Sensata Technologies

Pressure Sensors

Best value solutions covering all sensing principles and pressure ranges

WORLD CLASS PERFORMANCE

Sensata Technologies offers a wide range of sensing solutions for pressure applications of every kind. By focusing our unparalleled engineering and manufacturing expertise on your needs, we will meet the highest expectations of all - your own.

Sensata Technologies is the world's leading supplier of sensors and controls across a broad range of markets and applications.

Features and benefits

- Excellent quality at competitive prices
- Superb accuracy and stability over life
- Robust against environmental influences
- Customized and off-the-shelf solutions
- Low and high pressure technologies
- Multiple Input/Output options
- Proven reliability

Typical applications

- Air conditioning and refrigeration
- Alternative energy management
- Compressors and pumps
- General industrial applications
- Hydraulics and pneumatics
- Off-road - and specialty vehicles
- Process control and automation

Products

CP Series (Ceramic Capacitive Pressure Transducer): Best value solution for medium pressure applications

CP+T Series (Ceramic Capacitive Pressure Transducer with Temperature Function): High performance integrated solution

CH Series (Ceramic Capacitive Hermetic Pressure Transducer): First-class electronically stable, hermetic solution

PP Series (Microfused Strain Gauge Pressure Transducer): The world's first choice for high pressure applications

DPS Series (Differential Pressure Sensor): True answer to differential low pressure applications

Sensata Technologies

CP Series

Ceramic Capacitive Pressure Transducer

WORLD CLASS PERFORMANCE

The CP Series' pressure transducers with their proven ceramic capacitive technology have been on the market for many years. Our large portfolio with a variety of mechanical and electrical connections creates a broad range of combination possibilities.

Sensata Technologies is the world's leading supplier of sensors and controls across a broad range of markets and applications.

Features and benefits

- Gasket-sealed pressure sensors with multiple Input/Output options
- Superior performance and long-term reliability
- Solid state operation coupled with ease of integration and installation
- Housing options compatible with most media
- RoHS compliant versions

Typical applications

- Air conditioning and refrigeration
- Alternative energy management
- Compressors and pumps
- Hydraulics and pneumatics
- Medical controls
- Off-road - and specialty vehicles (including engine and vehicle stability control, transmission and steering)
- Process control and automation

Technical specifications

Pressure range
0 to 1 through 0 to 200 bar abs or rel
(0 to 15 through 0 to 3000 psia or psig)

Physical
Proof pressure.....≥1.5x operating pressure
Burst pressure.....≥3x operating pressure
Cycle life (Full scale).....≥10 million cycles
Vibration (50 to 2000 Hz).....11 g random
Drop (any axis).....1.5 m
Pressure connection*
• Screw threads, snap fit
Electrical connection*
• AMP MQS (IP67), DIN 72585 (IP67), Packard Metri-Pack (IP65), wire bond, PCB soldering

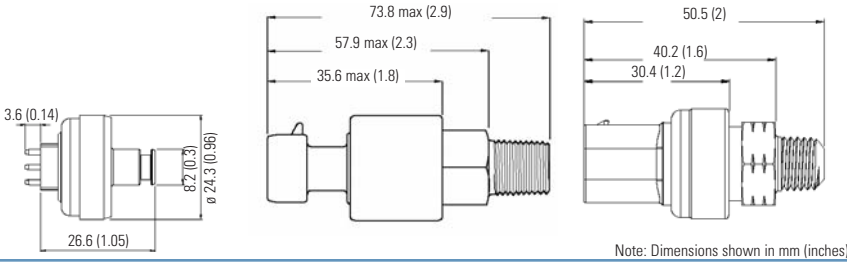
Performance
Accuracy (Full scale pressure)..±0.75 to ±1.2 %
(static error band at 25 °C span including linearity, hysteresis, repeatability)
Thermal effect.....±0.013 %/°C
Output response time.....≤10 ms

Operating temperature*
• Voltage output.....-40 °C to 135 °C
• Current output.....-20 °C to 100 °C
Storage temperature*.....-40 °C to 150 °C

Electrical
Supply voltage.....4.5 to 5.5 Vdc, 6 to 30 Vdc
Output signal.....0.5 to 4.5 Vdc, 0 to 10 mV, 4 to 20 mA
EMC (10 to 512 MHz).....50 V/m
EMC (512 MHz to 1GHz).....100 V/m
ESD (CDF-AEC-Q100-002).....15 kV
Overvoltage protection
• 4.5 to 5.5 Vdc (supply).....16 Vdc
• 6 to 30 Vdc (supply).....40 Vdc
Reverse voltage protection
• 4.5 to 5.5 Vdc (supply).....-14 Vdc
• 6 to 30 Vdc (supply).....-40 Vdc
Short circuit protection

* view charts on reverse

Dimensional drawing



Note: Dimensions shown in mm (inches)

Sensata Technologies

CP+T Series

Ceramic Capacitive Pressure Transducer with Temperature Function

WORLD CLASS PERFORMANCE

The CP+T Series combines a ceramic capacitive sensing element with a fast and accurate NTC thermistor. This integrated solution provides high performance and easy single mounting to your system.

Sensata Technologies is the world's leading supplier of sensors and controls across a broad range of markets and applications.

Features and benefits

- Pressure and temperature measurement in one package
- Fast in-stream temperature measurement
- Precise superheat measurement
- ECE-R110 (CNG) and ECE-R67 (LPG) approved versions

Typical applications

- Air conditioning and refrigeration
- Alternative energy management
- Compressors and pumps
- Engine controls and monitors

Technical specifications

Pressure range
0 to 4.5 through 0 to 40 bar abs
(0 to 65 through 0 to 600 psia)

Physical
Proof pressure.....≥2x operating pressure
Burst pressure.....≥3x operating pressure
Cycle life (Full scale).....≥1 million cycles
Vibration (50 to 2000 Hz)...5 g random
Drop (any axis).....1 m
Pressure connection*
• Male screw threads
Electrical connection*
• AMP MQS - 4 pins (IP67)

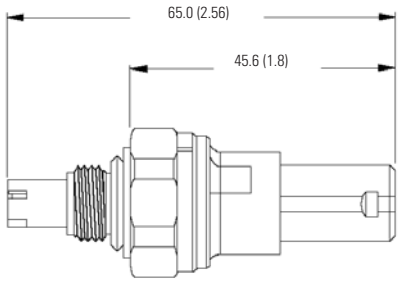
Performance (pressure)
Accuracy (Full scale pressure).....±1.2 %
(static error band at 25°C span including linearity, hysteresis, repeatability)
Thermal effect.....±0.016 %/°C
Output response time.....10 ms

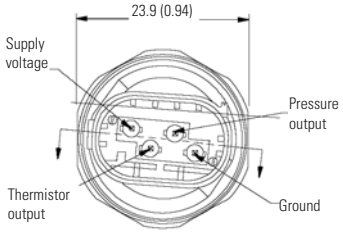
Performance (temperature)
Accuracy (delta R/R).....±1 %
(static error band at 25 °C room temperature)
Operating temperature*...-30 °C to 130 °C
Storage temperature*.....-40 °C to 140 °C
Room temperature resistance at 25 °C
• 10 or 100 kOhms

Electrical
Supply voltage.....4.5 to 5.5 Vdc
Output signal.....0.5 to 4.5 Vdc
Supply current.....15 mA max
EMC (10 to 512 MHz).....50 V/m
EMC (512 MHz to 1 GHz).....100 V/m
ESD (CDF-AEC-Q100-002).....15 kV
Protection
• Overvoltage.....16 Vdc
• Reverse voltage.....-14 Vdc
• Short circuit

* view charts on reverse

Dimensional drawing





Note: Dimensions shown in mm (inches)

Sensata Technologies

CH Series

Ceramic Capacitive Hermetic Pressure Transducer

WORLD CLASS PERFORMANCE

The CH Series' pressure transducers are ideally suited for the most demanding industrial applications. This innovative product is hermetic but not oil-filled and boasts case isolation up to 1800 V.

Sensata Technologies is the world's leading supplier of sensors and controls across a broad range of markets and applications.

Features and benefits

- Hermetic pressure sensors with multiple Input/Output options
- High accuracy and repeatability
- Multiple standard and custom ports
- Outstanding EMC performance and high dielectric strength

Typical applications

- Air conditioning
- Alternative energy management
- Compressors and pumps
- Hydraulics and pneumatics
- Processing control and automation
- Vending machines

Technical specifications

Pressure range
0 to 7 through 0 to 52 bar abs or rel
(0 to 100 through 0 to 750 psia or psig)

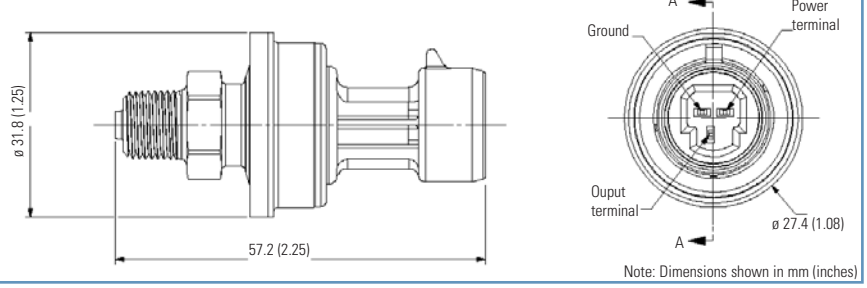
Physical
Proof pressure.....≥1.5x operating pressure
Burst pressure.....≥3.5x operating pressure
Cycle life (Full scale)....≥5 million cycles
Vibration (3 axes at 33.3 Hz).....5 g random
Pressure connection*
• Copper tube, screw threads
Electrical connection*
• Packard Metri-Pack (IP65), wire lead (IP67)

Performance
Accuracy (Full scale pressure)....±0.6 %
(static error band at 25 °C span including linearity, hysteresis, repeatability)
Thermal effect (on zero).....±0.01 %/°C
Thermal effect (on span).....±0.001 %/°C
Operating temperature
• Voltage output.....-40 °C to 135 °C
• Current output.....-20 °C to 100 °C
Output response time.....≤10 ms
Storage temperature.....-40 °C to 150 °C

Electrical
Supply voltage.....4.5 to 5.5 Vdc, 6 to 30 Vdc
Output signal.....0.5 to 4.5 Vdc, 0 to 90 mV, 4 to 20 mA
EMC (1 to 512 MHz).....30 V/m
EMC (1 MHz to 1 GHz).....100 V/m
ESD (CDF-AEC-Q100-002).....15 kV
Dielectric strength
• for 1 s.....1800 Vac
• for 30 s.....1500 Vac
Overvoltage protection
• 4.5 to 5.5 Vdc (supply)....16 Vdc
• 6 to 30 Vdc (supply).....40 Vdc
Reverse voltage protection
• 4.5 to 5.5 Vdc (supply)....-14 Vdc
• 6 to 30 Vdc (supply).....-40 Vdc
Short circuit protection

* view charts on reverse

Dimensional drawing



Note: Dimensions shown in mm (inches)

Sensata Technologies

PP Series

Microfused Strain Gauge Pressure Transducer

WORLD CLASS PERFORMANCE

The PP Series' pressure transducers allow for the best control in an industrial system. A piezo-resistive technology has been selected, whereby the strain gauges are glass fused onto a metal membrane and hermetically sealed.

Sensata Technologies is the world's leading supplier of sensors and controls across a broad range of markets and applications.

Features and benefits

- Accurate operation over a wide temperature range
- High resistance to vibration and electromagnetic interferences
- Inherent hermetic structure for unparalleled media resistance
- ECE-R110 (CNG) approved versions

Typical applications

- Air conditioning and refrigeration
- Alternative energy management
- CO_2 compressors
- Hydraulics and pneumatics
- Off-road - and specialty vehicles (including brake pressure, vehicle stability control, diesel common rail, transmission and electro-hydraulics)

Technical specifications

Pressure range
0 to 35 through 0 to 2200 bar rel
(0 to 500 through 0 to 32,000 psig)

Physical
Proof pressure.....≥2x operating pressure
Burst pressure.....≥3x operating pressure
Cycle life (Full scale).....≥10 million cycles
Vibration (50 to 2000 Hz).....20 to 60 g sine
Drop (any axis).....1.5 m
Pressure connection*
• Male screw threads, snap fit
Electrical connection*
• LFF: Packard Metri-Pack (IP65), VDA (IP67), Sicma (IP67), AMP MQS (IP67), AMP EJII
• SFF: Springs

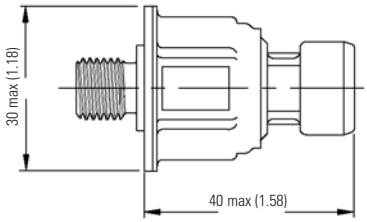
Performance
Accuracy (Full scale pressure).±1.1 to ±1.3 %
(static error band at 25 °C span including linearity, hysteresis, repeatability, calibration)
Output response time.....≤10 ms
Operating temperature....-40 °C to 135 °C
Storage temperature.....-40 °C to 150 °C

Electrical
Supply voltage.....4.5 to 5.5 Vdc
Output signal.....0.5 to 4.5 Vdc
Supply current.....15 mA max
EMC (1 MHz to 4 GHz).....200 V/m
ESD (ISO 10605).....8 kV
Protection
• Overvoltage.....16 Vdc
• Reverse voltage.....-14 Vdc
• Short circuit

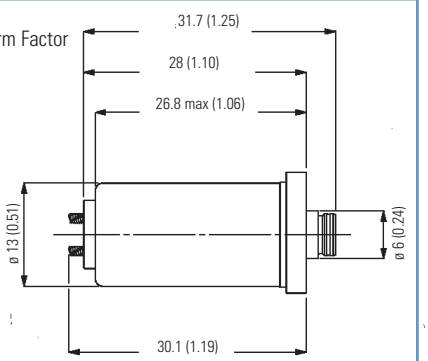
* view charts on reverse

Dimensional drawing

Large Form Factor (LFF)



Small Form Factor (SFF)



Note: Dimensions shown in mm (inches)

Sensata Technologies

DPS Series

Differential Pressure Sensor

WORLD CLASS PERFORMANCE

The most accurate technologies for a true Differential Pressure Sensor are Micro-Electro-Mechanical-Systems (MEMS). Our patented MEMS products offer the best-value solutions for differential pressure applications.

Sensata Technologies is the world's leading supplier of sensors and controls across a broad range of markets and applications.

Features and benefits

- High accuracy
- Linear output ratiometric with supply
- On board error diagnostics
- Small package

Typical applications

- Air conditioning
- Alternative energy management
- Compressors and pumps
- Off-road and specialty vehicles (including diesel particulate filter, venturi flow meter, air filter restriction, engine controls and monitors)

Technical specifications

Pressure range
0.18 to 1.5 bar rel (2.6 to 21.8 psig)

Physical
Proof pressure
- High side.....≥1.5x operating pressure
- Low side.....≥0.5x operating pressure

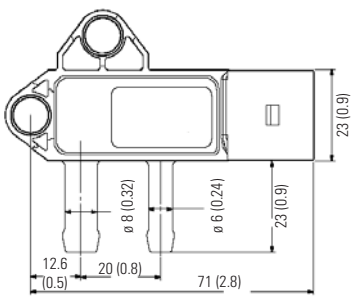
Burst pressure.....≥3x operating pressure
Cycle life (Full scale)....≥10 million cycles
Vibration (50 to 2000 Hz).....16 g
Drop (any axis).....1.8 m
Pressure connection.....Tubular (ø 6 or 8 mm)
Electrical connection.....RD (P65/67/69k)

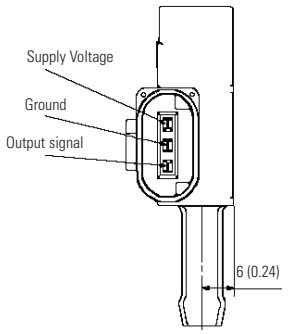
Performance
Accuracy (Full scale pressure)....±1.5 %
(static error band at 25 °C span including linearity, hysteresis, repeatability, calibration)
Thermal effect.....±3 %
(over the whole temperature range)
Output response time
- Min.....10 ms
- Max.....1.2 s

Operating temperature....-40 °C to 140 °C
Storage temperature.....-40 °C to 140 °C

Electrical
Supply voltage.....4.5 to 5.5 Vdc
Output signal.....0.5 to 4.5 Vdc
Supply current.....<15 mA
EMC (1 MHz to 4 GHz).....100 V/m
ESD (ISO 10605).....8 kV
Protection
- Overvoltage.....16 Vdc
- Reverse voltage.....-14 Vdc
- Short circuit

Dimensional drawing



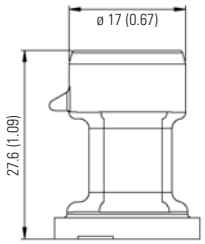


Note: Dimensions shown in mm (inches)

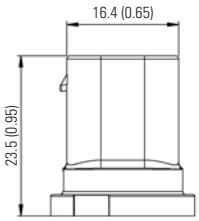
Sensata Technologies

Electrical connections (please contact Sensata for other connections)

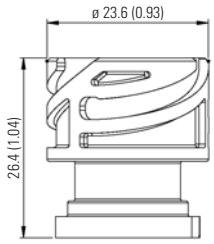
Packard Metri-Pack



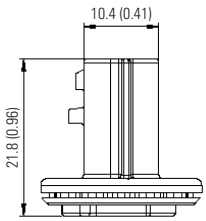
AMP MQS - 3 pins



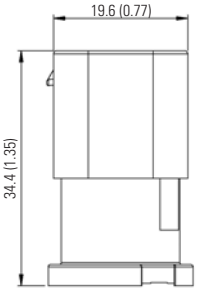
DIN 72585



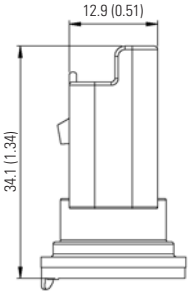
Yazaki



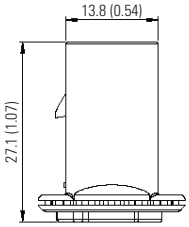
AMP MQS - 4 pins



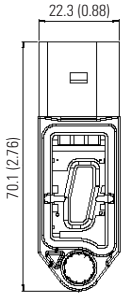
Sicma



VDA



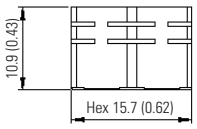
RD



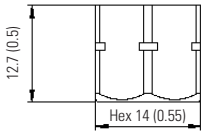
Note: Dimensions are shown in mm (inches)

Pressure connections (please contact Sensata for other connections)

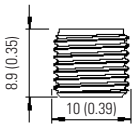
1/4" SAE female flare with deflator (7/6" - 20 UNF - 2B)



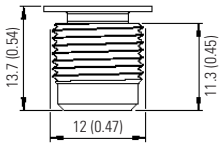
M10 x 1.25 female



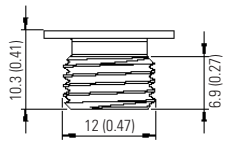
M10 x 1 male



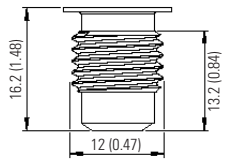
M12 x 1 male



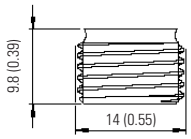
M12 x 1.25 male



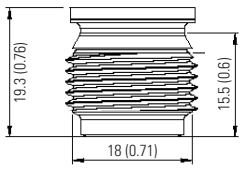
M12 x 1.5 male



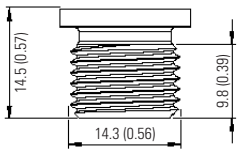
M14 x 1.5 male



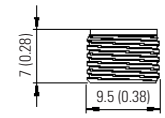
M18 x 1.5 male



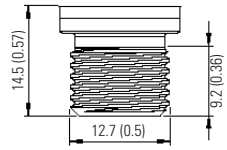
9/16" - 20 UNF male



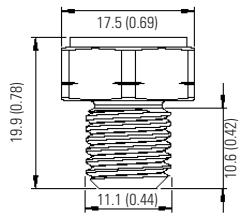
3/8" - 24 UNF male



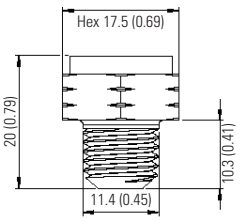
1/2" - 20 UNF male



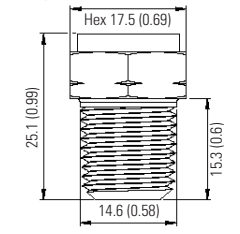
7/16" - 20 UNF male



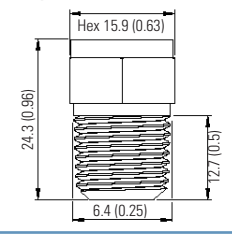
1/8" - 27 NPTF male



1/4" - 18 NPTF male



1/4" - 19 BSPT male



Note: Dimensions are shown in mm (inches)

Seal material compatibility guide

Seal material	**Media compatibility** (please contact Sensata for more information)	**Maximum seal temperature range***
HNBR	petroleum oils, lubricants, detergent solutions	-20 °C to 135 °C
Ethylene Propylene (EPDM)	steam soaps, polar solvents, brake fluid, acetone Skydrol™	-40 °C to 135 °C
Fluorosilicone	chlorinated solvents, oils, fuels, air	-40 °C to 135 °C
Neoprene	refrigerants (freon, ammonia)	-40 °C to 120 °C
Fluorocarbon (Viton™)	fertilizers, freons, oils, trichloroethylene, hydrocarbons	-35 °C to 135 °C

*Note: Please be aware that the sensor's operating and storage temperature range depends on the seal used.

Sensata Technologies

Customer questionnaire Pressure Sensor

Contact information

Company _____ Contact name _____
Street _____ Position _____
Postcode _____ City _____ Phone _____ Fax _____
Country _____ Email _____

Project

Name _____ Start of production _____
Target price _____ Estimated usage

Year 1	Year 2	Year 3

Application

Description _____ Medium _____
Function of sensor _____

Pressure output

Operating pressure range / - differential (in bar absolute or relative) _____
Operating pressure range high side and low side (for DPS Series only) _____
Output signal (e.g. V, mV or mA) _____ Full scale accuracy (including linearity, hysteresis, etc.) _____

Temperature output (for CP+T Series only)

Nominal temperature _____ Response time _____
Accuracy _____

Pressure connection

Material (e.g. brass, steel, stainless steel) _____ Pressure connection _____
Material O-ring (if applicable) _____

Electrical requirements

Connector type _____ Supply voltage _____
Output load (resistor value and pull up or down) _____
Response time (10…90 %) _____

Environmental conditions

Operating temperature range _____ Life time _____
Proof pressure (max pressure applied without change of specification; high and low pressure side for DPS Series) _____
Burst pressure (max pressure applied without causing leakage; high and low pressure side for DPS Series) _____
Electromagnetic compatibility _____ Vibration _____
Certificates / approvals _____ IP class _____

Additional information

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