Data Sheet

Miniature pressure transducers

RS stock numbers (Gauge) 286-658, 286-664, 286-670
(Differential) 286-686, 286-692, 286-709

Introduction

These RS miniature pressure transducers are available in two configurations, gauge and differential. They feature a unique conductive seal interconnect system, thus eliminating internal wire bonding and tab connections. This helps to enhance product reliability whilst reducing product assembly time, resulting in reduced unit cost. Pressures sensed are 0-5, 0-15 and 0-30 psi. This range has wet/wet capability which allows most media types to be connected to the active (P1) side of the device. Suitable applications for this type are medical instruments, barometric sensing, oxygen concentrators, engine controls etc.

Advanced manufacturing techniques are used to produce this product which includes laser trimmed bridge resistors for close tolerance on null/sensitivity. For both ranges the sensing element in each transducer is a 0.1in square silicon chip with integral sensing diaphragm and four piezo resistors. When pressure is applied to the diaphragm it causes it to flex, changing the resistance, which results in an output voltage proportional to pressure when a suitable excitation voltage is applied to the device. The sensing resistors are connected as a four active element bridge for best linearity and sensitivity. The linear outputs are complementary (ie. as input pressure increases, output A increases and output B decreases).

Absolute maximum ratings

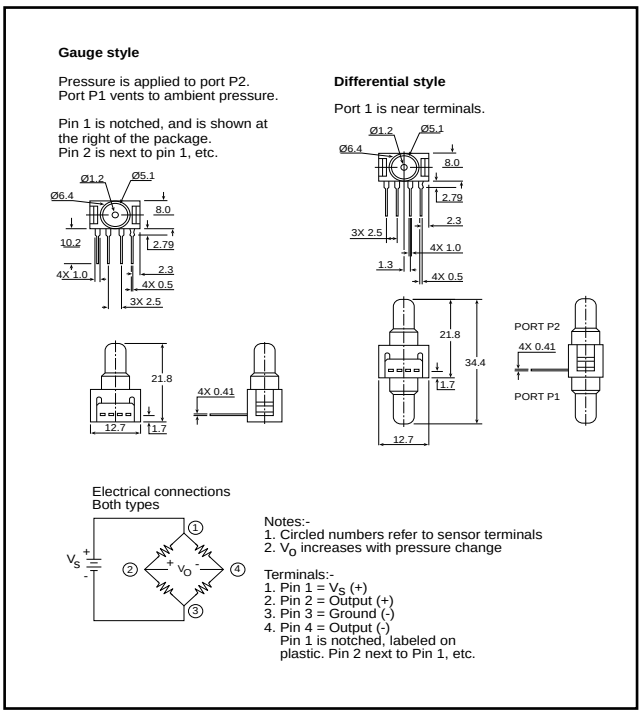
Maximum pressure	286-658	20psi
	286-664	45psi
	286-670	60psi
	286-686	20psi
	286-692	45psi
	286-709	60psi
Maximum voltage		16Vdc
Operating temperature range		–40°C to +85°C
Mechanical shock		tested to 150g
Vibration, 0 to 2kHz		tested to 20g

Compatibility: input media are limited to those which will not attack polyester, silicon, or silicone based adhesives.

Features

- Miniature package
- Low cost
- Low null shift, high sensitivity
- Linear output proportional to pressure
- Temperature compensated
- Low hysteresis
- Wet/Wet capability (differential).

Mechanical and electrical details



Technical Specification

RS stock no.	286-658			286-664			286-670			286-686			286-692			286-709			
Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Pressure range		0-5			0-15			0-30			0-5			0-15			0-30		psi
FSO (Full scale output) P2>P1	47	50	53	97	100	103	97	100	103	47	50	53	97	100	103	97	100	103	mV
Null offset	–1.5	0	+1.5	–1.5	0	+1.5	–1.5	0	+1.5	–1.5	0	+1.5	–1.5	0	+1.5	–1.5	0	+1.5	mV
Sensitivity P2>P1		10			6.67			3.33			10			6.67			3.33		mV/psi
Overpressure			20			45			60			20			45			60	psi
Response time			1.0			1.0			1.0			1.0			1.0			1.0	ms
Recommended excitation voltage		10	16		10	16		10	16		10	16		10	16		10	16	Vdc
Linearity (Best fit (straight line) P2>P1			±1			±1			±1			±1			±1			±1	%FSO
Temperature error 0°C to +50°C																			
Sensitivity shift			±1			±1			±1			±1			±1			±1	%FSO
Null shift			±1			±1			±1			±1			±1			±1	mV
Repeatability and hysteresis		±0.2			±0.2			±0.2			±0.2			±0.2			±0.2		%FSO
Stability over 1 year		±0.5			±0.5			±0.5			±0.5			±0.5			±0.5		%FSO
Input resistance		7.5K			7.5K			7.5K			7.5K			7.5K			7.5K		ohms

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