Melexis
Microelectronic Integrated Systems

Features and Benefits

- ISO-15693 compliant transponder IC
- Programmable resonance capacitor
- Versatile interface for single-ended or differential sensors
- 12-bit A/D converter
- 4 kBit integrated E2prom,
- Slave / Master SPI interface
- Power management for long battery life
- Security items: anti-theft system, sensor fault and low-battery detection
- Programmable standalone mode for data-logging

Application Examples

- Asset management and monitoring (security and integrity)
- Building automation
- Cold chain monitoring
- Industrial, medical and residential control and monitoring

Description

The MLX90129 merges a precise analog front-end for internal and external sensors, with a wide range of interface possibilities. It may be controlled by an external microcontroller using a SPI interface or may work by itself in standalone applications. The sensor output data may be stored in the internal E2prom or sent to an external serial SPI E2prom. It may also be transmitted into the air, using its integrated RFID interface. This interface complies the ISO15693 international standard in the 13,56MHz frequency band. The design has been optimized towards low power and low voltage for battery or battery-less applications.

Application schematics

RFID sensor tag

The MLX90129 may be used as a 13.56 MHz sensor transponder. The L-C antenna is easy to implement and to tune thanks to the integrated programmable capacitance. A battery may be used for a higher communication distance, or when using some low impedance sensors.
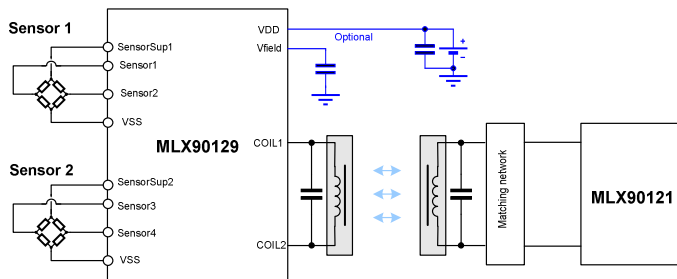
Data logger

The MLX90129 may be used in a standalone way as a data logger. The data may be stored in the internal E2prom or in an external serial SPI E2prom. Using the *automatic logging mode*, the MLX91029 wakes-up each programmed time periods, converts the sensor data and store it in the selected memory. Download of logged data's as sensor configuration may be processed through the RFID interface.