

Tools for Sensor Applications

## Sensor Toolbox

### Hardware, software and accessories for sensor applications

#### Overview

Freescale offers the Sensor Toolbox, a collection of evaluation boards and software that support Xtrinsic sensing solutions. These tools include accelerometers, magnetometers, gyroscopes, touch and pressure sensors that enrich system design with a broad range of capabilities in detecting real-world conditions, such as motion, touch or pressure. The breadth of our sensor and microcontroller portfolio allows software to be leveraged based on the sensing and processing needs of end products. Access this one-stop shop for any of your sensing needs.

#### Unified Architecture

The Sensor Toolbox contains an array of tools that provide hardware, software and accessories in friendly platforms. All sensor evaluation kits are USB-enabled plug-and-play devices. Complimentary software algorithms as well as demo, evaluation and tutorial modes through the GUI interface are available at [freescale.com/sensortoolbox](http://freescale.com/sensortoolbox).

#### Enablement

The Sensor Toolbox was developed to help customers achieve quick time to market with Freescale's sensor products. It provides development ease with software, hardware, documentation and accessories for Freescale accelerometers, magnetometers, gyroscopes, pressure and touch sensors. The Sensor Toolbox also includes

complimentary sensor algorithms to help developers get the most from the Freescale sensor functions such as orientation, shake, tap, free fall, motion, tilt, positioning, shock or vibration with inertial sensors, PSI conversion for gauge pressure and altimetry for absolute pressure with pressure sensors, water level monitoring, switch replacement and touchpad implementations with touch sensors. In addition, the gyroscope and magnetic sensors can work in conjunction with Freescale's accelerometers for accurate motion and compass heading information.

#### Key Features

- Multiple sensor toolsets
- Complimentary software
- Demo, evaluation and tutorial modes included
- Newer tools will continue to be introduced and added to the Sensor Toolbox

#### Benefits

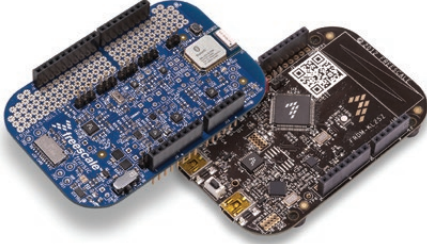
- Demonstrates each sensor type (acceleration, pressure, touch) on a common platform
- Customizable plug-and-play
- Single software install reduces complexity and improves reliability
- Consistent sensor platform
- Demonstrates end application capabilities



#### Target Applications

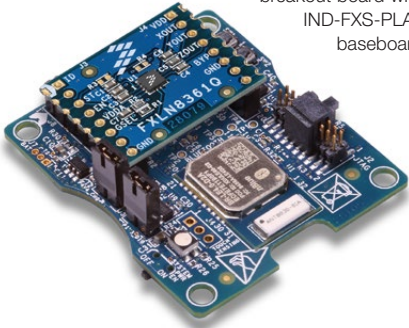
- Altimeters
- Barometry (portable and desktop)
- Blood pressure monitors
- Dialysis and drug delivery systems
- Gaming controllers
- GPS navigation devices
- Hard disk drives (HDD)
- Healthcare devices
- Heating, ventilation and air conditioning
- Home appliances
- Home entertainment
- Hospital beds and air mattresses
- Industrial control
- Liquid-level measurement
- Mobile phones
- Patient monitoring systems
- Personal computer peripherals
- Portable media devices
- Remote monitoring devices
- Robotics
- Sports diagnostic systems
- Toys
- Weather stations

Kinetis KL25z  
Freescale Freedom  
development board



FRDM-FXS-MULTI-B  
Freescale Freedom  
development board  
platform featuring  
multiple Xtrinsic Sensor  
functions

FXLN8361Q  
Xtrinsic accelerometer  
breakout board with  
IND-FXS-PLAT  
baseboard



## Freescale: A Leader in Sensing Solutions

Expanding on its more than 30-year heritage of sensor innovation, 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. With Xtrinsic sensors, our vision is to offer a diverse and differentiated product portfolio to meet the expanding needs of the automotive, consumer and industrial segments.

## Development Tools

| Category             | Kit Number       | Featured Device  | Compatible Board(s)  |
|----------------------|------------------|--|--|
| Starter Kits         | KITSTARTER2EVM   | MMA8451Q<br>MMA8452Q<br>MMA8453Q<br>MPL115A1<br>MPR121 | LFSTBEB845X<br>LFSTBUSB<br>KITMPL115A1EVB<br>KITPRESSURE1EVB<br>KITMPR121EVM |
|                      | KITSTBLITE2EVM   | MMA8451Q<br>MMA8452Q<br>MMA8453Q<br>MPL115A1<br>MPR121 | LFSTBEB845X<br>KITMPL115A1EVB<br>KITMPR121EVM                                |
| Magnetic Sensors     | RD4247FXOS8700   | FXOS8700<br>MAG3110                                    | All Magnetic Toolbox Boards  |
|                      | LFSTBEB3110      | MAG3110  | All Magnetic Toolbox Boards  |
|                      | RD4247MAG3110    | MAG3110<br>MMA8451Q                                    | LFSTBEB3110  |
| Acceleration Sensors | LFSTBPROTO       | MMA8652FC<br>MMA8653FC                                 | All Magnetic Toolbox Boards  |
|                      | RDMMA865x        | MMA8451Q<br>MMA8452Q<br>MMA8453Q                       | LFSTBEB865X  |
|                      | LFSTBEB845X      | MMA8451Q<br>MMA8452Q<br>MMA8453Q                       | LFSTBUSB<br>LFSTBBAT9  |
|                      | RDMMA845x        | MMA7660FC  |  |
|                      | LFSTBBAT9        | MMA7455L   | LFSTBEB7660<br>LFSTBEB7455   |
|                      | LFSTBUSB         | MMA955xL   | LFSTBEB7660<br>LFSTBEB7455   |
|                      | LFSTBEB7660      | FXLC95000L   | LFSTBBAT9<br>LFSTBUSB  |
|                      | LFSTBEB7455      | MPL3115A2  | LFSTBBAT9<br>LFSTBUSB  |
| Sensing Platforms    | KITMMA9550LEVM   | MPXV5004DP   | All Fused Sensing Platforms  |
|                      | KITFXLC95000LEVM | MPL115A  | <i>Magnetic daughterboard is coming soon</i>                                 |
| Pressure Sensors     | DEMOSTBMPL3115A2 |  |  |
|                      | KITMPXV5004DPEVB | MPR03x   | KITPRESSURE1EVB  |
|                      | KITMPL115A1EVB   | MPR121   | KITPRESSURE1EVB  |
|                      | KITPRESSURE1EVB  |  | KITMPXV5004DPEVB   |
| Touch Sensors        | KITMPR03xEVM     |  | All Touch Sensors  |
|                      | KITMPR121EVM     |  | All Touch Sensors  |

For more information, visit [freescale.com/sensortoolbox](http://freescale.com/sensortoolbox)