

Solid State Pressure Sensor

ANALOG
OUTPUT

STX Series – Model 13A

FEATURES

- Fastening Mount
- Calibrated Span and Offset
- Multi-order Temperature compensation
- 0.5V/4.5V or optional
- 3V or 5V Supply
- Customized Configuration upon request



DESCRIPTION

The Series STX Model 13A is a smart pressure sensor with calibrated and amplified output. The ceramic hybrid package performs excellent isolation to external stress during operation. Digital compensation of sensor offset, sensitivity, temperature drift and nonlinearity is accomplished in factory via an internal DSP running a correction algorithm with calibration coefficients stored in on-chip EEPROM.

A variety of output configuration, including resolution, sampling rate, output interface are available to provide simple and ready-to-use solution for a wide range of application.

The Series STX 13A is available for pressure range from 0.15 psi to 100 psi. Please contact factory for detail.

Ordering Information

Series STX 13 Analog

13A L - XXX G - X 0 X X

Series

Supply Voltage

Blank = 4.75 to 5.25 V
L = 2.75 to 3.33 V

Type of Pressure

G: Gage (Port B only)
H: Gage (Dual Port)
A: Absolute (Port A only)
D: Differential (Dual Port)

Option

10: No special request
97: Compensated Temp 0~85 degC

Other options available upon request.

Pressure range

005 = 0 ~ 5 psi
007 = 0 ~ 7 psi
015 = 0 ~ 15 psi
030 = 0 ~ 30 psi
050 = 0 ~ 50 psi
100 = 0 ~ 100 psi

(below are Low-Pressure)

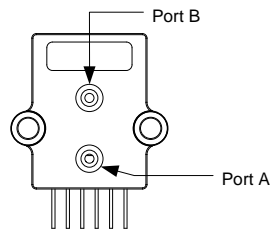
L15 = 0 ~ 0.15 psi
L30 = 0 ~ 0.3 psi
L50 = 0 ~ 0.5 psi
L70 = 0 ~ 0.7 psi
001 = 0 ~ 1 psi
002 = 0 ~ 2 psi
003 = 0 ~ 3 psi

Notes:

Custom ranges and units are available upon request. Please contact factory.

Leading Direction

0 = same side



1. Port B is used for positive differential
2. Port A is used for absolute
3. Port B is used for gage

Type of Output

0 = 1-wire P
1 = 1-wire P+T
2 = 0.5 to 4.5 V
3 = 0.2 to 4.8 V
4 = N/A
5 = 0 to 1 V
6 = 0.2 to 4.7 V
7 = N/A
8 = I²C
9 = SPI
S = Special

NOTES:

1. Specifying differential pressure means a \pm pressure range.
2. Differential pressure can be specified to a maximum of \pm 100 psi.
3. Custom output, pressure range and temperature compensated range are available.
4. Negative gage normally has offset (0.5V) at 0 psi and full scale output (4.5V). Reverse is also applicable.
5. Accuracy may vary on pressure range
6. Minimum absolute pressure that can be specified is 100 psia
7. Medium is available for clean air. For other medium please contact factory.

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Characteristics

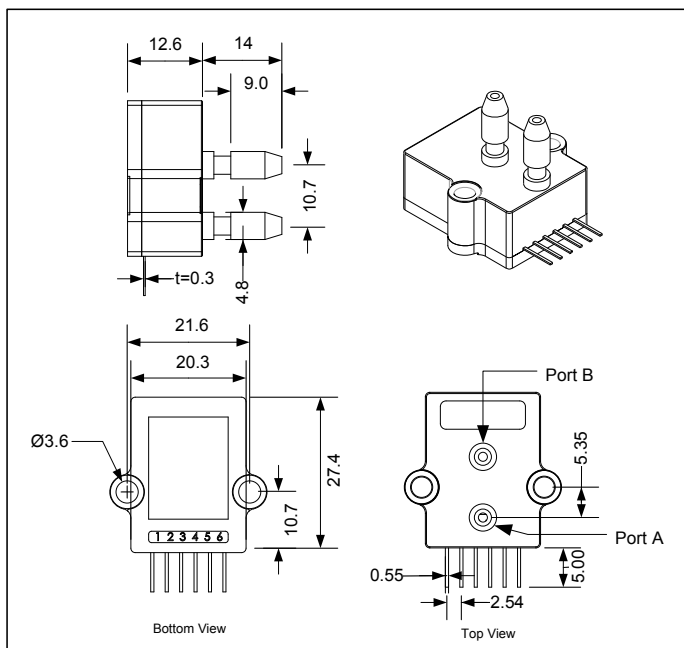
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

Parameters	Min	Typ	Max	Unit
Supply Voltage ¹	2.75		5.25	V
Supply Current ¹		2.5		mA
Pressure Range ²	5		100	PSI
Zero Output ⁴	0.428	0.50	0.572	V
Span Output ⁴		4.00		V
Accuracy ³			1.8	%FS
Linearity ³	-0.5		+0.5	%FS
Thermal Hysteresis ³	-0.15		+0.15	%FS
Response Time		1	2	ms
Over Pressure ⁵			3X	Rated Pressure
Temp - Compensating	0		+50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

NOTES:

- 1. Supply 3V or 5V must be ordered separately.
- 2. Smaller range and other units are also available for ordering
- 3. Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- 4. For differential, offset = 2.50V, Span = ±2.00V
- 5. Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- 6. Output is ratiometric to supply voltage
- 7. Output load resistance to Vss or Vdd: 2.5KΩ (min), 10KΩ (typ)

Dimension



NOTE:

- 1. Port B is used for positive differential
- 2. Port A is used for absolute
- 3. Port B is used for gage
- 4. All dimensions are mm

Pin #	Description
1	V _{SS}
2	N.C.
3	N.C.
4	N.C.
5	V _{DD}
6	SIG

NOTES:

- N.C. pins must be left floating
- A 0.1µf capacitor must be connected between V_{DD} and V_{SS}
- * Pin out configuration may vary, refer to individual data sheet
- Soldering reflow: 250 °C for 5 sec max.

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Characteristics

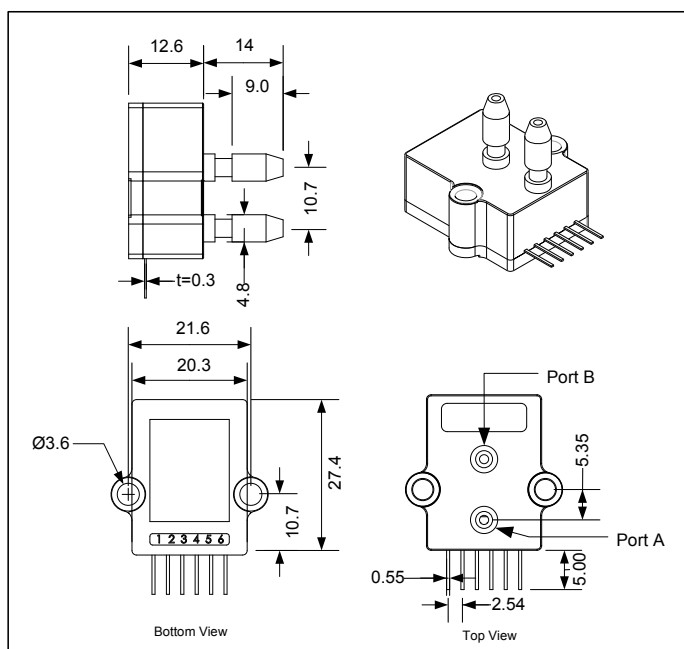
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

Parameters	Min	Typ	Max	Unit
Supply Voltage ¹	2.75		5.25	V
Supply Current ¹		2.5		mA
Pressure Range ²	0.15		3	PSI
Zero Output ⁴	0.412	0.50	0.588	V
Span Output ⁴		4.00		V
Accuracy ³			2.2	%FS
Linearity ³	-0.5		+0.5	%FS
Thermal Hysteresis ³	-0.15		+0.15	%FS
Response Time		1	2	ms
Over Pressure ⁵			3X	Rated Pressure
Temp - Compensating	0		+50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C

NOTES:

- Supply 3V or 5V must be ordered separately.
- Smaller range and other units are also available for ordering
- Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- For differential, offset = 2.50V, Span = ±2.00V
- Over-pressure will vary on different range
- Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- Output is ratiometric to supply voltage
- Output load resistance to Vss or Vdd: 2.5KΩ (min), 10KΩ (typ)
- Zeroing at installation is required

Dimension



NOTE:

- Port B is used for positive differential
- Port A is used for absolute
- Port B is used for gage
- All dimensions are mm

Pin #	Description
1	V _{SS}
2	N.C.
3	N.C.
4	N.C.
5	V _{DD}
6	SIG

NOTES:

- N.C. pins must be left floating
 A 0.1µf capacitor must be connected between V_{DD} and V_{SS}
 * Pin out configuration may vary, refer to individual data sheet
 Soldering reflow: 250 °C for 5 sec max.

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Solid State Pressure Sensor



STX Series – Model 13D

FEATURES

- Fastening Mount
- Calibrated Span and Offset
- Multi-order Temperature compensation
- OWI, I2C or SPI Interface
- 3V or 5V Supply
- Customized Configuration upon request



DESCRIPTION

The Series CCD Model 13D is a smart pressure transducer with digital output via 1-wire serial, I²C or SPI interface. Digital compensation of sensor offset, sensitivity, temperature drift and nonlinearity is accomplished in factory via an internal DSP running a correction algorithm with calibration coefficients stored in on-chip EEPROM.

A variety of output configuration, including resolution, sampling rate, output interface are available to provide simple and ready-to-use solution for a wide range of application.

The Series STX 13D is available for pressure range from 0.15 psi to 100 psi. Please contact factory for detail.

Ordering Information

Series CCD 13 Digital

13D L - XXX G - X 0 X X

Series

Supply Voltage

Blank = 4.75 to 5.25 V
L = 2.75 to 3.33 V

Type of Pressure

G: Gage (Port B only)
H: Gage (Dual Port)
A: Absolute (Port A only)
D: Differential (Dual Port)

Option

0: No special request

Sampling Rate

0 = 1 kHz
1 = 200 Hz
2 = 40 Hz
3 = 8 Hz

Pressure range

005 = 0 ~ 5 psi
007 = 0 ~ 7 psi
015 = 0 ~ 15 psi
030 = 0 ~ 30 psi
050 = 0 ~ 50 psi
100 = 0 ~ 100 psi

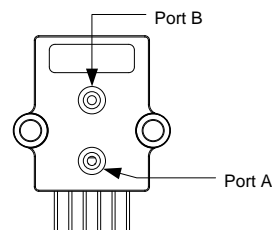
(below are Low-Pressure)

L15 = 0 ~ 0.15 psi
L30 = 0 ~ 0.3 psi
L50 = 0 ~ 0.5 psi
L70 = 0 ~ 0.7 psi
001 = 0 ~ 1 psi
002 = 0 ~ 2 psi
003 = 0 ~ 3 psi

Notes:
Custom ranges and units are available upon request.
Please contact factory.

Leading Direction

0 = same side



1. Port B is used for positive differential
2. Port A is used for absolute
3. Port B is used for gage

Type of Output

0 = 1-wire P
1 = 1-wire P+T
2 = 0.5 to 4.5 V
3 = 0.2 to 4.8 V
4 = N/A
5 = 0 to 1 V
6 = 0.2 to 4.7 V
7 = N/A
8 = I^2C
9 = SPI
S = Special

NOTES:

1. Specifying differential pressure means a \pm pressure range.
2. Differential pressure can be specified to a maximum of ± 100 psi.
3. Custom output, pressure range and temperature compensated range are available.
4. Negative gage normally has offset (0.5V) at 0 psi and full scale output (4.5V). Reverse is also applicable.
5. Accuracy may vary on pressure range
6. Minimum absolute pressure that can be specified is 100 psia
7. Medium is available for clean air. For other medium please contact factory.

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Characteristics

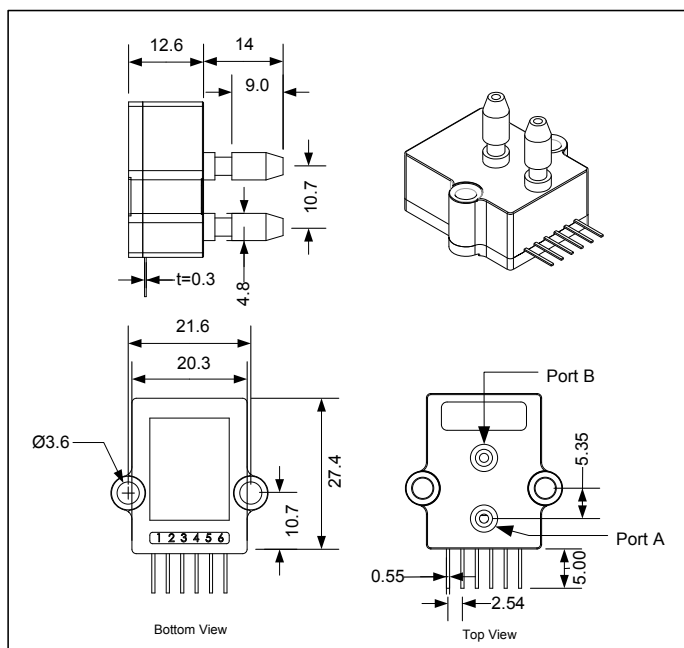
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

Parameters	Min	Typ	Max	Unit
Excitation ¹	2.75		5.25	V
Pressure range ²	0.15		3	PSI
Resolution ³	12			Bit
Accuracy ³		±2.2		%FS, +1LSB
Zero Output ⁴		0666		Hex
Full Scale Output ⁴		3999		Hex
Warm-up Time		1	2	ms
Start-up Time			10	ms
Sampling Rate	8		1000	Hz
Temp - Compensating	0		50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C
Over Pressure ⁵			3X	Rated Pressure

NOTES:

- Supply 3V or 5V must be ordered separately.
- Smaller range and other units are also available for ordering
- Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- For differential pressure, offset = 2000 hex, FS = 666/3999
- Over-pressure will vary on different range
- Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- Output load resistance to Vss or Vdd: 2.5KΩ (min), 10KΩ (typ)
- Zeroing at installation is required

Dimension



NOTE:

- Port B is used for positive differential
- Port A is used for absolute
- Port B is used for gage
- All dimensions are mm

Pin #	Description
1	V _{SS}
2	N.C.
3	N.C.
4	N.C.
5	V _{DD}
6	SIG

NOTES:

- N.C. pins must be left floating
 A 0.1µf capacitor must be connected between V_{DD} and V_{SS}
 * Pin out configuration may vary, refer to individual data sheet
 Soldering reflow: 250 °C for 5 sec max.

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Characteristics

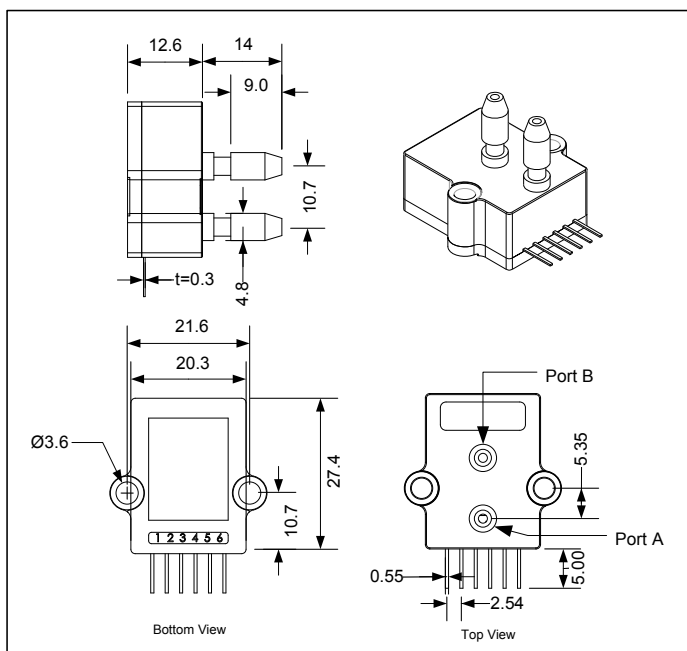
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

Parameters	Min	Typ	Max	Unit
Excitation ¹	2.75		5.25	
Pressure range ²	5		100	PSI
Resolution ³		12		Bit
Accuracy ³		1.8		%FS, +1LSB
Zero Output ⁴		0666		Hex
Full Scale Output ⁴		3999		Hex
Voltage Low Level		0	0.2	V _{DD}
Voltage High Level	0.8	1		V _{DD}
Output Lo-Level			0.1	V _{DDA}
SCL clocking	100		400	KHZ
System Freq		1		MHZ
Update Rate	1		125	ms
Temp - Compensating	0		50	°C
Temp - Operating	-20		+85	°C
Temp - Storage	-40		+125	°C
Over Pressure ⁶			3X	Rated Pressure

NOTES:

- 1. Supply 3V or 5V must be ordered separately.
- 2. Smaller range and other units are also available for ordering
- 3. Accuracy includes NOL, hysteresis, TCS and TCO over 0/50°C, BFSL definition
- 4. For differential pressure, offset = 2000 hex, FS = 666/3999
- 5. Minimum pull-up on SDA and SCL is 1KΩ
- 6. 1X for 100
- 7. The factory setting for I2C slave address is 0x28
- 8. Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon

Dimension



- NOTE:**
- 1. Port B is used for positive differential
 - 2. Port A is used for absolute
 - 3. Port B is used for gage
 - 4. All dimensions are mm

Pin #	Description
1	GND
2	SDA
3	SCL
4	N.C.
5	SUP
6	N.C.

- NOTES:**
- N.C. pins must be left floating
 - A 0.1uF capacitor must be connected between V_{DD} and V_{SS}
 - * Pin out configuration may vary, refer to individual data sheet
 - Soldering reflow: 250 °C for 5 sec max.

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