

# CP Series Product Brief

## Pressure Sensor Subsystem for Sleep Apnea Applications

### Key Features

- Dual-sensor air flow controller sub-system designed for BiPAP, APAP and CPAP machines
- Highly Integrated, combining two pressure sensors in one device: differential and gage
- Multi-Range™ – 4 calibrated ranges per sensor
- CP Series Subsystem Enables Selectable:
  - Differential Range ( $\pm 250$  Pa to  $\pm 2.5$  kPa)
  - Gage Range ( $\pm 2$  kPa to  $\pm 6$  kPa)
  - Bandwidth (25Hz to 250Hz)
- 16-bit resolution each channel range
- Ultra low noise, 17.5-bit Effective Resolution
- Very High Accuracy  $\pm 0.05\%$  of Selected Range
- Excellent Long Term Stability
- Output Update Rate up to 500Hz
- Temperature Compensated  $5^{\circ}\text{C}$  to  $50^{\circ}\text{C}$
- Supply Voltage Compensation
- Standard I2C and SPI Interface
- Available in 3-port (CP201) and 4-port (CP301) configurations
- Advanced multi-order filter to eliminate critical fan output noise (OPTIONAL)

### Product Summary

Superior's CP Series sensor module family builds upon the industry's performance leading SP Series *NimbleSense*™ architecture. For reference, the SP Series integrates an advanced piezoresistive sensing element, ADC, DSP and processor intelligence. Available in shared 3-port and dedicated 4-port configurations for maximum design flexibility, the CP Series is a true sub-system that integrates two distinct pressure sensors (Differential & Gage). With the industry's best performance, highest integration and lower system BOM, the CP Series is the ideal solution for Sleep Apnea and other respiratory applications.



**Industry leading performance** – The CP Series measures dry air and non-aggressive gas pressure with very high accuracy and a stable zero point. Non-linearity is also industry leading and typically within  $\pm 0.15\%$  of selected range.

The CP Series employs the proprietary *NimbleSense*™ architecture to create the industry's widest dynamic range and highest performing products supporting ranges as low as  $\pm 250$  Pa for the differential pressure sensor to as high as  $\pm 6$  kPa for the gage pressure sensor. Competing solutions degrade as the pressure ranges are lowered; but the CP Series with Multi-Range capability maintains optimal performance down to even  $\pm 250$  Pa.

**Optional advanced filtering** – With advanced filtering to remove unwanted noise from the fan output, noise induced mixing errors are virtually eliminated.

Constructed with a high reliability plastic enclosure, the CP Series family provides the ideal combination of very high performance and reliability while ensuring customers have a high volume, extremely cost-effective solution optimized for their Sleep Apnea system requirements.

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