



MLDX - Millivolt Output Low Pressure DX Series

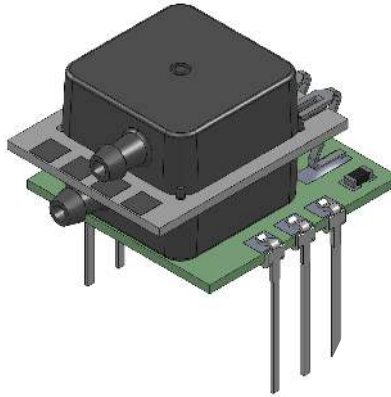


Table of Contents

- Features & Applications2
- Pressure Sensor Maximum Ratings2
- Environmental Specifications.....2
- Application Circuit2
- Standard Pressure Ranges.....3
- Product Options3
- Performance Characteristics4
- Soldering Options.....4
- How to Order Guide.....5
- Package Drawings6
- Product Labeling6
- Suggested Pad Layouts7

Introduction

The MLDX series sensors are based on All Sensors' CoBeam2™ Technology. This reduces package stress susceptibility, resulting in improved overall long term stability.

These calibrated and compensated sensors give an accurate and stable output over a wide temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air or dry gases.

A protective parylene coating is optionally available for moisture/harsh media protection.

Devices are available in 5 and 10 inH2O and 1, 5, 15, 30, 100 PSI pressure ranges.

<https://www.allensors.com/products/mldx-series>



MLDX - MILLIVOLT OUTPUT LOW PRESSURE DX SERIES

Features

- 5, 10 inH₂O & 1, 5, 15, 30, 100 PSI Pressure Ranges
- Low Power Consumption
- Excellent Position Sensitivity
- Low Warm-Up Shift
- Enhanced Front to Back Linearity
- Protective Parylene Coating Option

Applications

- HVAC
- Industrial Controls
- Environmental Controls
- Air Sampling Equipment
- Portable / Handheld Equipment

Wetted Media

- Silicon
- RTV
- Gold
- Ceramic
- Epoxy
- Nylon Plastic
- Aluminum

Pressure Sensor Maximum Ratings	Equivalent Circuit
Supply Voltage VS +20 V _{DC} Lead Temperature, max (soldering 2-4 sec.) 270°C Maximum Device Temperature 245°C	<p>The diagram shows a Wheatstone bridge circuit. The top node is labeled '+Vsupply' and the bottom node is labeled 'Ground'. The left node is labeled 'Out-' and the right node is labeled 'Out+'. Each of the four arms of the bridge is represented by a black rectangular resistor symbol.</p>
Environmental Specifications	
Temperature Ranges Compensated 0° C to 50° C Operating -40° C to 85° C Storage -40° C to 125° C Humidity Limits (non condensing) 0 to 95% RH Media: Dry air or inert non-conductive gases	



MLDX Series Pressure Ranges

Low Pressure Products

CODE	Pressure Range ¹			Pressure Mode	Proof Pressure ²		Burst Pressure ³		Nominal Span ⁴
	P _{min} inH2O	P _{max}	kPa		inH2O	kPa	inH2O	kPa	mV
L05D	-5	5	1.2	Differential	200	50	300	75	17
L10D	-10	10	2.5	Differential	200	50	300	75	17

High Pressure Products

CODE	Pressure Range ¹			Pressure Mode	Proof Pressure ²		Burst Pressure ³		Nominal Span ⁴
	P _{min} PSI	P _{max}	kPa		psi	kPa	psi	kPa	mV
001D	-1	1	7	Differential	7	48	10	69	15
005D	-5	5	34	Differential	10	69	20	138	50
015D	-15	15	103	Differential	30	207	60	414	75
030D	-30	30	207	Differential	60	414	90	621	75
100D	-100	100	690	Differential	120	827	150	1,034	83
015A	0	15	103	Absolute	30	207	60	414	75
030A	0	30	207	Absolute	60	414	90	621	75
100A	0	100	690	Absolute	120	827	150	1,034	83

Note 1: Pressure ranges in kPa are expressed as an approximate value.

Note 2: Differential Proof Pressure: The maximum pressure which may safely be applied to one port of the product for it to remain in specification once pressure is returned to the operating pressure range.

Note 3: Differential Burst Pressure: The maximum pressure that may be applied to one port of the product without causing escape of pressure media. Product should not be expected to function after exposure to any pressure beyond the burst pressure.

Note 4: Nominal Span at 10Vdc supply.

Product Options:

Parylene Coating:

Parylene coating provides a moisture barrier and protection from some harsh media. Unlike other pressure sensor suppliers offering a Parylene coating, All Sensors performs this process in-house and uses an advanced production system to achieve the highest accuracy and reliability. This avoids transferring products out of and back to the pressure sensor manufacturing facility, provides complete quality control and improves the delivery time to customers. Specially designed masking techniques allow All Sensors to apply a cost-effective, high-volume Parylene coating in house.

Consult factory for applicability of Parylene for the target application and sensor type. This option is not available for pressure ranges below 10 inH2O.

Performance Characteristics for MLDX Series

All parameters are measured at 10.0 volt excitation and room temperature unless otherwise specified. Pressure measurements are with positive pressure applied to B port.

Parameters	Min	Typ	Max	Units	Notes
Full-Scale Span (FSS)					
L05D	16	17	18	mV	1
L10D	20.42	20.8	21.25	mV	1
001D	14	15	16	mV	1
005D	49.63	50	50.38	mV	1
015D, 015A, 030D, 030A	74.63	75	75.38	mV	1
100D, 100A	82.63	83	83.38	mV	1
Span Temperature Effect (0°C to 50°C)					
	-	-	±1.5	%FSS	2
Offset Voltage					
at Zero Diff Pressure (L05D, L10D, 001D)	-	-	±500	uV	-
at Zero Diff. Pressure (005D, 015D, 030D, 100D)	-	-	±250	uV	-
at Zero Pressure (015A, 030A, 100A)	-	-	±250	uV	-
Offset Temperature Effect (0°C to 50°C)					
	-	-	±250	uV	2
Offset Long-Term Drift (One Year)					
L05D, L10D, 001D	-	±150	-	uV	-
005D, 015D/A, 030D/A, 100D/A	-	±100	-	uV	-
Combined Linearity and Hysteresis Error					
L05D, L10D, 001D	-	0.2	±0.3	%FSS	3
005D, 015D/A, 030D/A, 100D/A	-	0.2	±0.5	%FSS	3
Response Time					
	-	500	-	us	4
Common Mode Voltage					
	1.5	2.5	5	V	5
Input Resistance					
	-	27	-	kOhm	6
Output Resistance					
L05D, L10D, 001D	-	3.2	-	kOhm	7
005D, 015D, 015A, 030D, 030A, 100D, 100A	-	5	-	kOhm	7

Specification Notes

NOTE 1: FULL-SCALE SPAN IS THE ALGEBRAIC DIFFERENCE BETWEEN THE OUTPUT VOLTAGE AT FULL-SCALE AND ZERO PRESSURE

NOTE 2: OFFSET AND SPAN ERRORS RELATIVE TO THE 25°C [77°F] READING

NOTE 3: MEASURED AT ONE-HALF FULL-SCALE PRESSURE USING BFSL

NOTE 4: RESPONSE TIME FOR A ZERO TO FULL-SCALE PRESSURE STEP CHANGE, 10% TO 90% RISE TIME

NOTE 5: COMMON MODE VOLTAGE IS THE AVERAGE OF THE OUTPUT ARMS FOR $V_s = 10V_{dc}$

NOTE 6: INPUT RESISTANCE IS THE RESISTANCE BETWEEN V_s AND GROUND

NOTE 7: OUTPUT RESISTANCE IS THE RESISTANCE BETWEEN OUTPUT+ AND OUTPUT-

Soldering Recommendations

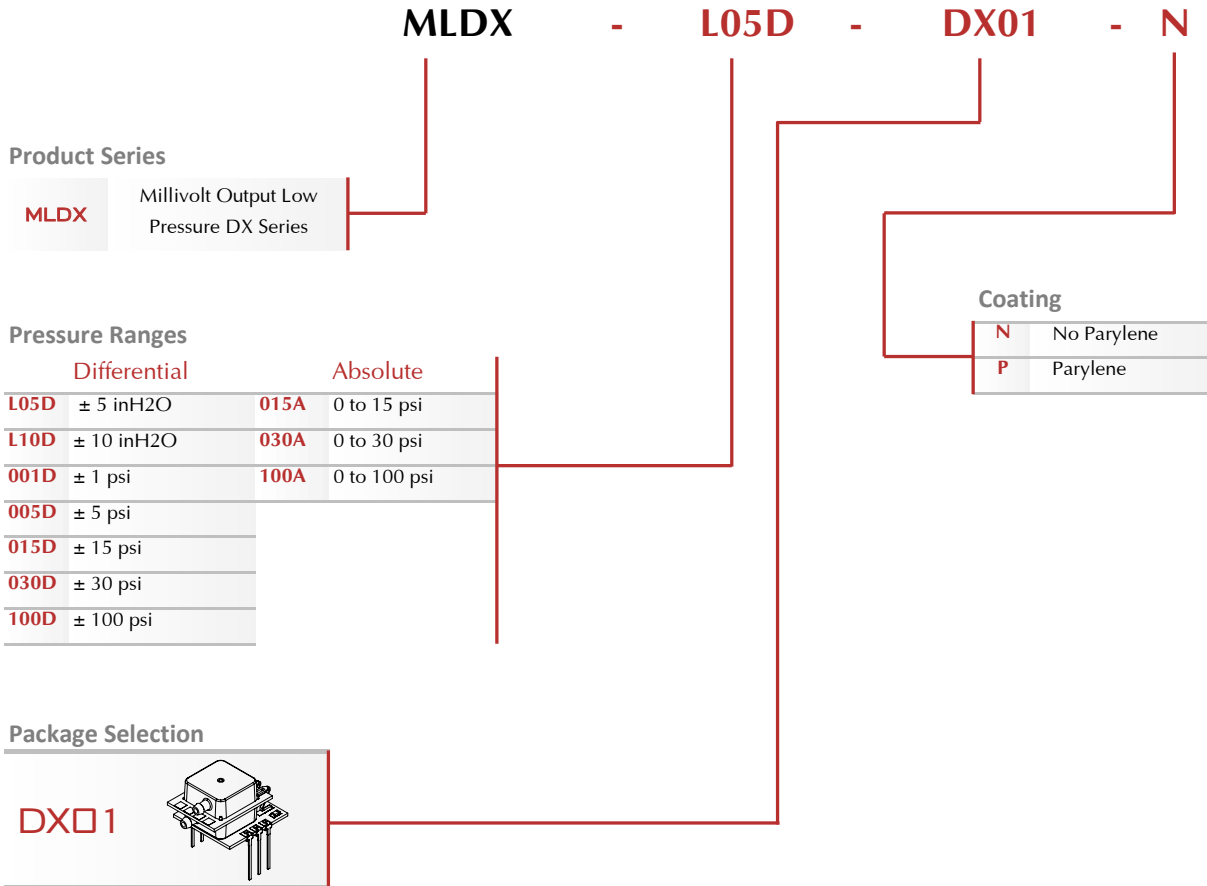
- 1) Solder parts as a second operation only.
- 2) Post reflow and other high temperature processes, wait for 48 hrs before performing any calibration operations.
- 3) Perform spot cleaning as necessary only by hand. **DO NOT** wash or submerge device in cleaning liquid.
- 4) Max 270°C lead temperature (soldering 2-4 sec.)

If these devices are to be subjected to solder reflow assembly or other high temperature processing, they must be baked for 1 hour at 125°C within 24 hours prior to exposure. Failure to comply may result in cracking and/or delamination of critical interfaces within the package, and is not covered by warranty.



How to Order

For example, **MLDX-L05D-DX01-N** defines an All Sensors' MLDX Millivolt Output Low Pressure DX Series sensor, 5 inH₂O differential pressure range, DX01 package, no parylene coating.



Package Drawing

DX01 Package

Pin	Definition
1	Output+
2	Ground
3	Output-
4	N/C
5	Vs
6	N/C

NOTES
1) Dimensions are in inches [mm].

ALL SENSORS

TITLE: DX-Series Package

SIZE	FILE NAME
A	DX01 Package

Product Labeling

MLDX-L05D-
DX01-N

R19F01-01

———— Company

———— Part Number

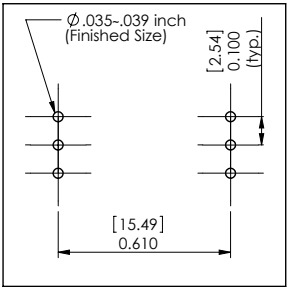
———— Lot Number

Example Device Label

All Sensors reserves the right to make changes to any products herein. All Sensors does not assume any liability arising out of the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.



PAD Drawings



PAD-33