



Xtrinsic Accelerometers

# FXLN83xxQ Xtrinsic Accelerometers

## Typical Applications

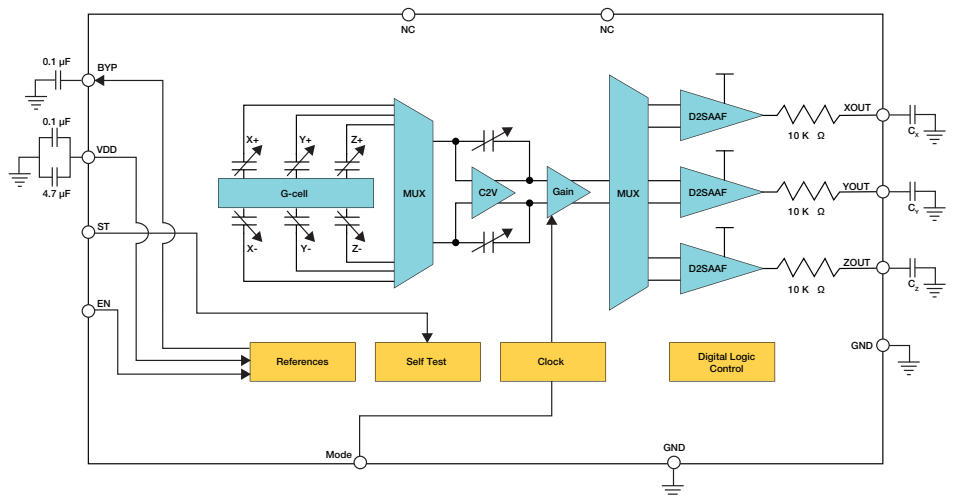
- Consumer
  - Washing machines
  - Dryers
  - Dishwashers
- Building and home control
  - Climate control
  - Lighting
  - Metering
  - Security
- Energy distribution
  - Metering
- Manufacturing/process automation
  - Control systems
  - Human-machine interface (HMI)
  - Motor control (machine health)
  - Networking
- Medical electronics
  - Consumer medical
  - Patient monitoring

## Analog output g-sensor family with high bandwidth and low power

The FXLN83xxQ Xtrinsic accelerometers are 3-axis high-performance that provide analog capability for industrial, medical and tamper detection applications. These accelerometers can also be used for vibration detection for battery operated applications with extended temperature range and bandwidth options. Additionally, these scalable accelerometers provide interface compatibility and simplicity for low-voltage microcontrollers (MCUs).

These new FXLN83xxQ analog accelerometers expand Freescale's portfolio, adding best-in-class analog performance. The integrated regulator simplifies low-voltage implementation and provides isolation from injected noise. Fixed zero-g offset provides improved signal integrity even in poor supply environments. Smart system power management is achieved with the accelerometers fast turn on time. The extended temperature range to 105°C is ideal for machine control and direct sun applications.

## FXLN83xxQ Xtrinsic Analog Accelerometer Block Diagram



## Accelerometer Implementations

- Tamper detection
- Tilt, vibration and shake detection
- Motion sensing in robotics applications
- Inclinometer
- Vibrometer
- Activity monitoring in sports and medical devices
- Shock
- Tilt
- Freefall
- Motion control
- Warranty reporting
- User interface

FXLN83xxQ Xtrinsic accelerometer breakout board with DEMOFXLN83XXQ demo kit



## Freescale: A Leader in Sensing Solutions

Expanding on more than 30 years of sensor innovation, Freescale 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 applications. With Xtrinsic sensing solutions, our vision is to offer a diverse and differentiated product portfolio to meet the expanding needs of the automotive, consumer and industrial segments. Xtrinsic solutions offer ideal blends of functionality and intelligence designed to help our customers differentiate and win in highly competitive markets.

## Freescale FXLN83xxQ Accelerometer Product Feature Comparison

Features	FXLN8371Q	FXLN8372Q	FXLN8361Q	FXLN8362Q	Benefits
<b>g-Range</b>	2, 8	4, 16	2, 8	4, 16	Various resolution for more precise applications
<b>Bandwidth</b>	2700 Hz (XY), 600 Hz (Z)	2700 Hz (XY), 600 Hz (Z)	1100 Hz (XY) 600 Hz (Z)	1100 Hz (XY) 600 Hz (Z)	Increased bandwidth to support various applications
<b>Sensitivity</b>	229.0 mV/g	114.5 mV/g	229.0 mV/g	114.5 mV/g	Offers a wide range of performance
<b>Zero-g Level Offset</b>	0.750 V				Better accuracy
<b>TCO</b>	± 1.2 mg/C	± 2.0 mg/C	± 1.2 mg/C	± 2.0 mg/C	Low TCO over the wide temperature
<b>Package</b>	12-pin QFN, 3 mm x 3 mm x 1 mm				Small, thin package is ideal for low-profile applications

## Accelerometer Family

MMA8652	MMA8451	FXLS8471	MMA8491	FXLN83xx
<ul style="list-style-type: none"> <li>• Digital Output               <ul style="list-style-type: none"> <li>◦ I2C</li> </ul> </li> <li>• Cost Efficient               <ul style="list-style-type: none"> <li>◦ 1mg/count sensitivity</li> </ul> </li> <li>• High Performance</li> <li>• Rich Features               <ul style="list-style-type: none"> <li>◦ P/L detection</li> <li>◦ High Pass Filter</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Digital Output               <ul style="list-style-type: none"> <li>◦ I2C</li> </ul> </li> <li>• Extreme Performance               <ul style="list-style-type: none"> <li>◦ .25 mg/count sensitivity</li> </ul> </li> <li>• Extended Features               <ul style="list-style-type: none"> <li>◦ FIFO</li> <li>◦ Configurable P/L trip angles</li> <li>◦ High Pass Filter</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Digital Output               <ul style="list-style-type: none"> <li>◦ SPI</li> </ul> </li> <li>• Extreme Performance               <ul style="list-style-type: none"> <li>◦ .25 mg/count sensitivity</li> </ul> </li> <li>• Extended Features               <ul style="list-style-type: none"> <li>◦ FIFO</li> <li>◦ Configurable P/L trip angles</li> <li>◦ High Pass Filter</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Digital Output               <ul style="list-style-type: none"> <li>◦ I2C</li> </ul> </li> <li>• Extreme Low Power               <ul style="list-style-type: none"> <li>◦ 0.35 uA/Hz</li> </ul> </li> <li>• Cost Efficient               <ul style="list-style-type: none"> <li>◦ 1mg/count sensitivity</li> </ul> </li> <li>• Industrial Package</li> </ul>	<ul style="list-style-type: none"> <li>• Analog Output</li> <li>• High Bandwidth               <ul style="list-style-type: none"> <li>◦ 2.7 kHz</li> </ul> </li> <li>• Low Voltage               <ul style="list-style-type: none"> <li>◦ 1.71-3.6 V</li> </ul> </li> <li>• Industrial Package</li> <li>• Extended Temp Range: 105C</li> </ul>
← Consumer		Industrial →		

## Development Tools and Software

Kit Number	Description
BRKOUT-FXLN8371Q	FXLN8371Q Xtrinsic accelerometer breakout board for easy connection to your system. The FXLN8371Q breakout board can also be used with the IND-FXS-PLAT demo board.
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BRKOUT-FXLN8361Q	FXLN8361Q Xtrinsic accelerometer breakout board for easy connection to your system. The FXLN8361Q breakout board can also be used with the IND-FXS-PLAT demo board.
BRKOUT-FXLN8362Q	FXLN8362Q Xtrinsic accelerometer breakout board for easy connection to your system. The FXLN8362Q breakout board can also be used with the IND-FXS-PLAT demo board.
DEMOFXLN83XXQ	FXLN83xxQ Xtrinsic accelerometer demo kit for system evaluation.

## Documentation

Document Number	Description
FXLN83xxQ	Product specification data sheet.

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

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