

# 129CP SERIES

## DIGITAL WATER PRESSURE SENSOR

### Introduction

Utilizing Sensata’s industry leading ceramic capacitive technology, the 129CP pressure sensor is housed in a small and innovative package ideal for use in tight spaces. The sensor is robust and reliable to withstand harsh conditions such as water hammer over the life of the sensor and the water pressure sensor uses state of the art electronics to accommodate digital I<sup>2</sup>C output, low power consumption, fast response time, and end-of-conversion interrupt.

For ease of integration, the flex tail is connected to the PCB and the sensor pressure port is just compressed to an orifice where the water pressure is to be read. The 129CP is ideal for water and other mid pressure applications where low power consumption is essential like use in smart water meters.



### Features

- 0-16 bar (0-232 psi) sealed gauge
- 0-230 psi sealed gauge
- Digital I<sup>2</sup>C output
- Very low power consumption <2  $\mu$ A at 1Hz measurement
- Small size (18 mm x 23.5 mm x 12.5 mm)
- Easy design integration
- Robust and reliable design
- Compatible with drinking water safe application

### Applications

- Residential water meters
- Water networks

## SPECIFICATIONS

### Electrical

<b>Supply Voltage</b>	1.7-3.6 VDC
<b>Digital Output</b>	I <sup>2</sup> C
<b>Resolution</b>	14 bit min
<b>Supply Current: Update Mode</b>	750 to 1100 $\mu$ A
<b>Supply Current: Sleep Mode</b>	0.07 to 1 $\mu$ A
<b>Wake-Up Response Time</b>	0.5 ms max
<b>Reverse Voltage</b>	-0.3 VDC
<b>ESD</b>	IEC 61000-4-2
<b>Radiated Immunity</b>	IEC 61000-4-3
<b>Electrical Connection</b>	Flex cable (see dimensions section below)
<b>ESD</b>	Conforms to IEC 61000-4-2 Level 3, 4kV contact / 8kV air

## Physical

<b>Pressure Range</b>	0 - 16 bar (0-232 psi)
<b>Pressure Reference</b>	Sealed Gauge
<b>Proof Pressure</b>	2X FS <sup>(1)</sup> Pressure
<b>Burst Pressure</b>	5X FS <sup>(1)</sup> Pressure
<b>Accuracy (Best Fit Straight Line)<sup>(2)</sup></b>	+/-1%FS <sup>(1)</sup> , 25°C
<b>Accuracy (Total Error Band)<sup>(3)</sup></b>	+/-2% FS <sup>(1)</sup> , 4 to 40°C
<b>Fluid Compatibility*</b>	Potable Water
<b>Wetted Materials</b>	Sense Element: 96%Alumina (Al <sub>2</sub> O <sub>3</sub> ) Pressure Port: 304L Stainless Steel Inner Seal: EPDM Outer Seal: EPDM

\*Other fluid compatibility available upon request

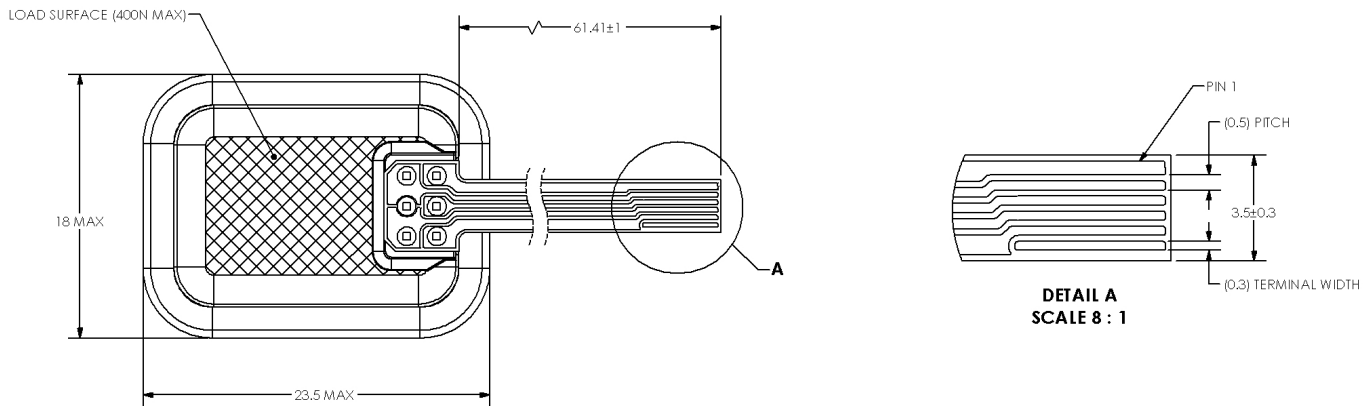
## Performance

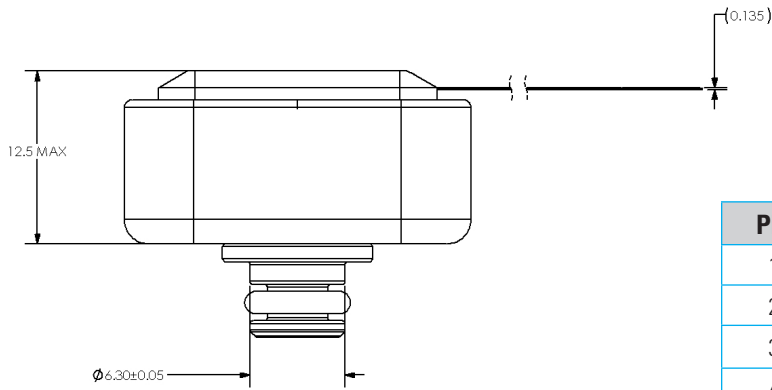
<b>Random Vibration</b>	DIN IEC 60068-2-27: 5G (2-2kHz)
<b>Mechanical Shock</b>	DIN IEC 60068-2-6: 40G1/2 HL SINE
<b>Operating Temperature</b>	2°C to 85°C
<b>Storage Temperature</b>	-25°C to 85°C
<b>Waterhammer</b>	100K cycles 0 to 25 bar (0 to 360 psi)
<b>Operational Pressure Cycling</b>	1M



## DIMENSIONS

Dimensions in mm





Pin	Designation	Description
1	EOC	End-of-conversion and Output Interrupt
2	GND	Ground
3	SDA	Bi-directional data for I <sup>2</sup> C
4	SCL	Clock input for I <sup>2</sup> C interface
5	VDD	Power supply
6	n.c.	No connection

## GENERAL NOTES

- (1) Full Scale Pressure = Pmax - Pmin
- (2) Best fit straight line accuracy includes errors from non-linearity, non-repeatability, and hysteresis
- (3) Total error band accuracy includes errors from non-linearity, non-repeatability, hysteresis, zero offset, full span offset, and thermal effects

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