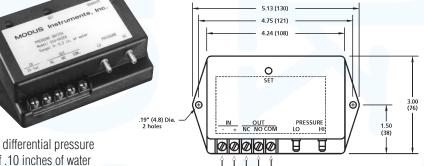
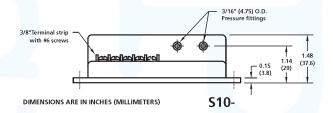
#### **SERIES S**

# S10 Differential Pressure Switch Relay Contacts Output





#### **DESCRIPTION**

The Modus pressure switch is a highly sensitive differential pressure switch, capable of detecting pressure changes of .10 inches of water and greater.

To measure pressure between .10 and 5.0 inches of water, a differential capacitance cell is used. In the capacitance cell, a very lightweight, responsive diaphragm deflects a small amount when pressure is applied. This deflection results in a change in capacitance, which is detected and processed electronically. Reliability and long life are inherent advantages of the solid-state design. Differential pressure changes greater than 5.0 inches of water are detected with a piezoresistive (silicon) sensor. The piezoresistive sensor is a solid state device designed in a Wheatstone bridge configuration. When pressure is applied to the device, the resistance of the bridge changes by a small amount. This resistive change is converted to a voltage and amplified.

A wide selection of standard pressure ranges and electrical ratings is available.

The output of Series S10 pressure switch is an SPDT relay contact.

#### **FEATURES**

- Virtually position insensitive even at very low pressure (0.01")
- Fast response time due to low internal volume
- · No moving parts to wear out
- · Solid-state circuitry for long life
- Compact size
- Low power consumption

#### TYPICAL APPLICATIONS

• HVAC monitoring of:

Filter differential pressures Fan static pressures Clean room pressures Variable air volume systems Velocity pressures

- Medical and analytical instruments
- Liquid level monitoring
- General automation

## **SPECIFICATIONS**

#### General

Setpoint and Deadband are adjusted by means of a 20-turn potentiometer for fine resolution

Dead band is adjustable to 25% of span

Repeatability is ± 1% of setpoint

Available with relay energizing either on rising or falling pressure

#### **Pressure**

Measures differential, gage pressure or vacuum Suitable for air or inert gases

Port connections: 3/16" Dia. suitable for:

-1/8" I.D. Tygon™ or polyurethane tubing

-1/4" I.D. polyethylene tubing

Integral filters at both ports

#### **Electrical**

Nominal Input Voltage	Power Consumption	Operating Voltage Range			
12 Vdc*	0.35W	9.5 to 16 Vdc			
24 Vdc*	0.35W	19 to 32 Vdc			
24 Vac	1.70W	19 to 32Vac			
120 Vac	1.90W	100 to 140 Vac			

\*Protected against reversal of polarity

Connections by means of 3/8" terminal strip with #6 screw Output is SPDT (1 Form C) relay contacts rated at:

5A @ 30 VDC/120 VAC Resistive

4A @240 VAC Resistive

Electrical life expectancy 100 x 10<sup>3</sup> ops. minimum Isolation between coil and contacts 2000 VAC 1 minute

#### **Physical**

Dimensions: 3.00"W x 5.15"Lx1.40"H

Weight: 230 g (0.5lb)

Case: Flame retardant glass-reinforced NORYL™

#### **Environmental**

Operating temperature range: 0°C to 45°C (32°F to 115°F)

Effect of temperature on set point: ±0.05%/°C

Operating humidity range: 20% to 90% R.H. non-condensing

Shock resistance: 10G (11ms) Vibration resistance: 5G to 50Hz

### ORDERING INFORMATION

**Order Number** (See Table below and Reference Table A on page 26)

**S10 - PPP - SV - R** 

**EXAMPLE: S10 - 01E - A - F** 

	PPP = Pressure Range	SV = Supply Voltage	R = Relay
	See Reference Table A	B = 24 Vdc	R = Energizing on rising pressure
		C = 24 Vac	F = Energizing on falling pressure
ı		D = 120 Vac	

# **TABLE A—STANDARD PRESSURE RANGES**

	ENGLISH		METRIC UNITS						
Pressure Pressure Range		Max. Safe Momentary	Pressure	Pressure Range	Max. Safe Momentary	Pressure	Pressure Range	Max. Safe Momentary	
Code	English	Overpressure	Code	Pascals	Overpressure	Code	Pascals	Overpressure	
01E	0-0.100 in. H <sub>2</sub> 0		01P	0-25.0 Pa		01M	0-2.50 mm H <sub>2</sub> 0		
02E	0-0.200 in. H <sub>2</sub> 0	5 in. H <sub>2</sub> 0	02P	0-50.0 Pa	1.25 kPa	02M	0-5.00 mm H <sub>2</sub> 0	125 mm	
03E	0-0.300 in. H <sub>2</sub> 0		03P	0-75.0 Pa		03M	0-7.50 mm H <sub>2</sub> 0		
04E	0-0.500 in. H <sub>2</sub> 0		04P	0-100.0 Pa		04M	0-10.00 mm H <sub>2</sub> 0		
05E	0-1.00 in. H <sub>2</sub> 0		05P	0-250 Pa		05M	0-25.0 mm H <sub>2</sub> 0		
06E	0-2.00 in. H <sub>2</sub> 0	20 in. H <sub>2</sub> 0	06P	0-500 Pa	5 kPa	06M	0-50.0 mm H <sub>2</sub> 0	500 mm	
07E	0-3.00 in. H <sub>2</sub> 0		07P	0-750 Pa		07M	0-75.0 mm H <sub>2</sub> 0		
08E	0-5.00 in. H <sub>2</sub> 0		08P	0-1.00 kPa		08M	0-100 mm H <sub>2</sub> 0		
09E	0-10.0 in. H <sub>2</sub> 0	5 psid	09P	0-2.50 kPa	35 kPa	09M	0-250 mm H <sub>2</sub> 0	3.5 m	
11E	0-20.0 in. H <sub>2</sub> 0	·	11P	0-5.00 kPa		11M	0-500 mm H <sub>2</sub> 0		
12E	0-30.0 in. H <sub>2</sub> 0		12P	0-7.50 kPa		12M	0-750 mm H <sub>2</sub> 0		
13E	0-50.0 in. H <sub>2</sub> 0		13P	0-10.0 kPa		13M	0-1.00 m H <sub>2</sub> 0		
14E	0-100 in. H <sub>2</sub> 0	15 psid	14P	0-25.0 kPa	100 kPa	14M	0-2.5 m H <sub>2</sub> 0	10 m	
15E	0-1.00 psid		15P	0-50.0 kPa		15M	0-5.0 m H <sub>2</sub> 0		
16E	0-2.00 psid		-	-		-	-		
17E	0-3.00 psid		-	-		-	-		
18E	0-5.00 psid		-	-		-	-		
19E	0-15.0 psid	30 psid	16P	0-100 kPa	200 kPa	16M	0-10.0 m H <sub>2</sub> 0	20 m	
20E	0-30.0 psid	60 psid	17P	0-200 kPa	400 kPa	17M	0-20.0 m H <sub>2</sub> 0	40 m	

# **TABLE B—STANDARD PRESSURE RANGES FOR W SERIES**

	ENGLISH UNIT	'S	METRIC UNITS						
Pressure Code	Differential Operating Static Pressure Range, Pressure, psid psi		Pressure Code	Differential Operating Static Pressure Range, Pressure, kPA psi		Pressure Code	Differential Pressure Range, k mm H₂0	Operating Static Pressure k mm H <sub>2</sub> 0	
31E	0-6 psid	0-100 psi*	31P	0-50 kPa		31M	0-5.0 k mm H <sub>2</sub> 0		
32E	0-10 psid		32P	0-75 kPa	0 - 700 kPa*	32M	0-7.5 k mm H <sub>2</sub> 0	0-70 k mm H <sub>2</sub> 0	
33E	0-15 psid		33P	0-100 kPa		33M	0-10 k mm H <sub>2</sub> 0		
34E	0-30 psid		34P	0-200 kPa		34M	0-20 k mm H <sub>2</sub> 0		
35E	0-60 psid	0 - 300 psi*	35P	0-500 kPa		35M	0-50 k mm H <sub>2</sub> 0	0-200 k mm H <sub>2</sub> 0	
36E	0-100 psid		36P	0-750 kPa	0 - 2000 kPa*	36M	0-75 k mm H <sub>2</sub> 0	U-200 K IIIIII I I <sub>2</sub> 0	
37E	0-150 psid		37P	0-1000 kPa		37M	0-100 k mm H <sub>2</sub> 0		
38E	0-200 psid		38P	0-1500 kPa		38M	0-150 k mm H <sub>2</sub> 0		

 $<sup>^{\</sup>star}$  Maximum safe momentary overpressure at any port is 2X the maximum operating static pressure

## **TABLE C—STANDARD PRESSURE RANGES FOR MANOMETER**

	ENG	LISH		METRIC UNITS							
Pressure Code	Pressure Range	Displayed Units	Max. Safe Momentary	Pressure Code	Pressure Range Pascals	Displayed Units	Max. Safe Momentary Overpass	Pressure Code	Pressure Range mm of H <sub>2</sub> O	Displayed Units	Max. Safe Momentary Overpass
01E	0-0.100 in. H <sub>2</sub> 0	.100	Overpass	01P	0-25.0 Pa	25.0	010.paoo	01M	0-2.50 mm	2.50	Overpade
02E	0-0.200 in. H <sub>2</sub> 0	.200	5 in H₂0	02P	0-50.0 Pa	50.0	1.25 kPa	02M	0-5.00 mm	5.00	125 mm
03E	0-0.300 in. H <sub>2</sub> 0	.300	2	03P	0-75.0 Pa	75.0		03M	0-7.50 mm	7.50	
04E	0-0.500 in. H <sub>2</sub> 0	.500		04P	0-100 Pa	100.0		04M	0-10.0 mm	10.0	
05E	0-1.00 in. H <sub>2</sub> 0	1.000		05P	0-250 Pa	250		05M	0-25.0 mm	25.0	
06E	0-2.00 in. H <sub>2</sub> 0	1.999	2H <sub>2</sub> 0	06P	0-500 Pa	500	5 kPa	06M	0-50.0 mm	50.0	500 mm
07E	0-3.00 in. H <sub>2</sub> 0	3.00	_	07P	0-750 Pa	750		07M	0-75.0 mm	75.0	
08E	0-5.00 in. H <sub>2</sub> 0	5.00		08P	0-1.00 kPa	1.000		M80	0-100 mm	100.0	
09E	0-10.0 in. H <sub>2</sub> 0	10.00		09P	0-2.50 kPa	2.50		09M	0-250 mm	250	
11E	0-20.0 in. H <sub>2</sub> 0	19.99	5 psid	11P	0-5.00 kPa	5.00	35 kPa	11M	0-500 mm	500	3.5 m
12E	0-30.0 in. H <sub>2</sub> 0	30.0		12P	0-7.50 kPa	7.50		12M	0-750 mm	750	
13E	0-50.0 in. H <sub>2</sub> 0	50.0		13P	0-10.0 kPa	10.00		13M	0-1.00 m	1.000	
14E	0-100 in. H <sub>2</sub> 0	100.0		14P	0-25.0 kPa	25.0		14M	0-2.50 m	2.50	
15E	0-1.00 psid	1.000	5 psid	15P	0-50.0 kPa	50.0	100 kPa	15M	0-5.00 m	5.00	10 m
16E	0-2.00 psid	1.999		16P	0-100 kPa	100.0		16M	0-10.0 m	10.00	
17E	0-3.00 psid	3.00		17P	0-200 kPa	199.9		17M	0-20.0 m	19.99	
18E	0-5.00 psid	5.00									