Honeywell

SPT Series

Low Cost, Stainless Steel Media Isolated Pressure Sensors



DESCRIPTION

Honeywell's SPT Series stainless steel pressure sensors are designed for media that will not adversely attack 316L stainless steel.

The back side metal tube is made from 304 stainless steel which provides effective protection against most harsh environments. The SPT Series is calibrated and compensated for three styles of output: 4.0 mA to 20.0 mA (mA version); 1.0 Vdc to 5.0 Vdc (4 V version); and 0 mV to 100 mV (mV version). All versions feature a variety of pressure connections to allow use in a wide range of OEM (Original Equipment Manufacturer) equipment.

The SPT Series stainless steel devices are rugged and reliable transducers for use in a wide variety of pressure sensing applications where corrosive liquids and gases are monitored.

FEATURES

- Reliable semiconductor technology
- · Calibrated and temperature compensated
- Rugged, stainless steel package
- NEMA 4 design
- Small size
- Absolute, gage, sealed gage, vacuum gage pressures
- 0 psi to 3 psi, 0 psi to 5000 psi

POTENTIAL APPLICATIONS

- Industrial automation and flow control
- Pressure instrumentation
- Hydraulic systems
- Process control

SPT Series

Table 1. Specifications

Characteristic	Parameter		
Environmental specifications			
Compensated temperature range	-10 °C to 85 °C [14 °F to 185 °F]		
Operating temperature range	-40 °C to 85 °C [-40 °F to 185 °F]		
Storage temperature range	-40 °C to 85 °C [-40 °F to 185 °F]		
Vibration	10 G at 20 Hz to 2000 Hz		
Shock	100 G for 11 ms		
Insulation resistance	100 MΩ at 50 Vdc		
Recommended supply range			
SPT mA supply voltage	+12.5 Vdc to +24 Vdc		
SPT 4V			
Supply voltage V _s	+12.5 Vdc to +24 Vdc		
Quiescent current I _{osc}	5 mA		
Short circuit current Isc	18 mA		
SPT mV supply voltage V _s	+10 Vdc		
Maximum supply ratings			
SPT mV supply voltage V _s	+15 Vdc		
SPT mA and SPT 4V supply voltage V _s	+24 Vdc		

Table 2. Pressure Range Specifications

Catalog Listing ¹	Pressure Range	Proof Pressure ²	Burst Pressure ³
SPT (mA, mV, 4V) 0003P G (4,5,6,7,9) (B/WXX)	0 psig to 3 psig	9 psig	15 psig
SPT (mA, mV, 4V) 0005P G (4,5,6,7,9) (B/WXX)	0 psig to 5 psig	15 psig	25 psig
SPT (mA, mV, 4V) 0010P G (4,5,6,7,9) (B/WXX)	0 psig to 10 psig	30 psig	50 psig
SPT (mA, mV, 4V) 0015P (A,G,V) (4,5,6,7,9) (B/WXX)	0 psi to 15 psi	45 psi	75 psi
SPT (mA, mV, 4V) 0030P (A,G,V) (4,5,6,7,9) (B/WXX)	0 psi to 30 psi	90 psi	150 psi
SPT (mA, mV, 4V) 0050P (A,G,V) (4,5,6,7,9) (B/WXX)	0 psi to 50 psi	150 psi	250 psi
SPT (mA, mV, 4V) 0100P (A,G,V) (4,5,6,7,9) (B/WXX)	0 psi to 100 psi	300 psi	500 psi
SPT (mA, mV, 4V) 0200P (A,G,V) (4,5,6,7,9) (B/WXX)	0 psi to 200 psi	600 psi	100 psi
SPT (mA, mV, 4V) 0300P (A,G,V) (4,5,6,7,9) (B/WXX)	0 psi to 300 psi	900 psi	1500 psi
SPT (mA, mV, 4V) 0500P (A,G,V) (4,5,6,7,9) (B/WXX)	0 psi to 500 psi	1200 psi	2400 psi
SPT (mA, mV, 4V) 1000P (A,S) (4,5,6,7) (B/WXX)	0 psi to 1000 psi	3000 psia	5000 psia
SPT (mA, mV, 4V) 2000P (A,S) (4,5,6,7) (B/WXX)	0 psi to 2000 psi	6000 psia	10000 psia
SPT (mA, mV, 4V) 3000P (A,S) (4,5,6,7) (B/WXX)	0 psi to 3000 psi	9000 psia	10000 psia
SPT (mA, mV, 4V) 5000P (A,S) (4,5,6,7) (B/WXX)	0 psi to 5000 psi	10000 psia	10000 psia

Notes:

- 1. Vacuum gage units (V option) allow you to pull a hard vacuum on the gage units. Vacuum gage parts are only available on the mV version in 15 psig through 500 psig. As sold, this package design is not submersible. In order to make the package submersible, the package needs to be sealed.
- 2. The maximum pressure that can be applied without changing the transducer's performance or accuracy.
- 3. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer case.

Low Cost, Stainless Steel Media Isolated Pressure Sensors

Table 3. Performance Specifications¹

Characteristic	Minimum	Typical	Maximum	Unit
SPT mV Version				
Zero pressure offset	-2	0	+2	mV
Full-scale span (0 psig to 3 psig and 0 psig-5 psig only) 2	48	50	52	mV
Full-scale span (0 psi to10 psi and 0 psi to 3000 psi only) ²	98	100	102	mV
Full-scale span (0 psi to 5000 psi only) ²	148	150	152	mV
Pressure non-linearity ³	-	±0.1	±0.25	%FSS
Pressure hysteresis ³	-	±0.015	±0.030	%FSS
Repeatability	-	±0.010	±0.030	%FSS
Temp. effect on span ^₄	-	±0.5	±1.0	%FSS
Temp. effect on offset⁴	-	±0.5	±1.0	%FSS
Temp. effect on span (0 psi to 3 psi and 0 psi to 5 psi only) 4	-	±1	±2.0	%FSS
Temp. effect on offset (0 psi to 3 psi and 0 psi to 5 psi only) 4	-	±1	±2.0	%FSS
Thermal hysteresis (-10 °C to 85 °C [14 °F to 185 °F])	-	±0.1	±0.3	%FSS
Long-term stability of offset and span⁵	-	±0.1	±0.3	%FSS
Response time ⁶	_	0.1	_	ms
Common mode voltage (voltage version "K") ⁷	0.5	1.25	2.0	Vdc
Input resistance	8.0	25	50	kΩ
Output resistance	3.0	4.5	6.0	kΩ
SPT mA Version				
Zero pressure offset	3.84	4.0	4.16	mA
Full-scale span ²	15.84	16.0	16.16	mA
Pressure non-linearity ³	_	±0.1	±0.25	%FSS
Pressure hysteresis ³	_	±0.015	±0.03	%FSS
Repeatability	_	±0.010	±0.030	%FSS
Temp. effect on span ^₄	_	±0.5	±1.5	%FSS
Temp. effect on offset⁴	-	±0.5	±1.5	%FSS
Temp. effect on span (0 psi to 3 psi and 0 psi to 5 psi only) 4	_	±1.5	±2.5	%FSS
Temp. effect on offset (0 psi to 3 psi and 0 psi to 5 psi only) 4	_	±1.5	±2.5	%FSS
Thermal hysteresis -10 °C to 85 °C [14 °F to 185 °F]	_	±0.1	±0.3	%FSS
Long term stability of offset and span ⁵	_	±0.1	±0.3	%FSS
Response time ⁶	-	5	-	ms
SPT 4V Version			· ·	
Zero pressure offset	0.96	1.0	1.04	V
Full-scale span ²	3.96	4.0	4.04	V
Pressure non-linearity ³	-	±0.1	±0.25	%FSS
Pressure hysteresis ³	-	±0.015	±0.03	%FSS
Repeatability	-	±0.010	±0.030	%FSS
Temp. effect on span ^₄	_	±0.5	±1.5	%FSS
Temp. effect on offset ⁴	_	±0.5	±1.5	%FSS
Temp. effect on span (0 psi to 3 psi and 0 psi to 5 psi only) 4	_	±1.5	±2.5	%FSS
Temp. effect on offset (0 psi to 3 psi and 0 psi to 5 psi only) 4	_	±1.5	±2.5	%FSS
Thermal hysteresis -10 °C to 85 °C [14 °F to 185 °F]	_	±0.1	±0.3	%FSS
Long term stability of offset and span ⁵	-	±0.1	±0.3	%FSS
Response time ⁶	_	5	_	ms

Notes:

1. Reference conditions (unless otherwise noted): T₄ = 25 °C [77 °F]; For SPTmA and SPT4V, Supply V₅ = 23.5 Vdc ±0.01 Vdc; for SPTmV: $V_s = 10$ Vdc. 2. Full-scale span (FSS) is the algebraic difference between the output voltage at full-scale positive pressure and the output at zero pressure. FSS

Full-scale span (FSS) is the algebraic difference between the output voltage at full-scale positive pressure and the output at zero pressure. FSS is ratiometric to the supply voltage.
Pressure non-linearity is based on best-fit straight line from zero to the full-scale pressure. Pressure hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
Maximum error band of the offset voltage or span over the compensated temperature range, relative to the 25 °C [77 °F] reading.
Long-term stability over a six-month period.
Response time for a 0 psi to FSS pressure step change, 10% to 90% rise time.
Common mode voltage as measure from output to ground.

Figure 1. Equivalent Basic Circuits





MOUNTING DIMENSIONS (For reference only, in (mm).)

Figure 4: Package 4: 1/8-27 NPT Port



Low Cost, Stainless Steel Media Isolated Pressure Sensors



Figure 6. Package 6: 7/16-20 UNF Port







Figure 8. Package 9: VCR Port



Low Cost, Stainless Steel Media Isolated Pressure Sensors



A 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.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.

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.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- 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.

SALES AND SERVICE

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 or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	a +1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Sensing and Control Honeywell 1985 Douglas Drive North Golden Valley, MN 55422 www.honeywell.com/sensing

Honeywell



Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию.

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России, а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научноисследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера Н, помещение 100-Н Офис 331