



Freescale Sensors

# Pressure Sensors for Medical Applications

High functionality, accuracy and reliability

## Target Applications

- Non-invasive and invasive blood pressure monitors
- Fetal heart rate monitors
- Inhalers and ventilators
- Wound management
- Patient monitoring systems
- Spirometer and respiratory therapy devices
- Sleep apnea (CPAP machines)
- Dialysis systems
- Drug delivery systems
- Hospital beds

## Overview

Freescale is a leading high-volume sensor provider with an extensive selection of acceleration, magnetic, pressure and touch sensors for medical applications. Pressure sensors monitor a patient's condition by providing accurate and reliable diagnostics in a broad range of conditions. Freescale devices are specifically designed for applications where high quality and reliability are especially important and are constructed using materials with a proven history in the health care industry.

Freescale has had a longstanding involvement with FDA requirements for over 20 years to ensure our customers that our medical products can be used with confidence. Freescale pressure sensors are based on piezoresistive technology and offer a wide range of functions and features—from basic, to fully amplified and temperature compensated devices. Our fully amplified series can be easily connected to an MCU. We offer digital pressure sensors that provide additional flexibility by eliminating the need for a separate ADC component. These pressure sensors communicate on both I<sup>2</sup>C and serial peripheral interface SPI buses, providing a direct connection to the main system processor for communication simplicity and flexibility.

Our new low-voltage pressure sensor series is designed to meet power efficiency demands to extend longevity for simpler, cost-sensitive medical and portable electronics.

Freescale pressure sensors combine advanced micromachining techniques, thin film metallization and bipolar semiconductor processing to provide accurate, highly reliable sensors at competitive prices. In addition to our pressure sensors, Freescale also offers accelerometers, magnetometers and touch sensors for medical solutions.



## Medical Sensor Lineup

Medical Applications	Freescale Pressure Sensors	Differentiators
Invasive and non-invasive blood pressure monitors, fetal heart rate monitors	MPX2300DT1, MPX2301DT1, MPXM2053GS, MP3V5050	High quality, high volume production, biocompatibility, technical support
Sleep apnea (CPAP machines)	MPL3115A2, MPXV4006G, MP3V5004, MPXV7002	Low cost, high sensitivity, amplified, multiple porting options, technical support
Inhalers and ventilators	MPL3115A2, MPL115A, MPXC2011DT1, MPXC2012DT1, MPX12GP, MPX5700GP, MP3H6115	Small form factor, high sensitivity, low cost, high volume production, technical support
Hospital beds	MPX2010DP, MPX5010DP	Robust packaging, high sensitivity, fully amplified, technical support
Wound management	MPL3115A2, MPL115A, MPXV2053GVP, MPXV5100G	Small package height, multiple porting options, technical support



## Features

- Pressure range up to 150 psi
- Polysulfone case material available (ISO 10993)
- Patented piezoresistive strain gauge implant, temperature compensation and calibration, all integrated on a single monolithic sensor die

## Benefits

- No gel, partial gel and full gel options
- Provided in easy-to-use tape and reel
- Small package
- Cost effective
- Custom options available

## Related Documentation and Products

- AN1571—Digital Blood Pressure Meter
- AN3500—Blood Pressure Monitor Using the MPXV5050GP
- AN4010—Low Pressure Sensing MPX2010 Pressure Sensor

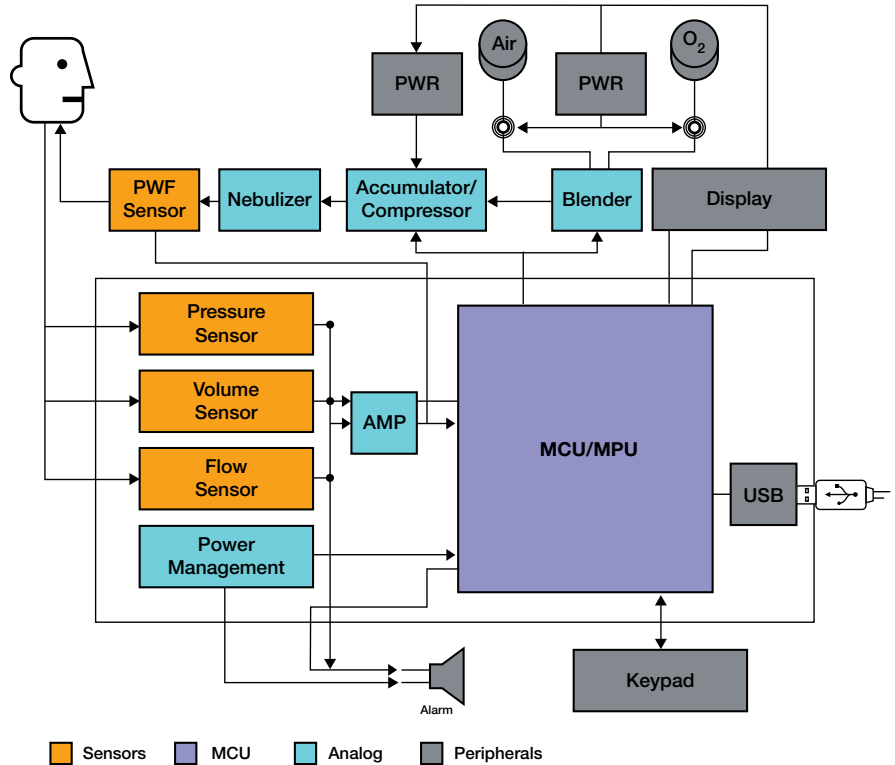
## Freescale: A Leader in Sensing Solutions

Freescale's Xtrinsic sensing solutions are designed with the right combination of high-performance sensing capability, processing capacity and customizable software to help deliver smart, differentiated sensing solutions. Xtrinsic sensors offer ideal blends of functionality and intelligence designed to help our customers differentiate and win in highly competitive markets.

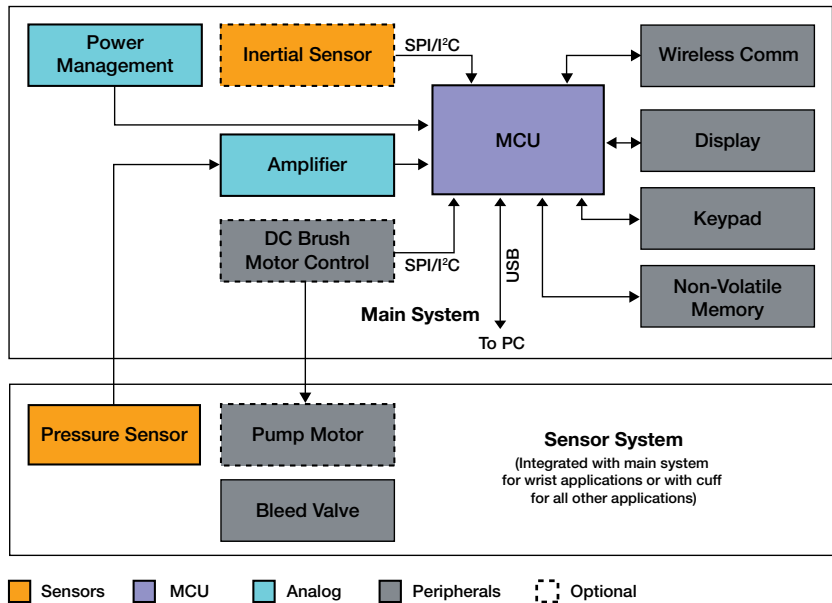
Freescale offers a wide range of products with processors, analog components, RF amplifiers and sensors to meet the unique needs of medical designs.



## Blood Pressure Monitor (BPM)



## Ventilation/Respiration



For current information about Freescale products and documentation, please visit [freescale.com/sensors](http://freescale.com/sensors)

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