

Flow Metering

Integration, security and dedicated flow metrology peripherals at lowest power and cost

Infineon's flow meter controller is the first IC designed with a specific target to gas, water and heat metering. Beyond a powerful ARM Cortex M0 computing engine, a large embedded flash memory, a versatile LCD display controller and a large set of serial I/O peripherals, it contains specific hardware peripherals dedicated to flow metering, such as a flow integrator, a valve motor driver and battery monitor. On top, it embeds a dedicated power management unit designed for lowest peak and average energy operation.

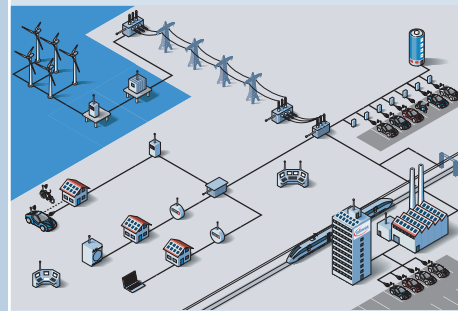
To address smart meter requirements for high reliability over extended life time and in a wide temperature range, Infineon's metrology ICs are based on automotive quality IP blocks and manufactured with automotive qualified processes. All of Infineon's embedded Flash memory blocks, for example, are fully qualified for high number of write cycles and for data retention over extended temperature range.

As the market leader in Security ICs, Infineon proactively addresses smart grid security needs with an advanced cryptography engine embedded in UMF51xx family and with a broad portfolio of security solutions.

Features

- Based on ARM Cortex M0, up to 64MHz
 - Internal oscillator and high precision embedded voltage reference save BOM cost
 - High endurance embedded Flash qualified for more than 500.000 write cycles
 - Wide range of serial peripherals (UARTs, ISO7816, I²C, SPI, GPIO, PWM)
- RTC: highly accurate, offset and temperature compensated
 - Hardware compensation engine with embedded temperature sensor, active also in low power modes (no need for the CPU to run temperature compensation)
- Dedicated peripherals for flow meters
 - Flow Sensing Integrator active in sleep mode, computes pulse count and pulse frequency without need for the CPU
 - Wakeup functions
 - Motor driver for valve control, able to direct drive two-windings stepper motors
- Comprehensive ADC
 - 4 fully independent differential 16-bit ADC channels
 - Low noise embedded PGAs support wide signal dynamic range
- LCD Driver: selectable 4, 6 or 8 backplanes, up to 192 pixels
- Advanced power management unit:
 - Extreme low power consumption
 - Nine power modes, fully software controllable
- Security: supporting symmetric and PKI cryptography
 - Infineon SecureKey embedded
 - Several individual protected keys are injected securely, and keys are delivered in secure format to customers
 - Hardware True Random Number Generator (TRNG)
 - AES128/256 Hardware accelerator

Smart Meter Product Line



Infineon's Products Enable Smart Grids

A Smart Grid is an upgrade of our existing grids towards a stable, clean, and secure future. It combines six key concepts in an intelligent way.

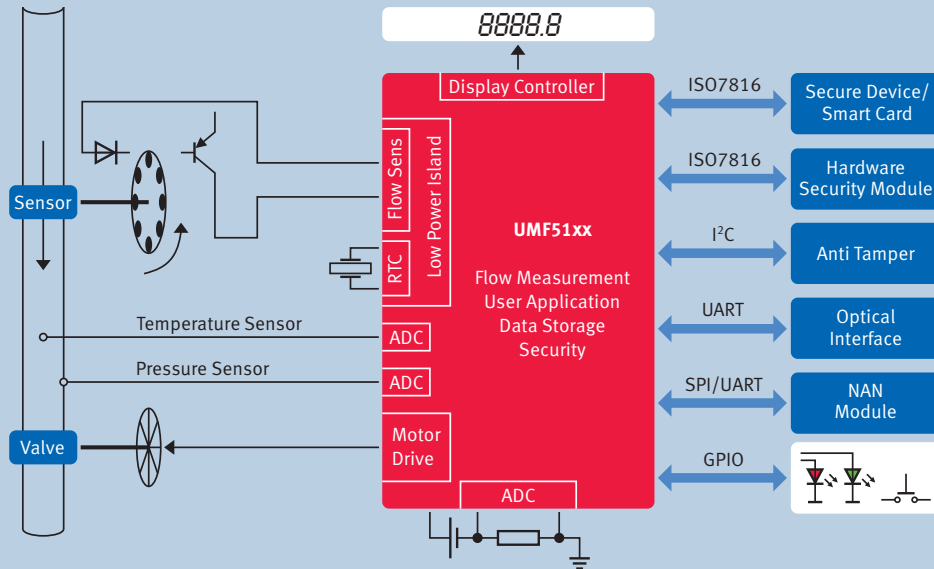
These 6 concepts are:

- 1 Renewable energies**
to produce electricity without CO₂ emissions
- 2 Advanced transmission**
to transport electricity to where it is needed with lowest losses
- 3 EV charging and energy storage**
for clean traffic and storage of excessive energy
- 4 Grid and smart meter security**
to guarantee stable and secure energy supply
- 5 Smart metering** to balance consumption and available supply
- 6 Energy-efficient consumption**
to maximize efficiency and reduce carbon footprint

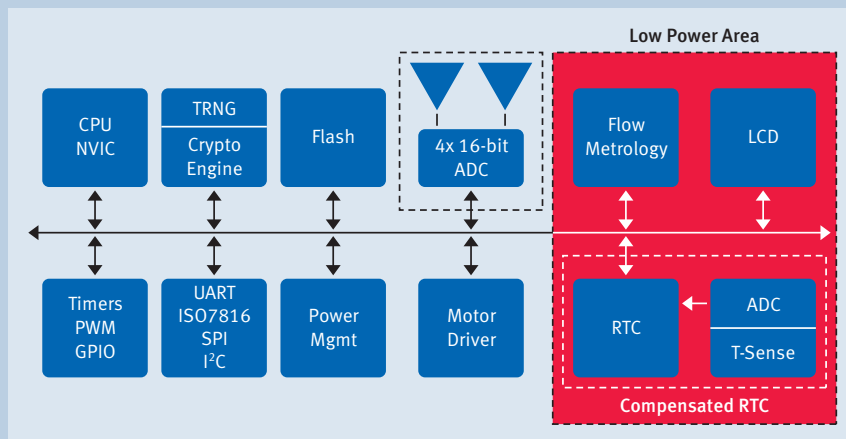
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Typical Application



Block Diagram



Ordering Information

Product	Flow Peripherals	Flash	RAM	Supply Voltage	Temperature	Package
UMF5110	Yes	128KB	16KB	1.8 ... 3.7V	-40°C to +85°C	TQFP-100
UMF5120	Yes	256KB	16KB	1.8 ... 3.7V	-40°C to +85°C	TQFP-100



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