



# MEMS Sensors & Sensing Elements



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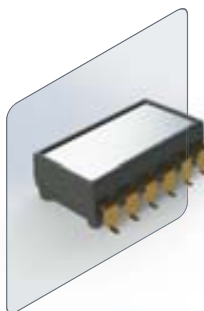


## Accelerometers

Murata is the global market leader in low-g acceleration sensors for automotive applications. The extensive accelerometer product range includes high performance analog and digital accelerometers for both safety critical automotive and industrial applications.

Murata accelerometers are based on the company's proprietary 3D MEMS technology and offer a number of excellent product features for the most demanding applications. The sensing element and the measuring ASIC are assembled in a dual-in-line or dual flat lead plastic package with pins for the surface mount and re-flow soldering. They are environmentally protected with silicone gel, resulting in excellent performance and reliability in humid environments and at temperature cycling. In addition, the robust sensing element design with over damped frequency response enables excellent performance even in harsh and vibrating environments.

Series	No. of axes	Range	Supply voltage	Temperature range	Sensitivity	Signal bandwidth	Output type	Typical applications
SCA800	1	±2 g	3.3 V	-40 ... +125 °C	900 LSB/g	50 Hz	Digital/SPI	Automotive safety critical applications, IMU, Industrial applications
SCA2100	2	±2 g	3.3 V	-40 ... +125 °C	900 LSB/g	45 Hz	Digital/SPI	
SCA3100	3	±2 g ±6 g	3.3 V	-40 ... +125 °C	900 LSB/g 650 LSB/g	45 Hz	Digital/SPI	
SCA3300	3	±6 g	3.3 V	-40 ... +125 °C		88 Hz	Digital/SPI	
SCA100T	2	±12 g	5 V	-40 ... +125 °C	0.17 V/g	400 Hz	Analog/Digital	Automotive security applications, Industrial applications



## Inclinometers

Murata inclination sensors are an optimum choice for high accuracy leveling and inclination measurement instruments. The highest accuracy is available with the SCA103T series which uses a differential measurement principle to compensate for all common mode error and noise effects.

With the best shock durability available on the MEMS market, Murata inclinometers provide trouble-free measurements in moving machines, vehicles, airplanes, construction machines and handheld devices.

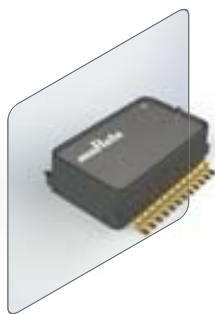
Series	No. of axes	Range	Supply voltage	Temperature range	Sensitivity	Signal bandwidth	Output type	Typical applications
SCA100T	2	±30°, ±0.5 g ±90°, ±1 g	5 V	-40 ... +125 °C	4 V/g 2 V/g	18 Hz	Analog/Digital	Levelling instruments, Moving machines, Rotating lasers, Construction levels
SCA103T	1	±15°, ±0.26 g ±30°, ±0.5 g	5 V	-40 ... +125 °C	16 V/g 8 V/g	18 Hz	Analog/Digital	
SCA61T	1	±30°, ±0.5 g ±90°, ±1 g	5 V	-40 ... +125 °C	4 V/g 2 V/g	18 Hz	Analog/Digital	
SCA830	1	±90°, ±1 g	3.3 V	-40 ... +125 °C	32000 LSB/g	6.25 Hz	Digital/SPI	

Murata Electronics Oy's product range also includes inclination modules and sub-assemblies. For more information, please refer to the product datasheets available online at [www.murata.com](http://www.murata.com)

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## Gyroscopes

Murata Electronics Oy develops and manufactures gyroscope components based on the company's proven 3D MEMS technology and highly integrated electronics.

Industrial gyros offer a performance level that typically has been available only for expensive module products. The sensing elements and measuring circuitry are assembled into a premolded plastic dual-in-line (DIL) package, protected with silicon gel and covered with a stainless steel lid. All products are RoHS compatible and suitable for lead-free reflow soldering.

Series	No. of axes	Range	Supply voltage	Temperature range	Sensitivity	Signal bandwidth	Output type	Typical applications
SCC1300	X-axis gyro 3-axis accelerometer	$\pm 100^\circ/\text{s}$ , $\pm 2\text{ g}$ $\pm 300^\circ/\text{s}$ , $\pm 6\text{ g}$	5 V analog 3.3 V digital	-40 ... +125 °C	50 LSB/(°/s), 1800 LSB/g, 18 LSB/(°/s), 650 LSB/g	50 Hz	Digital/SPI	Platform stabilization, Motion analysis and control, Guidance and navigation systems
SCR1100	X-axis gyro	$\pm 100^\circ/\text{s}$ $\pm 300^\circ/\text{s}$	5 V analog 3.3 V digital	-40 ... +125 °C	50 LSB/(°/s) 18 LSB/(°/s)	50 Hz	Digital/SPI	
SCC2130	X-axis gyro 3-axis accelerometer	$\pm 125^\circ/\text{s}$ , $\pm 6\text{ g}$	3.3 V	-40 ... +125 °C	50 LSB/(°/s) 1962 LSB/g	60 Hz/10 Hz*	Digital/SPI	
SCR2100	X-axis gyro	$\pm 125^\circ/\text{s}$	3.3 V	-40 ... +125 °C	50 LSB/g	60 Hz/10 Hz*	Digital/SPI	
SCC2230	Z-axis gyro 3-axis accelerometer	$\pm 125^\circ/\text{s}$ , $\pm 6\text{ g}$ $\pm 125^\circ/\text{s}$ , $\pm 2\text{ g}$	3.3 V	-40 ... +125 °C	50 LSB/(°/s) 1962 LSB/g (6 g) 5886 LSB/g (2 g)	60 Hz/10 Hz*	Digital/SPI	

\* User selectable via SPI bus



## Pressure Sensing Elements

Murata SCB10H capacitive absolute pressure sensing elements have been designed for applications that require a small size and ultra low power consumption. The SCB10H pressure sensing elements are ideal for implantable medical devices thanks to their inherent accuracy, reliability, small size and enabled low power consumption.

The SCB10H pressure sensing element allows the possibility for volume OEM customers to integrate pressure measurement functions in an optimal way into their products.

Parameter	Unit	B012	B080	B250	Typical applications
Measuring range	kPa	30–120	100–800	100–2500	Medical devices, Flow meters, Barometers, Altimeters
Capacitance at min. pressure	pF	7.8	7.5	7.3	
Capacitance at max. pressure	pF	11.8	13.4	13.9	
Capacitance dynamics	pF	4.0	5.9	6.6	
Sensitivity	fF/kPa	55 (@100 kPa)	6.2 (@350 kPa)	1.3 (@100 kPa) 6.5 (@2500 kPa)	

For more information, please refer to the product datasheets available online at [www.murata.com](http://www.murata.com)

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# Global Locations

For details please visit [www.murata.com](http://www.murata.com)



## Note

### 1 Export Control

*For customers outside Japan:*

No Murata products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to (1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or (2) goods or systems specially designed or intended for military end-use or utilization by military end-users.

*For customers in Japan:*

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2 Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

- ① Aircraft equipment
- ② Aerospace equipment
- ③ Undersea equipment
- ④ Power plant equipment
- ⑤ Medical equipment
- ⑥ Transportation equipment (vehicles, trains, ships, etc.)
- ⑦ Traffic signal equipment
- ⑧ Disaster prevention / crime prevention equipment
- ⑨ Data-processing equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed above

3 Product specifications in this catalog are as of January 2018. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

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7 No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.

Murata Manufacturing Co., Ltd.

[www.murata.com](http://www.murata.com)

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