

## Model S

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### Subminiature, Flush Diaphragm Pressure Transducer



#### DESCRIPTION

Honeywell's full line of subminiature pressure transducers accurately measure pressure ranges from 100 psi to 15000 psi. These gage-only subminiature pressure transducers have a high natural frequency and utilize a flush diaphragm.

Temperature compensation is accomplished by using temperature-sensitive components located inside the

transducers. These transducers have a small electrical zero balance circuit board which is in the lead wire (approximately 1 in x 0.087 in thick). This balance board does not have to be in the same temperature as the transducers. All transducers have four (4) active bonded strain gages arranged in a Wheatstone-bridge configuration.

#### FEATURES

- 100 psi to 15000 psi range
- Flush mount design
- No internal dead volume
- High frequency
- mV/V output
- 1 % accuracy
- CE approved

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## PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Pressure ranges	
3/8-24 UNF thread	100, 150, 200, 300, 500, 750, 1000, 1500, 2000, 3000, 5000, 7500, 10000, 15000 psig
7/16-20 UNF thread	150, 300, 750, 1500, 7500, 15000 psig
Accuracy <sup>2</sup>	1.0 % full scale <sup>6</sup>
Non-linearity and hysteresis	1.0 % full scale <sup>2</sup>
Non-repeatability	±0.15 % full scale
Output	2 mV/V <sup>6</sup>
Resolution	Infinite

## ENVIRONMENTAL SPECIFICATIONS

Characteristic	Measure
Temperature, operating	-54 °C to 149 °C [-65 °F to 300 °F]
Temperature, compensated	16 °C to 71 °C [60 °F to 160 °F]
Temperature effect, zero	0.01 % full scale/°F <sup>6</sup>
Temperature effect, span	0.02 % reading/°F <sup>6</sup>

## ELECTRICAL SPECIFICATIONS

Characteristic	Measure
Strained gage type	Bonded foil
Excitation (calibration)	5 Vdc
Excitation (acceptable)	Up to 5 Vdc or (Vac)
Insulation resistance	5000 mOhm @ 50 Vdc
Bridge resistance	350 ohm
Shunt calibration data	Included
Electrical termination (std)	Four twisted leads (1.83 m [5 ft]) with external balance board

## MECHANICAL SPECIFICATIONS

Characteristic	Measure
Media	Gases, liquids compatible with wetted parts
Overload, safe	50 % over capacity
Overload, burst	400 % full scale
Dead volume	Flush
Wetted parts material	17-4 PH stainless steel
Weight	2 oz
Case material	Stainless steel

## RANGE CODES

Range Code	Available ranges
BR	100 psig
CJ	150 psig
CL	200 psig
CP	300 psig
CR	500 psig
CT	750 psig
CV	1000 psig
DJ	1500 psig
DL	2000 psig
DN	3000 psig
DR	5000 psig
DT	7500 psig
DV	10000 psig
EJ	15000 psig

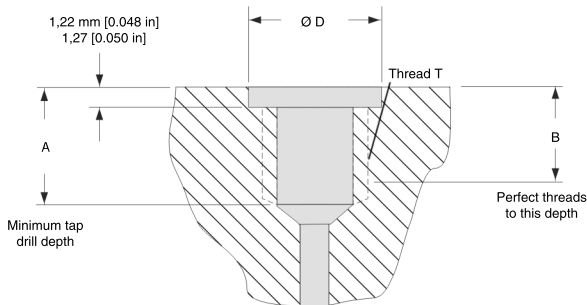
## OPTION CODES

Range Code	Many range/option combinations are available in our quick-ship and fast-track manufacture programs. Please see <a href="http://sensing.honeywell.com/TMsensor-ship">http://sensing.honeywell.com/TMsensor-ship</a> for updated listings.
Pressure ranges	100, 150, 200, 300, 500, 750, 1000, 1500, 2000, 3000, 5000, 7500, 10000, 15000 psig
Temperature compensation	1a. 60 °F to 160 °F 1b. 30 °F to 130 °F 1c. 0 °F to 185 °F 1d. -20 °F to 130 °F 1e. -20 °F to 200 °F 1f. 70 °F to 250 °F 1g. 70 °F to 325 °F 1h. 70 °F to 400 °F 1i. -65 °F to 250 °F
Internal amplifiers	2u. Unamp., mV/V output
Pressure ports	3/8-24 UNF 7/16-20 UNF (BP358)
Electrical termination	Four twisted leads 1.83 m [5 ft] 6d. Microtec DR-4S-4H 4-pin (max 250 °F) <sup>4</sup> 6e. Integral cable: Teflon 6h. Integral cable: Silicone 6i. Integral underwater cable (max 180 °F) <sup>4</sup>
Special calibration	9a. 10 point (5 up/5 down) 20 % increments @ 70 °F 9b. 20 point (10 up/10 down) 10 % increments @ 70 °F
Wetted diaphragm	10e. Inconel X-750
Shock and vibration	44a. Shock and vibration resistance

## Subminiature, Flush Diaphragm Pressure Transducer

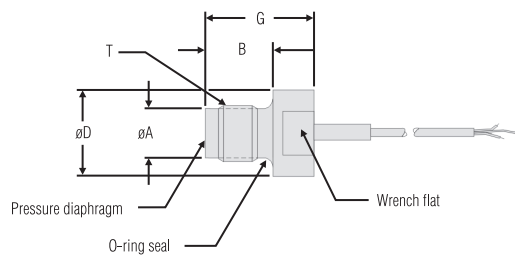
### INSTALLATION<sup>3</sup>

T (thread)	A (in) <sup>5</sup>	B (in)	D (in) +.000/ -.002 in	O-ring	Max torque (for 17-4 PH only)
3/8-24 UNF	0.47	0.30	0.445	#11	300 in-lb
7/16-20 UNF	0.54	0.36	0.504	#12	500 in-lb



### MOUNTING DIMENSIONS AND CHARACTERISTICS

Order code	T (thread)	Ø A	Ø D	B	G	Diaphragm
BP357	3/8-24 UNF	7,87 mm [0.310 in]	12,7 mm [0.50 in]	11,43 mm [0.45 in]	17,53 mm [0.69 in]	Welded
BP358	7/16-20 UNF	9,53 mm [0.375 in]	14,22 mm [0.56 in]	12,7 mm [0.5 in]	19,05 mm [0.75 in]	Welded

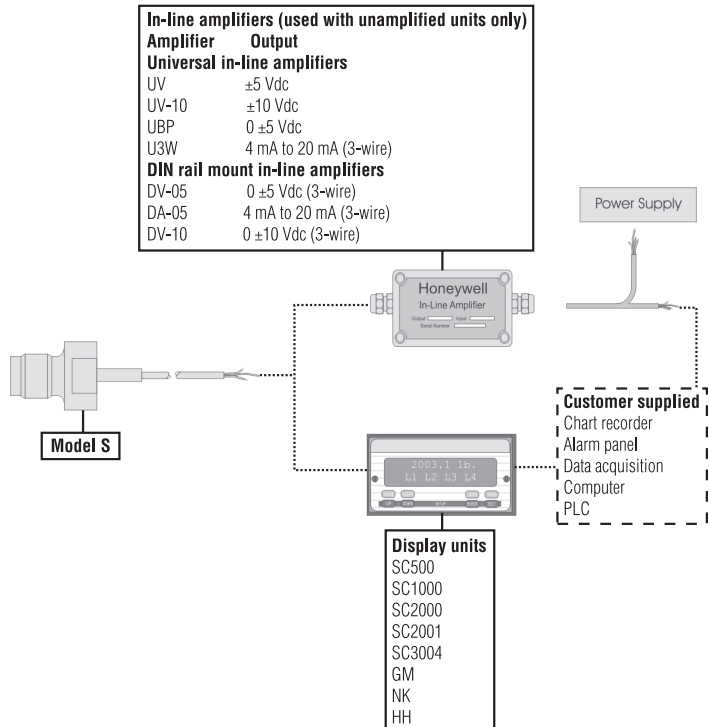


For reference only Transducers have a small electrical balance circuit board (approximately 1.0 in long by 0.38 in wide) located in the lead wire that is two feet from the transducer body.

### WIRING CODES

Wire	Cable, unamplified
Red	(+) excitation
Black	(-) excitation
Green	(-) output
White	(+) output

### TYPICAL SYSTEM DIAGRAM



### SPECIAL REQUIREMENTS (CONSULT FACTORY)

Have a special requirement? New case pressure, different cable lengths, electrical connectors, or materials? Consult our factory by calling +1 614-850-5000 (800-848-6564). Customization is key to our test and measurement business. Special outputs, wiring codes, and calibrations are all standard to us.

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## NOTES

1. Order code subject to change with varying thread, range and electrical termination.
2. Accuracies stated are expected for best-fit straight line for all errors, including linearity, hysteresis & non-repeatability thru zero.
3. Standard "S" type transducers have straight threads and use an O-ring for pressure sealing. To get the best seal with the O-ring on the transducer, the tapped hole should have the dimensions shown on the next page. For normal operating temperatures (-54 °C to 121 °C [-65 °F to 250 °F]) use BUNA-N (black) O-rings. For high temperatures (121 °C to 204 °C [250 °F to 400 °F]) use silicone (red).
4. Only available on certain models, consult factory.
5. "A" dimension changes with different thread options. Consult factory for specifications for different thread options.
6. Consult factory for specifications for ranges less than 100 psi.

## Find out more

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office. To learn more about Honeywell's test and measurement products, call **+1-614-850-5000**, visit **[www.honeywell.com/sensotec](http://www.honeywell.com/sensotec)**, or e-mail inquiries to **[info.tm@honeywell.com](mailto:info.tm@honeywell.com)**

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

### **WARNING** **PERSONAL INJURY**

- DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **WARNING** **MISUSE OF DOCUMENTATION**

- The information presented in this datasheet is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

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