

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

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:

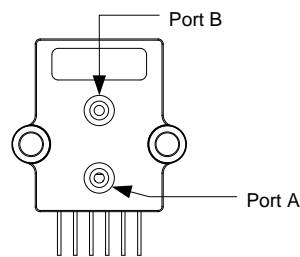
Custom ranges and units are available upon request. Please contact factory.

Type of Pressure

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

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

Option

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

Other options available upon request.

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 +/- 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

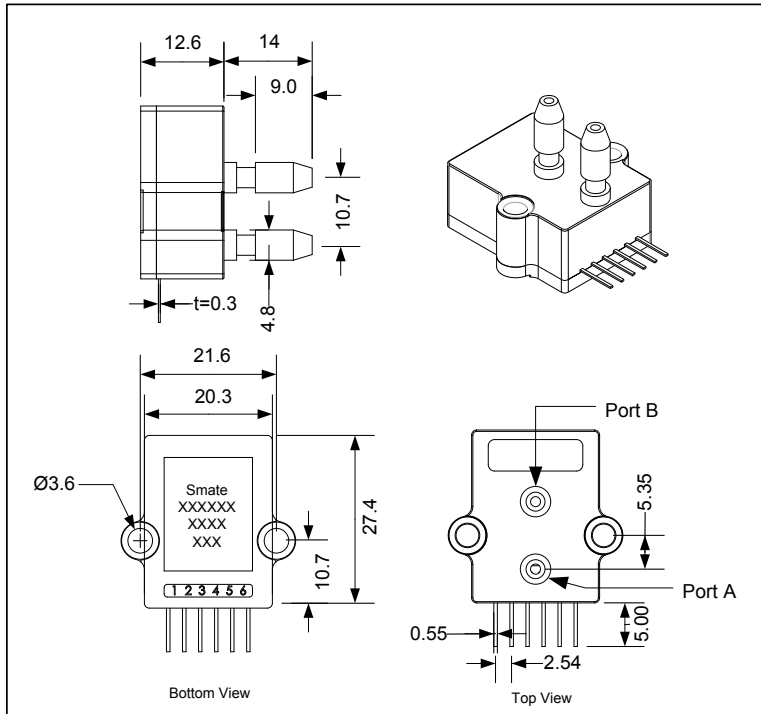
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

| 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

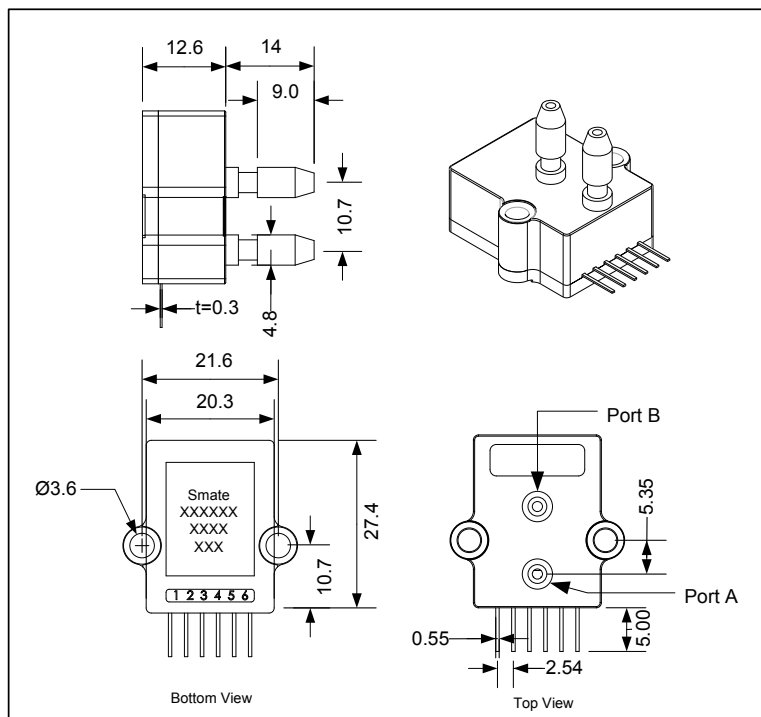
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

| 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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Characteristics

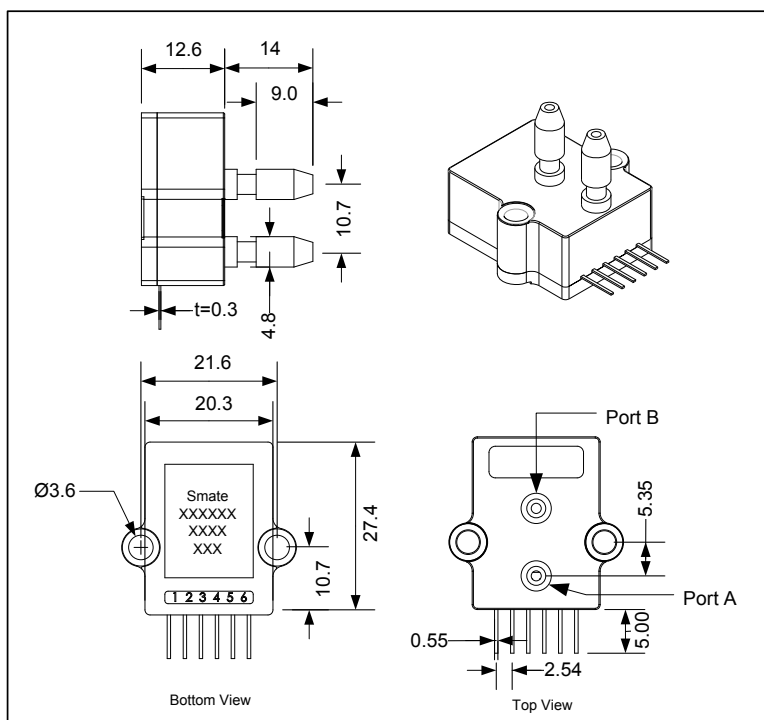
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

| 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 | | +85 | °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
- 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)

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

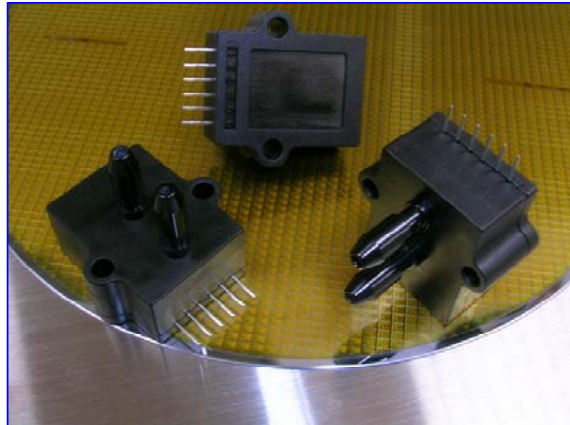
DIGITAL
OUTPUT



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.

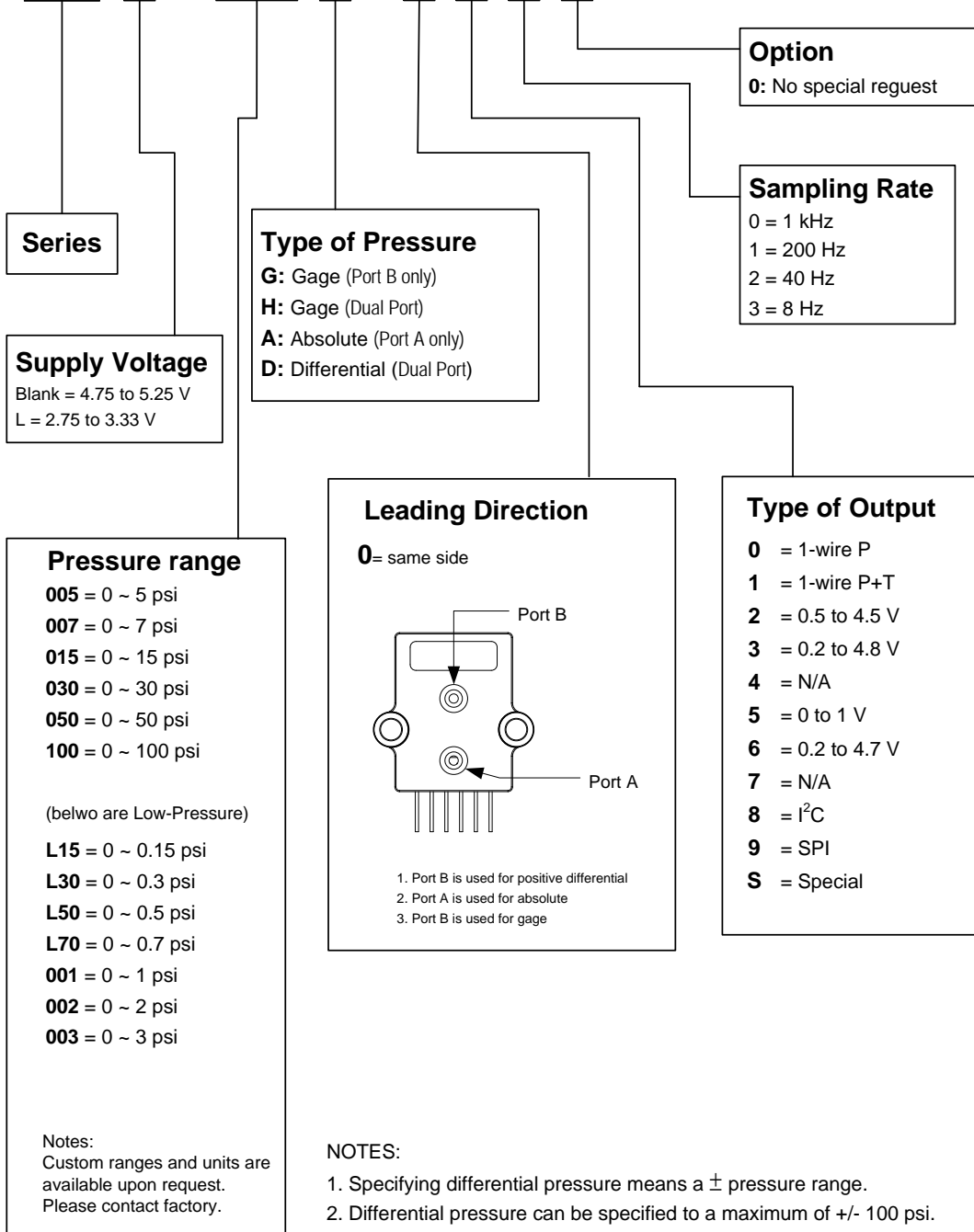
A variety of output configuration, including resolution, sampling rate, output interface are available to provide simple and ready-to-use solution for a wide range of application.

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



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Characteristics

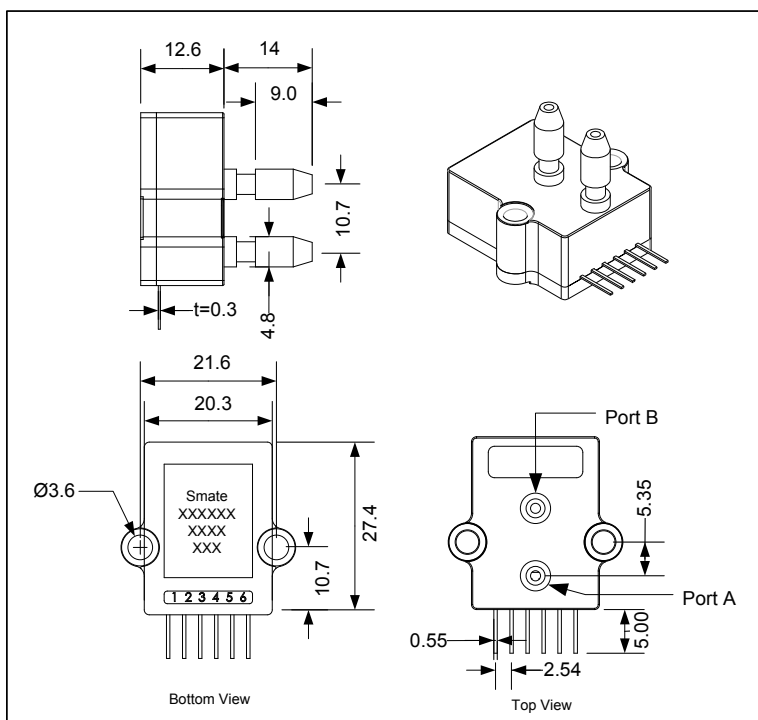
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

| Parameters | Min | Typ | Max | Unit |
|--------------------------------|------|------|------|----------------|
| Excitation ¹ | 2.75 | | 5.25 | V |
| Pressure range ² | 5 | | 100 | PSI |
| Resolution ³ | | 14 | | Bit |
| Accuracy ³ | | ±1.8 | | %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
- Wetted material: PA, RTV, Epoxy, ceramic, Au, nickel and silicon
- Output is ratiometric to supply voltage
- Output load resistance to V_{ss} or V_{dd}: 2.5KΩ (min), 10KΩ (typ)

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

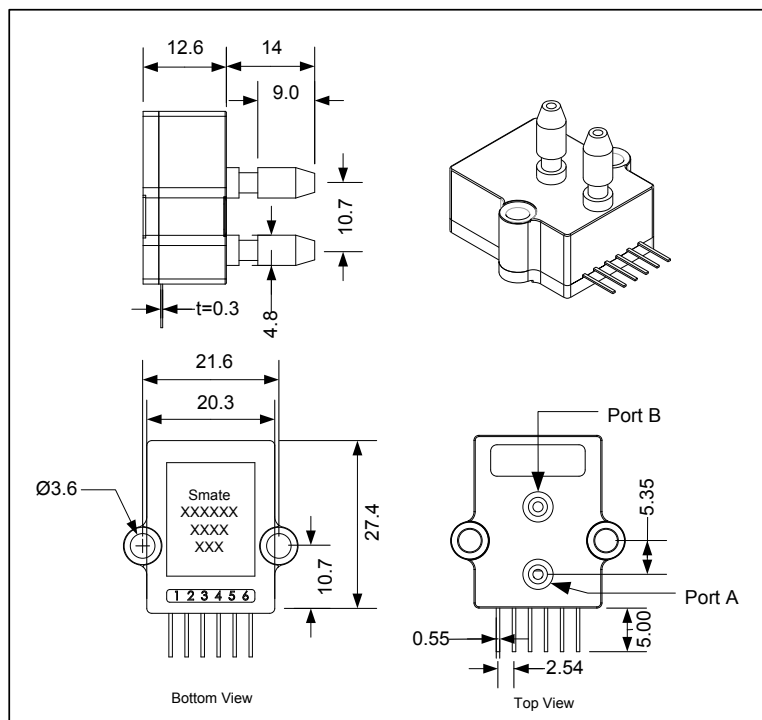
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

| Parameters | Min | Typ | Max | Unit |
|--------------------------------|------|------|------|----------------|
| Excitation ¹ | 2.75 | | 5.25 | 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

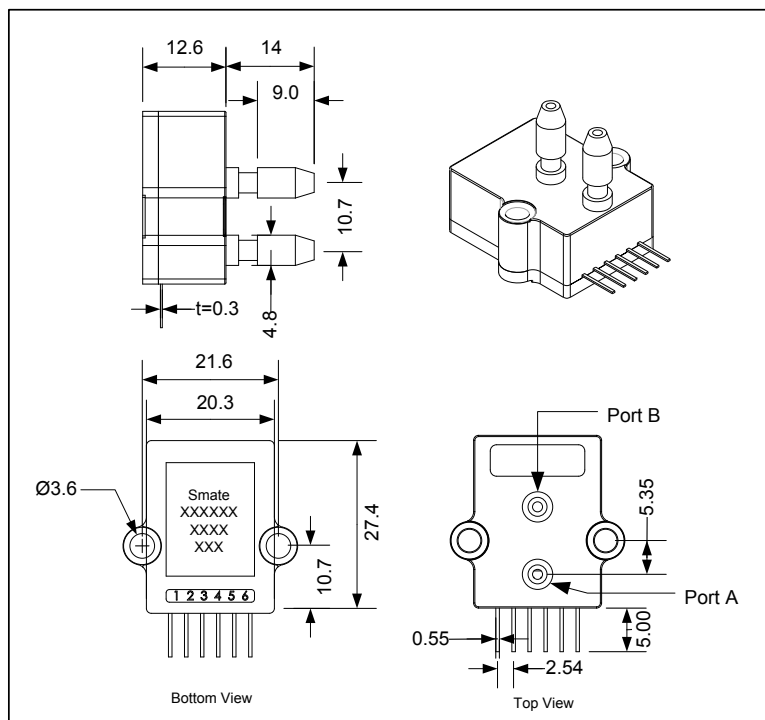
Unless otherwise specified, all parameters are measured at 3/5V, 25 °C and 60% RH

| 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 0.1µf 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.

Headquarter Switzerland:
Angst+Pfister Sensors and Power AG

Thurgauerstrasse 66
CH-8050 Zurich
Phone +41 44 877 35 00
sensorsandpower@angst-pfister.com

Office Germany:
Angst+Pfister Sensors and Power
Deutschland GmbH
Edisonstraße 16
D-85716 Unterschleißheim
Phone +49 89 374 288 87 0
sensorsandpower.de@angst-pfister.com



We are here for you. Addresses and Contacts.

Sales Germany & Austria

Geometrical sensors
Other products

Kurt Stritzelberger
Phone +49 89 374 288 87 22
kurt.stritzelberger@angst-pfister.com

Pressure sensors
Other products

Gerhard Vetter
Phone +49 89 374 288 87 26
gerhard.vetter@angst-pfister.com

Gas sensors and modules

Peter Felder
Phone +41 44 877 35 05
peter.felder@angst-pfister.com

Sales Switzerland & Liechtenstein

Postcode 3000 – 9999

Basil Frei
Phone +41 44 877 35 18
basil.frei@angst-pfister.com

Postcode 1000 – 2999

Christian Mohrenstecher
Phone +41 76 444 57 93
christian.mohrenstecher@angst-pfister.com

Sales International Key Accounts

Peter Felder
Phone +41 44 877 35 05
peter.felder@angst-pfister.com

Sales Other Countries / Product Management

Pressure Sensors
Load Cells

Philipp Kistler
Phone +41 44 877 35 03
philipp.kistler@angst-pfister.com

Gas sensors
Gas sensor modules

Dr. Thomas Clausen
Phone +49 89 374 288 87 24
thomas.clausen@angst-pfister.com

Flow / Level / Medical products

Dr. Adriano Pittarelli
Phone +49 89 374 288 87 67
adriano.pittarelli@angst-pfister.com

Power supplies

Sebastiano Leggio
Phone +41 44 877 35 06
sebastiano.leggio@angst-pfister.com

Linear position sensors
Angle sensors

Eric Letsch
Phone +41 44 877 35 14
eric.letsch@angst-pfister.com

Accelerometers
Sensor elements

Christoph Kleye
Phone +49 89 374 288 87 61
christoph.kleye@angst-pfister.com

Drive technology
CH Postcode 5000 – 9999 / DE

Roman Homa
Phone +41 76 444 00 86
roman.homa@angst-pfister.com

Drive technology
CH Postcode 1000 – 4999 / AT / IT / FR

Christian Mohrenstecher
Phone +41 76 444 57 93
christian.mohrenstecher@angst-pfister.com

Harald Thomas
Phone +49 89 374 288 87 23
harald.thomas@angst-pfister.com