

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, 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 500 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS90433	2-axis, XZ, ±50 to 500 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS90230	1-axis, X, ±50 to 500 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS90130	1-axis, Z, ±50 to 500 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93333	2-axis, XY, ±50 to 500 g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93433	2-axis, XZ, ±50 to 500 g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93230	1-axis, X, ±50 to 500 g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93130	1-axis, Z, ±50 to 500 g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
Medium g accelerometers				
FXLS90322	2-axis, XY, ±15.5 to 150 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS90422	2-axis, XZ, ±15.5 to 150 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS90220	1-axis, X, ±15.5 to 150 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS90120	1-axis, Z, ±15.5 to 150 g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93322	2-axis, XY, ±15.5 to 150 g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93422	2-axis, XZ, ±15.5 to 150 g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93220	1-axis, X, ±15.5 to 150g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93120	1-axis, Z, ±15.5 to 150 g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
Low g accelerometers				
FXLS90421	2-axis, XZ, X axis ±15.5 to 150g, Z axis ±1.5 to 20g, 10/12/16-bit	SPI, DSI3	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS93421	2-axis, XZ, X axis ±15.5 to 150g, Z axis ±1.5 to 20g, 10/16-bit	PSI5	Auto grade 1 qual, -40 °C to 125 °C, ISO 26262:2018 ASIL B rating.	QFN 4 x 4 mm
FXLS8964AFR3*	±2 to 16 g, low-power 12-bit 3-axis accelerometer for automotive KeyFob application	I ² C, SPI	Auto qual, -40 °C to 105 °C	DFN 2 x 2x 0.95 mm
FXLS8967AFR3*	±2 to 16 g, low-power 12-bit 3-axis accelerometer for automotive security and convenience applications	I ² C, SPI	Auto qual, -40 °C to 105 °C	DFN 2 x 2 x 0.95 mm
FXLS8961AFR1	±2 to 16 g, high performance 12-bit 3-axis accelerometer for automotive security and convenience applications that require excellent offset and sensitivity stability over temperature	I ² C, SPI	Auto qual, -40 °C to 105 °C	QFN 12-pin, 3 x 3 x 1.25 mm
FXLS8974CFR3*	±2 to 16 g, low-power 12-bit 3-axis accelerometer for use in a wide range of industrial and medical IoT applications.	I ² C, SPI	Industrial qual, -40 °C to 105 °C	DFN 2 x 2x 0.95 mm
FXLS8971CFR1*	±2 to 16 g, high performance 12-bit 3-axis accelerometer for Industrial/ IoT applications that require excellent offset and sensitivity stability over temperature	I ² C, SPI	Industrial qual, -40 °C to 105 °C	QFN 12-pin, 3 x 3 x 1.25 mm

* Mass market ready

Pressure sensors

Part number	Description	Interface	Other	Package
Barometric pressure sensors				
FXPQ3115BVST1	20-115 kPa, 1.5 kPa or 25 cm resolution	I ² C	Biomedical Pressure Sensor, -40 °C to 85 °C operating temperature	LGA 3 x 5mm
MPL3115A2ST1*	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 3 x 5mm
MPL3150A2ST1	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 3 x 5mm
Absolute pressure sensors				
FXPS7115DS4ST1	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	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7115DI4ST1	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	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7165DS4ST1	60 kPa to 165 kPa	SPI	2 % accuracy over entire temperature range and life, Media resistant gel -40 °C to 125 °C operating temperature	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7165DI4ST1	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	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7250DS4ST1	20 kPa to 250 kPa	SPI	2 % accuracy over entire temperature range and life, Media resistant gel -40 °C to 125 °C operating temperature	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7250DI4ST1	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	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7400DS4ST1	20 kPa to 400 kPa	SPI	2 % accuracy over entire temperature range and life, Media resistant gel -40 °C to 125 °C operating temperature	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7400DI4ST1	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	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7550DS4ST1	20 kPa to 550 kPa	SPI	2 % accuracy over entire temperature range and life, Media resistant gel -40 °C to 125 °C operating temperature	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7550DI4ST1	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	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7250A4ST1*	20 kPa to 250 kPa	Analog	3 % accuracy over entire temperature range and life, Media resistant gel -40 °C to 125 °C operating temperature	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7400A4ST1	20 kPa to 400 kPa	Analog	3 % accuracy over entire temperature range and life, Media resistant gel -40 °C to 125 °C operating temperature	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
FXPS7550A4ST1	20 kPa to 550 kPa	Analog	3 % accuracy over entire temperature range and life, Media resistant gel -40 °C to 125 °C operating temperature	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
MPXHZ6115A6T1*	15 kPa to 115 kPa	Analog	1.5 % accuracy	SOP
Battery pressure monitoring				
NBP8FD4ST1*	40 kPa to 250 kPa	SPI	Absolute, relative and rate-of-change detections, pressure FIFO, host wake-up, auto qual	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)
NBP9FD4ST1	40 kPa to 250 kPa	SPI, PWM	Absolute, relative and rate-of-change detections, pressure FIFO, host wake-up, auto qual	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)

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Pressure sensors (cont.)

Part number	Description	Interface	Other	Package
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 and SOP ported
MPXV5050VC6U	-50 kPa to 0 kPa	Analog 0.1 V to 4.6 V	2.5 % accuracy	SOP ported
MPXV7002DP*	-2 kPa to 2 kPa	Analog 0.5 V to 4.5 V	2.5 % accuracy	SOP ported and dual port
MPXV7007	-7 kPa to 7 kPa	Analog 0.5 V to 4.5 V	5 % accuracy	SOP ported, SOP 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
MPXV2010DP*	0 kPa to 10 kPa	Analog	1 % accuracy	SOP dual port
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 and ported SOP, x=M MPAK
MPXx2102	0 kPa to 100 kPa	Analog 40 mV	Compensated & calibrated	x=V SOP and 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 and dual port
MPXV5100GC6U*	0 kPa to 100 kPa	Analog 0.2 V to 4.7 V	2.5 % accuracy	SOP ported and dual port
Differential/gauge pressure sensors up to 1000 kPa				
MPXx2202	0 kPa to 200 kPa	Analog 40 mV	Compensated	x=V SOP and 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				
NTM88xxx5	100 kPa to 1500 kPa	RF, LF, SPI, GPIO	Dual-axis accelerometers, SO8 CPU with 16 kB flash, 512 B RAM, 315/434 MHz transceiver, 125 kHz LF receiver, temperature and voltage monitoring, auto grade 1 qualification	4 x 4 x 1.98 mm QFN-FAM (Wettable Flanks)

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Magnetic sensors

Part number	Description	Interface	Other	Package
Magnetic switch				
NMH1000*	Magnetic switch ultra low power voltage down to 1.2 V and ultra low power down to 75 nA	I ² C or stand alone	-210G to 210G	DFN 1.4 x 1.4 x 0.85 mm
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

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