TAKING PRESSURE SENSING TO A NEW LEVEL

A patented square sense element and conditioning electronics provide field-proven EMC tolerance and reliability, including excellent performance in high-noise environments. Multiple packaging configurations are available for easy system integration. For those looking to optimize A/C system control, the AP² sensor design ensures high-quality, world-class performance.

FEATURES

- Square Sense Element
- Flexible Packaging
- High reliability in noisy environments, balanced circuit design
- Aluminum hexport
- Generation II or III conditioning electronics
- Ratiometric output
- Designed for under-hood environment

BENEFITS

- Lower cost solution, lighter weight
- Available in a wide range of connectors and port fittings
- Ease of system integration
- EMC protection to 200 V/m
- 2x lighter in weight
- 4x improvement in corrosion protection
- Accuracy ±1% Vcc; temperature compensation
- Ease of system integration, eliminates error in supply voltage fluctuations
- Operating temperature range −40ºC to 135ºC, fluid compatibility

APPLICATIONS

Optimized A/C performance
- High-pressure compressor protection
- Multiple stage fan control
- Low-temperature compressor operation

Engine load management
- Improved control around idle boost
- Reduced fuel consumption to meet C.A.F.E. standards
- Reduced emissions

Diagnostics at service centers

TECHNICAL SPECIFICATIONS

- Operating Pressure Range
  - Pressure range: 100-3400 kPa

- Performance
  - Accuracy: ±1.0% of Vcc (25ºC)
  - Linearity: 1.0% of Vcc (−40ºC to 135ºC)
  - Temperature effect: ±0.01% of Vcc/ºC
  - Total error band: ±2% of Vcc (0 to 100ºC)

- Electrical
  - Supply Voltage (Vcc): 4.75 to 5.25 Vdc
  - Supply Current: 10 mA max.
  - Output current: 5-95% of Vcc
  - Output response time: 1 ms
  - Output ripple: 0.2% of Vcc

- Overvoltage Protection: 16.5 Vdc
- Reverse voltage protection: -14 Vdc
- Radiated immunity: 100-200 V/m
- ESD withstand: 15 kV

- Durability
  - Cycle life: 10 million cycles
  - Proof pressure: 1.5x (5300 kPa)
  - Burst pressure: 2.5x (8700 kPa)

- Environmental
  - Operating temperature: −40 to 135ºC
  - Storage temperature: −40 to 150ºC

1 other ranges available
2 with no load output
3 max., sink or source
4 100% input, 0-90% response time
5 can be adjusted to application need

Superior pressure sensing is required for highly efficient A/C loop systems that enable reduced fuel consumption and improved emissions. Sensata’s AP (Automotive Pressure)² sensor is the low-cost, lightweight solution for accurate and robust pressure sensing in under-hood applications such as engine load management and compressor protection. With an aluminum port fitting and automotive grade connector, its corrosion protection is second to none. A new, patented square sense element and conditioning electronics provide excellent EMC tolerance and reliability. Multiple packaging configurations are available for easy system integration.
AP squared SENSORS™ PRODUCTS
Air Conditioning Applications

Dimensions (mm)

Typical Output Characteristics

AP Squared Flexibility

Connectors
- Sensata can provide a wide range of electrical connectors (e.g., Packard, Amp, Yazaki, Framatome)

Fluid Port
- Flexible port designs to meet customer needs
- External, internal threads – English or metric
- Fluid port materials include aluminum, brass, steel, plastic

Diagnostic Band & Transfer Function
- High rail and low rail values can be adjusted by circuit component population
- Transfer function changed by calibration software settings

Size Restriction
- Device diameter can be as small as 24mm