

HDU Series

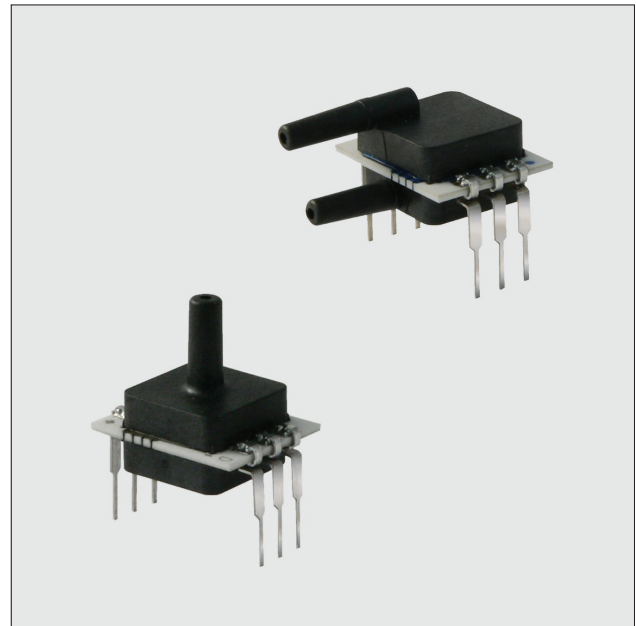
Basic pressure sensors

FEATURES

- 100 mbar to 5 bar, 1 to 70 psi absolute, gage or differential pressure
- DIP housings
- RoHS compliant

MEDIA COMPATIBILITY

To be used with non-corrosive, non-ionic working fluids such as clean dry air, dry gases and the like.



SPECIFICATIONS

Maximum ratings

Supply voltage V_s +12 V_{DC}

Lead specifications

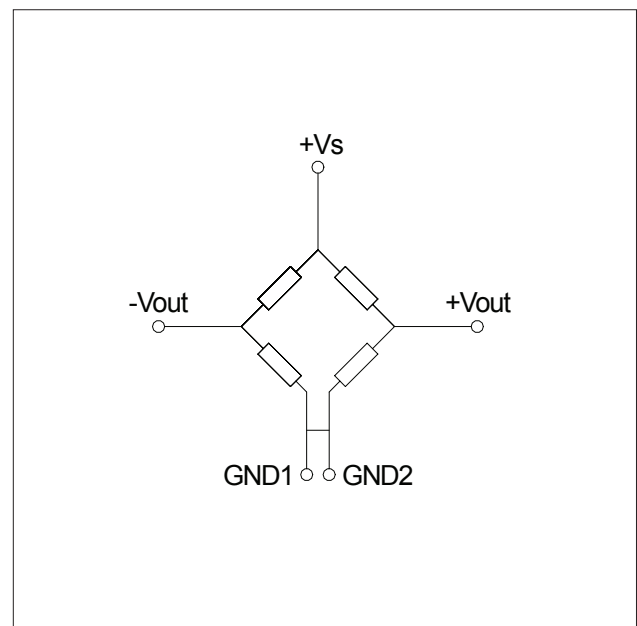
Average preheating temperature gradient	2.5 K/s
Soak time	ca. 3 min
Time above 217°C	50 s
Time above 230°C	40 s
Time above 250°C	15 s
Peak temperature	260°C
Cooling temperature gradient	-3.5 K/s

Temperature ranges

Operating	-40 ... 85 °C
Storage	-40 ... 125 °C

Humidity limits (non-condensing) 0 ... 95 %RH

EQUIVALENT CIRCUIT



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PRESSURE SENSOR CHARACTERISTICS

($V_S=5.0 V_{DC}$, $T_A=25\text{ }^\circ\text{C}$, RH=50 %, common mode line pressure = 0 bar, pressure applied to high pressure port)

Part number	Operating pressure	Proof pressure ¹	Full-scale span ²		
			Min.	Typ.	Max.
HDUM100...	0...100 mbar	2 bar	30 mV	60 mV	120 mV
HDUM350...	0...350 mbar	2 bar	40 mV	100 mV	160 mV
HDUB001...	0...1 bar	5 bar	60 mV	100 mV	140 mV
HDUB2x5...	0...2.5 bar	7 bar	60 mV	100 mV	140 mV
HDUB005...	0...5 bar	7 bar	60 mV	100 mV	140 mV
HDUP001...	0...1 psi	30 psi	20 mV	41 mV	83 mV
HDUP005...	0...5 psi	30 psi	39 mV	98 mV	158 mV
HDUP015...	0...15 psi	75 psi	61 mV	103 mV	145 mV
HDUP030...	0...30 psi	100 psi	49 mV	83 mV	116 mV
HDUP070...	0...70 psi	100 psi	58 mV	96 mV	136 mV

PERFORMANCE CHARACTERISTICS

($V_S=5.0 V_{DC}$, $T_A=25\text{ }^\circ\text{C}$, RH=50 %, common mode line pressure = 0 bar, pressure applied to high pressure port)

Characteristics		Min.	Typ.	Max.	Unit	
Zero pressure offset	100 mbar/1 psi devices	-40	0	40	mV	
	all others	-30	0	30		
Temperature effects (25...85 °C)	Offset	1 psi devices	-0.45	-0.22	0	%FSS/°C
		100 mbar devices	-0.30	-0.15	0	
		350 mbar/5 psi devices	-0.20	-0.07	0	
		all others	-0.1	±0.02	0.1	
	Span	1 psi devices	-0.35	-0.25	-0.18	
		100 mbar devices	-0.23	-0.20	-0.18	
		all others	-0.21	-0.20	-0.17	
Bridge impedance	0.20	0.26	0.31	%/°C		
Non-linearity ³	100 mbar/1 psi devices		±0.5	±1.1	%FSS	
	all others		±0.1	±0.5		
Hysteresis ⁴			±0.1		%FSS	
Repeatability			±0.5			
Long term stability ⁵			±0.1			
Bridge resistance		2.8	3.3	3.8	kΩ	
Response time ⁶			100		µsec	

Specification notes:

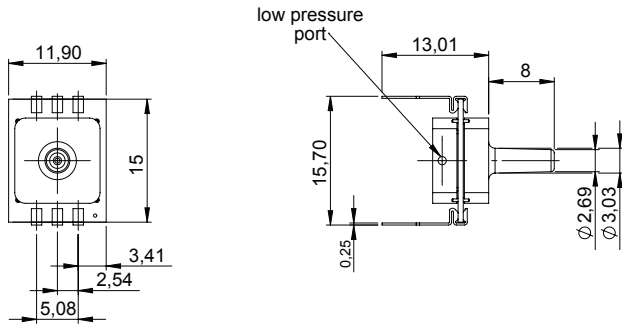
1. Proof pressure is the maximum pressure which may be applied without causing durable shifts of the electrical parameters of the sensing element.
2. Full Scale Span (FSS) is the algebraic difference between the output signal for the highest and lowest specified pressure.
3. Non-linearity refers to the **Best Straight Line** fit, measured for offset pressure, full scale pressure and 1/2 full scale pressure.
4. Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
5. Long term stability over a one year period.
6. Response time for a zero to full scale span pressure step change, 10 to 90 % rise time.

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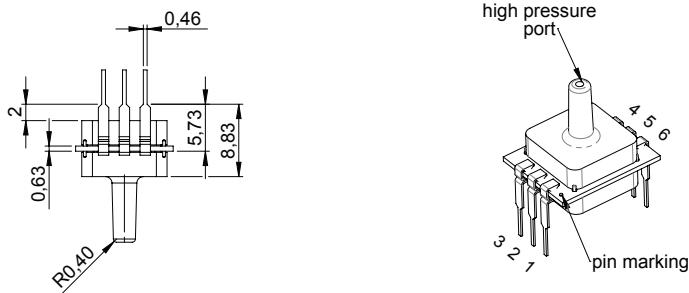
PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION


HDU...AZ... (DIP, 1 port axial, absolute pressure)



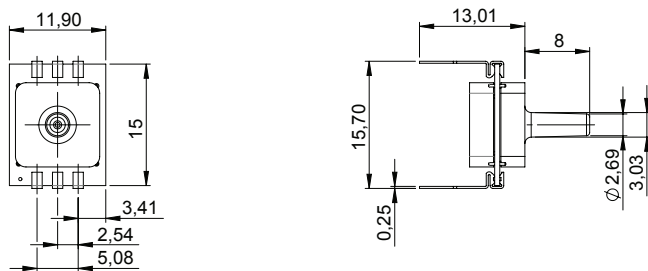
Pin	Connection
1	+Vout
2	GND1
3	-Vout
4	+Vs
5	GND2
6	+Vs

Note:
The polarity indicated is for pressure applied to high pressure port.



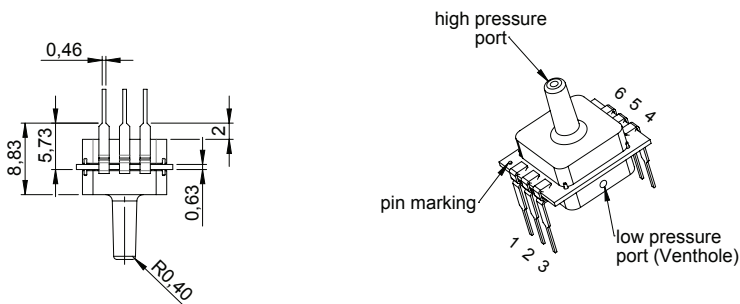

first angle projection
dimensions in mm


HDU...GZ... (DIP, 1 port axial, gage pressure)



Pin	Connection
1	+Vs
2	GND1
3	+Vs
4	-Vout
5	GND2
6	+Vout

Note:
The polarity indicated is for pressure applied to high pressure port.



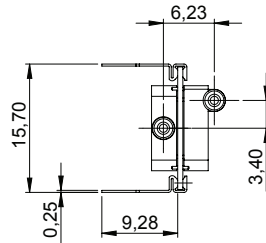
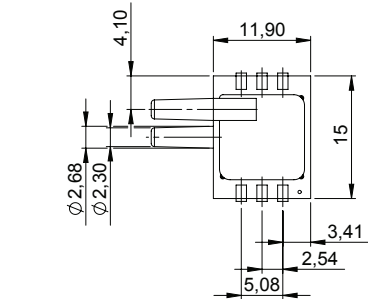

first angle projection
dimensions in mm

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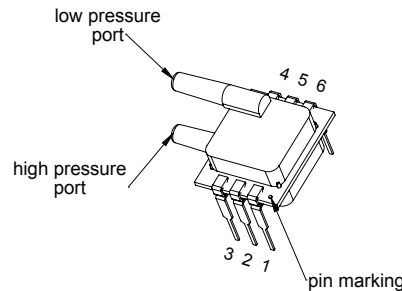
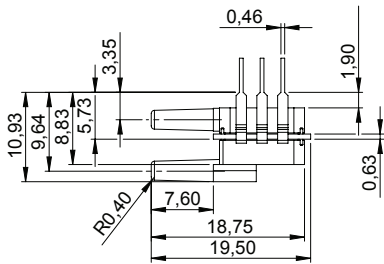
PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HDU...DF... (DIP, 2 ports same side, differential pressure)



Pin	Connection
1	+Vs
2	GND1
3	+Vs
4	-Vout
5	GND2
6	+Vout

Note:
The polarity indicated is for pressure applied to high pressure port.



first angle projection
dimensions in mm

ORDERING INFORMATION

Options	Series	Pressure range		Pressure mode		Housing		Options	
	HDU	M100	100 mbar	A*	Absolute	F*	DIP, 2 ports same side	P	Prime grade
	M350	350 mbar	D	Differential	Z**	DIP, 1 port axial			
	B001	1 bar	G	Gage					
	B2x5	2.5 bar							
	B005	5 bar							
	P001	1 psi							
	P005	5 psi							
	P015	15 psi							
	P030	30 psi							
	P070	70 psi							
				* only available from 1 bar/15 psi onwards		* standard for differential devices, "D"			
						** standard for absolute and gage devices, "A" and "G"			
Example:	HDU	B001		G		Z		P	

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