

## Series A1 / A2 – Installation and Operation Manual

The series A1 and A2 are microprocessor based digital pressure gauges for positive, negative, and differential measurement designed to be a direct replacement for mechanical gauges. The ½” LCD display gives the gauge improved readability and precision. These products also feature 5 user selectable engineering units including in. w.c., mm w.c., cm w.c., kPa, and Pa. The A2 series adds a “process arch” which gives the gauge a similar look to mechanical gauges by giving a continuous percent output status.

### 1.1 Model Number Configuration

Example	A2100-03					Description
Model	A					Round Panel Mount Housing
Display	1					LED display
	2					LED display & arch
Control			0			N/A
Transmitter			0			None
			1			4-20 mA
Accuracy			0			1%
			1			0.50%
Range					- 01	0 – 0.50”
					- 02	0 – 1”
					- 03	0 – 2”
					- 04	0 – 3”
					- 05	0 – 4”
					- 06	0 – 5”
					- 07	0 – 8”
					- 08	0 – 10”
					- 09	0 – 15”
					- 10	0 – 20”
					- 11	0 – 30”

### 1.2 Specifications

**Maximum Pressure:** Ranges  $\leq 4$ ” w.c. = 2 PSI; Ranges  $\geq 5$ ” w.c. = 10 PSI

**Media compatibility:** Air and compatible non combustible, non corrosive gasses

**Accuracy\*:** Axxx0-xx - 1.00%; Axxx1-xx - 0.50%

**Temperature Ranges:**

**Compensated:** -10° to 140°F (-23° to 60°C)

**Operating:** -10° to 140°F (-23° to 60°C)

**Thermal Effect\*:** +/- 0.012% FS/°F

**Output Signal:** 4-20 mA (option)

**Loop Resistance:** 750  $\Omega$  Max (for internally sourced power); 1800  $\Omega$  Max (for externally sourced power of 36 VDC)

**Power Supply:** Universal 16-265 VAC or VDC

**Housing Material:** Glass Filled Nylon

**Enclosure Rating:** Designed to meet NEMA 4X face; with optional cover entire product is weatherproof

**Electrical Connections:** screw terminals

**Response Time:** <100 ms

**Display:** 4 Digit, red LED, ½” digits

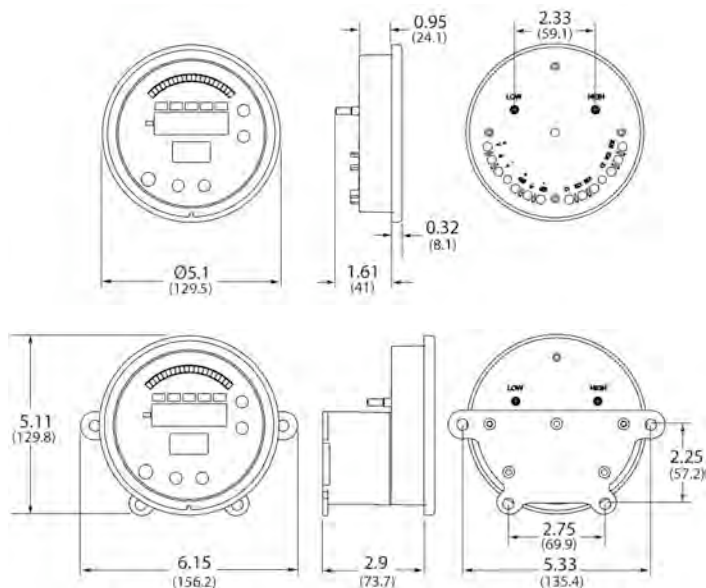
**Process Connection:** Push on connection for 3/16” tubing

**Gauge Approvals:** Pending – UL, C-UL, CE

**Patents Pending**

\* Custom calibration including improved accuracy and improved thermal effect are available.

### 1.3 Dimensional Drawings

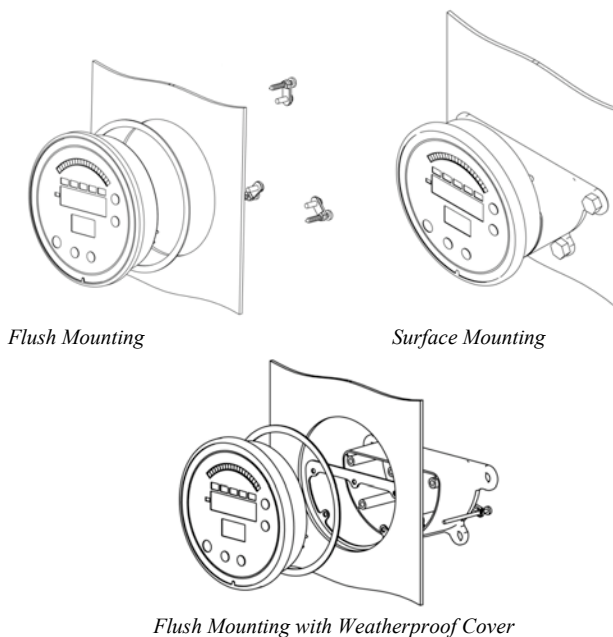


### 2.1 Mounting

**Flush Mounting** – For new applications, cut a 4 9/16” hole in the panel. Insert the control with the provided gasket through the hole and secure it to the panel with the provided mounting tabs and screws. Retrofitting old technology is also easy with the Series A1 and A2. They have been designed to fit in industry standard holes ranging from 4 9/16” to 4 13/16” so simply remove the old device and insert the new control into the existing cut out.

**Surface Mounting** – Surface mounting the Series A1 or A2 requires the optional weather proof cover. Once the control is wired and the weather proof cover has been attached, the control can be mounted to any flat surface with the four mounting screws provided with the cover.

**Flush Mounting with Weather Proof cover** – The Series A1 and A2 can also be flush mounted with a weather proof cover. The procedure is the same as above, but utilizes two extra long mounting screws (provided with the weather proof cover) for the bottom two panel connections.

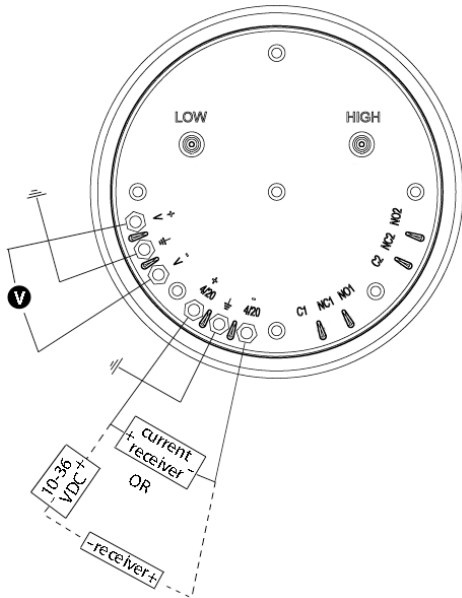


Flush Mounting with Weatherproof Cover

## 2.2 Pressure Connection

Two 3/16" pressure connections are located on the back of the unit, labeled "High" and "Low". For best results, connect 3/16" I.D. push on tubing to the pressure connections. If the High connection has a greater absolute value than the Low connection, the front display will give a positive value. If the HI connection has a lower absolute value than the LO connection, the front display will give a negative value.

## 2.3 Electrical Connections

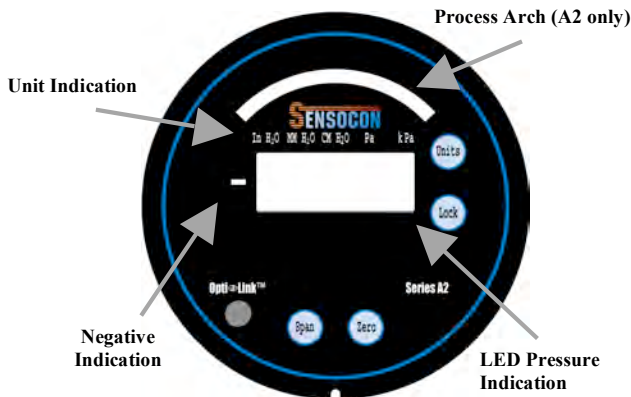


### NOTES:

1. Supply Voltage is universal from 16-265 VAC or VDC
2. For internally sourced 4-20 mA loop, maximum loop resistance is 750 Ω; for externally sourced loop at 36 VDC, maximum loop resistance is 1800 Ω.
3. Isolation:  
4-20 mA: 5000 VAC to all other inputs and outputs

## 3.1 Display

The series A1 displays pressure on a 4 digit LED display and will show 3 or 4 digits depending on the range and accuracy of the product. Negative pressure will be indicated by a negative sign before the numerical indication. Units of measure are displayed above the 4 digit LED display by LED indicators. The Series A2 adds a process arch, which is designed to mimic the indicating needle of a mechanical gauge. The process arch will light up from left to right as the pressure moves away from zero.



## 3.2 Key Function

The A1 and A2 have four buttons located on the face of the gauge for set-up and calibration. There is a Span, Zero, Units, and Lock button. The Units button changes the unit of measure and the Lock button locks and unlocks the keypad on the gauge. Span and Zero are used for calibration (see calibration section 4.2).

By simultaneously pressing the span and zero buttons for 3 seconds, the unit will be switched from internally sourcing the power for the current loop to requiring an external power supply.

## 4.1 Opti-Link

Opti-link™ is an infrared communications technology that allows the user to upload and download program parameters from one unit to another with a programming key. By using the PK-01 universal programming key, the user may program one unit, download those parameters to the universal programming key and then upload that same program from the key to other controls. By using a PK-02 lockout programming key, a user may completely lock (or unlock) the face keypad of the control to eliminate the possibility of unwanted tampering of the control.

## 4.2 Calibration

Periodically, it may be necessary to recalibrate the gauge to maintain the accuracy of the product. To "zero" the gauge, remove the pressure connections from both pressure ports and hold the zero button for 3 seconds. To "span" the gauge, apply the full scale pressure to the High pressure port and hold the span button for 3 seconds while maintaining the full scale pressure. Pressure must be maintained at zero or span during the calibration process. Because the span and zero are non interactive, this should complete the calibration process.

The 4-20 mA process output is set to give a linear output from 0 to the full scale pressure range of the product. Other pressure spans such as bi-directional or reduced ranges can be scaled with an Opti-Link™ programming key, consult the factory for details.

## 4.3 Limited Warranty

### LIMITED WARRANTY

SENSOCON warrants its products to be free from defects in materials and workmanship for a period of one (1) year from the date of shipment, subject to the following terms and conditions: Without charge, SENSOCON will repair, replace, or refund the purchase price at SENSOCON's option products found to be defective in materials or workmanship within the warranty period; provided that:

- i. the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing, or use in violation of labels or instructions provided by SENSOCON;
- ii. the product has not been repaired or altered by anyone except SENSOCON;
- iii. the maximum ratings label and serial number or date code have not been removed, defaced, or otherwise changed;
- iv. examination discloses, in the judgment of SENSOCON, the defect in materials or workmanship developed under normal installation, use and service; and
- v. SENSOCON is notified in advance of and the product is returned to SENSOCON transportation prepaid before expiration of the warranty period.

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