



NXP FXLS90333 Motion Sensors User Guide

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SELECTOR GUIDE
SENSORS

SENSOR PRODUCT SELECTOR GUIDE

Secure sensing solutions for automotive
and industrial IoT



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OVERVIEW

With successful experiences over 30 years and over 3 billion units shipped worldwide, NXP is a leader serving applications in the automotive, medical and industrial market spaces. NXP's Sensor solutions include a breadth of accelerometers, magneto-resistive and pressure solutions covering different performances, sensing ranges and form factors. The portfolio is complemented with class leading development and enablement support spanning hardware tools, software tools and use case algorithms.

MOTION SENSORS

Part Number	Description	Interface	Other	Package
High g Accelerometers				
FXLS90333	2-axis, XY, 50 to 500g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90433	2-axis, XZ, 50 to 500g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90230	1-axis, X, 50 to 500g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90130	1-axis, Z, 50 to 500g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS93333	2-axis, XY, 50 to 500g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS93433	2-axis, XZ, 50 to 500g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS93230	1-axis, X, 50 to 500g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90130	1-axis, Z, 50 to 500g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
Medium g Accelerometers				
FXLS90322	2-axis, XY, 15.5 to 150g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90422	2-axis, XZ, 15.5 to 150g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90220	1-axis, X, 15.5 to 150g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90120	1-axis, Z, 15.5 to 150g, 16-bit	SPI, DSI3	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS93322	2-axis, XY, 15.5 to 150g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS93422	2-axis, XZ, 15.5 to 150g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS93220	1-axis, X, 15.5 to 150g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
FXLS90120	1-axis, Z, 15.5 to 150g, 16-bit	PSI5	Auto qual, -40°C;+125°C	QFN 4x4 mm
Low g Accelerometers				
MMA6901	2-axis, XY, 5g, 11-bit	SPI	Auto qual, -40°C;+105°C	QFN 6x6 mm
MMA6910	2-axis, XY, 3.5g, 11-bit	SPI	Auto qual, -40°C;+105°C	QFN 6x6 mm

PRESSURE SENSORS

Part Number	Description	Interface	Other		Package
Barometric Pressure Sensors					
FXPQ3115BV	20-115 kPa, 1.5 kPa or 25 cm resolution	I ² C	Biomedical Pressure Sensor, -40°C to 85°C operating temperature		LGA 3X 5mm
MPL3115A2	20-115 kPa, 1.5 kPa or 25 cm resolution	I ² C	2 interrupts on pressure, altitude, temperature, -40°C to 85°C operating temperature		LGA 3X 5mm
MPL3150A2	50-150 kPa, 1.5 kPa or 25 cm resolution	I ² C	2 interrupts on pressure, altitude, temperature, -40°C to 85°C operating temperature		LGA 3X 5mm
Absolute Pressure Sensors					
FXPS7115DS4T1	40 kPa to 115 kPa	SPI	4.67% accuracy over entire temperature range and life, Media resistant gel, -40°C to 125°C operating temperature		4x4x1.98mm QFN-FAM (Wettable Flanks)
FXPS7115DI4T1	40 kPa to 115 kPa	I ² C	4.67% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature		4x4x1.98mm QFN-FAM (Wettable Flanks)
FXPS7165DS4T1	60 kPa to 165 kPa	SPI	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature		4x4x1.98mm QFN-FAM (Wettable Flanks)
FXPS7165DI4T1	60 kPa to 165 kPa	I ² C	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature		4x4x1.98mm QFN-FAM (Wettable Flanks)
FXPS7250DS4T1	20 kPa to 250 kPa	SPI	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature		4x4x1.98mm QFN-FAM (Wettable Flanks)
FXPS7250DI4T1	20 kPa to 250 kPa	I ² C	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
FXPS7400DS4T1	20 kPa to 400 kPa	SPI	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
FXPS7400DI4T1	20 kPa to 400 kPa	I ² C	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
FXPS7550DS4T1	20 kPa to 550 kPa	SPI	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
FXPS7550DI4T1	20 kPa to 550 kPa	I ² C	2% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
FXPS7250A4T1	20 kPa to 250 kPa	Analog	3% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
FXPS7400A4T1	20 kPa to 400 kPa	Analog	3% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
FXPS7550A4T1	20 kPa to 550 kPa	Analog	3% accuracy over entire temperature range and life, Media resistant gel -40°C to 125°C operating temperature	4x4x1.98mm QFN-FAM (Wettable Flanks)	
Vacuum Pressure Sensors					
MP3V5050	-50 kPa to 0 kPa	Analog 0.06 V to 2.82 V		2% accuracy	SOP ported, SOP dual port
MPXHV6115V	-115 kPa to 0 kPa	Analog 0.2 V to 4.6 V output		1.5% accuracy, auto qual	SOP & SOP ported
MPXV5007	-7 kPa to 7 kPa	Analog 0.5 V to 4.5 V		5% accuracy	SOP ported, SOP dual port
MPXV5050VC6U	-50 kPa to 0 kPa	Analog 0.1 V to 4.6 V		2.5% accuracy	SOP ported
MPXV7002	-2 kPa to 2 kPa	Analog 0.5 V to 4.5 V		2.5% accuracy	SOP ported & dual port
MPXV7025	-25 kPa to 25 kPa	Analog 0.2 V to 4.7 V		5% accuracy	SOP ported, SOP dual port
Differential/Gauge Pressure Sensors < 10 kPa					

MP3V5004	0 kPa to 3.92 kPa	Analog 0.6 V to 3 V	1.5% accuracy	SOP, SOP dual port, SOP ported
MP3V5010	0 kPa to 10 kPa	Analog 0.1 V to 3.1 V	5% accuracy	SOP, SOP dual port, SOP ported
MPV5010	0 kPa to 10 kPa	Analog 0.2 V to 4.7 V	5% accuracy	SOP, SOP dual port, SOP ported
MPXV10GCxx	0 kPa to 10 kPa	Analog 35 mV	Uncompensated	SOP & ported SOP
MPXV12xx	0 kPa to 10 kPa	Analog 55 mV	Uncompensated	SOP, SOP dual port, Mpak, SOP ported
MPXV(Z)4006	0 kPa to 6 kPa	Analog 0.2 V to 4.8 V	2.5% accuracy	SOP, SOP dual port, SOP ported
MPXV(Z)5004	0 kPa to 3.92 kPa	Analog 1.0 V to 4.9 V	1.5% accuracy	SOP, SOP dual port, SOP ported
MPXV5010	0 kPa to 10 kPa	Analog 0.2 V to 4.7 V	5% accuracy	SOP, SOP dual port, SOP ported
Differential/Gauge Pressure Sensors up to 115 kPa				
MPVZ5050	0 kPa to 50 kPa	Analog 0.2 V to 4.7 V	2.5% accuracy, media resistant gel	SOP ported
MPXx2053	0 kPa to 50 kPa	Analog 40 mV	Compensated & calibrated	x=V SOP & ported SOP, x=M MPAK
MPXx2102	0 kPa to 100 kPa	Analog 40 mV	Compensated & calibrated	x=V SOP & ported SOP, x=M MPAK
MPX2300DT1	0 kPa to 40 kPa	Analog	Disposable bio compatible system	ChipPak package
MPXM2051G	0 kPa to 50 kPa	Analog 40 mV	Compensated & calibrated	MPAK
MPXV5050	0 kPa to 50 kPa	Analog 0.2 V to 4.7 V	2.5% accuracy	SOP ported & dual port
MPXV5100	0 kPa to 100 kPa	Analog 0.2 V to 4.7 V	2.5% accuracy	SOP ported & dual port
Differential/Gauge Pressure Sensors up to 1000 kPa				
MPXx2202	0 kPa to 200 kPa	Analog 40 mV	Compensated	x=V SOP & ported SOP, x=M MPAK
MPX5500	0 kPa to 500 kPa	Analog 0.2 V to 4.7 V	2.5% accuracy	Unibody packages
MPX5700	0 kPa to 700 kPa	Analog 0.2 V to 4.7 V	2.5% accuracy	Unibody packages
MPX5999	0 kPa to 1000 kPa	Analog 0.2 V to 4.7 V		Unibody packages
Wireless Sensor / Tire Pressure Monitoring				
FXTH87xx	100 kPa to 1800 kPa, X or XZ, SO8, 16 kB flash, 512 B RAM, 315/434 MHz transceiver, 125 kHz LF receiver	GPIO, RF, LF	Temperature and voltage monitoring, auto qual	QFN 7x7mm
NTM88xxx5	100 kPa to 1100 kPa, X, Z, or XZ, SO8, 16 kB flash, 512 B RAM, 315/434 MHz transceiver, 125 kHz LF receiver	GPIO, RF, LF	Temperature and voltage monitoring, auto qual	QFN 4x4mm
NBPx	40 kPa to 250 kPa	SPI or SPI + PWM	Absolute FIFO, relative and rate-of-change detections, host wake-up, auto qual	QFN 4x4mm

ANGULAR SENSORS

Part Number	Description	Interface	Other	Package
Programmable Angle sensors				
KMA310/A	Automotive programmable angle sensor	Single channel, analog/SENT output	Angle range 180°, max operating temperature 180°C	SOT1288-3 (SIL3)
KMA320/A	Automotive programmable angle sensor	Dual channel, analog/SENT output	Angle range 180°, max operating temperature 180°C	SOT1188-2 (SIL4)
KMA321/A	Automotive programmable angle sensor	Single channel, analog/SENT output	Angle range 180°, max operating temperature 180°C	SOT1188-2 (SIL4)
KMZ80	General purpose programmable angle sensor	Single channel, analog/SENT output	Angle range 180°, max operating temperature 150°C	SOT96-1
Angle sensors with integrated Amplifier				
KMZ60/A	Angle sensor with integrated amplifier	amplified sine / cosine; 0.07.... 0.93 Vcc	Angle range 180° max operating temperature 150°C	S08; SOT96-1
Magnetic Field Sensors				
KMZ49/A	Magnetic field sensor	sine / cosine output; 0.067 peak voltage	Angle range 180° max operating temperature 150°C	S08; SOT96-1
X3T-0H047	Magnetic field sensor	sine / cosine output; 0.067 peak voltage	Angle range 180° max operating temperature 150°C	double-die; taped on reel
X3T-0H048	Magnetic field sensor	sine / cosine output; 0.067 peak voltage	Angle range 180° max operating temperature 150°C	single-die; taped on reel

SILICON TEMPERATURE SENSORS (PTC)

Part Number	Description	R25	Other	Package
KTY81/1	Silicon Temperature Sensors (PTC)	R25(Ohm) 1000	Available R25 tolerances +/-5% down to +/-1%, Operating temperature range -55...150°C	SOD70
KTY81/2	Silicon Temperature Sensors (PTC)	R25(Ohm) 2000	Available R25 tolerances +/-5% down to +/-1%, Operating temperature range -55...150°C	SOD70
KTY82/1	Silicon Temperature Sensors (PTC)	R25(Ohm) 1000	Available R25 tolerances +/-5% down to +/-1%, Operating temperature range -55...150°C	SOT23
KTY82/2	Silicon Temperature Sensors (PTC)	R25(Ohm) 2000	Available R25 tolerances +/-5% down to +/-1%, Operating temperature range -55...150°C	SOT23

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Document order number: SENSSELECT REV 9

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