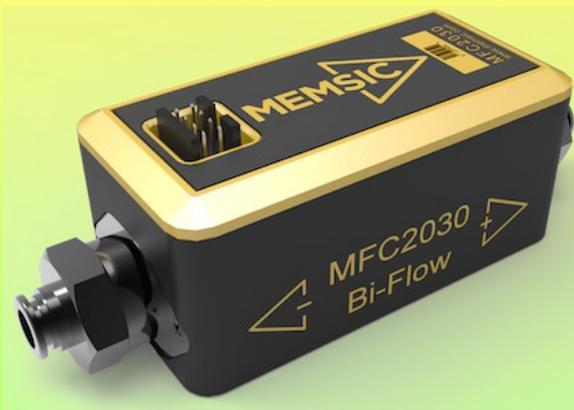


MEMS Accelerometer ICs

AMR Magnetic Sensor ICs



Gas Flow Modules

Differential Pressure Sensors

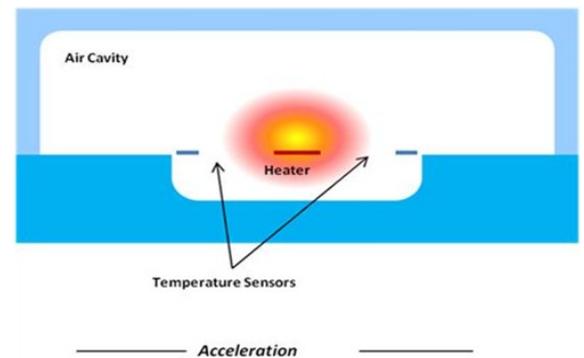
Tilt Modules

Current Sensors

Accelerometer Components

MEMSIC's unique thermal technology uses heated gas molecules to detect acceleration and is the fundamental principle behind our accelerometer IC products. This technology offers several advantages over the solid proof-mass structure, including:

- No measurable resonance (immunity to vibration)
- Virtually indestructible (50,000g shock tolerance)
- No stiction
- No detectable hysteresis
- Excellent zero-g offset stability
- Sensor & electronics integrated onto monolithic IC



Part Number	Axes	Range (+/- g)	Output	Sens'ty	Offset Drift (mg/°C)	BW (Hz)	Noise (mg rms)	Supply Voltage (V)	Sleep Mode	Size (mm)	Temp Output	Temp Comp (ON OFF)
MXP7205VF	2(XY)	5	SPI	800 c/g	1	29	2.7	4.5 - 5.2		5 x 5		On
MXP7205VW	2(XZ)	5	SPI	800 c/g	1	29	2.7	4.5 - 5.3		5.5 x 5.5		On
MXR7305VF	2(XY)	5	Analog	0.25 V/g	2	27	3.1	4.5 - 5.3		5 x 5		On
MXR7250VW	2 (XZ)	5	Analog	0.25 V/g	1.3	27	3.1	4.5 - 5.3		5.5 x 5.5		On
MXR9150MZ	3(XYZ)	5	Analog	0.15 V/g	1	17	2.5	2.7 - 3.6	Y	7 x 7		On
MXC6232xMP	2(XY)	2	I ² C	512 c/g	0.8	17	0.7	2.7 - 3.6	Y	5 x 5	Y	On
MXC6255XU	2(XY)	2	I ² C	64 c/g	0.3	10	0.6	2.5 - 5.5	Y	3 x 3		On
MXC6255XC	2(XY)	2	I ² C	64 c/g	0.6	10	0.9	2.5 - 5.5	Y	1.2 x 1.7		On
MXD6235MP	2(XY)	2	PWM	12.5%/g	1.5	17	1.6	2.7 - 3.6		5 x 5		On
MXC6232xEP	2(XY)	1.5	I ² C	512 c/g	0.8	17	2.9	2.7 - 3.6	Y	5.5 x 5.5	Y	Off
MXR6500MP	2(XY)	1.7	Analog	0.5 V/g	1.5	17	1.6	2.7 - 3.6		5 x 5		On
MXR9500MZ	3(XYZ)	1.7	Analog	0.5 V/g	1	17	2.5	2.7 - 3.6	Y	7 x 7		On
MXD2020EL	2(XY)	1	PWM	20 %/g	0.4	17	0.8	3.0 - 5.3		5 x 5	Y	Off
MXR7900CF	2(XY)	1	Analog	0.9 V/g	0.3	19	1.3	4.5 - 5.3		5 x 5		Off
MXA2500EL	2(XY)	1	Analog	0.5 V/g	0.4	17	0.8	3.0 - 5.5		5 x 5	Y	Off
MXR2999EL	2(XY)	0.5	Analog	1 V/g	0.4	17	0.8	3.0 - 5.3		5 x 5	Y	Off
MXC4005XC	3(XYZ)	2, 4, 8	I ² C	1024 c/g	0.8	10	3	1.6 - 3.6	Y	1.7 x 1.2	Y	On
MXD6240/41AU	Roll	0 +/- 90	1-Wire			3.125		3 - 5		3 x 3		Yes
MXC6244AU	2	8	I ² C	1024 c/g	0.1	11	0.75	2.7 - 5.5	Y	3 x 3		On
MXC6245XU	2 (XY)	2	I ² C	1024	0.1	11	1.5	2.7 - 5.5	Y	3 x 3		On

Magnetic Sensor Components

MEMSIC offers magnetic sensor components for high performance OEM applications, as well as rugged magnetic modules for applications where a turnkey solution is required.

MEMSIC magnetometers are used in millions of cell phones and tablets, due to their exceptional noise, wide dynamic range, and low power consumption.

MEMSIC's family of magnetometer components are available in both dual-axis and three-axis versions.

They are based on anisotropic magnetoresistive (AMR) Permalloy technology sensors, which have superior accuracy and response time characteristics, while consuming significantly less power than alternative technologies. The MEMSIC magnetometers are ideal for electronic compass, GPS navigation and magnetic field detection applications.

MEMSIC's magnetic sensor components utilize AMR technology to deliver low noise and high performance in ultra-small IC packages.

Part Number	Axes	FSR (+/- G)	Interface	Sensitivity	Noise (mG rms)	Supply Voltage (V)	Supply Current (mA @ 7cps)	Sleep Mode	Size (mm)	Automotive Qualified	S/R Offset Nuling
MMC246xMT	2	6	I2C	4096 c/G	0.8	1.62 - 3.6	0.05	Y	2 x 2	C.F.	Y
MMC328xMA	3	8	I2C	512 c/G	1	1.62 - 3.6	0.3	Y	2 x 2		
MMC3316xMT	3	16	I2C	512 c/G	2	1.62 - 3.6	0.1	Y	2 x 2	C.F.	Y
MMC3416xPJ	3	16	I2C	2048 c/G	1.5	1.62 - 3.6	0.14	Y	1.6 x 1.6		Y
MMC3530KJ	3	30	I ² C	1024 c/G	2	1.62 - 1.98	0.16	Y	1.4x1.4		Y
MMC3630KJ	3	30	I ² C	1024 c/G	2	1.62-3.6	0.32	Y	1.2x1.2		Y
MMC5883MA	3	8	I2C	4096 c/G	0.6	1.62 - 3.6	0.1		3 x 3		T

Evaluation Kits

MEMSIC offers easy to use evaluation kits for most of its accelerometer and magnetic sensor components. To find the evaluation kit you are looking for, go to the product selection tables for the Accelerometers and Magnetic Sensors. Once you identify the product you are interested, the evaluation kit information is found on the product pages.

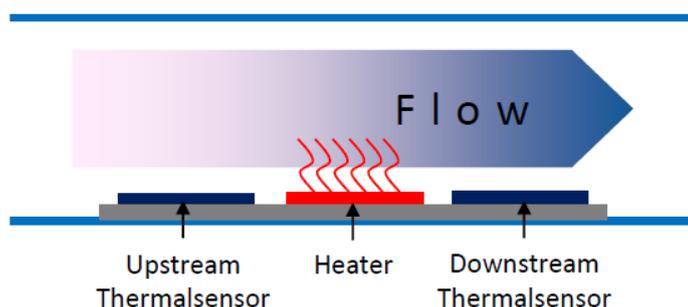
If you have any questions, or require any information on the Evaluation Kits, please contact a member of the Sales Team.

Flow & Differential Pressure Sensors

ACEINNA's flow and differential pressure sensors are designed to serve the need for mass flow and pressure sensing in multiple applications such as gas meters, process control, HVAC, medical, chemical, food and beverage, etc. We offer two newly launched and announced product lines, the MFC2000 family of gas flow modules and the MDP200 differential pressure sensor.

ACEINNA's patented thermal sensing technology offers many advantages over traditional solutions, including but not limited to: large dynamic range, high accuracy, excellent low flow sensitivity, low pressure drop, very low power consumption, no moving parts for long term reliability, and integrated CMOS circuitry.

ACEINNA's flow and differential pressure sensors are highly customizable for different applications, flow / pressure ranges, and form factors.



Part Number	Flow Range (SLM)	Accuracy (% m.v.)	Pressure Drop (mbar)	Oper. Mode (mA)	Supply Voltage (V)
MFC2000	+/- 30	3%	4	5	2.7 to 5.5
MFM2070	+/-70	3%	1.5	5	2.7 to 5.5
MFM2100	+/- 100	3%	1.5	5	2.7 to 5.5
MFM2250	+/- 250	3%	6.4	5	2.7 to 5.5

Part Number	Type	Range	Accuracy	Output	Sleep Mode (mA)	Supply Voltage (V)
MFC2030	Flow	+/- 30 SLM	3%MV (3 - 30 SLM) 0.3%FSR (< 3 SLM)	Digital (I2C) or Analog (PWM)	0.05	2.7 - 5.5
MDP200	Pressure	+/-500 Pa	+/-3% m.v.	I2C	0.001	2.7 - 5.5

If you have any questions, or require additional information on any of the Flow & Differential Pressure Sensors, please contact a member of the Sales Team

Tel: 01189 324 600

sales@bt2000.co.uk

Flow & Differential Pressure Sensors

The MFC2000 gas flow sensor family is a highly configurable, bi-directional flow platform that is being offered in several variations, including 30 and 70 SLM flow ranges, and mechanical configurations including straight inlet, manifold, and PCB mount. The product family is designed for a wide variety of applications, ranging from industrial applications to medical devices.

The **MFC2030** includes firmware that is highly configurable, offering the user a variety of settings that can be tailored to specific applications. This includes data output type, calibration settings, measurement modes, and power consumption. A user-friendly PC-based application offers the user a variety of data collection options, including real-time graphical display. Mechanically, the unit includes fittings that can accept a variety of standard inlet tube sizes, both BSP and NPT. MFC2030 is a true thermal mass flow sensing module, and can easily be configured to suit a variety of applications, from medical flow to industrial processing.



Modular MFM2000 bi-directional flow sensor.

The **MFM2000** is a low pressure drop sensor intended for low pressure medical ventilation and natural gas metering applications and can be configured with different types of inlet and outlet.

The **MDP200** differential pressure sensor is a highly accurate and stable pressure sensor, designed for industrial, HVAC, and medical applications. The sensor is offered in a +/- 500 Pa configuration with custom ranges available. The sensor is available in board and manifold mount, with straight and angled connector pins. MDP200 series offers a wide dynamic range, superb long-term stability, and outstanding repeatability and hysteresis. The MDP200 is also available as a low cost flow detector with an analog output and it can easily be configured to suit a variety of applications from burner control, HVAC, medical flow to industrial processing control.



Tilt Sensors

Cost-effective, MEMS-based single-axis and dual-axis tilt sensor modules with internal signal conditioning, environmental packaging, and analog or digital output options.



The MTLT Family of tilt and inclination sensors provide pitch and roll information over a range of $0 \pm 90^\circ$ and of $0 \pm 180^\circ$ respectively. They offer a convenient RS-232 interface user selectable filtering, and built in programmable tilt alarm feature ideal for tilt safety applications. Each MTLT is individually calibrated over temperature using a multi-order temperature compensation algorithm. The MTLT1xxS modules are designed for static inclination applications, such as platform levelling or solar array monitoring.

The MTLT1xxD are gyro compensated inclinometers designed to be used in dynamic inclination applications such as on moving vehicle. An Extended Kalman Filter algorithm is used to provide accurate angle information in dynamic applications without sacrificing response time. The MTLT1 series are packaged in an IP67 rated plastic enclosure and operate from an unregulated 9 to 32 V supply.

The CXTA and CXTLA series offer an easy-to-use signal conditioned 0 - 5 V analog output. The CXTA provides a wide measurement range of ± 75 degrees, while the high-resolution CXTLA offers higher accuracy over a ± 20 degrees measurement range and is low pass filtered to 6 Hz. The zero-angle voltage and sensitivity are stable over the lifetime of the device. The CXTA/CXTLA modules operate from unregulated power supply inputs of 6 to 30 VDC and are available with a plastic or high-temperature metal housing.

The CXTILT series provides a fully-calibrated, temperature-compensated two-axis digital output with outstanding resolution, dynamic response and accuracy. The CXTILT offers user-configurable bandwidth and resolution to meet a wide variety of demanding applications.

Tilt Sensor Modules

Rugged 1-axis and 2-axis tilt sensor modules with built-in signal conditioning support a wide range of applications and performance levels

Part Number	Axes	Range (+/-deg)	Output	Sensitivity (mV/deg)	Bandwidth (Hz)	Resolution (deg rms)	Supply Voltage (V)	Temp Range (°C)	Package Type	Dimensions (cm)
CXTA01-T	1(X)	75	0-5V	35	DC-50	0.05	6 to 30	-40 to +85	Nylon	4.5 x 2.7
CXTLA02-T	2(XY)	20	0-5V	100	DC-6	0.05	6 to 30	-40 to +85	Nylon	4.5 x 2.7
CXTA02-T	2(XY)	75	0-5V	35	DC-50	0.05	6 to 30	-40 to +85	Nylon	4.5 x 2.7
CXTILT02EC	2(XY)	75	RS-232	Selectable	Selectable	Selectable	8 to 30	-40 to +85	Aluminum	10.2 x 5.7
MTLT110S--R	2(XY)	90 / 180	RS-232	N/A	DC-50	0.05	9 to 32	-40 to +70	Plastic	5.4 x 4.0
MTLT105S-R	2 (XY)	90 / 180	RS-232	N/A	DC-50	0.05	9 to 32	-40 to +70	Plastic	5.4 x 4.0
MTLT105D-R	2(XY)	90 / 180	RS-232	N/A	DC-50	0.05	9 to 32	-40 to +70	Plastic	5.4 x 4.0

Current Sensors

ACEINNA is applying its leadership and expertise in Anisotropic Magneto Resistive (AMR) magnetic sensing to AC and DC current sensing. Devices feature bi-directional current sensing through a fully isolated low impedance current path. ACEINNA AMR based current sensors are easily scaled for small or large current ranges. ACEINNA improves on existing current sensing technology in the following ways:

- **Improved Over Temperature Accuracy (<2% of measured value over operating temperature range)**
 - Cloud Server-Farm Load Power Management
- **Increased Dynamic Range and Resolution**
 - Automotive Anti-Pinch Systems
 - IOT Appliance Monitoring
- **Increased Bandwidth (1 MHz)**
 - Motor Control Feedback Loops
 - Power Supply Dynamic Load Management
- **Better Input Referred Bias Stability**
 - Solar Inverter DC Injection into AC Line Monitoring



About Memsic & Aceinna

MEMSIC

MEMSIC (MEMS + IC) is unique because they develop breakthrough MEMS sensors components and system integration technologies. They are experts at making a wide variety of products smaller, higher performance and lower cost. Their broad range of products target diverse market segments, from consumer electronics to industrial automation to aerospace. Because they provide both sensor components and sensor systems MEMSIC has a deep well of knowledge in how sensors are used in a system, and this makes us especially qualified to provide our customers with optimal sensor solutions, application support, and innovative algorithms and applications. And we are constantly working hard to earn our customers' trust. Memsic's vision and expertise provide the highest quality and reliability in the industry at a price that makes sense for even the most cost-sensitive application. They are a cutting edge technology company driving the advancement of sensors and sensing solutions to create a better life for all

ACEINNA is a spinoff of MEMSIC, Inc.

ACEINNA

Headquartered in Andover MA, ACEINNA delivers Powerful Sensing Solutions that improve the size, performance, and cost of our customers' end products. With sight and sound, touch and smell we establish communication with the world around us. Just as our eyes sense light and our ears sense sound and relay that information to our brain enabling us to sense the environment, sensors comprehend the world around us and relay these electrical signals back through intricate Integrated Circuitry (IC) and electronic systems.

