



About Melexis

Melexis creates, manufactures and delivers advanced Mixed-Signal semiconductors for automotive, industrial and consumer applications.

Melexis offers a wide range of standard products such as Sensor ICs (Hall-Effect, Optical, Infrared and MEMS), Communication ICs (Low Power RF, RFID and Automotive BUS), Actuator-ICs (for electric motors, electro magnets and LEDs), as well as application specific integrated circuits (ASICs).

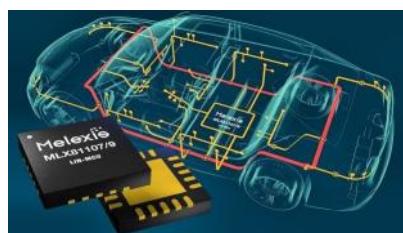
Pressure Sensor ICs

- Integrated Pressure Sensor
- Programmable Sensor Interface
- Analog Sensor Interface



LIN Bus Controller ICs

- LIN RGB Slave Controller
- LIN Slave Controller
- LIN System Basic IC
- LIN Transceiver



Hardware

- Demo Boards
- Development Kits
- Programming Tools



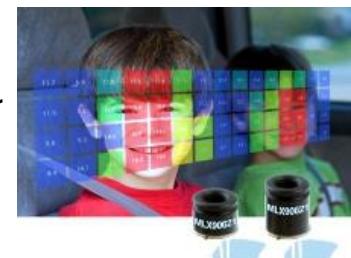
Hall Effect Sensor ICs

- Hall Position Sensor
- Hall Latches/Switches
- Gear Tooth Sensors
- Current Sensors
- Programming Tools



Infrared and Opto ICs

- Optical Gesture & Proximity Sensing
- Infrared Sensor Array
- Infrared Thermometer
- Optical switch sensor
- Light-to-voltage sensor



Wireless ICs

- Receiver (300MHz-1GHz)
- Transceiver (300MHz-1GHz)
- Transmitter (300MHz-1GHz)
- RFID / NFC (125kHz & 13.56MHz)

Motor Controller / Fan Driver ICs

- Motor controller for brushless DC
- Single coil PWM fan driver
- 2-coil fan driver



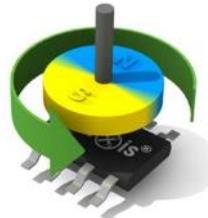
MLX90393

Triaxis® Micro Power Magnetometer

The Melexis MLX90393 is the newest addition to the Melexis position sensing portfolio, bringing the highest flexibility in the portfolio's smallest assembly. Complementing this, the magnetic field sensor is designed for micro-power applications, with programmable duty cycles in the range of 0.1% to 100%.

The MLX90393 magnetic field sensor can be reprogrammed to different modes and with different settings at runtime. The sensor offers a 16-bit output proportional to the magnetic flux density sensed along the XYZ axes using the Melexis proprietary Triaxis® technology and also offers a temperature output signal. The output signals (raw X, Y, Z Magnetic data and Temperature data) will be provided through the I2C fast mode protocol, or via half-duplex SPI (3- or 4-wire). There is an on-board non-volatile memory to store calibration data on-chip.

By selecting which axes are to be measured, the raw data can be used as input for further post-processing, such as for joystick applications, rotary knobs, and more complex 3D position sensing applications. Unparalleled performance is achieved with this sensor, which is primarily targeting industrial and consumer applications



Melexis

MLX90393 Features

- Magnetometer Sensor (Absolut Linear & Rotary, 3D-Joystick)
- Micro-power Triaxis® Hall Technology
- In-application runtime programmable functional parameters
- SPI slave and/or I2C slave with 2 bits
- HW addressing and 5 bits SW
- Can be used to measure magnetic XYZ and temperature T or any combination thereof
- Single measurement mode, burst mode and wake-up on change mode
- Duty cycle between 0.1% and 100% (continuous burst)
- Wide temperature range from -40 °C to 150 °C

EVB90393web

- MLX90393 3D-Hall Sensor IC & WIZ922PoE Module



MLX90363

Triaxis® Programmable Position Sensor

Universal, maximum flexibility for applications development can be accomplished with the MLX90363. Designed to be paired with an off-the-shelf microcontroller, it relies on SPI output communication. The range of position sensing applications are limitless and constrained only by the imagination of the designer.

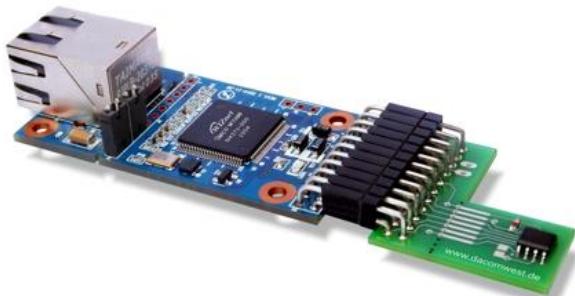
3D, rotary, linear or even mixed mode implementations can be accomplished through embedded software in the customer's microcontroller. All internal raw and conditioned signals from the IMC Triaxis® Sensor can be communicated via the SPI Channel. Data from the on-chip temperature sensor and the internal chip diagnostics can also be digitally transmitted.

MLX90363 Features

- Triaxis™ Magnetometer (BX,BY,BZ)
- On chip signal processing
- High speed SPI-compatible full duplex interface
- Enhanced self-diagnostics features
- 5V and 3.3V application compatible
- 14 bit Angular Resolution
- 10 bit Angular Accuracy
- In-application runtime programmable functional parameters
- SOIC8 SMD Package: Single Die
- TSSOP16 SMD Package: Dual Die (Full Redundant)

EVB90363web

- MLX90363 3D-Hall Sensor IC & WIZ912PoE Module





MLX92232

End of Line Programmable 3-wire Hall Latch/Switch

The MLX92232 is the first end-of-line programmable sensor in a family of high accuracy devices each integrating a Hall sensor element with advanced offset cancellation mechanism, a voltage regulator and an open-drain output driver combined with EEPROM memory in an industry standard 3 pin SIP and TSOT23 packages.

MLX92232 Features

- 3-Wire Hall Latch or Switch function
- Programmable parameters in End-off-Line:
 - Wide magnetic Latch range: $\pm 0.4\text{mT}$ to $\pm 80\text{mT}$
 - Wide magnetic Switch range: $\pm 1.5\text{mT}$ to $\pm 66\text{mT}$
 - Programmable Hysteresis: 1mT to 36mT
 - Programmable field: North or South
 - Programmable Output polarity: Direct or Inverted
 - Built-in Negative TC coefficient: 0 to -2000 ppm/degC
- Wide operating voltage range : from 2.7V to 24V
- Reverse Supply Voltage Protection
- Output Current Limit with Auto-Shutoff
- Under-Voltage Lockout Protection
- Thermal Protection

PCB-less Application



MLX73290-M

299MHz - 960MHz Multi-Channel RF Transceiver

The MLX73290-M is a 299 to 960MHz multi-channel transceiver chip. The IC is designed for general purpose applications for example in the European bands at 433MHz and 868MHz or for similar applications in North America or Asia, e.g. at 315MHz or 915MHz. It is also well-suited for narrow-band applications which meet the ARIB standard STD-T67 in the frequency range 426MHz to 470MHz.

The output power, frequency channel, modulation type and frequency deviation are programmable via the serial programming interface (SPI). The synthesizer operates with a fractional-N PLL and VCO with integrated inductor.

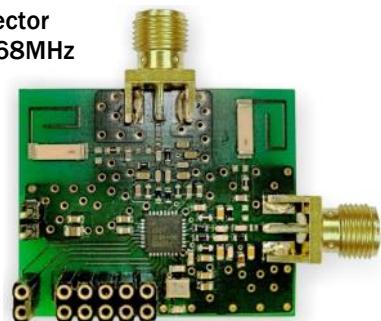
The high frequency resolution of the MLX73290-M and its PLL phase noise performance facilitate it for narrow-band applications.

MLX73290-M Features

- Wide frequency band coverage (299MHz - 960MHz)
- Flex TX/RX RF front-end with two PAs and two LNAs
- Transmitter with power detectors
- Receiver with digital RSSI
- Receiver self-polling with MCU wake-up
- Modulation schemes for: (G)FSK, (G)MSK, (G)OOK
- Transmitter power from -20 to 13dBm, 64 steps
- Fast fractional-N PLL with: 61Hz resolution
- Data rate from 0.3 to 250kbps (GFSK)
- Programmable data rate: 0.15 - 250kbps (FSK)
- Programmable channel filter BW: 9 to 600kHz
- Transmitter power from -20 to 13dBm, 64 steps
- Low power consumption
- 256byte FIFO (can be split 128/128 for RX/TX)
- 10bit ADC also for external applications
- 4 programmable GPIO ports
- Flexible configuration of the RF protocol
- SPI programmable in stand-by mode
- Wide supply voltage range from 2,1V - 3,6V

EVB 73290-M_2RF

- EVB size: 31x38mm
- SMA antenna connector
- Ceramic antenna 868MHz



MLX90132

13.56MHz Multi-Protocol RFID Transceiver

The MLX90132 is a 13.56MHz, fully integrated, multi-protocol RFID/NFC transceiver IC. It has been designed to handle sub-carrier frequencies from 106 to 848 kHz and baud rates up to 848kbit/s. The dual driver architecture of the MLX90132 requires minimal external support components.

The MLX90132 embeds tag emulation functionality for NFC support. Enhanced tag and field detection capabilities provide significant power consumption reduction in RFID reader configuration and in NFC mode.

MLX90132 Features

- Conformity to:
 - ISO/IEC 18092 (NFC)
 - ISO/IEC 14443 A1 and B2
 - ISO/IEC 15693
 - ISO/IEC 18000-3 mode 1
- SPI/UART Interface with 528 Bytes Buffer
- High speed communication (848kbit/s)
- Embedded RF field and TAG detectors
- Transmit power up to 317mW
- Power Down Mode = 1 μ A typ.
- Power supply of 2.7V or 5V
- Low external component count

EVB90132web

RFID/NFC Reader board

The EVB90132 allows an operation with the integrated PCB antenna and can be controlled by any Microcontroller via the standard SPI or UART interface. The EVB90132web consists in addition to the EVB90132 of a WIZnet WIZ922PoE module with an MCU and preprogrammed Web frontend for an easy plug-and-play start to help implement a RFID- or a fully functional NFC-reader.

Free ANSI-C code is available for software support.



MLX90129

Sensor TAG Data-Logger

The Melexis MLX90129 combines a precise acquisition chain for external resistive sensors with a wide range of interface possibilities. It can be accessed and controlled through its ISO15693 RFID front-end or via its SPI port.

Without any other component than a 13.56MHz tuned antenna, it becomes a RFID thermometer.

For measuring other physical quantities, one or two resistive sensors can be connected to make battery-less sensing points. In this tag mode, the chip can supply a regulated voltage to the other components of the application.

Adding a battery will enable the use of the standalone data logging mode. The sensor output data is stored in the internal 3.5 kbit user memory. One can extend the storage capacity by connecting an external E2PROM to the SPI port.

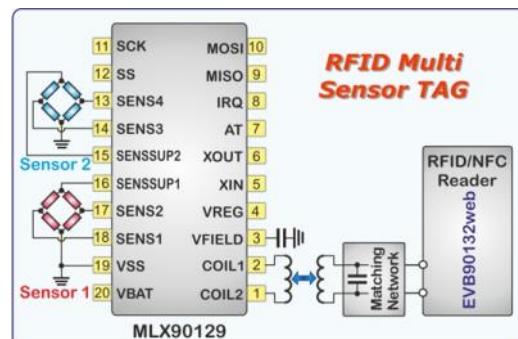
The SPI port can also connect the MLX90129 to a microcontroller which allows more specific applications, like adding actuating capability or RF transmission.

The MLX90129 has been optimized for low power, low voltage battery and battery-less applications.

MLX90129 Features

- Versatile A/D interface for resistive sensors
- ISO 15693 13.56MHz transponder
- Slave/Master SPI interface
- 4kbit EEPROM with access protection
- Standalone data-logging mode
- Ultra-low-power system
- Battery or battery-less applications
- Wide power supply range from 2.7V to 5.5V
- Power management and battery low-level detector

Application Examples



MLX90809

Relative Pressure Sensor

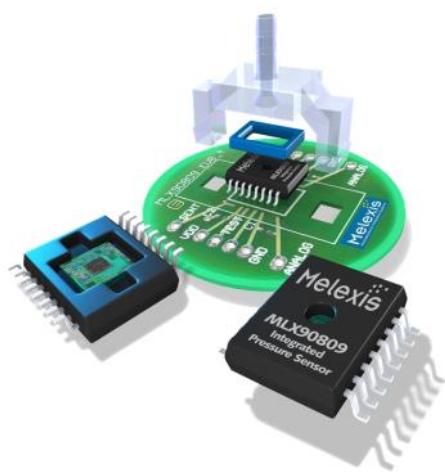
The MLX90809 is a packaged, factory calibrated, integrated relative pressure sensor delivering a ratio-metric analog or digital (using the SENT protocol) signal.

Use of an optimized architecture and a high density CMOS technology imparts the 90809 with best in class automotive EMC performance. A DSP based architecture using a 16bit microcontroller provides outstanding performance in terms of initial accuracy.

A smart package and die assembly concept suits applications with stringent automotive temperature and stress conditions needing small drift over life.

MLX90809 Features

- High accuracy relative pressure sensor (+/-1.5%FSO)
- Ratio-metric analog output or digital SENT output
- Fully integrated MEMS with analog front end circuit, 16 bit microcontroller, analog back end circuitry and voltage regulators
- Factory calibrated and/or fully programmable through the connector for customized calibration curves
- Wide temperature range from -40 °C to 150 °C
- Automotive qualified
- Automotive diagnostics features
- Programmable through the connector



MLX90621

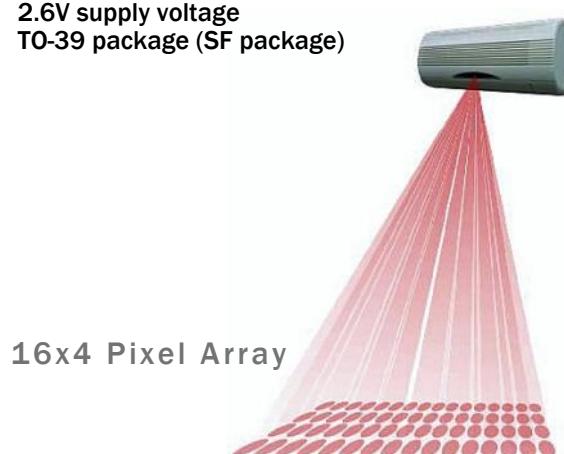
Far Infrared Sensor Array (16x4)

The MLX90621 delivers unmatched noise versus speed performance providing 0.4K NETD (noise equivalent temperature difference) at 16Hz. It is available in small size, TO39 metal can package for a cost effective 16x4 pixel thermal array. Factory calibrated to operate over a wide temperature range of -40 to 85 °C for sensor temperature it can measure object temperatures over the range of -20 to 300 °C. The device is available in three field of view options, including 60°x15°, 40°x10° and 120° x30°. Interface and control is managed via high speed I2C digital interface. The speed is programmable from a frame rate 0.5 to a frame rate of 512 Hz.

MLX90621 delivers unmatched performance and establishes a new milestone in the field of low cost, low resolution thermal imagers, enabling and facilitating a myriad of novel, low cost applications.

MLX90621 Features

- Small size, low cost 16x4 pixels IR array
- Factory calibrated infrared temperature measurement:
 - -40 to 85 °C for sensor temperature
 - -20 to 300 °C for object temperature
 - Calibration parameters stored in EEPROM
- Noise Equivalent Temperature Difference (NETD)
 - 0.20K RMS @4Hz refresh rate
- Programmable frame rate 0.5Hz to 512Hz
- I2C compatible digital interface
- Sleep mode consumption: max. 7µA
- Current consumption: typ. 5mA
- 2.6V supply voltage
- TO-39 package (SF package)



MLX81106

LIN RGB LED driver for ambient lighting

The MLX81106 offers all potential for typical LIN switch application. Additionally, MLX81106 LIN RGB slave provides a single chip solution for driving up to four LEDs (RGB+1) via constant current sources in automotive ambient lighting applications. Every output can be programmed to a maximum current of 48mA (@ VS > 6V) through the built-in Flash memory.

All necessary components like physical layer LIN transceiver, LIN controller, voltage regulator and 16-bit RISC-based microcontroller, as well as supporting functions like ADC, 16-bit current modulation, constant current high voltage capable outputs and LED color and aging compensation are integrated into the chip.

The high voltage inputs/outputs are capable to drive loads directly supplied through the battery voltage. It also includes the possibility for LIN auto-configuration and can thus be used for other applications requiring a low pin count fully integrated LIN slave.

MLX81106 Features

- 16-bit RISC MCU with Flash memory, RAM, EEPROM
- 24kB user Flash memory
- Version with 512 Byte RAM and 256 Byte EEPROM
- Version with 1024 Byte RAM and 512 Byte EEPROM
- Internal RC-Oscillator (12..24Mhz programmable)
- LIN Protocol Controller (LIN 2.x and SAE J2602)
- Baudrate up to 19.2kBaud
- Low interrupt load to the application
- Frame processing
- 4x high voltage, high accurate free configurable current source (up to 48mA) for RGB control
- Diagnostic capability for connected LED
- LED color compensation and aging compensation



MLX80030

LIN System Basis IC 3.3V/70mA

The Melexis MLX80030 extends the LIN transceiver and system basis product line for the simple and effective development of LIN slaves.

This IC transceiver combines a physical layer LIN transceiver according to LIN 2.x as well as SAEJ2602 with a 3.3V/70mA voltage regulator with RESET output for the connected microcontroller.

This transceiver is optimized in accordance with the increased EMC requirements for single wire bus systems as well as the "Hardware Requirements for LIN, CAN and Flexray Interfaces in Automotive Applications" defined from German OEMs.

MLX80030 Features

- LIN 2.x / SAE J2602 compliant
- Operating voltage VSUP = 5 ... 18 V
- 3 modes: Normal, silent and sleep
- Linear low drop voltage regulator
- Normal mode 3.3V/70mA ±2%
- Silent mode 3.3V/20mA ±2%
- Low current consumption (typ.)
- Sleep mode 20uA,
- Silent mode "no load" 45uA
- Output current limitation
- LIN-Bus Transceiver:
- Baud rate up to 20 kBaud
- Low slew mode, optimized SAE J2602 transmission
- High impedance LIN pin in case of loss of ground or battery
- SOIC-8 package

