

Introduction:

D60 Series are based on microfused technology which employs micromachined silicon piezoresistive strain gages fused with high temperature glass to a stainless steel diaphragm. All the key processes were operated in our 10,000 class cleaning room.

This pressure transducer supports I²C and SPI interface protocols, A custom ASIC is used for temperature compensation, offset correction, and provides a digital output of 10–90% or 5–95%. The circuit is protected from reverse wiring at input and short circuit at output.

The wetted material is made of stainless steel, High burst pressure is achieved by its solid structure.

Features:

- Pressure Range: 0-3.5MPa...35MPa
- Wide range of compensation temp. (-10~70°C)
- 5X burst pressure
- High precision, total error band<0.50%(typical)
- Reverse polarity protection
- Small size; low cost

Application:

- Hydraulic/Pneumatic Control Systems
- Energy and Water Management
- Pumps and Compressors
- Automotive Test Stands
- Agriculture Equipment



Performance Specifications

Supply Voltage: 3.3Vdc

Ambient Temperature: 25° C (unless otherwise specified)

Parameters	Min.	Typical	Max.	Notes
Interface Type	I ² C (ADDR, 0X28H)			SPI (optional)
Accuracy(%FS)	-0.15	±0.1	0.15	combined linearity, hysteresis and repeatability.
Total Error Band (%FS)	-0.75	±0.5	0.75	includes calibration errors and temperature effects over the compensated range.
Output Type	10% – 90% (A type)			5%–95%(B type) Optional
Zero Pressure Output		666		Count Hex
Full Scale 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	Note1
Compensated Temp. (°C)	-10		70	
Input Voltage (V)	2.7	3.3	5.5	
Current consumption	Non-Sleep		2.7mA	default (Note2)
	Sleep mode		2µA	optional
Load Resistance (KΩ)	10			
Insulation Resistance (MΩ/250V)	50			
Response Frequency (HZ)		2K		

Pressure Range	0-3.5MPa...35MPa
Overpressure	2 times of rated pressrue
Burst pressure	5 times of rated pressrue or 150MPa whichever is less
Wetted material	Stainless Steel 17-4 and 304
Life	>10 ⁷ full range pressure

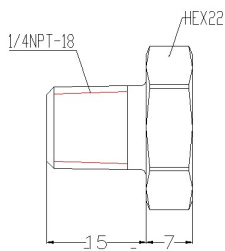
Note1: Operation temp. of cable is 105°C maximum / M12 Connector operation temp. range: -25~85°C

Note2: Reduce response frequency can reduce the current consumption accordingly, Pls. contact factory if you want this option.

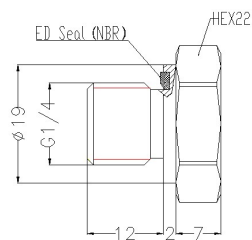
Dimensions (mm)

Pressure port and Hex

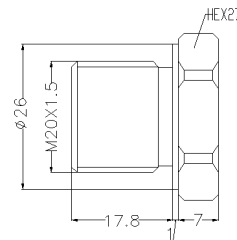
1. 1/4NPT



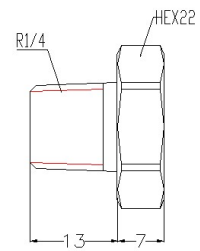
2. G1/4



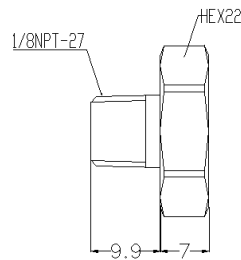
3. M20X1.5



4. R1/4

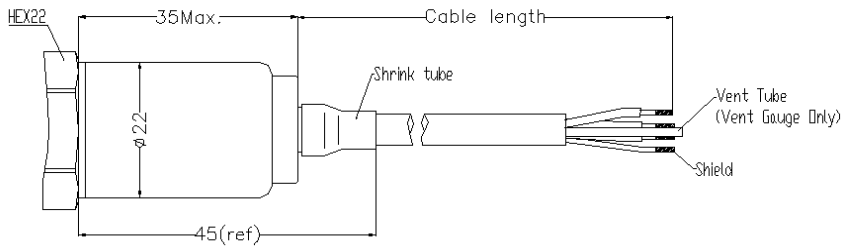


5. 1/8NPT



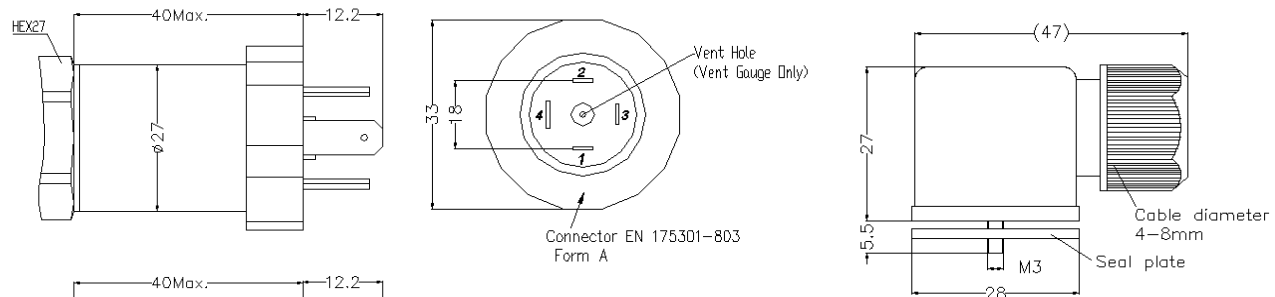
Case and Cable/Connector

Cable



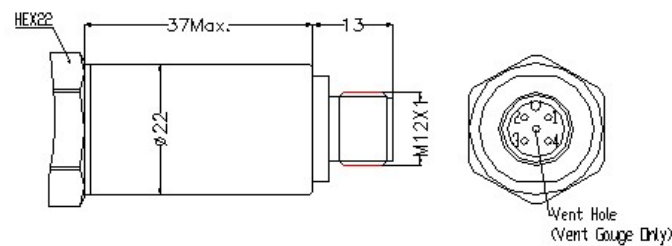
- Red:** VDD
- Black:** GND
- Green:** SCL
- White:** SDA

Connector EN 175301-803 (Form A)



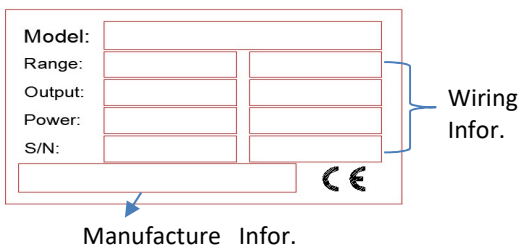
- Pin1:** VDD
- Pin2:** GND
- Pin3:** SCL
- Pin4:** SDA

M12X1 connector (4 Pins)



- Pin1:** VDD
- Pin2:** SCL
- Pin3:** GND
- Pin4:** SDA

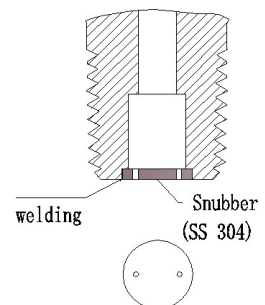
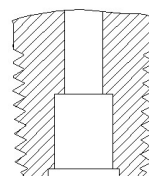
Label



Snubber

W/O Snubber

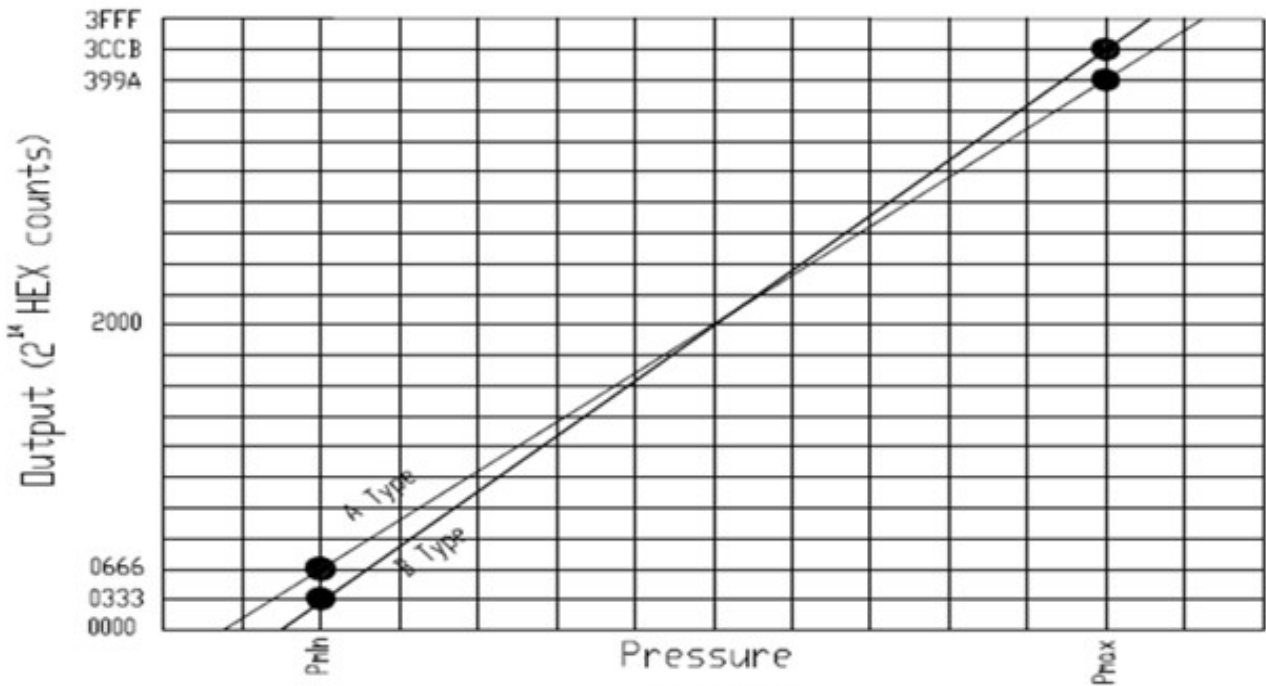
With Snubber (Code: S)



Ordering Information

Model	Description				
D60	Microfused Pressure Transducer (I ² C)				
	Code	Pressure Range	Vent Gauge	Sealed Gauge	
	3.5M	0-3.5MPa	*		
	7M	0-7MPa	*		
	10M	0-10MPa		*	
	20M	0-20MPa		*	
	35M	0-35MPa		*	
	XX	Others			
	Code	Description			
	1	1/4NPT			
	2	G 1/4			
	3	M20X1.5			
	4	R1/4 (old ZG1/4)			
	5	1/8NPT			
	X	Special			
	Code	Description			
	2 (*m)	Cable (length: *meter)			
	3	Connector EN 175301-803 (Form A)			
	4	Connector M12X1 (4 Core Male)			
	X	Others			
	Code	Snubber			
	S	With Snubber			
Example:	D60	7M	1	2 (1m)	S
	I ² C	0-7MPa	1/4NPT	Cable 1 m	with Snubber
					Model: D60-7M-12 (1m)-S

PRESSURE TRANSFER FUNCTIONS



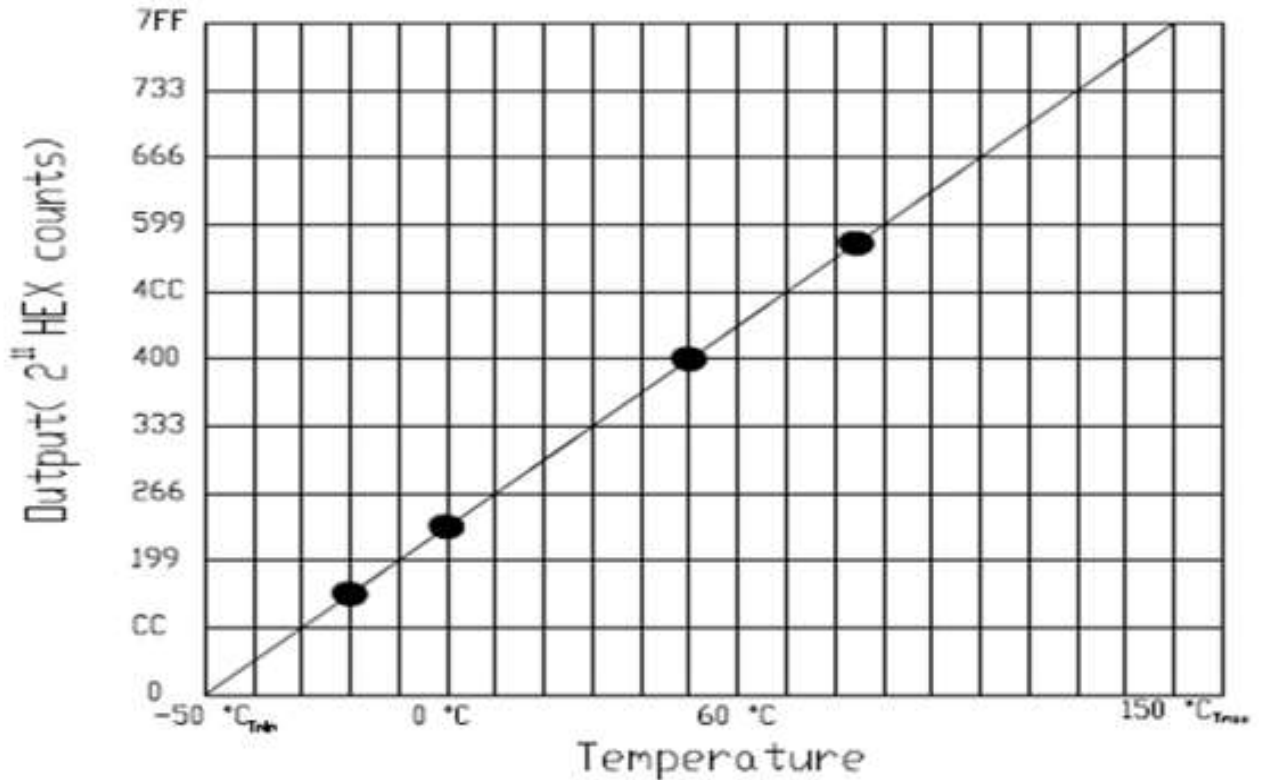
$$\text{A Type: Output (Decimal counts)} = \frac{80\% * 16383}{P_{\text{max}} - P_{\text{min}}} * (\text{Pressure}_{\text{applied}} - P_{\text{min}}) + 10\% * 16383$$

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

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



$$\text{Output (Decimal Counts)} = \frac{(\text{Output } ^\circ\text{E } (-50^\circ\text{C})_{\text{TrIn}} - 2047)}{(150^\circ\text{C}_{\text{TrMax}} - (-50^\circ\text{C})_{\text{TrIn}})}$$

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