



# Series 107 Low Differential Pressure Detectors

Form 459

## Low Differential Pressure Detectors for Air & Gas Applications

**SOR® low differential pressure detectors** are robust, field-mounted instruments designed for the process industries. These instruments accurately read very low pressures by utilizing a diaphragm with a large sensing area. The detecting element is SPDT. An external Set Point adjustment with visual indication is standard, allowing for simplified calibration of the detector.

### Applications

Built to high-quality standards for reliability, this detector is suitable for draft ranges commonly associated with HVAC applications and burner management systems. It is also suited for other industrial air and gas services which are compatible with the wetted parts. Standard models are available for weathertight or explosion-proof environments.



**Non-Hazardous  
Locations**



**Hazardous Locations**

### Features and Benefits

- External Set Point adjustment with visual scale
- Fine Set Point resolution
- Narrow dead band
- High repeatability
- UL Listed and CSA Certified snap-action detecting elements
- Screw terminals standard on weathertight detectors; wire leads standard on explosion proof
- Rugged design
- 3-year warranty from date of manufacture

### Safety Certified to IEC 61508 (SIL)

- SOR products are certified to IEC 61508 for non-redundant use in SIL1 and SIL2 Safety Instrumented Systems for most models. For more details or values applicable to a specific product, see the Safety Integrity Level Quick Guide (Form 1528).

Select model number from table. Accessory designators may be added after **F0A** if required.

Adjustable Range		Contact Rating		Model Number	Typical Dead Band	
in. wc	mm wc				in. wc	mm wc
0 to 12	0 to 305	10 amps	24 volt	107AL - N12 - P1 - F0A	0.25	6.4
5 to 40	125 to 1000			107AL - N40 - P1 - F0A	0.3	7.5
0 to 12	0 to 305	15 amps	24 volt	107AL - K12 - P1 - F0A	0.3	7.5
5 to 40	125 to 1000			107AL - K40 - P1 - F0A	0.35	9.0

## Product Specifications

<b>Electrical Housing</b>		<b>Electrical Service</b>	
Type	Weathertight NEMA 4	Contact form	SPDT
Material	6063-T5 aluminum	* DC electrical ratings are for resistive loads only. They may not be agency approved, listed or certified, but have been verified by testing or experience.	
<b>Pressure Ports</b>		<b>Temperature Limits</b>	
Material	Plated cold-rolled steel	Ambient	-40 to 150°F (-40 to 65°C)
Connection size	1/8" NPT(F)	Process	-40 to 150°F (-40 to 65°C)
	For 1/4" NPT(F), change F0A to F1A in selected model.	<b>Max System Pressure</b>	
<b>Wetted Materials</b>		10 psig (.69 bar)	
Buna-N, brass, aluminum, cork, stainless steel, acrylic tubing, nylon, plated cold-rolled steel		Vacuum protected to 30" Hg	
<b>Electrical Connection</b>		<b>Weight</b>	
3/4" NPT(F); screw terminals		Approximate 5 lb (2.3 kg)	

Design and specifications are subject to change without notice. For latest revision, see [www.sorinc.net](http://www.sorinc.net).

## Accessories

Description	Designator
CSA Certified differential pressure detector. (107AL only) (CSA type 4 enclosure)	CS
Canadian Registration Number (CRN) - Process ratings may be affected. Consult the factory for details.	CV
Factory Mutual Approved differential pressure detector. (107AL only) NEMA 4	FM
Pipe Stanchion mounting kit.	PK
Tag, fiber. Attached with plastic tie to housing. Contains customer P.O. number and specified tagging information.	PP
24 VAC powered DPDT Relay, contact rating: 10 amps @ 24 VAC, 10 amps @ 24 VDC	RC
24 VAC powered DPDT Relay, contact rating: 5 amps @ 24 VAC, 10 amps @ 24 VDC	RD
Tag, stainless steel. Attached with stainless steel wire to housing. Stamped with customer-specified tagging information. (2 lines, 18 characters and spaces per line.)	RR
Oversize nameplate. Stamped with customer-specified tagging information. (3 lines, 25 characters and spaces per line.)	TT
Fungicidal varnish. Covers exterior and interior except working parts.	VV

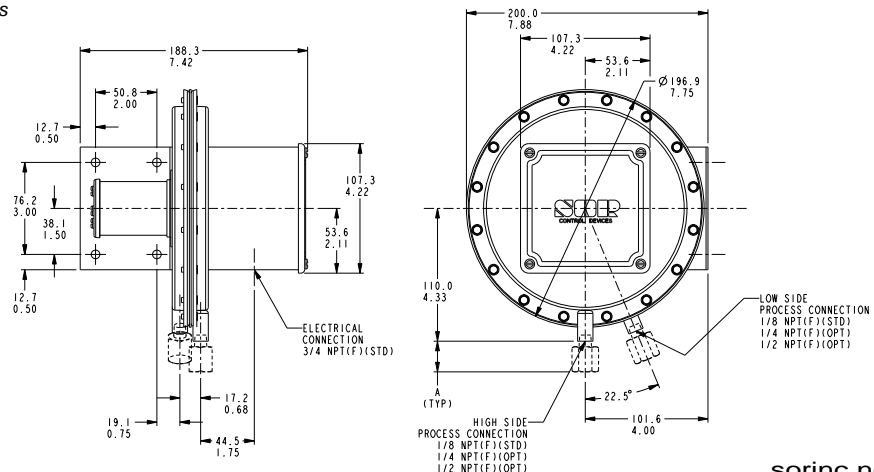
**NOTE:** see page 4 for Test Certificates

## Dimensions

Dimensions are for reference only. Contact the factory for certified drawings for a particular model number.

$$\text{Linear} = \frac{\text{mm}}{\text{in.}}$$

Drawing 0090594



# Low Differential Pressure Detectors

## How to Order

Select model number from table. Accessory designators may be added after F0A if required.

Adjustable Range		Contact Form	Model Number	Typical Dead Band	
in. wc	mm wc			in. wc	mm wc
0 to 12	0 to 305	SPDT	107EL - EF12 - P1 - F0A	0.3	7.5
		DPDT	107EL - EG12 - P1 - F0A	0.5	13
5 to 40	125 to 1000	SPDT	107EL - EF40 - P1 - F0A	0.6	15
		DPDT	107EL - EG40 - P1 - F0A	0.8	20

## Product Specifications

### Electrical Housing

Type Contains explosion-proof hermetically sealed detecting element. See Electrical Service. Class I, Groups A, B, C, D; Class II, Groups E, F, G; Divisions 1 & 2 Weathertight

### Body Material

356-T6 aluminum

### Pressure Ports

Material Plated cold-rolled steel  
Connection size 1/8" NPT(F)  
For 1/4" NPT(F), change F0A to F1A in selected model.

### Wetted Materials

Buna-N, brass, aluminum, cork, stainless steel, acrylic tubing, nylon, plated cold-rolled steel

### Electrical Connection

1/2" NPT(M); 18" stranded wire leads, 18-AWG color-coded and marked.

### Temperature Limits

Ambient -40 to 150°F (-40 to 65°C)  
Process -40 to 150°F (-40 to 65°C)

Electrical Service Contact ratings 5 amps 24 volt  
\* 5.0 amps 24 volt  
\* 0.5 amps 24 volt

The hermetically sealed detecting element capsule is UL Listed, CSA Certified and SAA Approved as an explosion-proof snap detector per the following table.

Agency	Hazardous Location Conditions
UL	Weathertight Class I, Groups A, B, C, & D; Class II, Groups E, F, & G; Divisions 1 & 2
CSA Certified	Ex s Zone 2 IIC T4 IP65 Ex tD A22 T105°C IP65
SAA Approved	Ex s Zone 2 IIC T4 IP65 Ex tD A22 T105°C IP65
ATEX Approved	II 2 EEx m II

\*DC electrical ratings are for resistive loads only. DC ratings are not agency approved or listed but have been verified by testing or experience.

Max. System Pressure 10 psig (.69 bar)  
Vacuum protected to 30" Hg

Weight Approximate 5 lb. (2.3 kg)

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## Accessories

Description	Designator
Canadian Registration Number (CRN) - Process ratings may be affected. Consult the factory for details as required.	CV
Explosion-proof and weathertight junction box with screw terminals. Aluminum 3/4" NPT(F) top or right conduit connections. UL Listed and CSA Certified Class I, Groups A, B, C, & D; Class II, Groups E, F, & G; Divisions 1 & 2. Includes cover o-ring for weathertight applications. Only available with 'EL' housing.	TB*

\* Agency ratings for SOR product sold with junction boxes will be limited to either the rating of the instrument housing or the junction box, whichever is lower.

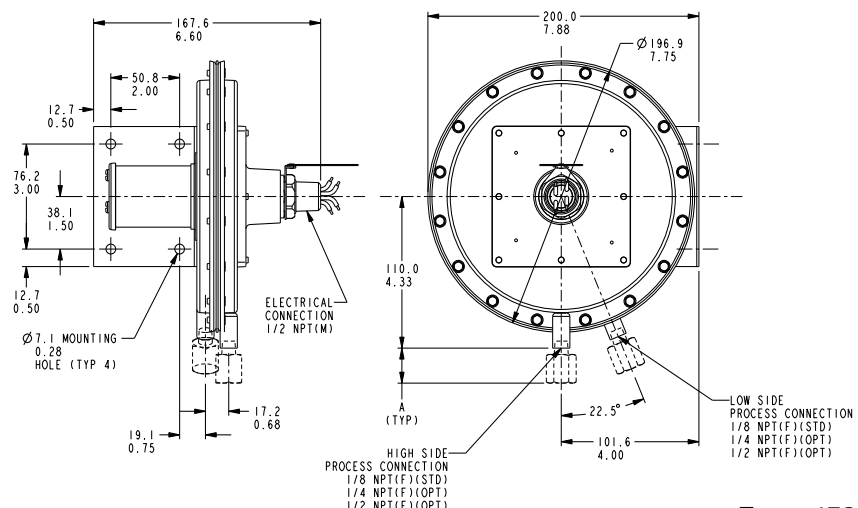
**NOTE:** see below for Test Certificates

## Dimensions

Dimensions are for reference only. Contact the factory for certified drawings for a particular model number.

Linear =  $\frac{\text{mm}}{\text{in.}}$

Drawing 0090593



# Low Differential Pressure Detectors

## Test Certificates

Certificates	C1	C2	C3	C4	C5	C6	C8	B1	B4	B5	B6	B7	A1	A2	A3	A4	A5	A6	A7	A8
Calibration	◆							◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Hydrostatic Pressure Test		◆						◆	◆					◆	◆	◆	◆	◆	◆	◆
Inspection Report			◆					◆	◆	◆	◆	◆			◆	◆		◆	◆	◆
Compliance / Conformance				◆								◆	◆	◆		◆	◆			◆
Dielectric Test					◆				◆	◆										◆
Insulation Resistance						◆			◆	◆	◆							◆	◆	◆
Typical Material of Wetted Parts							◆	◆	◆				◆				◆	◆		

