

# 865 Series – Very Low Differential Pressure Transducers

- ▶ For Air or Non-Conductive Gas
- ▶ 0.25 to 100 Inches in W.C.(differential)/  
±0.1 to ±50 Inches in W.C. (bidirectional)
- ▶ High Proof Pressure

The 865 Series are very low-pressure transducers for ranges as low 0.25" W.C. and feature ±1% full scale static accuracy. Primarily used in Building Energy Management, these transducers are capable of measuring pressures and flows with the accuracy necessary for proper building pressurization and air flow control. 865 Series transducers utilize an all-stainless steel micro-tig welded sensor that allows up to 10 psi overpressure (in either direction) with no damage to the unit. All sensor components have thermally matched coefficients, which promote improved temperature performance and excellent long-term stability.

## Common Specifications

<b>Input</b>	
<b>Pressure Range</b>	0.25" to 100" WC
<b>Proof Pressure</b>	10 psi (700 mbar)
<b>Fatigue Life</b>	10 psi, max. (700 mbar)
<b>Performance</b>	
<b>Supply Voltage (Vs)</b>	9-30 VDC
<b>Accuracy</b>	±1.0% FS (Standard); .4% & .25% versions available
<b>Thermal Error Zero</b>	±0.033% FS/°F (±0.06% FS/°C)
<b>Thermal Error Span</b>	±0.033% FS/°F (±0.06% FS/°C)
<b>Compensated Temperatures</b>	0°F to +150°F (-18°C to +65°C)
<b>Operating Temperatures</b>	0°F to +150°F (-18°C to +65°C)
<b>Storage Temperatures</b>	-40°F to +185°F (-40°C to +85°C)
<b>Zero Tolerance</b>	1% (.5% for high accuracy option)
<b>Span Tolerance</b>	1% (.5% for high accuracy option)
<b>Mechanical Configuration</b>	
<b>Pressure Port</b>	1/4" Fitting
<b>Wetted Parts</b>	Stainless Steel and Glass-Filled Polyester
<b>Electrical Connection</b>	Screw Terminal Strip
<b>Enclosure</b>	Fire Retardant Glass-Filled Polyester; Option A1 Conduit Enclosure Available
<b>Approvals</b>	CE
<b>Weight</b>	3 oz

## Individual Specifications

<b>Voltage Output Units</b>	
<b>Output</b>	0-5 VDC (see ordering chart)
<b>Min. Load Resistance</b>	5000 kohms
<b>Current Output Units</b>	
<b>Output</b>	4-20 mA (2 wire)
<b>Max. Loop Resistance</b>	(Vs-9) x 50 ohms



## Applications

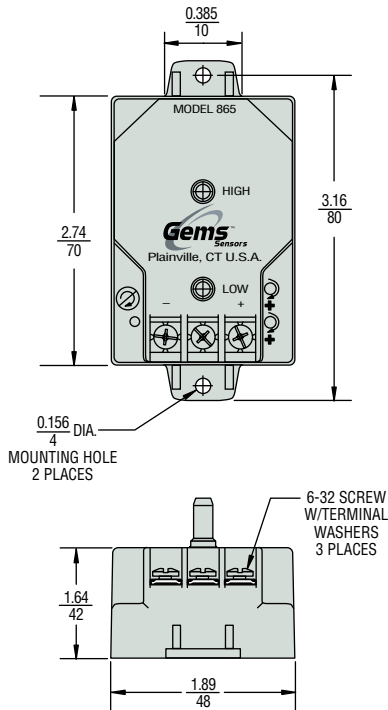
- HVAC
- Energy Management Systems
- Variable Air Volume and Fan Control (VAV)
- Environmental Pollution Control
- Static Duct and Clean Room Pressures
- Oven Pressurization and Furnace Draft Controls

## How They Operate

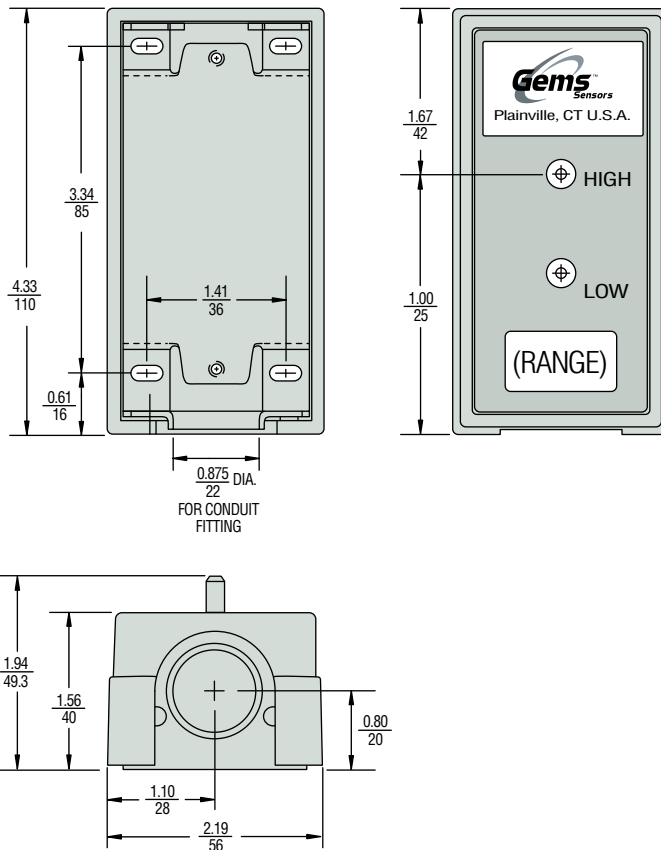
A tensioned stainless steel diaphragm and insulated stainless steel electrode, positioned close to the diaphragm, form a variable capacitor. Positive pressure moves the diaphragm toward the electrode, increasing the capacitance. A decrease in pressure moves the diaphragm away from the electrode, decreasing the capacitance. The change in capacitance is detected and converted to a linear DC electrical signal by Gems' unique electronic circuitry.

Dimensions

Standard 865 Series



Optional Conduit Enclosure – Code A1



How to Order

Use the **bold** characters from the chart below to construct a product code.

SELECT

Series **8651** - 865 Series

Pressure Range Code

<b>Unidirectional</b>		<b>Bidirectional</b>	
Code	Range (Inches W.C.)	Code	Range (Inches W.C.)
<b>R25WD</b>	0 to 0.25	<b>OR1WB</b>	±0.1
<b>OR5WD</b>	0 to 0.5	<b>R25WB</b>	±0.25
<b>001WD</b>	0 to 1.0	<b>OR5WB</b>	±0.5
<b>2R5WD</b>	0 to 2.5	<b>001WB</b>	±1.0
<b>005WD</b>	0 to 5.0	<b>2R5WB</b>	±2.5
<b>010WD</b>	0 to 10.0	<b>005WB</b>	±5.0
<b>025WD</b>	0 to 25.0	<b>010WB</b>	±10.0
<b>050WD</b>	0 to 50.0	<b>025WB</b>	±25.0
<b>100WD</b>	0 to 100.0	<b>050WB</b>	±50.0

Output **11** - 4-20 mA (9-30 VDC excitation)  
**2B** - 0-5 VDC (9-30 VDC excitation)

**8651 - OR5WD - 2B - T1 - C**

Accuracy  
**C** - ±1% FS (Standard)  
 Options:  
**E** - ±0.4% FS – Calibration Certificate supplied  
**F** - ±0.25% FS – Calibration Certificate supplied  
**G** - ±1% FS – Calibration Certificate supplied

Electrical Connection  
**T1** - Terminal Strip  
**A1** - Supplied with Optional 7/8" Knock-Out Hole for 1/2" Conduit Enclosure

## 876 Series – Barometric Pressure Transducers

- ▶ Instant Warm-Up
- ▶ Barometric Pressure: 600 to 1100 or 800 to 1100 hPa/mb
- ▶ Low Power Consumption (for Battery or Solar Power)

The 876 Series features an extremely accurate and stable ceramic sensor to deliver a great value in environmental pressure measurement. Gems' glass-fused ceramic capacitive sensing capsule offers inherent thermal stability and low hysteresis in a proven, simple design. A custom ASIC used in the 876 Series achieves long-term stability and high accuracy, and its low power requirements (as low as 5 VDC) allow the sensor to operate in remote battery or solar powered applications. An integrated mounting bracket and 1/8" tube pressure connection ease installation.

### Common Specifications

<b>Input</b>	
<b>Pressure Range</b>	See ordering chart
<b>Proof Pressure</b>	20 psia (30 psia for 20 psia range)
<b>Fatigue Life</b>	>1 million cycles
<b>Performance</b>	
<b>Long Term Drift</b>	0.25% FS/6 months
<b>Accuracy</b>	±0.25% FS
<b>Thermal Error Zero</b>	1% FS
<b>Thermal Error Span</b>	1% FS
<b>Compensated Temperatures</b>	30°F to +130°F (0°C to +55°C)
<b>Operating Temperatures</b>	0°F to +175°F (-18°C to +79°C)
<b>Storage Temperatures</b>	-65°F to +250°F (-55°C to +121°C)
<b>Zero Tolerance</b>	±25 mV
<b>Span Tolerance</b>	±50 mV
<b>Mechanical Configuration</b>	
<b>Pressure Port</b>	1/8" Tube Fitting
<b>Wetted Parts</b>	Stainless Steel, Alumina Ceramics, Gold, Elastomer
<b>Electrical Connection</b>	2 ft. Multiconductor Cable
<b>Enclosure</b>	Stainless Steel with Mounting Bracket
<b>Vibration</b>	2g from 5 Hz to 400 Hz
<b>Acceleration</b>	10g
<b>Shock</b>	50g (operating, 1/2 sine 10mg)
<b>Approvals</b>	CE
<b>Weight</b>	3.5 oz.

### Individual Specifications

Supply Voltage (Vs)	Excitation	Output (3-wire)
9.0-14.5 VDC	12 VDC	0.1-5.1 VDC
21.6-26.0 VDC	24 VDC	0.1-5.1 VDC
4.9-7.1 VDC	5 VDC	0.5-4.5 VDC



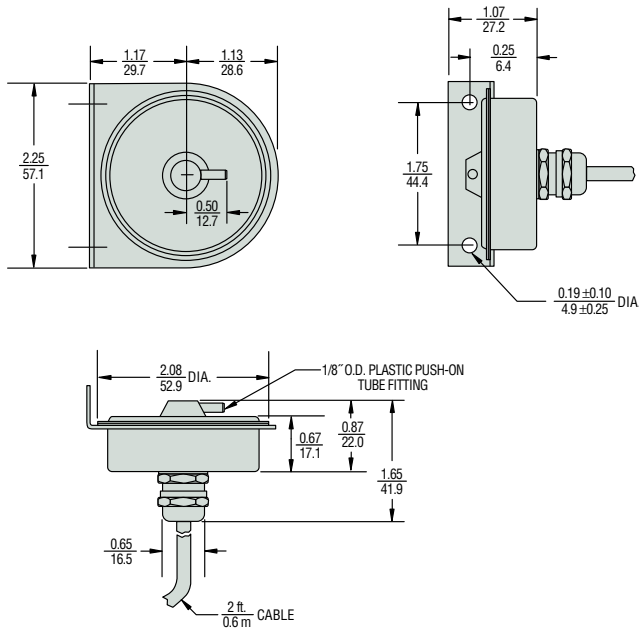
### Applications

- Environmental Monitoring Systems
- Weather Measurement Systems
- Weather and Environmental Data Logging
- Barometric Pressure Compensation for Internal Combustion Engine Performance
- Cleanroom Barometric Pressure Compensation
- Automotive Emissions Test Equipment

### How They Operate

A glass-fused ceramic sensing capsule detects changes in barometric pressure. As pressure increases or decreases, the capacitance changes. This change in capacitance is detected and converted to a linear analog signal by Gems' custom ASIC-based circuit, producing an output signal proportional to applied pressure.

Dimensions



How to Order

Use the **bold** characters from the chart below to construct a product code.

**SELECT** **876** - **6-11mb** - **12 V** - \* - \* - \* - \*

1. Series **876** - 876 Series

2. Pressure Range Code  
 Barometric:  
**6-11mb** - 600 to 1100 mb  
**8-11mb** - 800 to 1100 mb  
**0-20P** - 0 to 20 psia

3. Excitation/Output

Code	Excitation	Output
12 V	12 VDC	0.1-5.1 VDC
24 V	24 VDC	0.1-5.1 VDC
5 V	5 VDC	0.5-4.5 VDC

4. Options (\*Add as suffix to base part code as needed)

- 715** - 0.1% FS accuracy.
- 839** - 1/8" NPT pressure port.
- Cable Length:  
**803-810** - For cable length of 3 to 10 feet (2 ft. is standard).  
 Please specify cable length by code (e.g., 810 for 10 ft. cable).  
 Consult factory for cable longer than 10 ft.
- Calibration Certification:  
**901** - 11-point calibration certificate.

PRESSURE TRANSDUCERS