Honeywell

1800/1805 Series

TO-8, 0 psi to 3 psi, 0 psi to 150 psi Silicon Pressure Sensors

DESCRIPTION

The 1800/1805 Series sensors are high performance TO-8 pressure transducers specifically designed to address a variety of both low and medium pressure original equipment manufacture applications.

The transducers offer two performance grades and a variety of compensation options, including span and calibration to within ±2 mV (normalized output). The 1800/1805 Series can operate with either constant current or voltage excitation.

The 1800/1805 Series contains a solid state piezoresistive pressure sensor mounted in a standard TO-8 package. They are printed circuit board and pin-for-pin compatible with other TO-8 pressure sensors.

FEATURES

- Standard pressure ranges from 0 psi to 3 psi, 0 psi to 150 psi
- Gauge, absolute or differential models
- Voltage or constant current excitation
- Choice of temperature compensation options
  - Laser trim, normalized output
  - Laser trim, standard output
  - Resistor compensation
- Uncompensated version available for microprocessor-based designs

POTENTIAL APPLICATIONS

- Instrumentation calibration
- Avionics/aerospace
- Medical equipment
- HVAC
- Pneumatic controls

1800/1805 Series
TO-8, 0 psi to 3 psi, 0 psi to 150 psi

ENVIRONMENTAL SPECIFICATIONS (All devices)

Characteristic	Parameter	Characteristic	Parameter
Supply voltage, V_S	10 Vdc	Insulation resistance	100 MOhm at 50 Vdc
Compensated temperature range	-1 °C to 54 °C [34 °F to 129 °F]	Humidity	50 % ± 10 %
Operating temperature tange	-40 °C to 121 °C [-40 °F to 257 °F]	Common-mode pressure	150 psig
Vibration	10 g rms at 20 Hz to 200 Hz	Max. soldering temperature	260 °C [500 °F] 10 s max.
Shock	100 g for 11 ms	Excitation voltage V_S	Supply voltage V_s =15 Vdc max.
Life	100 million cycles	Excitation current	Supply current I_s = 2 mA max.

PERFORMANCE CHARACTERISTICS(1)

Characteristic	Min.	Typ.	Max.	Unit
Zero pressure offset(1)	–	–	±0.5	mV
Zero pressure offset (3 psi to 5 only) (1)	–	–	±1	mV
Full-scale span(2)				
Standard output–current excitation	75	–	150	mV
Standard output–voltage excitation	40	–	120	mV
Normalized output–current excitation	98	–	102	mV
Normalized output–current excitation (3 psi only)	73	–	77	mV
Normalized output–voltage excitation	38	–	42	mV
Pressure non-linearity(3)	–	±0.15	±0.20	%FSS
Pressure hysteresis(3)	–	–	±0.0125	%FSS
Repeatability	–	–	±0.0125	%FSS
Temperature effect on offset(4)	–	–	±0.5	mV
Temperature effect on offset (3 psi and 5 psi only) (4)	–	–	±1	mV
Temperature effect on span	–	–	±0.5	mV
Temperature effect on span (3 psi and 5 psi only) (4)		–	±1	mV
Thermal hysteresis	–	±0.1	–	%FSS
Response time(5)	–	–	1	ms
Long term stability of offset and span(6)	–	–	±0.2	%FSS
Common mode voltage(7)				
Standard output–current excitation	–	50 %	–	input
Standard output–voltage excitation	–	50 %	–	input
Normalized output–current excitation	–	35 %	–	input
Normalized output–voltage excitation	–	25 %	–	input
Input resistance	–	–	–	–
Current excitation	2.0	–	8.0	kΩ
Voltage excitation	8.0	–	40	kΩ
Output resistance	3.5	–	6.0	kΩ

PRESSURE RANGE SPECIFICATIONS

Catalog Listing	Pressure Range	Top Side Overpressure(8)	Bottom Side Overpressure(9)
1805-00 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 3 psi	15 psi	9 psi
1805-01 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 5 psi	25 psi	15 psi
1800-02 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 10 psi	50 psi	30 psi
1800-03 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 15 psi	65 psi	45 psi
1800-07 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 30 psi	250 psi	50 psi
1800-08 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 50 psi	350 psi	50 psi
1800-09 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 100 psi	350 psi	50 psi
1800-10 (G,D) - (K,L) (0..4) (M,L,N)	0 psi to 150 psi	350 psi	50 psi

Notes:

1. Reference conditions (unless otherwise noted); T_A = 25 °C [77 °F], Supply V_S = 10 Vdc ±0.01 Vdc or I_S = 1.5 mA ±0.0015 mA.
2. Full-scale span (FSS) is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. FFS is ratiometric to the supply voltage.
3. Pressure non-linearity is based on best-fit straight line from the 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.
4. Maximum error band of the offset voltage or span over the compensated temperature range, relative to the 25 °C [77 °F] reading.
5. Response time for a 0 psi to full-scale span pressure step change, 10 % to 90 % rise time.
6. Long term stability over a six month period.
7. Common mode voltage as measured from output to ground. For higher levels of common mode voltage, contact the factory.
8. Pressure overrange: Top: 5 x full-scale pressure or ≤350 psi, whichever is less.
9. Pressure overrange: Bottom: 3 x full-scale or ≤50 psi, whichever is less.

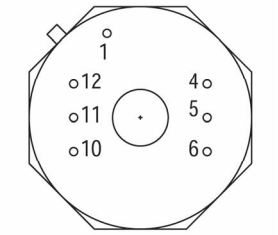
STANDARD COMPENSATION AND TRIM CHOICES
For maximum convenience, the 1800/1805 Series is temperature compensated from -1 °C to 54 °C [34 °F to 129 °F]. Other temperature ranges are available upon request.

Normalized Output Option: For design convenience and sensor interchangeability, the 1800/1805 Series is available with normalized output (100 ±2 mV dc in current excited versions with pressure range >3 psi). Normalized output for current excited 3 psi devices is 75 ±2 mV dc.

Laser Trim: Compensation is accomplished by using an in-house laser trim facility that allows for tighter product performance control and improved flexibility in response to special customer performance requirements.

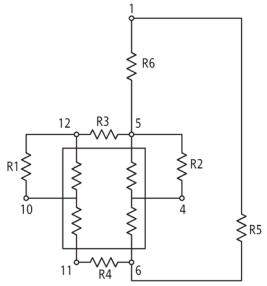
Resistors: This option includes a printout of suggested temperature compensation and zero offset resistor values for each individual sensor.

ELECTRICAL CONNECTIONS



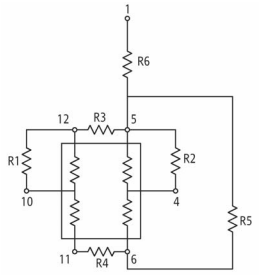
Pin 1 on normalized and voltage excited standard output.

CURRENT EXCITATION



Normalized output shown.
Standard output on pin 5 R6 shorted.

VOLTAGE EXCITATION



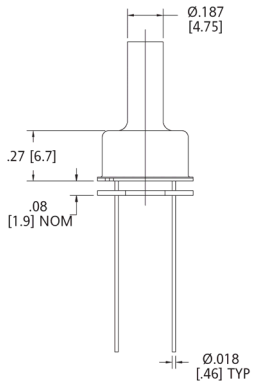
R5 open for standard output.

EXTERNAL CONNECTIONS

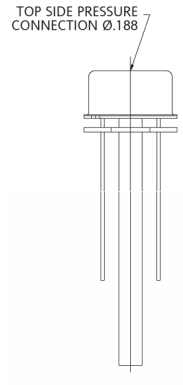
POSITIVE PRESSURE ON TOP AND BOTTOM SIDES								Current or Voltage Excitation – Normalized Output	
Current Excitation – Standard Output				Voltage Excitation – Standard Output					
Discrete Resistor		Laser Trim Board		Discrete Resistor		Laser Trim Board		Laser Trim Board	
Pin	**Connection**	**Pin**	**Connection**	**Pin**	**Connection**	**Pin**	**Connection**	**Pin**	**Connection**
4	+ Output	4	+ Output	4	+ Output	4	+ Output	4	+ Output
5	+ Input	5	+ Input	5	+ Input	5	NC	5	NC
6	- Input	6	- Input	6	- Input	6	- Input	6	- Input
10	- Output	10	- Output	10	- Output	10	- Output	10	+ Output
11	NC	11	NC	11	NC	11	NC	11	NC
12	NC	12	NC	12	NC	12	NC	12	NC
						1	+ Input	1	+ Input

PRESSURE CONNECTION OPTIONS

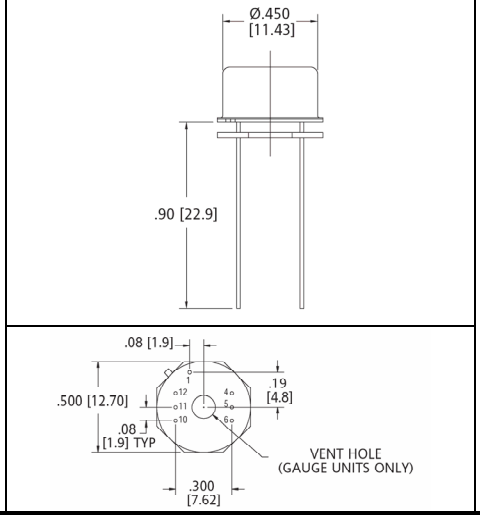
OPTION 0



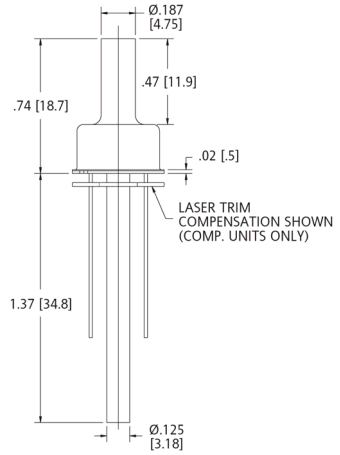
OPTION 1



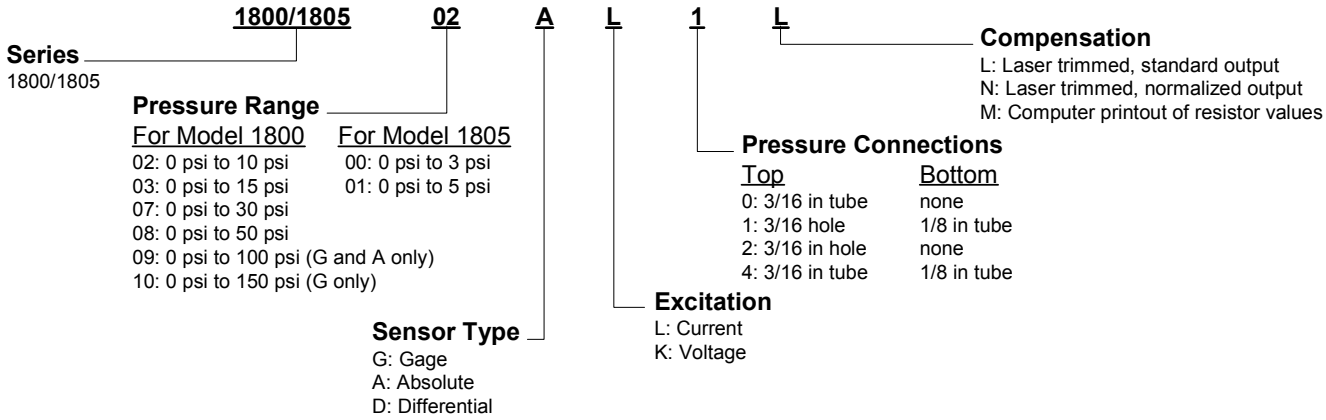
OPTION 2



OPTION 4



ORDER GUIDE



Note:

Transducer recommended for use with non-corrosive, non-condensing gases.

⚠ 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	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Automation and Control Solutions
Sensing and Control
Honeywell
11 West Spring Street
Freeport, Illinois 61032
www.honeywell.com/sensing

Honeywell

008137-2-EN IL50 GLO Printed in USA
October 2005

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А