Introduction：

S15/S17 series are based on piezoresistive silicon pressure sensors packaged in a 316L stainless steel housing. The sensing package utilizes silicon oil to transfer pressure from the 316L diaphragm to the sensing element.

This 24 bits digital output pressure sensor supports I²C interface protocols.

Each sensor was strictly temperature compensated for both zero and span.

To meet the various application requirements,we also provided the thread welded options(S17 series)

Features:

- Low cost OEM
- Pressure Range: 0-100kPa…7MPa
- Wide operable temperature range -40-125℃
- Compact profile, designed for welding
- Reverse polarity protection

Applications:

- Process control
- Fresh and waste water measurements
- Medical instruments
- Pressure transmitters

Performance Specifications

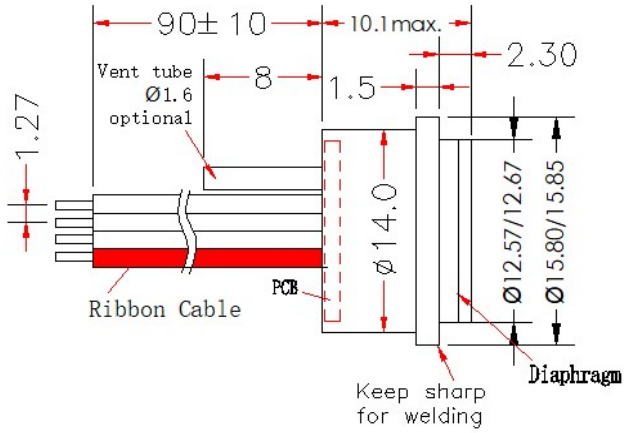
Ambient Temperature: 25° C (unless otherwise specified)

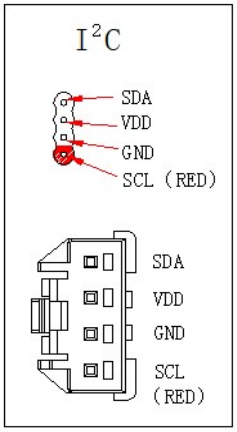
Parameters	Min.	Typical	Max.	Notes
Power supply(V)	3	3.3	5.5	3.3V as default; 5V optional
Current consumption	1μA		2.5mA	
Interface Type	I²C (Address: 0XFE)			
Output Type	10% - 90%			5%-95% Optional
Zero Pressure Output		838861		Decimal
Full Scale Output(FS)		7549746		
Accuracy of pressure output (%FS)	-0.1	±0.05	0.1	combined linearity, hysteresis and repeatability.
Total Error Band (%FS) [2]	-0.75	±0.5	0.75	includes calibration errors and temp. effects over the compensated range.
Temp. Accuracy(℃)	-2.5		2.5	over the compensated temp. range
Operation temp.(℃)	-40		125	
Compensation temp.(℃)[1]	-10		70	
Storage temp.(℃)	-40		125	
Insulation Resistance (MΩ/250V)	50			
Response Frequency (HZ)		100HZ	200HZ	
Over pressure	2 times or 10MPa whichever is less			

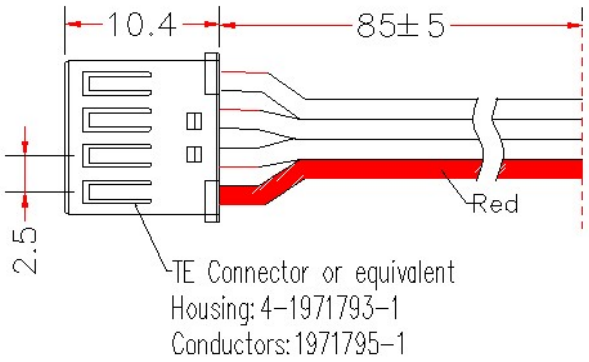
1. Compensation temp. -20~85℃ optional

2. Total error band: total output error including Zero, Span,non-linearity,temp.erorr within compensated temperature range.

Dimmensions(mm)：

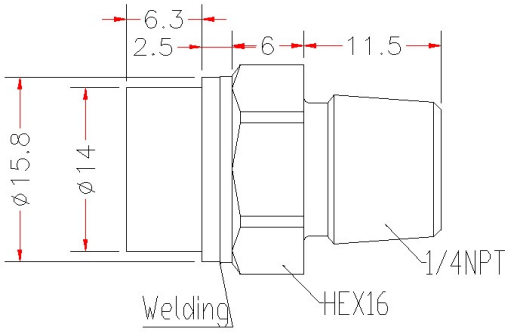




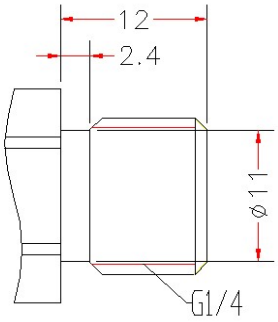


Thread dimensions of S17 (mm)

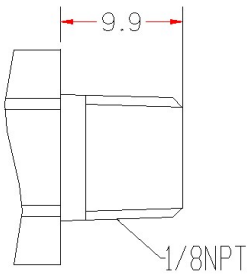
1/4NPT (Code 1)



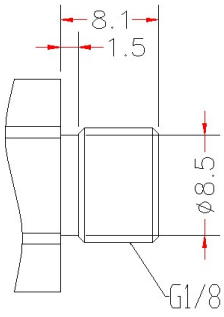
G1/4 (Code 2)



1/8NPT (Code 3)



G1/8 (Code 4)



Ordering informations

Model	Description
S15	Ø15.8mm sensor capsule
S17	Sensor with thread welded

Code	Power supply	Output
D	3.3V	I²C

Code	Pressure range	Gauge	Absolute
100k	0-100kPa	*	*
200k	0-200kPa	*	*
400k	0-400kPa	*	*
600k	0-600kPa	*	*
1M	0-1MPa	*	*
1.6M	0-1.6MPa	*	*
2.5M	0-2.5MPa	*	*
4M	0-4MPa	*	*
7MPa	0-7MPa	*	*
XX	Special range		

Code	Pressure Reference
G	Vent Gauge Pressure(W/O vent tube as default)
A	Absolute Pressure
S	Sealed Gage

Code	Wiring
1	TE Connector
2	Ribbon cable 90mm
X	Special

Code	Thread (Only S17 series)
1	1/4NPT
2	G1/4
3	1/8NPT
4	G1/8
X	Special

Example:

S17	D	600k	G	2	1	
	I²C	0-600kPa	Vent Gauge	Ribbon cable	1/4NPT	Model no.: S17D-600kG-21

Remark:

1. If need negtive pressure sensor, Pls. contact us
2. For S15 series, We can also provide the option of flat diaphragm (without welding ring)

Data location and relative conversion formula

1、I²C communication address defaults to 0xFE

2. The register write instruction initiates the conversion

Bit Address: Bit7~4 Bit3 Bit2~0
4 bit number 1 bit number 3 bit number

Remark: Bit7~4: sleep_time, 0000b(0ms); 0001b(62.5ms) … 1111b(937.5ms), only valid in sleep mode
Bit3 1: Data acquisition is initiated, and the value automatically resets to 0 when finished.
Bit2~0: 000: One-Shot Temperature Acquisition Mode
001: One-Shot Pressure Signal Acquisition Mode;
010: Combined Acquisition Mode (a temperature acquisition followed immediately by a pressure signal acquisition).
011: Sleep Operation Mode (During this mode, a Combined Acquisition Mode is executed periodically, with the interval governed by the 'sleep_time' parameter).
100: Continuous Temperature Acquisition Mode
101: Continuous Pressure Signal Acquisition Mode

3、After sending the conversion command, check if bit 0 of register 0x02 is 1.
1: Data conversion completed, automatic zero return after reading data
0: Data conversion is in progress and cannot be read

4、 Pressure data 24-bit ADC data, with the highest bit as the sign bit

location	0x06	0x07	0x08
ADC data(Decimal)	2^23=8388608		
data(Decimal)	0~8388608		

5、 Temperature data 16-bit ADC data, with the highest bit as the sign bit

storage	0x09	0x0A
ADC data(Decimal)	2^16=65536	
data(Decimal)	0~32768	32769~65536
temperature	0℃~128℃	-128℃~0℃

Example:

Pressure Range of Sensor (kPa)		If the output type is from 10%-90%, Then the lowest and highest pressure data is 10%*ADC and 90%ADC	
		Corresponding pressure data(Decimal)	
P_Low	P_High	PD_Low	PD_High
0	1000	838861	7549747

		Pressure			Temperature	
Data storage location		0x06	0x07	0x08	0x09	0x0A
Hexadecimal data of each byte	ADC_H	71	A2	A3	19	22
Converted to decimal data of each byte	ADC_D	113	162	163	25	34
Decimal data	ADC_CO	7447203			6434	

Actual Pressure = $\left(\frac{ADC\_CO - PD\_Low}{PD\_High - PD\_Low}\right) * (P\_High - P\_Low)$

Pressure (kPa)	**984.72**

If the ADC value within 0~32768, the actual temp.(℃)= $\frac{ADC\_CO}{2^8-1}$

If the ADC value within 32769~65536, the actual temp.(℃)= $\frac{ADC\_CO - 2^{16}}{2^8-1}$

Temperature (℃)	**25.23**