

NPZG1S

The nPZero power-saving IC targets power-constrained sensor applications, reducing system power by autonomously managing sensor communication and selectively powering up the MCU and sensors only when needed.

Key Benefits

- Reduce power consumption by up to 90%
- Power the MCU and sensors only when needed
- Handle sensors autonomously without an active MCU
- Compatible with a wide range of MCUs and I²C or SPI-based sensors

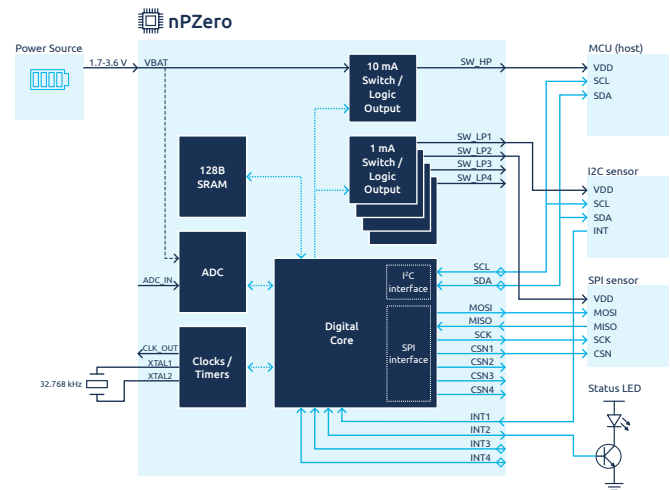
Main Features

- **Ultra-low-power standalone operation**
 - Power-cycling: turns off MCU and sensors when they are not needed
- **Autonomous operation of up to 4 sensors**
 - MCU is powered off
 - Polling of sensors with threshold-based wake-up triggers
 - Communication over I²C or SPI
 - Flexible I/O pins for interrupt inputs or trigger outputs
- **Supports MCU via I²C**
 - Configuration via I²C commands
 - nPZero IC wakes up the MCU when required
- **Integrated power switches for the MCU and 4 sensors**
 - Can be changed to logic outputs to control external switches for higher currents
- **128-byte SRAM**
 - Initialization commands for the sensors
 - General purpose data
- **Optional crystal oscillator**
 - Improved timing accuracy
 - Programmable clock output
 - External 32.768 kHz crystal for higher precision timing

Key Specifications

Supply voltage	1.7 - 3.6 V
Idle current @ 3.0V and 22°C	100 nA
Polling current @ 3.0V and 22°C	1.0 µA
Host switch max current	10 mA
Sensor switch max current (×4)	1 mA
I ² C frequency	100 kHz
SPI frequency	100 kHz
Temperature range	-20°C to +70°C
Package options	QFN32, 5.00×5.00 mm; WLCSP34, 2.50×2.50 mm

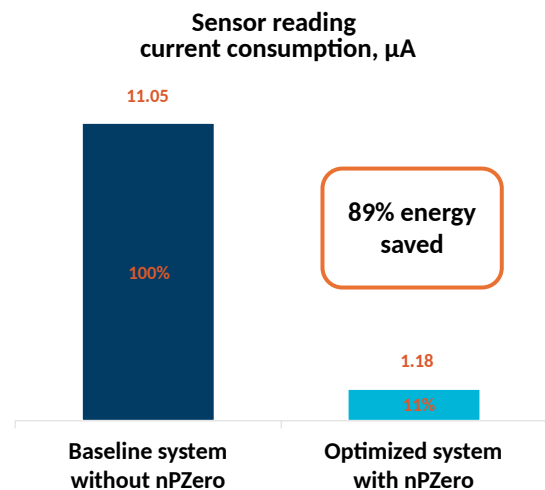
Functional Block Diagram



Energy Savings

It has been proven that the nPZero IC can reduce current consumption when reading sensor by 89% as compared to a baseline system without the nPZero.*

* AN01: BLE System Application Note.



Typical Applications

- Battery-powered and energy-harvesting-powered IoT devices
- Smart Buildings/Cities/Agriculture
- Tracking, Logging, Monitoring ++