



HDO SERIES – PRECISION COMPENSATED PRESSURE SENSORS

The HDO pressure sensors are calibrated and temperature compensated and intended to be used with dry and non-corrosive gases. The sensors offer a wide selection of standard pressure ranges. Further, TE Connectivity can provide custom specific pressure ranges and calibrations on request. Miniature SMT housings allow for space-saving PCB-mounting and maximum OEM design flexibility.

Features

- Pressure ranges from 10 mbar to 5 bar, absolute, gage or differential pressure
- Calibrated and temperature compensated
- High impedance for low power applications
- Small SMD packages

Applications

- Medical devices
- Instrumentation
- HVAC
- Industrial controls
- Pneumatic controls
- Environmental controls

Certificates

RoHS and REACH compliant

Media compatibility

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

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Maximum ratings

Parameter		Min.	Typ.	Max.	Unit
Supply voltage V_S				20	V_{DC}
Lead specifications	Average preheating temperature gradient			2.5	K/s
	Soak time			approx. 3	min.
	Time above 217 °C			50	s
	Time above 230 °C			40	
	Time above 250 °C			15	
	Peak temperature			260	°C
Cooling temperature gradient			-3.5	K/s	
Temperature ranges ⁽¹⁾	Compensated	Standard	0	+50	°C
		(on request)	0	+70	
	Operating	-40	+85		
	Storage	-40	+125		
Humidity limits (non-condensing)		0		100	%RH

Pressure sensor characteristics

($V_S=12 V_{DC}$; $T_A=25\text{ °C}$; $R_H=50\%$; common mode line pressure = 0 bar; pressure applied to high pressure port)

Part no.	Operating pressure	Proof pressure ⁽²⁾	Burst pressure ⁽³⁾	Full scale span		
				Min.	Typ.	Max.
HDOM010xxxP	0 to 10 mbar	100 mbar	150 mbar	19.7 mV	20.0 mV	20.3 mV
HDOM020xxxP	0 to 20 mbar	100 mbar	150 mbar	24.7 mV	25.0 mV	25.3 mV
HDOM050xxxP	0 to 50 mbar	250 mbar	500 mbar	19.7 mV	20.0 mV	20.3 mV
HDOM100xxxP	0 to 100 mbar	250 mbar	500 mbar	19.7 mV	20.0 mV	20.3 mV
HDOM200xxxP	0 to 200 mbar	1 bar	1.4 bar	29.7 mV	30.0 mV	30.3 mV
HDOM500xxxP	0 to 500 mbar	1 bar	1.4 bar	29.7 mV	30.0 mV	30.3 mV
HDOB001AxxxP	0 to 1 bara	3 bara	5 bara	89.1 mV	90.0 mV	90.9 mV
HDOB001(D,G)xxxP	0 to 1 bar	3 bar	5 bar	59.4 mV	60.0 mV	60.6 mV
HDOB002xxxP	0 to 2 bar	4 bar	6 bar	49.5 mV	50.0 mV	50.5 mV
HDOB005xxxP	0 to 5 bar	7 bar	7 bar	59.4 mV	60.0 mV	60.6 mV
HDOM010xxxH	0 to 10 mbar	100 mbar	150 mbar	19.5 mV	20.0 mV	20.5 mV
HDOM020xxxH	0 to 20 mbar	100 mbar	150 mbar	24.5 mV	25.0 mV	25.5 mV
HDOM050xxxH	0 to 50 mbar	250 mbar	500 mbar	19.37 mV	20.0 mV	20.63 mV
HDOM100xxxH	0 to 100 mbar	250 mbar	500 mbar	19.37 mV	20.0 mV	20.63 mV
HDOM200xxxH	0 to 200 mbar	1 bar	1.4 bar	28.95 mV	30.0 mV	31.05 mV
HDOM500xxxH	0 to 500 mbar	1 bar	1.4 bar	28.95 mV	30.0 mV	31.05 mV
HDOB001AxxxH	0 to 1 bara	3 bara	5 bara	86.85 mV	90.0 mV	93.15 mV
HDOB001(D,G)xxxH	0 to 1 bar	3 bar	5 bar	57.9 mV	60.0 mV	62.1 mV
HDOB002xxxH	0 to 2 bar	4 bar	6 bar	48.25 mV	50.0 mV	51.75 mV
HDOB005xxxH	0 to 5 bar	7 bar	7 bar	57.9 mV	60.0 mV	62.1 mV

Other pressure ranges are available on request. Please contact your local sensors representative.

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Performance characteristics

(V_S=12 V_{DC}; T_A=25 °C; RH=50 %; common mode line pressure = 0 bar; pressure applied to high pressure port)

All HDOxxxP devices (Prime Grade)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset _{DC}		-0.25	0	+0.25	mV
Combined linearity and hysteresis ⁽⁴⁾			±0.1	±0.25	%FSO
Temperature effects (0 to 50°C) ⁽⁵⁾	Offset		±0.2	±0.5	mV
	Span		±0.4	±1.0	%FSO
Repeatability ⁽⁶⁾			±0.2	±0.5	
Input impedance ⁽⁷⁾	devices from 4 bar		>4		kΩ
	all other devices		>12		
Output impedance ⁽⁸⁾			4.0		
Common mode voltage ⁽⁹⁾		4.8	6.0	7.2	V _{DC}
Response time ⁽¹⁰⁾			100		μsec
Long term stability of offset and span ⁽¹¹⁾			±0.1		mV

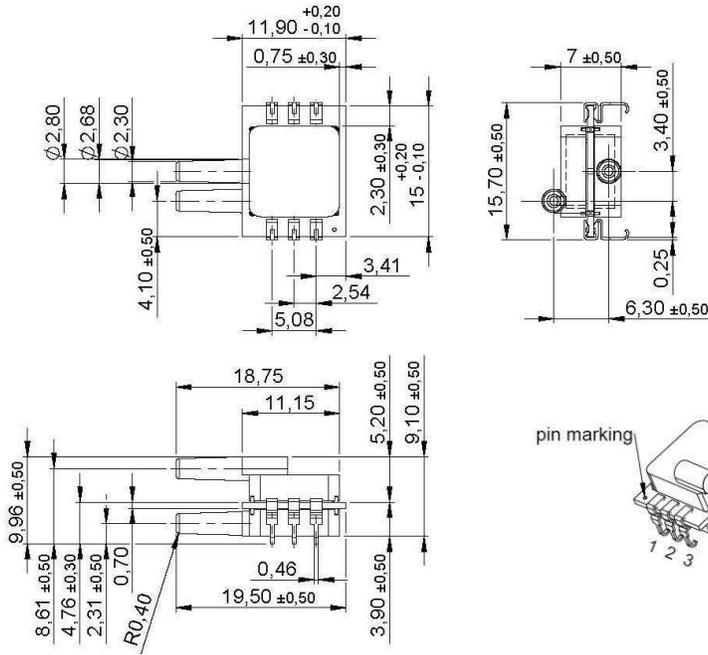
All HDOxxxH devices (High Grade)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	devices up to 20 mbar	-0.75	0	+0.75	mV
	all other devices	-0.5	0	+0.5	
Combined linearity and hysteresis ⁽⁴⁾			±0.2	±1.0	%FSO
Temperature effects (0 to 50°C) ⁽⁵⁾	Offset		±0.2	±1.0	mV
	Span		±0.4	±2.0	%FSO
Repeatability ⁽⁶⁾			±0.2	±0.5	
Input impedance ⁽⁷⁾	devices from 4 bar		>4		kΩ
	all other devices		>12		
Output impedance ⁽⁸⁾			4.0		
Common mode voltage ⁽⁹⁾		4.8	6.0	7.2	V _{DC}
Response time ⁽¹⁰⁾			100		μsec
Long term stability of offset and span ⁽¹¹⁾			±0.1		mV

HDO SERIES – PRECISION COMPENSATED PRESSURE SENSORS

Dimensional drawing

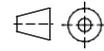
HD0xxxExxx (SMD, 2 ports same side)



Pin	connection
1	+Vout
2	GND
3	-Vout
4	I/C*
5	+Vs
6	I/C*

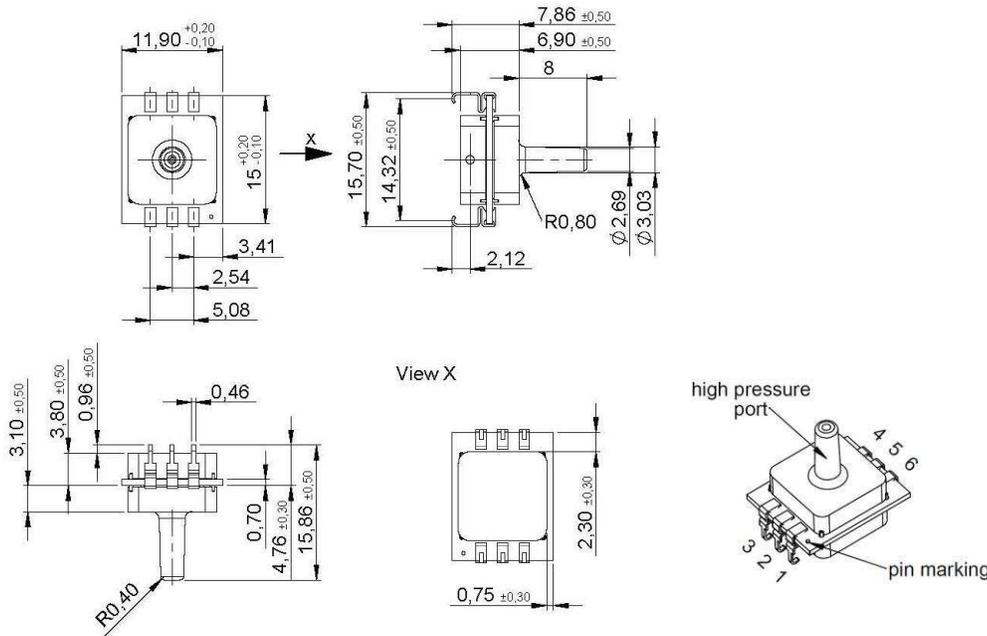
*Internal connection.
Do not connect for any reason

Note:
The polarity indicated is for pressure applied to high pressure port (forward gage)



First angle projection
dimensions in mm

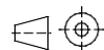
HDOxxxYxxx (SMD, 1 port axial)



Pin	connection
1	+Vout
2	GND
3	-Vout
4	I/C*
5	+Vs
6	I/C*

*Internal connection.
Do not connect for any reason

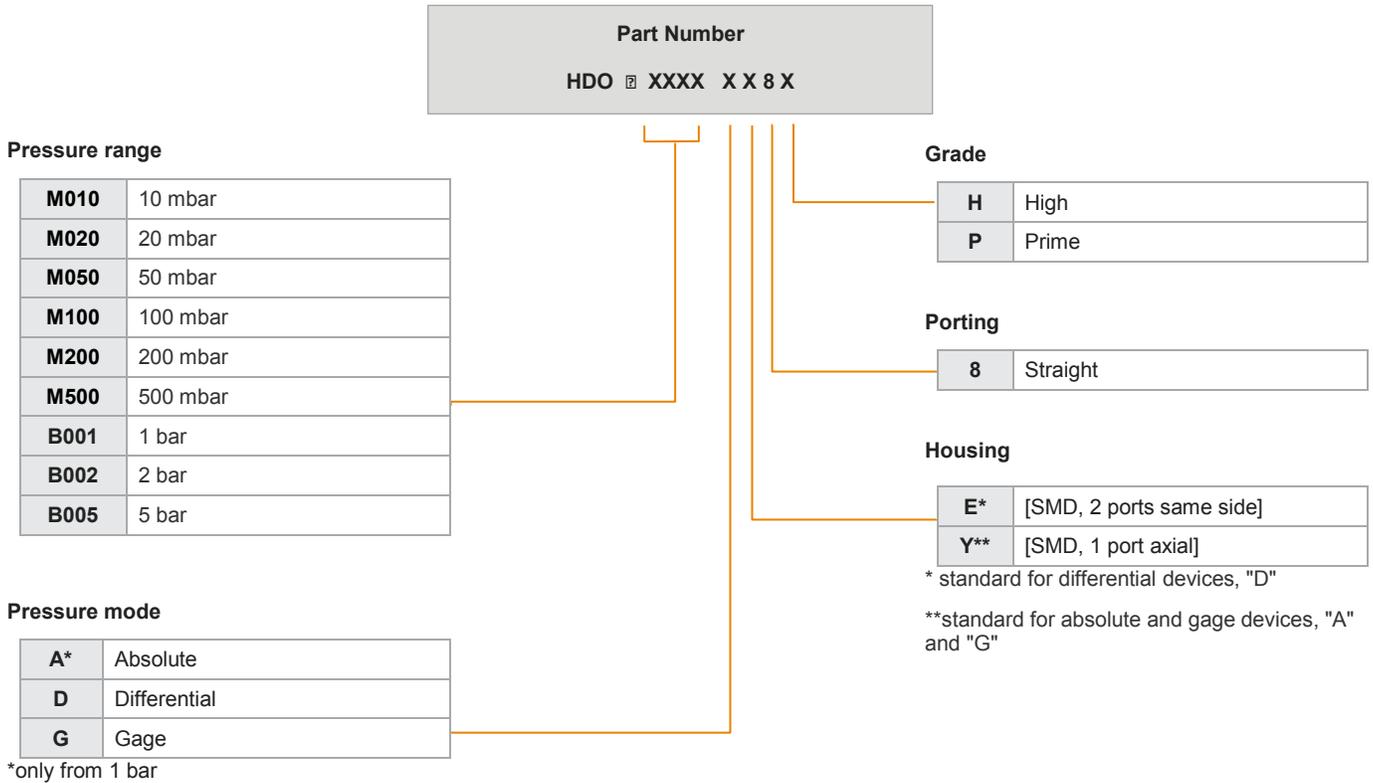
Note:
Pressure port is in forward gage configuration



First angle projection
dimensions in mm

HDO SERIES – PRECISION COMPENSATED PRESSURE SENSORS

Part numbering key



Order code example: **HDOM100DE8P**

Note: Not all possible sensor configurations are active products. MOQ may apply.

Custom specific pressure ranges and mechanical or electronic sensor modifications are widely available. Please contact your local sensors representative to learn more

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Ordering information (standard configurations)

Description	TE Part Number	Pressure Range	Pressure mode	Housing	Porting	Grade
HDOM010DE8P	2003058	10 mbar	Differential	SMD, 2 ports same side	Straight	Prime
HDOM050DE8H	2003852	50 mbar	Differential	SMD, 2 ports same side	Straight	High
HDOM100DE8P	2003077	100 mbar	Differential	SMD, 2 ports same side	Straight	Prime
HDOB001AY8H	2003037	1 bar	Absolute	SMD, 1 port axial	Straight	High
HDOB005GY8P	2003170	5 bar	Gage	SMD, 1 port axial	Straight	Prime

Note:

The above product listings are examples of possible product configurations. More standard product configurations are available on request.

In addition, custom specific pressure and temperature ranges as well as mechanical or electronic sensor modifications are widely available.

Please note, not all possible sensor configurations are active products. MOQ may apply. Please contact your local sensors representative to learn more.

Specification notes

- (1) Extended temperature ranges on request. Please contact TE Connectivity.
- (2) Proof pressure is the maximum pressure which may be applied without causing durable shifts of the electrical parameters of the sensing element.
- (3) Burst pressure is the maximum pressure which may be applied without causing damage to the sensing element or leaks to the housing.
- (4) Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
- (5) Maximum error band of the offset voltage and the error band of the span, relative to the 25°C reading.
- (6) Maximum difference in offset respectively maximum difference in span within the temperature range of 0 to+50°C after:
 - a. 100 temperature cycles, 0 to+50°C.
 - b. 1.0 million pressure cycles, 0 psi to full scale span.
- (7) Input impedance is the impedance between V_S and ground.
- (8) Output impedance is the impedance between + and - outputs.
- (9) This is the common mode voltage of the output arms for $V_S = 12 V_{DC}$.
- (10) Response time for a zero to full scale span.
- (11) Long term stability over a one-year period.

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