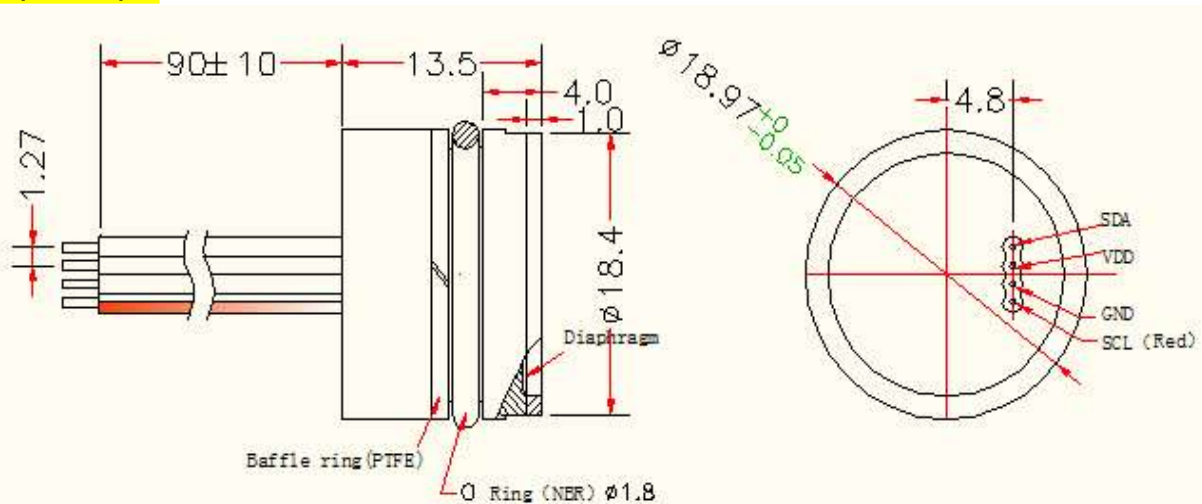
**≤10kPa**



**20kPa~7MPa**



**10Mpa~35Mpa**

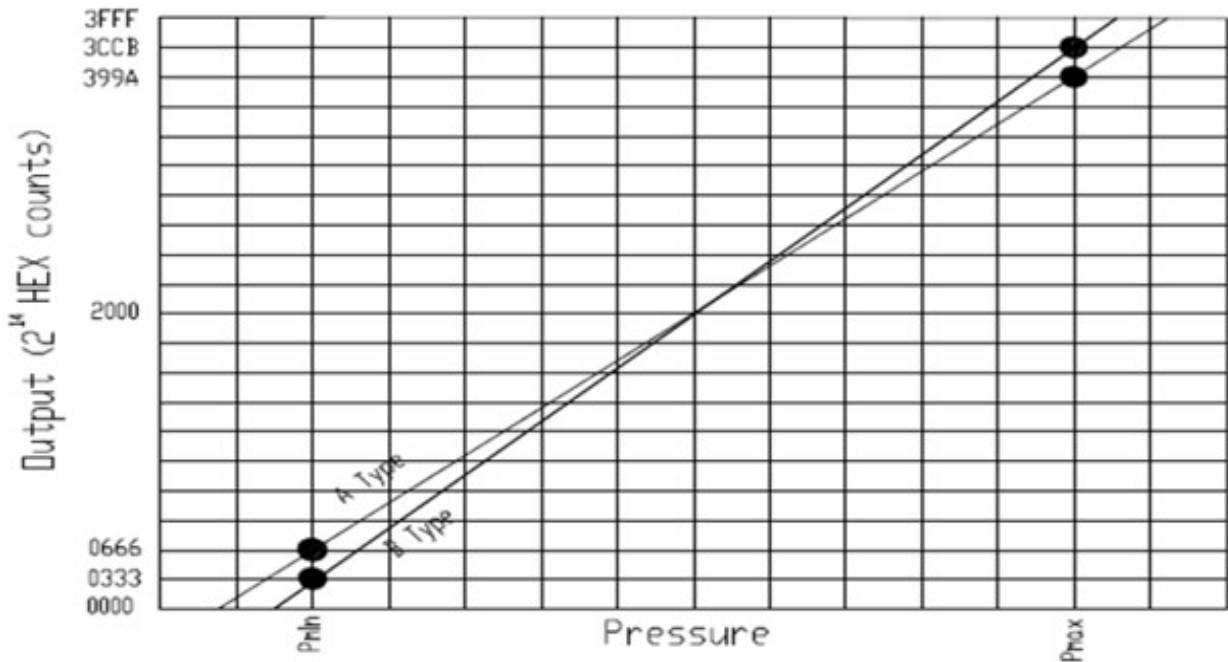


**Ordering Information**

Model	Description				
D11	Diameter 19mm O Ring mounting				
	Code	Pressure Range	Vent Gauge	Sealed Gauge	Absolute
	7k	0-7kPa	*		
	10k	0-10kPa	*		
	20k	0-20kPa	*		
	40k	0-40kPa	*		
	100k	0-100kPa	*	*	*
	200k	0-200kPa	*	*	*
	400k	0-400kPa	*	*	*
	600k	0-600kPa	*	*	*
	1M	0-1Mpa	*	*	*
	1.6M	0-1.6Mpa	*	*	*
	2.5M	0-2.5Mpa	*	*	*
	4M	0-4Mpa	*	*	*
	7M	0-7Mpa	*	*	*
	10M	0-10Mpa		*	*
	20M	0-20Mpa		*	*
	35M	0-35Mpa		*	*
	XX	Special			
		Code	Pressure Reference		
		A	Absolute Pressure		
		G	Vent Gauge Pressure(W/O vent tube as default)		
		S	Sealed Gage		
			Code	Electrical	
			2	Ribbon Cable(90mm as default)	
			X	Others	
<b>Example:</b>	D11	600k	G	2	Model: D11-600k-G2
	19mm Sensor	0-600kPa	Vent Gauge	Ribbon Cable	

**Remark:** If need negtive pressure sensor, Pls. contact us

PRESSURE TRANSFER FUNCTIONS



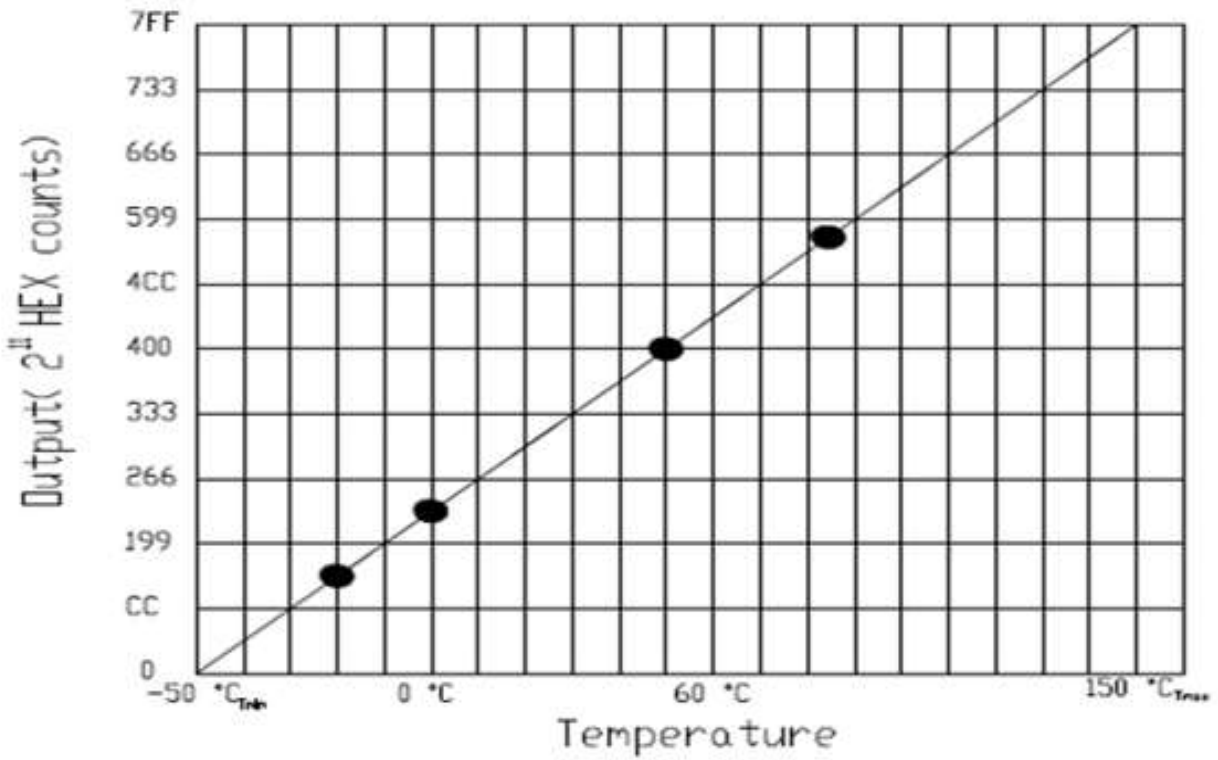
$$\text{A Type: Output ( Decimal counts )} = \frac{80\% * 16383}{P_{max} - P_{min}} * ( \text{Pressure}_{\text{applied}} - P_{min} ) + 10\% * 16383$$

$$\text{B Type: Output ( Decimal counts )} = \frac{90\% * 16383}{P_{max} - P_{min}} * ( \text{Pressure}_{\text{applied}} - P_{min} ) + 5\% * 16383$$

Sensor Output at Significant Percentages

% Output	Digital Counts (decimal)	Digital Counts (hex)
0	0	0 X 0000
5	819	0 X 0333
10	1638	0 X 0666
50	8192	0 X 2000
90	14746	0 X 399A
95	15563	0 X 3CCB
100	16383	0 X 3FFF

TEMPERATURE TRANSFER FUNCTIONS



$$\text{Output (Decimal Counts)} = \frac{(\text{Output} \cdot E (-50^{\circ}\text{C})_{T_{In}}) \cdot 2047}{(150^{\circ}\text{C}_{T_{Max}} - (-50^{\circ}\text{C})_{T_{In}})}$$

Temperature Output vs Counts

Output °C	Digital Counts (decimal)	Digital Counts (hex)
-50	0	0 X 0000
0	512	0 X 0200
10	614	0 X 0266
25	767	0 X 02FF
40	921	0 X 0399
85	1381	0 X 0565
150	2047	0 X 07FF