



# Sensor Product Selector Guide

Secure sensing solutions for automotive and industrial IoT



## 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, gyroscopes, magneto-resistive and pressure solutions covering different performance, 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
<b>Low g Accelerometers</b>				
FXLN8361QR1	3-axis, 2g/8g analog	analog	High bandwidth 1.7 kHz	QFN 3x3 mm
FXLN8362QR1	3-axis, 8g/16g analog	analog	High bandwidth 1.7 kHz	QFN 3x3 mm
FXLN8371QR1	3-axis, 2g/8g analog	analog	Very high bandwidth 4.9 kHz	QFN 3x3 mm
FXLN8372QR1	3-axis, 8g/16g analog	analog	Very high bandwidth 4.9 kHz	QFN 3x3 mm
FXLS8471QR1	3-axis, 2g/4g/8g 14 bit	I <sup>2</sup> C/SPI	Smart embedded functions, 2 interrupt pins	QFN 3x3 mm
MMA690xx	2-axis, XY, 3.5g/5g 11 bit	SPI	Auto qual, -40°C;+105°C	QFN 6x6 mm
MMA8451QR1	3-axis, 2g/4g/8g 14 bit	I <sup>2</sup> C	Smart embedded functions, 2 interrupt pins	QFN 3x3 mm
MMA8452QR1	3-axis, 2g/4g/8g 12 bit	I <sup>2</sup> C	Smart embedded functions, 2 interrupt pins	QFN 3x3 mm
MMA8453QR1	3-axis, 2g/4g/8g 10 bit	I <sup>2</sup> C	Smart embedded functions, 2 interrupt pins	QFN 3x3 mm
MMA8491Q	3-axis, 2g/4g/8g 3 logic outputs	logic outputs	Ultra-low power	QFN 3x3 mm
MMA8652FCR1	3-axis, 2g/4g/8g 12 bit	I <sup>2</sup> C	Smart embedded functions, 2 interrupt pins	QFN 2x2 mm
MMA8653FCR1	3-axis, 2g/4g/8g 10 bit	I <sup>2</sup> C	Smart embedded functions, 2 interrupt pins	QFN 2x2 mm
<b>High g Accelerometers</b>				
MMA16xxKWR2	1-axis, Z, 25g/50g/62.5g/125g/187g/312g	DSI2.5	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA1725WR2	1-axis, Z, 250g 10 bits	DSI3	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA26xxKWR2	1-axis, X, 25g/50g/62.5g/125g/187g/312g	DSI2.5	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA27xxWR2	1-axis, X, 125g/187g/250g/375g 10 bit	DSI3	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA51xxKWR2	1-axis, X, 60g/120g/240g/480g 10 bit	PSI 5	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA52xxKWR2	1-axis, Y, 60g/120g/240g/480g 10 bit	PSI 5	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA65xxKWR2	2-axis, XY, 80g/105g/120g 12 bit	SPI	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA655xKWR2	1-axis, X, 80g/105g/120g 12 bit	SPI	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA68xxKWR2	2-axis, XY, 80g/105g/120g 10 bit	SPI	Auto qual, -40°C;+125°C	QFN 6x6 mm
MMA685xKWR2	1-axis, XZ, 25g/50g/60g/120g	SPI	Auto qual, -40°C;+125°C	QFN 6x6 mm
<b>Smart Sensor Hub</b>				
FXLC95000CL	3-axis, 2g/4g/8g 16 bit , Coldfire V1 CPU, 128 K flash, 16 k Ram	SPI/I <sup>2</sup> C master - slave	MQX, Intelligent Sensor Framework	QFN 3x5 mm
MMA955x	3-axis, 2g/4g/8g 16 bit , Coldfire V1 CPU, 16 K flash, 2 k Ram	SPI/I <sup>2</sup> C master - slave	Open, infrastructure or pedometer firmware	QFN 3x3 mm
<b>Magnetometers and Gyros</b>				
FXAS21002CQ	3-axis, 4000 dps, < 2.6 mA, < 50 ms turn on time	I <sup>2</sup> C/SPI	Pin compatible with FXAS21000	QFN 4x4 mm
FXOS8700CQ	6-axis, 12 Gauss, 2g/4g/8g, 14 bit acc, 16 bit magneto	I <sup>2</sup> C/SPI	Embedded hard iron calibration	QFN 3x3 mm
MAG3110	3-axis, 10 Gauss, 16 bits	I <sup>2</sup> C		QFN 2x2 mm

## PRESSURE SENSORS

Part Number	Description	Interface	Other	Package
<b>Barometric Pressure Sensors</b>				
FXPQ3115BV	20-115 kPa, 1.5 kPa or 25 cm resolution	I <sup>2</sup> C	Biomedical Pressure Sensor	LGA 3X 5mm
MP3H6115AC6	15 kPa to 115 kPa	Analog 0.12 V to 2.8 V	1.5% accuracy, auto qual	ported SSOP
MPL3115A2	20-115 kPa, 1.5 kPa or 25 cm resolution	I <sup>2</sup> C	2 interrupts on pressure, altitude, temperature	LGA 3X 5mm
MPXH6101Axx	15 kPa to 105 kPa	Analog 0.2 V to 5 V	1.72% accuracy, auto qual	SSOP & ported SSOP
MPXHZ6115Axx	15 kPa to 115 kPa	Analog 0.2 V to 4.7 V	1.5% accuracy, auto qual, Z = media resistant gel	SOP & ported SOP // SSOP & Ported SOP
MPXHZ6116A6	20 kPa to 115 kPa	Analog 0.4 V to 4.65 V	1.43% accuracy, auto qual, Z = medial resistant gel	SSOP
MPXHZ6130Axx	15 kPa to 130 kPa	Analog 0.2 V to 4.8 V	1.5% accuracy, auto qual, Z = medial resistant gel	SSOP & ported SSOP
<b>Absolute Pressure Sensors</b>				
MPX5700A	15 kPa to 700 kPa	Analog 0.2 V to 4.7 V	2.5% accuracy	Unibody packages
MPXH6300Axx	20 kPa to 304 kPa	Analog 0.3 V to 4.9 V	1.5% accuracy, auto qual	SSOP & ported SSOP
MPXH(Z)6250Axx	20 kPa to 250 kPa	Analog 0.3 V to 4.9 V	1.5% accuracy, auto qual	SSOP & ported SSOP
MPXHZ6400Axx	20 kPa to 400 kPa	Analog 0.2 V to 4.8 V	1.5% accuracy, auto qual, Z = media resistant gel	SOP & ported SOP // SSOP & Ported SOP
<b>Vacuum Pressure Sensors</b>				
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
<b>Differential/Gauge Pressure Sensors &lt; 10 kPa</b>				
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
<b>Differential/Gauge Pressure Sensors up to 115 kPa</b>				
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
<b>Differential/Gauge Pressure Sensors up to 1000 kPa</b>				
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
<b>Wireless Sensor / Tire Pressure Monitoring</b>				
FXTH87xx	100 kPa to 1500 kPa, X or XZ, SO8, 16 K flash, 512 k RAM, 315/434 MHz transceiver, 125 kHz LF receiver	GPIO, RF, LF	Battery voltage monitoring, auto qual	QFN 7x7mm

## ANGULAR SENSORS

Part Number	Description	Interface	Other	Package
<b>Programmable Angle sensors</b>				
KMA210	Programmable angle sensor	1 analog output linear ~0/~5.0 V	Angle range 180° max operating temperature 160°C	SIP3; SOT1288
KMA215	Programmable angle sensor with SAE J2716 SENT	1 digital output SAE J2716 SENT	Angle range 180° max operating temperature 160°C	SIP3; SOT1288
KMA220	Dual channel programmable angle sensor	2 analog outputs; 1 per channel; ~0/~5.0 V	Angle range 180° max operating temperature 160°C	SIL4; SOT1188-1
KMA221	Programmable angle sensor	1 analog output linear ~0/~5.0 V	Angle range 180° max operating temperature 160°C	SIL4; SOT1188-1
<b>Angle sensors with integrated Amplifier</b>				
KMZ60	Angle sensor with integrated amplifier	amplified sine / cosine; 0.07.... 0.93 Vcc	Angle range 180° max operating temperature 150°C	S08; SOT96-1
<b>Magnetic Field Sensors</b>				
KMZ41	Magnetic field sensor	sine / cosine output; 0.081 peak voltage	Angle range 180° max operating temperature 150°C	S08; SOT96-1
KMZ49	Magnetic field sensor	sine / cosine output; 0.067 peak voltage	Angle range 180° max operating temperature 150°C	S08; SOT96-1
X3G-0H047	Magnetic field sensor	sine / cosine output; 0.067 peak voltage	Angle range 180° max operating temperature 150°C	double-die; sawn wafer on foil
X3G-0H048	Magnetic field sensor	sine / cosine output; 0.067 peak voltage	Angle range 180° max operating temperature 150°C	single-die; sawn wafer on foil
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

## WHEEL SPEED SENSORS/ROTATIONAL SENSORS

Part Number	Description	Interface	Other	Package
<b>Standard ABS Sensors (active /passive encoders)</b>				
KMI17/4	Standard ABS Sensors (active/passive encoders)	Current output; 7...14 mA (High-Low)	-40...+150°C, Magnetic Field Strength Frequency 20 kHz	SIP2; SOT453E
KMI23/2	Standard ABS Sensors (active/passive encoders)	Current output; 7...14 mA (High-Low)	-40...+150°C, Magnetic Field Strength Frequency 2.5 kHz	SIP2; SOT453A
KMI23/4	Standard ABS Sensors (active/passive encoders)	Current output; 7...14 mA (High-Low)	-40...+150°C, Magnetic Field Strength Frequency 2.5 kHz	SIP2; SOT453E
<b>High-end ABS Sensors (active/passive encoders)</b>				
KMI25/2	High-end ABS Sensors (active/ passive encoders)	Digital protocol	-40...+150°C, Magnetic Field Strength Frequency 2.5 kHz	SIP3; SOT477A
KMI25/4	High-end ABS Sensors (active/passive encoders)	Digital protocol	-40...+150°C, Magnetic Field Strength Frequency 2.5 kHz	SIP3; SOT477E
<b>Transmission Passive encoders</b>				
KMI16/1	Transmission passive encoder	Voltage output; 4.9 V (High)	-40...+150°C, Magnetic Field Strength Frequency 25 kHz	SIP3; SOT477B

## 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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