ALL SENSORS®

DLC - コンパクト高精度デジタル出力圧力センサー

目次

概要

コンパクト高精度デジタル出力圧力センサーDLCは、All Sensorsの CoBeam²™ テクノロジーに基づいています。この技術によってセンサーパッケージにかかる圧力の影響を低下し、全体的な長期安全性を向上させています。この技術の進歩によりピエゾ抵抗圧力センサーの技術水準は、従来のシリコンによるひずみゲージセンサーから大幅に進歩しました。

駆動電圧が低いため、I²Cシリアル通信チャンネルへの直接接続だけではなく、広範囲のプロセス制御および測定システムにセンサーを統合することが出来ます。

DLCシリーズは16bitのデジタル出力を提供します。デジタルインターフェイスオプションはシリアル通信チャンネルへの直接接続を可能にする幅広いプロセス制御および測定システムへのセンサーの統合を容易にします。

バッテリー駆動システムの場合、センサー間の電力消費量を最低限に抑えるために、センサーを待機中に低電力モードにすることが出来ます。

これらの校正および温度補償されたセンサーは、広い温度範囲で正確で安定した出力を提供します。

このシリーズは、空気や乾燥したガスなどの非腐食性、非イオン性流体との使用を意図しています。

A 16035 Vineyard Blvd. Morgan Hill, CA 95037
P 408 225 4314 F 408 225 2079 E www.allsensors.com ALL SENSORS

特徴

- 圧力範囲1 inH2O ～ 150 psi（250Pa ~ 1MPa）
- 高精度16bit出力
- デジタル I2C インターフェイス
- 駆動電圧 1.8V ～ 3.6V
- コンパクトサイズ　例： 7mm x 7mm

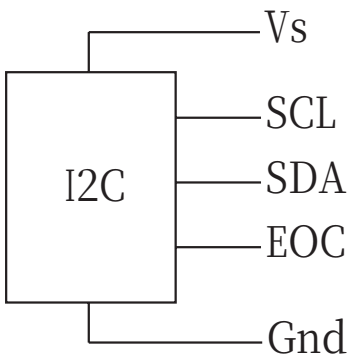
応用分野

- 医療呼気
- 産業制御
- HVAC
- 環境制御
- ポータブル医療端末

圧力センサー最大定格	
供給電圧 **(Vs)**	3.63 Vdc
コモンモード圧力	10 psig

環境仕様	
温度範囲	
補償温度範囲	-25°C ～ 85 °C
動作温度範囲	-40°C ～ 85 °C
保存温度範囲	-40°C ～ 125 °C
湿度 **(**結露なきこと**)**	0 ～ 95% RH

等価回路図



See package drawings for pinouts

A 16035 Vineyard Blvd. Morgan Hill, CA 95037 P 408 225 4314 F 408 225 2079 E www.allsensors.com
ALL SENSORS

定格圧力範囲

低圧

型番	定格圧力範囲 追記A		過負荷耐圧		破壊耐圧	
DLC-L01D	± 1 inH2O	248.84 Pa	100 inH2O	24.88 kPa	300 inH2O	74.65 kPa
DLC-L02D	± 2 inH2O	497.68 Pa	100 inH2O	24.88 kPa	300 inH2O	74.65 kPa
DLC-L05D	± 5 inH2O	1,244.20 Pa	200 inH2O	49.77 kPa	300 inH2O	74.65 kPa
DLC-L10D	± 10 inH2O	2,488.40 Pa	200 inH2O	49.77 kPa	300 inH2O	74.65 kPa
DLC-L20D	± 20 inH2O	4,976.80 Pa	200 inH2O	49.77 kPa	500 inH2O	124.42 kPa
DLC-L30D	± 30 inH2O	7,465.20 Pa	200 inH2O	49.77 kPa	500 inH2O	124.42 kPa
DLC-L60D	± 60 inH2O	14,930.4 Pa	200 inH2O	49.77 kPa	800 inH2O	199.01 kPa
DLC-L01G	0 to 1 inH2O	248.84 Pa	100 inH2O	24.88 kPa	300 inH2O	74.65 kPa
DLC-L02G	0 to 2 inH2O	497.68 Pa	100 inH2O	24.88 kPa	300 inH2O	74.65 kPa
DLC-L05G	0 to 5 inH2O	1,244.20 Pa	200 inH2O	49.77 kPa	300 inH2O	74.65 kPa
DLC-L10G	0 to 10 inH2O	2,488.40 Pa	200 inH2O	49.77 kPa	300 inH2O	74.65 kPa
DLC-L20G	0 to 20 inH2O	4,976.80 Pa	200 inH2O	49.77 kPa	500 inH2O	124.42 kPa
DLC-L30G	0 to 30 inH2O	7,465.20 Pa	200 inH2O	49.77 kPa	500 inH2O	124.42 kPa
DLC-L60G	0 to 60 inH2O	14,930.4 Pa	200 inH2O	49.77 kPa	800 inH2O	199.01 kPa

高圧

型番	定格圧力範囲 追記A		過負荷耐圧		破壊耐圧	
DLC-005D	± 5 psi	34.47 kPa	10 psi	68.95 kPa	15 psi	103.42 kPa
DLC-015D	± 15 psi	103.42 kPa	30 psi	206.84 kPa	45 psi	310.26 kPa
DLC-030D	± 30 psi	206.84 kPa	60 psi	413.69 kPa	90 psi	620.53 kPa
DLC-100D	± 100 psi	689.48 kPa	200 psi	1,378.95 kPa	225 psi	1,551.32 kPa
DLC-150D	± 150 psi	1,034.20 kPa	225 psi	1,551.32 kPa	225 psi	1,551.32 kPa
DLC-005G	0 to 5 psi	34.47 kPa	10 psi	68.95 kPa	15 psi	103.42 kPa
DLC-015G	0 to 15 psi	103.42 kPa	30 psi	206.84 kPa	45 psi	310.26 kPa
DLC-030G	0 to 30 psi	206.84 kPa	60 psi	413.69 kPa	90 psi	620.53 kPa
DLC-100G	0 to 100 psi	689.48 kPa	200 psi	1,378.95 kPa	225 psi	1,551.32 kPa
DLC-150G	0 to 150 psi	1,034.20 kPa	225 psi	1,551.32 kPa	225 psi	1,551.32 kPa
DLC-015A	0 to 15 psia	1.03 barA	30 psi	2.06 barA	45 psi	3.10 barA
DLC-030A	0 to 30 psia	2.06 barA	60 psi	4.14 barA	90 psi	6.20 barA
DLC-100A	0 to 100 psia	6.89 barA	200 psi	13.79 barA	225 psi	15.51 barA
DLC-150A	0 to 150 psia	10.34 barA	225 psi	15.51 barA	225 psi	15.51 barA

追記A: Paの値はPSIを元に計算した値です。

性能仕様　DLCシリーズ

特に注意書きがない限りすべての値は3.3V、励起±5%、25°Cで測定した値です。ポートBから正圧を加えています。

パラメーター	最小	通常	最大	単位	追記
出力スパン **(FSS)**					1
LxxD (全てのパッケージ)	-	$\pm 0.4 * 2^{24}$	-	Dec Counts	
LxxG (U2 パッケージ)	-	$0.4 * 2^{24}$	-	Dec Counts	
LxxG (その他)	-	$0.8 * 2^{24}$	-	Dec Counts	
0xxD (全てのパッケージ)	-	$\pm 0.4 * 2^{24}$	-	Dec Counts	
0xxG (全てのパッケージ)	-	$0.8 * 2^{24}$	-	Dec Counts	
0xxA (U5 パッケージ)	-	$0.8 * 2^{24}$	-	Dec Counts	
オフセット出力（差圧ゼロの時）					-
LxxD (全てのパッケージ)	-	$0.5 * 2^{24}$	-	Dec Counts	
LxxG (U2 パッケージ)	-	$0.5 * 2^{24}$	-	Dec Counts	
LxxG (その他)	-	$0.1 * 2^{24}$	-	Dec Counts	
0xxD (全てのパッケージ)	-	$0.5 * 2^{24}$	-	Dec Counts	
0xxG (全てのパッケージ)	-	$0.1 * 2^{24}$	-	Dec Counts	
0xxA (U5 パッケージ)	-	$0.1 * 2^{24}$	-	Dec Counts	
総合精度誤差					2
L01G	-	-	±3.00	%FSS	
L01D, L02G	-	-	±2.00	%FSS	
L02D, L05G, L05D, L10G, L10D, L20G	-	-	±1.25	%FSS	
L20D, L30G, L30D, L60G, L60D	-	-	±1.00	%FSS	
All Higher Pressure	-	-	±1.00	%FSS	
圧力デジタル分解能**- No Missing Codes**					-
16-bit Option	15.3	15.5	-	bit	
温度出力					-
分解能	-	16	-	bit	
総合精度	-	2	-	°C	
消費電流					3, 4, 5
アクティブ時 (ICC_{Active})	-	2.0	2.5	mA	
アイドル時 (ICC_{Idle})	-	100	250	nA	
起動時間	-	-	2.5	ms	3
応答速度 **(t_{DU})**		**(**下記参照**)**		ms	3, 4

分解能	測定コマンド										
	Single		**Average2**		**Average4**		**Average8**		**Average16**		**Units**
	Typ	**Max**	**Typ**	**Max**	**Typ**	**Max**	**Typ**	**Max**	**Typ**	**Max**	
16 bit	**3.70**	**4.1**	**7.20**	**8.0**	**14.20**	**15.7**	**28.20**	**31.1**	**56.20**	**61.9**	**ms**

はんだ付け条件

1) はんだ付けは1秒以内に行ってください。
2) はんだ付け後48時間以内に測定に使用しないでください。
3) 液体によるクリーニングは行わないでください。

a 16035 Vineyard Blvd. Morgan Hill, CA 95037 p 408 225 4314 f 408 225 2079 e www.allsensors.com ALL SENSORS

I2C 電気パラメーター

パラメーター	Symbol	最小	通常	最大	単位	Notes
入力ハイレベル	-	80.0	-	100	% of Vs	5
入力ローレベル	-	0	-	20.0	% of Vs	5
出力ローレベル	-	-	-	10.0	% of Vs	5
I2C プルアップレジスタ	-	1000	-	-	Ω	5
I2C SDAロードキャパシタンス@ 400 kHz	C_{SDA}	-	-	200	pF	5
I2C 入力キャパシタンス (各ピン)	C_{I2C_IN}	-	-	10.0	pF	5
I2C アドレス			41		decimal	

圧力への出力変換

$$Pressure(inH_2O) = 1.25 \times \left(\frac{Pout_{dig} - OS_{dig}}{2^{24}} \right) \times FSS(inH_2O)$$

$Pout_{dig}$ センサーからの圧力出力

OS_{dig} オフセット時のデジタル出力
(性能仕様表参照)

$FSS(inH_2O)$ スパンは Full Scale Span in inches H_2O の値です。
圧力基準 ゲージ圧の場合: Full Scale Pressure
圧力基準 差圧の場合: 2 x Full Scale Pressure.

温度への出力変換

$$Temperature\ (°C) = \left(\frac{Tout_{dig} * 150}{2^{24}} \right) - 40$$

$Tout_{dig}$ センサーからの温度出力
(追記 only the upper 16 bits are significant)

追記

NOTE 1: スパンによって大小10桁の数値とオフセット小数点桁数以下が異なります。フルスケール圧力が最大の正の校正圧力値です。

NOTE 2: オフセット誤差とスパン温度と校正誤差、直線性とヒステリシス誤差、オフセットウォームアップシフトおよびオフセット姿勢特性の合計値

NOTE 3: 100%テストした値ではありません。

NOTE 4: データ更新中はコマンドに対して排他的です。EOCピンが低い状態かどうかでセンサーがアクティブ状態か見ることが出来ます。

NOTE 5: 平均電流は次式のように計算して算出します。$ICC_{Idle} + ((t_{DU} / \text{Reading Interval}) * ICC\ \text{Active}))$. 図2のセンサーアクティブ状態（EOCピンが低い状態）を参照してください。

NOTE 6: センサーは3.3Vで校正されていますが、内部レギュレータは1.8V～3.6Vの駆動電圧で使用することができます。電源から直接操作可能です。 -

Note 7: 連続読み取りで校正。

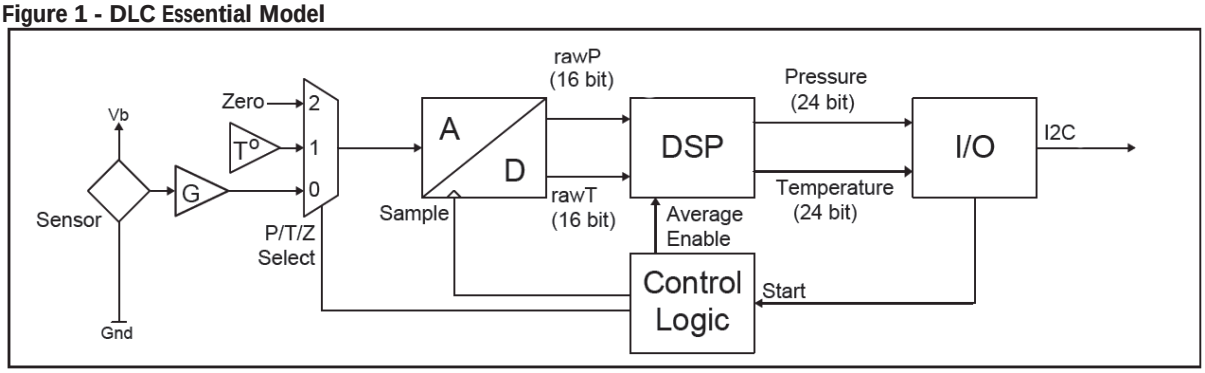
機器オプション

出力分解能
出力分解能は16bitに校正されています。
データ更新間隔については性能仕様項目の表を参照してください。

動作概要

DLC is a digital sensor with a signal path that includes a sensing element, a variable- bit analog to digital con - verter, a DSP and an IO block that supports an I2C interface (see Figure 1 below). The sensor also includes an internal temperature reference and associated control logic to support the configured operating mode. Since there is a single ADC, there is also a multiplexer at the front end of the ADC that selects the signal source for the ADC.

Figure 1 - DLC Essential Model



The ADC performs conversions on the raw sensor signal (P), the temperature reference (T) and a zero reference (Z) during the ADC measurement cycle.

The DSP receives the converted pressure and temperature information and applies a multi-order transfer function to compensate the pressure output. This transfer function includes compensation for span, offset, temperature effects on span, temperature effects on offset and second order temperature effects on both span and offset. There is also linearity compensation for gage devices and front to back linearity compensation for differential devices.

Sensor Commands: Five Measurement commands are supported, returning values of either a single pressure / temperature reading or an average of 2, 4, 8, or 16 readings. Each of these commands wakes the sensor from Idle state into Active state, and starts a measurement cycle. For the Start-Average commands, this cycle is repeated the appropriate numper of times, while the Start-Single command performs a single iteration. When the DSP has completed calculations and the new values have been made available to the I/O block, the sensor returns to Idle state. The sensor remains in this low-power state until another Measurement command is received.

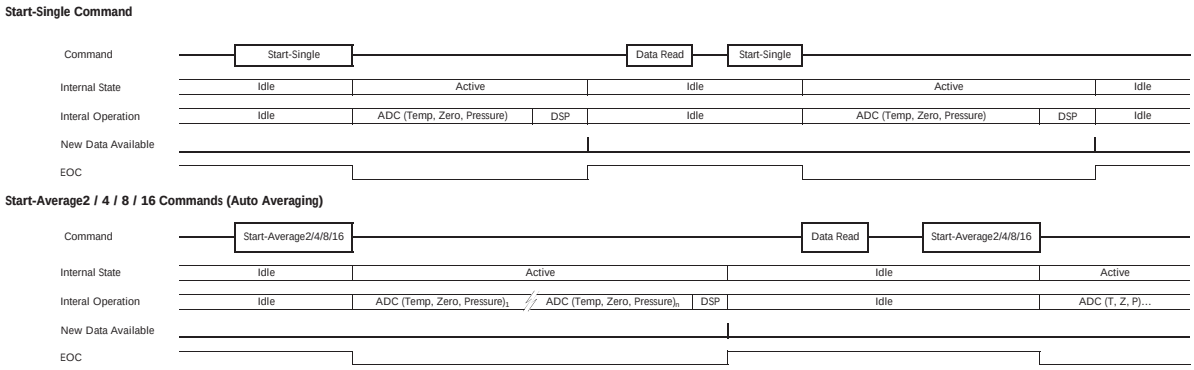
After completion of the measurement, the result may then be read using the Data Read command. The ADC and DSP remain in Idle state, and the I/O block returns the 7 bytes of status and measurement data. See Figure 2, following. At any time, the host may request current device status with the Status Read command.
See Table 1 for a summary of all commands.

For optimum sensor performance, All Sensors recommends that Measurement commands be issued at a fixed interval by the host system. Irregular request intervals may increase overall noise on the output.
Furthermore, if reading intervals are much slower than the Device Update Time, using the Averaging commands is suggested to reduce offset shift. This shift is constant with respect to time interval, and may be removed by the application. For longer fixed reading intervals, this shift may be removed by the factory on special request.

a 16035 Vineyard Blvd. Morgan Hill, CA 95037 p 408 225 4314 f 408 225 2079 e www.allsensors.com ALL SENSORS

Operation Overview

Figure 2 - DLC Communication Model



Digital Interface Command Formats

When requesting sensor status over I2C, the host simply performs a 1-byte read transfer.
When reading sensor data over I2C, the host simply performs a 7-byte read transfer.

See Table 1 below for Measurement Commands, Sensor Data read and Sensor Status read details.

Table 1 - DLC Sensor Command Set

Measurement Commands	
Description	**I2C**
Start-Single	0xAA
Start-Average2	0xAC
Start-Average4	0xAD
Start-Average8	0xAE
Start-Average16	0xAF

Read Sensor Data	
I2C	Read of 7 bytes from device

Read Sensor Status	
I2C	Read of 1 byte from device.

Digital Interface Data Format

For either type of digital interface, the format of data returned from the sensor is the same. The first byte consists of the Status Byte followed by a 24-bit unsigned pressure value and a 24-bit unsigned temperature value. Unused bits beyond the calibrated bit width are undefined, and may have any value. See the Pressure Output Transfer Function and Temperature Output Transfer Function definitions on page 3 for converting to pressure and temperature.
Refer to Table 2 for the overall data format of the sensor. Table 3 shows the Status Byte definition.
Note that a completed reading without error will return status 0x40.

Table 2 - Output Data Format

S[7:0]	P[23:16]	P[15:8]	P[7:0]	T[23:16]	T[15:8]	T[7:0]
Status Byte	Pressure MSB	Pressure Byte 1	Pressure LSB	Temperature MSB	Temperature Byte 1	Temperature LSB

Table 3- Status Byte Definition

Bit	Description
Bit 7 [MSB]	[Always = 0]
6	Power : [1 = Power On]
5	Busy: [1 = Processing Command, 0 = Ready]
4:3	Mode: [00 = Normal Operation]
2	Memory Error [1 = EEPROM Checksum Fail]
1	Sensor Configuration [always = 0]
Bit 0 [LSB]	ALU Error [1 = Error]

I2C Interface

I2C Command Sequence

The part enters Idle state after power-up, and waits for a command from the bus master. Any of the five Measurement commands may be sent, as shown in Table 1. Following receipt of one of these commands, the EOC pin is set to Low level, and the sensor Busy bit is set in the Status Byte. After completion of measurement and calculation in the Active state, compensated data is written to the output registers, the EOC pin is set high, and the processing core goes back to Idle state. The host processor can then perform the Data Read operation, which for I2C is simply a 7-byte Device Read.
If the EOC pin is not monitored, the host can poll the Status Byte by repeating the Status Read command, which for I2C is a one-byte Device Read. When the Busy bit in the Status byte is zero, this indicate that valid data is ready, and a full Data Read of all 7 bytes may be performed.

ALL SENSORS
A 16035 Vineyard Blvd. Morgan Hill, CA 95037 P 408 225 4314 F 408 225 2079 E www.allsensors.com

I2C Bus Communications Overview

The I2C interface uses a set of signal sequences for communication. The following is a description of the supported sequences and their associated mnemonics. Refer to Figure 3 for the associated usage of the following signal sequences.

Bus not Busy (I): During idle periods both data line (SDA) and clock line (SCL) remain HIGH.

START condition (ST): A HIGH to LOW transition of SDA line while the clock (SCL) is HIGH is interpreted as START condition. START conditions are always set by the master. Each initial request for a pressure value has to begin with a START condition.

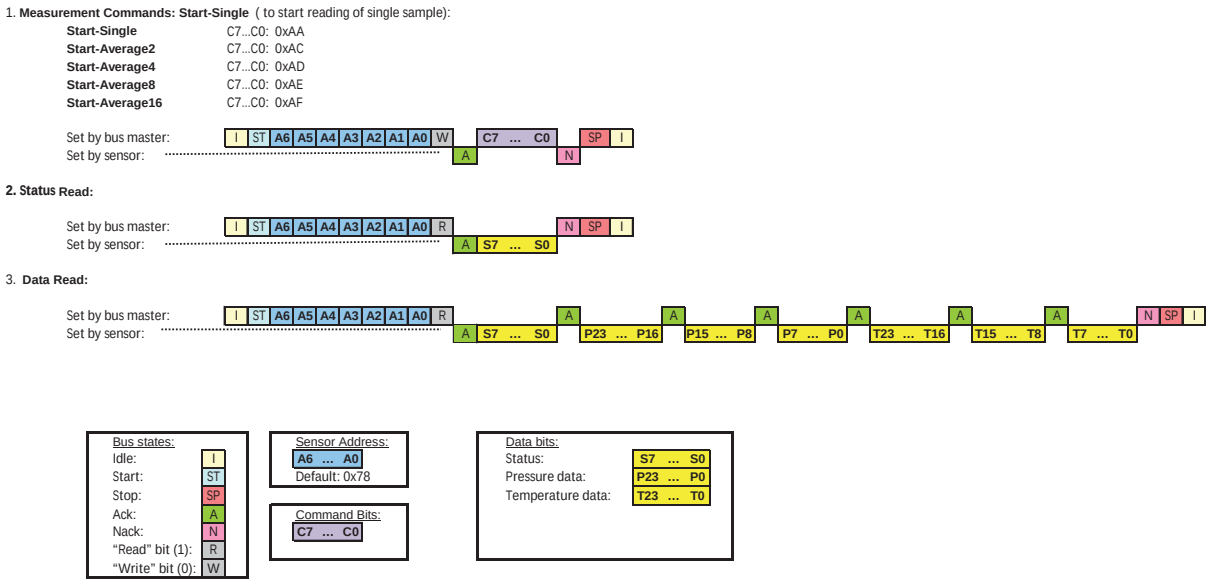
Slave address (An): The I ² C-bus requires a unique address for each device. The DLC sensor has a preconfigured slave address (see specification table on Page 3). After setting a START condition the master sends the address byte containing the 7 bit sensor address followed by a data direction bit (R/W). A "0" indicates a transmission from master to slave (WRITE), a "1" indicates a device-to master request (READ).

Acknowledge (A or N): Data is transferred in units of 8 bits (1 byte) at a time, MSB first. Each data-receiving device, whether master or slave, is required to pull the data line LOW to acknowledge receipt of the data. The Master must generate an extra clock pulse for this purpose. If the receiver does not pull the data line down, a NACK condition exists, and the slave transmitter becomes inactive. The master determines whether to send the last command again or to set the STOP condition, ending the transfer.

DATA valid (Dn): State of data line represents valid data when, after a START condition, data line is stable for duration of HIGH period of clock signal. Data on line must be changed during LOW period of clock signal. There is one clock pulse per data bit.

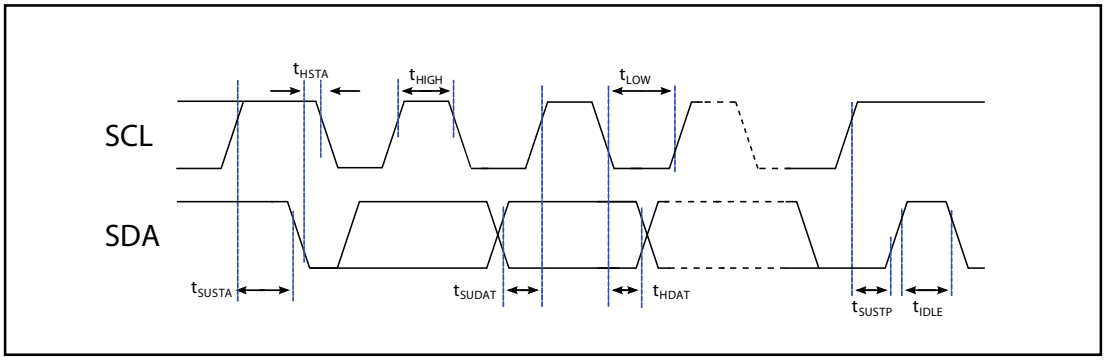
STOP condition (P): LOW to HIGH transition of the SDA line while clock (SCL) is HIGH indicates a STOP condition. STOP conditions are always generated by the master.

Figure 3 - I2C Communication Diagram



Interface Timing Diagram

Figure 4 - I2C Timing Diagram



PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
SCL frequency	f_{SCL}	100	-	400	KHz
SCL low width	t_{LOW}	1.3	-	-	us
SCL high width	t_{HIGH}	0.6	-	-	us
Start condition setup	t_{SUSTA}	0.6	-	-	us
Start condition hold	t_{HSTA}	0.6	-	-	us
Data setup to clock	t_{SUDAT}	0.1	-	-	us
Data hold to clock	t_{HDAT}	0	-	-	us
Stop condition setup	t_{SUSTP}	0.6	-	-	us
Bus idle time	t_{IDLE}	2.0	-	-	us

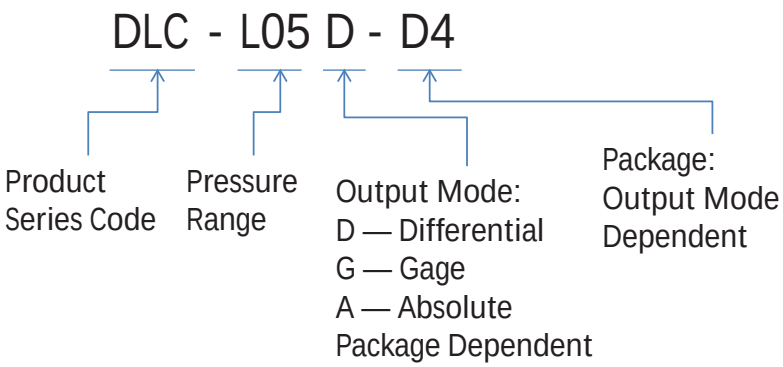
ALL SENSORS
A 16035 Vineyard Blvd. Morgan Hill, CA 95037 P 408 225 4314 F 408 225 2079 E www.allsensors.com

How to Order

Refer to Table 5 for standard part numbers offered which includes the pressure range and package.

Example P/N with options: DLC-L05D-D4

Table 4 - Part Numbering Scheme:



Where:
Pressure Range (D1, D3, D4 Package): All Differential Pressure Ranges
Pressure Range (U1, U2 Package): All Gage Pressure Ranges
Pressure Range (U5 Package): All Absolute Pressure Ranges

Table 5 - Standard Part Number Configurations

D Packages	Low Pressure Products	DLC - L01 D - D1	DLC - L01 D - D3	DLC - L01 D - D4
		DLC - L02 D - D1	DLC - L02 D - D3	DLC - L02 D - D4
		DLC - L05 D - D1	DLC - L05 D - D3	DLC - L05 D - D4
		DLC - L10 D - D1	DLC - L10 D - D3	DLC - L10 D - D4
		DLC - L20 D - D1	DLC - L20 D - D3	DLC - L20 D - D4
		DLC - L30 D - D1	DLC - L30 D - D3	DLC - L30 D - D4
		DLC - L60 D - D1	DLC - L60 D - D3	DLC - L60 D - D4
	High Pressure Products	DLC - 005 D - D1	DLC - 005 D - D3	DLC - 005 D - D4
		DLC - 015 D - D1	DLC - 015 D - D3	DLC - 015 D - D4
		DLC - 030 D - D1	DLC - 030 D - D3	DLC - 030 D - D4
		DLC - 100 D - D1	DLC - 100 D - D3	DLC - 100 D - D4
		DLC - 150 D - D1	DLC - 150 D - D3	DLC - 150 D - D4
U Packages	Low Pressure Products	DLC - L01 G - U1	DLC - L01 G - U2	
		DLC - L02 G - U1	DLC - L02 G - U2	
		DLC - L05 G - U1	DLC - L05 G - U2	
		DLC - L10 G - U1	DLC - L10 G - U2	
		DLC - L20 G - U1	DLC - L20 G - U2	
		DLC - L30 G - U1	DLC - L30 G - U2	
		DLC - L60 G - U1	DLC - L60 G - U2	
	High Pressure Products	DLC - 005 G - U1	DLC - 005 G - U2	DLC - 015 A - U5
		DLC - 015 G - U1	DLC - 015 G - U2	DLC - 030 A - U5
		DLC - 030 G - U1	DLC - 030 G - U2	DLC - 100 A - U5
		DLC - 100 G - U1	DLC - 100 G - U2	DLC - 150 A - U5
		DLC - 150 G - U1	DLC - 150 G - U2	

Product Identification on backside of device

All products are labeled via laser marking as seen in Figure 5.

Figure 6 details how to interpret the part marking code. Low pressure ranges from 1 to 60 inH2O are specified with code “L” and 5 to 150 psi high pressure products with code “H”.

The pressure range will be indicated on the same line as the wafer number before the starting character “B”.

Example: DLC-L05D-D4

Figure 5: Product Labeling

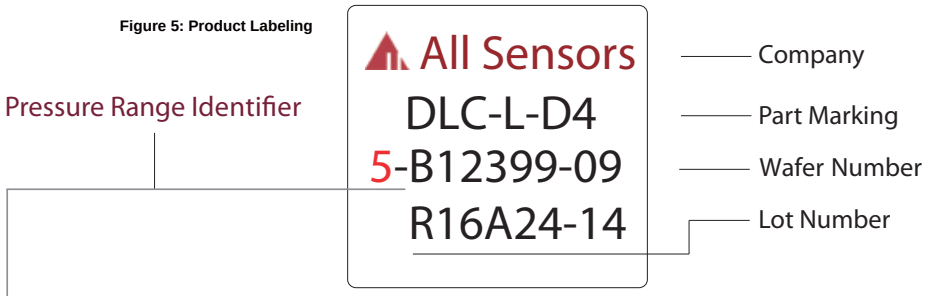
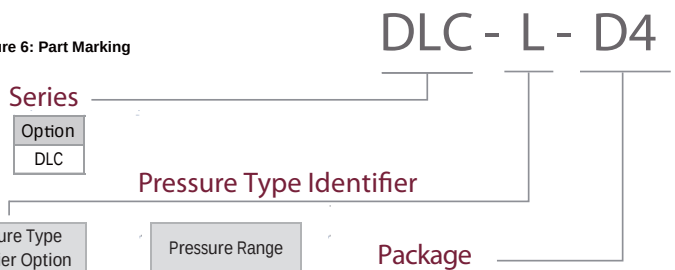


Figure 6: Part Marking



Pressure Range Identifier Option	Pressure Type Identifier Option		Pressure Range
1	L	⇨	1 inH2O
2	L	⇨	2 inH2O
5	L	⇨	5 inH2O
10	L	⇨	10 inH2O
20	L	⇨	20 inH2O
30	L	⇨	30 inH2O
60	L	⇨	60 inH2O
5	H	⇨	5 PSI
15	H	⇨	15 PSI
30	H	⇨	30 PSI
100	H	⇨	100 PSI
150	H	⇨	150 PSI

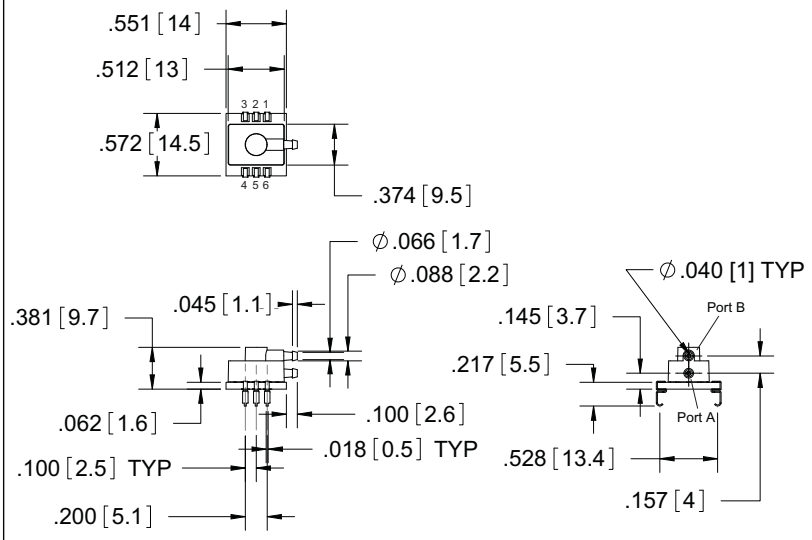
Option	Description
U1	DIP, Single Top Port, Gage pressure
U2	SMT, Single Top Port, Gage pressure
U5	SMT, No Port, Absolute pressure
D1	Jogged SMT Leads, Dual Port, Same Side, Differential pressure
D3	SML Leads, Dual Port, Opposite Side, Differential pressure
D4	SOIC, Differential pressure

A 16035 Vineyard Blvd. Morgan Hill, CA 95037 P 408 225 4314 F 408 225 2079 E www.allsensors.com
ALL SENSORS

Package Drawings

D1 Package

Pin	Definition
1	N/C
2	SCL
3	SDA
4	EOC
5	VDD
6	VSS



All Sensors

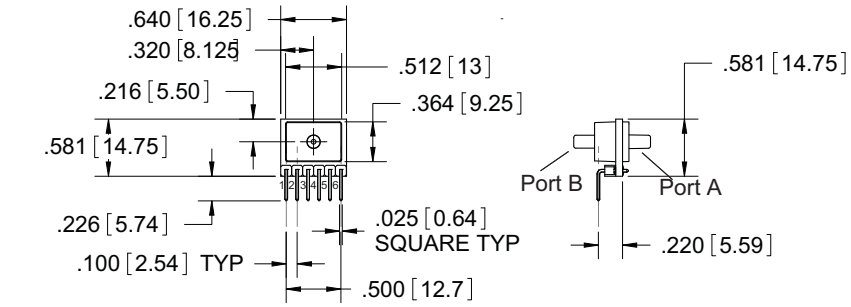
TITLE: D-Series Package

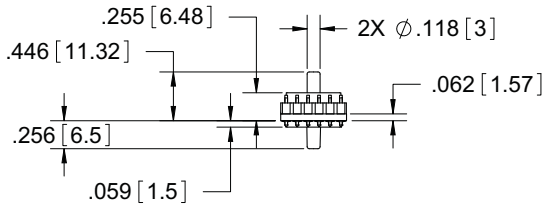
SIZE A | FILE NAME D1 Package

NOTES
1) Dimensions are in inches [mm].
2) For suggested pad layout, see drawing: PAD-20.

D3 Package

Pin	Definition
1	N/C
2	SCL
3	SDA
4	EOC
5	VDD
6	VSS





All Sensors

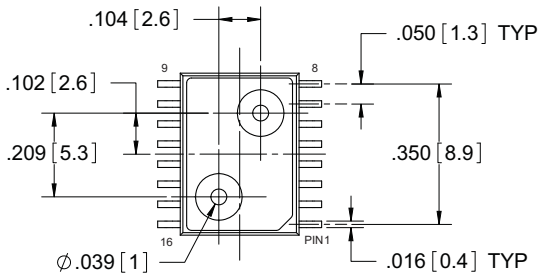
TITLE: D-Series Package

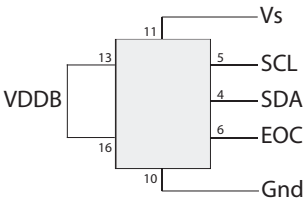
SIZE A | FILE NAME D3 Package

NOTES
1) Dimensions are in inches [mm].
2) For suggested pad layout, see drawing: PAD-21.

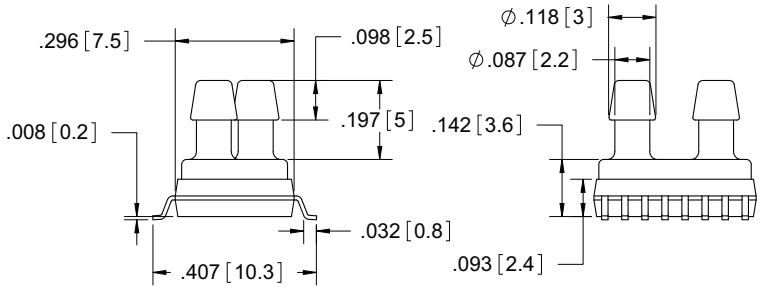
Package Drawings (Cont'd)

D4 Package





Pin	Definition
1	INP
2	N/C
3	VSSB
4	SDA
5	SCL
6	EOC
7	N/C
8	N/C
9	N/C
10	VSS
11	VDD
12	N/C
13	VDDB
14	INN
15	N/C
16	VDDB



NOTES
1) Dimensions are in inches [mm].
2) For suggested pad layout, see drawing: PAD-22
3) Sensors in this package require handling in accordance with MSL3.
4) Do not connect any signal to Pins 1, 3 & 14.
5) PCB must connect Pin 13 to Pin 16.

All Sensors

TITLE: D-Series Package

SIZE A | FILE NAME D4 Package

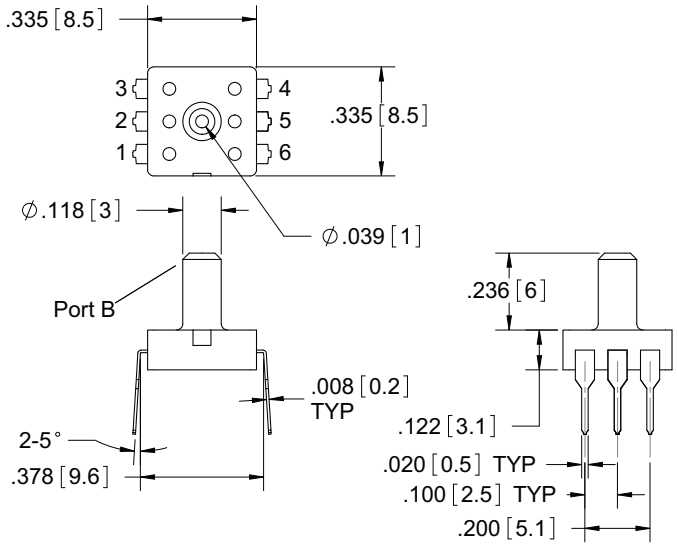
A 16035 Vineyard Blvd. Morgan Hill, CA 95037 P 408 225 4314 F 408 225 2079 E www.allsensors.com

ALL SENSORS

Package Drawings (Cont'd)

U1 Package

Pin	Definition
1	N/C
2	SCL
3	SDA
4	EOC
5	VDD
6	VSS



All Sensors

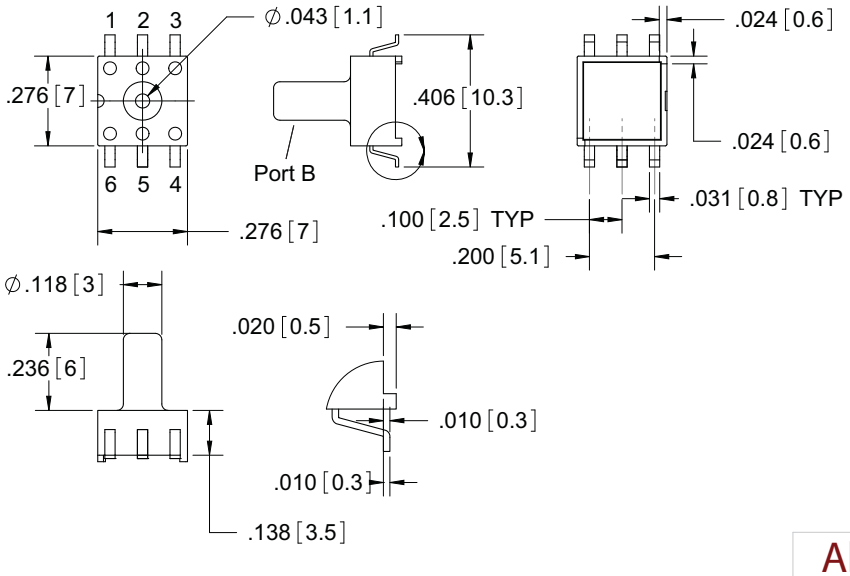
TITLE: U-Series Package

SIZE A | FILE NAME U1 Package

NOTES
1) Dimensions are in inches [mm].
2) For suggested pad layout, see drawing: PAD-23.

U2 Package

Pin	Definition
1	N/C
2	SCL
3	SDA
4	EOC
5	VDD
6	VSS



All Sensors

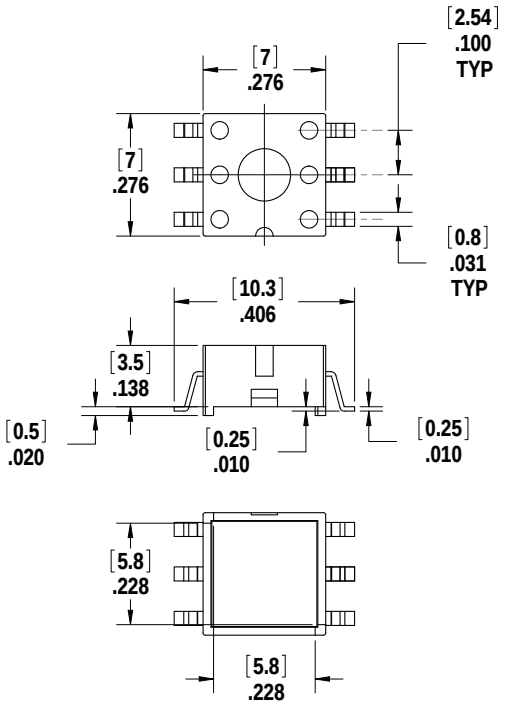
TITLE: U-Series Package

SIZE A | FILE NAME U2 Package

NOTES
1) Dimensions are in inches [mm].
2) For suggested pad layout, see drawing: PAD-24.

Package Drawings (Cont'd)

U5 Package



Pin	Definition
1	N/C
2	SCL
3	SDA
4	EOC
5	VDD
6	VSS

NOTES
1) Dimensions are in inches [mm].
2) For suggested pad layout, see drawing: PAD-24.
3) Absolute pressure only.

All Sensors

TITLE: U-Series Package

SIZE A | FILE NAME U5 Package

Packing Options

TUBE

ALL PRODUCTS FOUND IN THIS DATASHEET ARE PACKAGED IN TUBES.

(Consult with factory for the option to ship in trays)

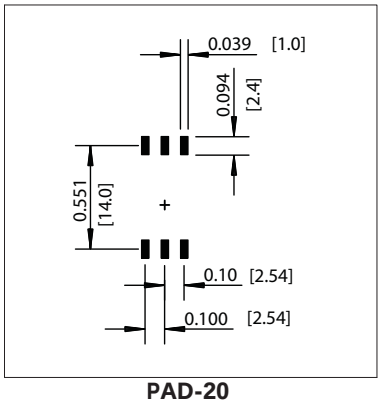
ALL SENSORS
A 16035 Vineyard Blvd. Morgan Hill, CA 95037
P 408 225 4314
F 408 225 2079
E www.allsensors.com

Pressure Tubing Recommendations

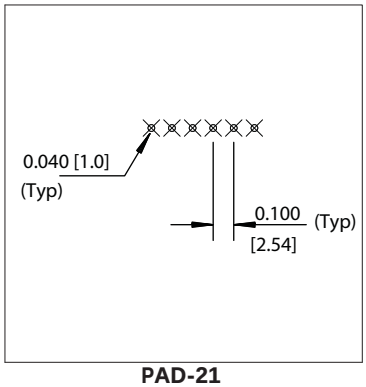
Tubing Number	Recommended Tubing Sizes
1	1/16" I.D. x 1/8" O.D. x 1/32" Wall
2	3/32" I.D. x 5/32" O.D. x 1/32" Wall

Package	Tubing Number
D1	1
D3	2
D4	2
U1	2
U2	2
U5	N/A

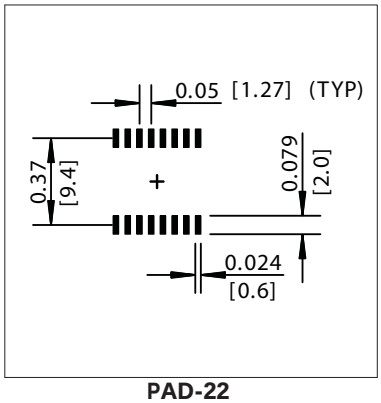
Suggested Pad Layouts



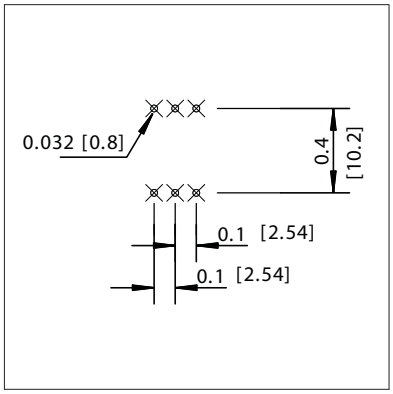
PAD-20



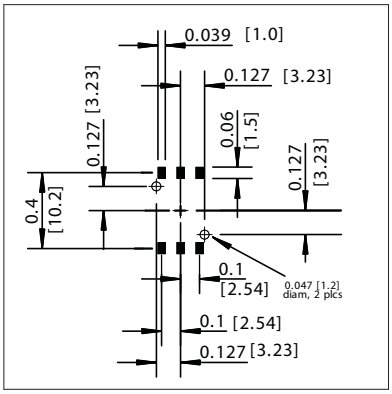
PAD-21



PAD-22



PAD-23



PAD-24

Dimensions are in inches [mm].