



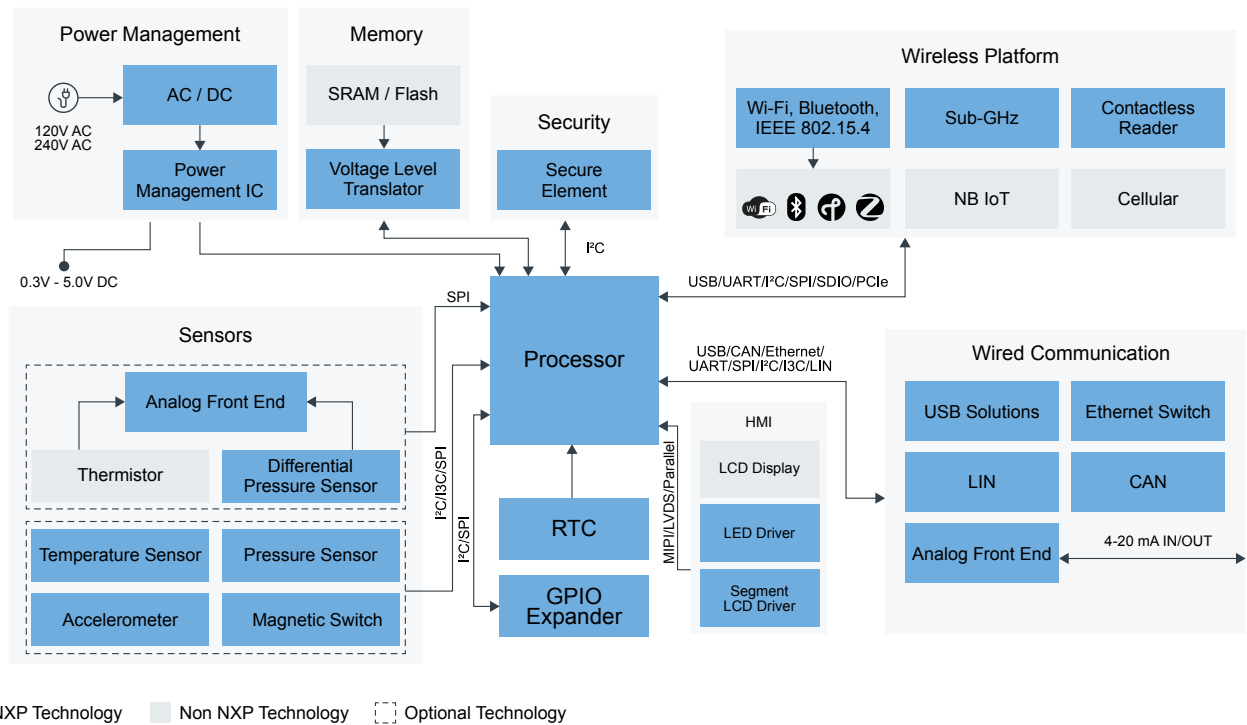
Building Energy Management Controller

Last Updated: Feb 26, 2025

To achieve better service and smarter, streamlined processes, energy providers require reliable, real-time access to data. NXP® products help data concentrators or energy gateways create the necessary infrastructure to gather data from different sensors and utility meters, upload it to the central utility server, and show it to the user. The energy gateway synchronizes time and date data of utility meters to the central utility server and enables secure data transfer of user authentication and encryption information.

Communication to sensors uses RF technology such as ZigBee and Bluetooth Low Energy.

Energy Management Controller - Advanced Block Diagram



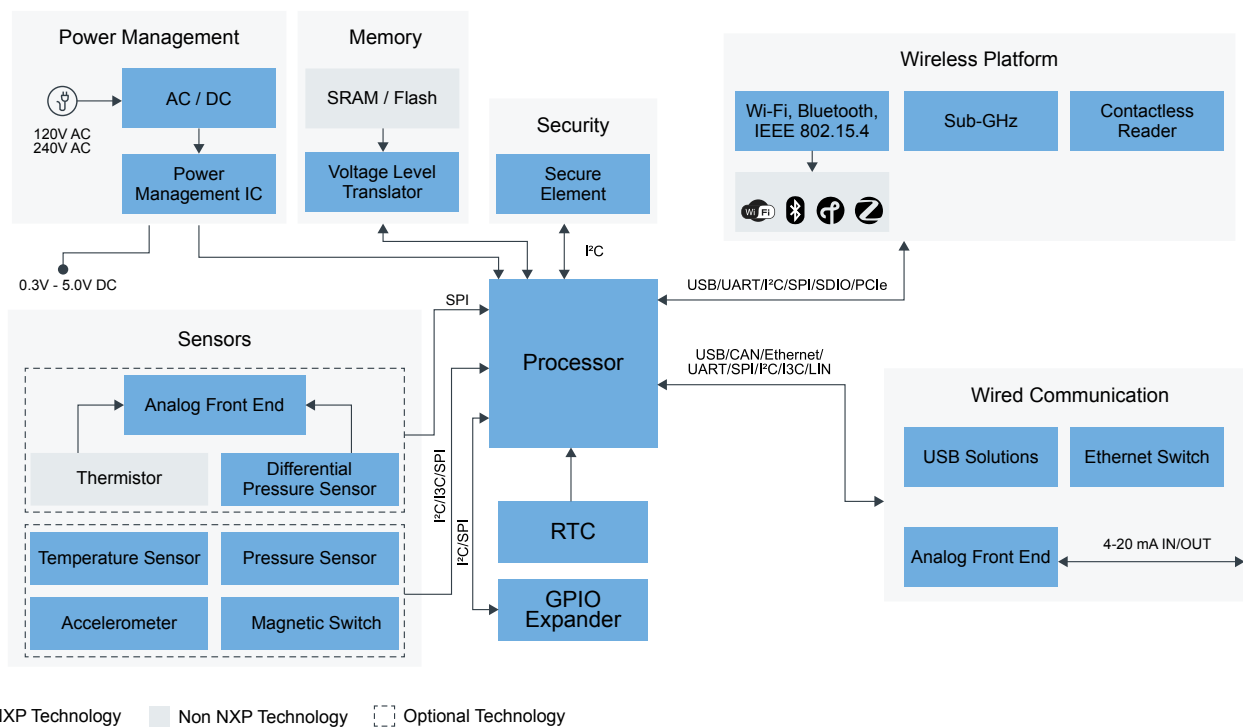
Recommended Products for Energy Management Controller - Advanced

AC/DC	TEA1723DT: HV Start-up Flyback Controller with Integrated MOSFET for 11 W Applications, F~Burst = 1270 Hz
Power Management IC	PF09: 9-Channel PMIC for High-Performance Applications, ASIL D and SIL-2 PCA9451A: PCA9451A Power Management IC for i.MX 93x/91x Application Processor PCA9450: Power Management IC (PMIC) for i.MX 8M Mini/Nano/Plus
Voltage Level Translator	NTS0304E: 4-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) NTS0308E: 8-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) NTS0302JK: 2-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing)
Secure Element	SE050: EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT Security with High Flexibility

	• EDGELOCK-A5000: EdgeLock® A5000 Plug and Trust Secure Authenticator: Authentication Made Secure, Scalable and Easy
Wi-Fi, Bluetooth	• IW612: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.4 + 802.15.4 Tri-Radio Solution • RW612: Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4 • MCX-W71X: MCX W71x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE • MCX-W72X: MCX W72x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE
Sub Gig Transceiver	• OL2385AHN: Low-Power Multi-Channel UHF RF Wireless Platform
Contactless Reader	• PN7220: PN7220: High-Performance, One-Chip NFC Controller for EMVCo 3.2 and NFC Forum Operation
Analog Frontend	• NAFEx3388: Highly Configurable 8/4 Channel 24/16 bits ± 25 V Universal Input Analog Front-End with Excitation Sources
Processor	• i.MX-RT1160: i.MX RT1160 Crossover MCU Dual-Core Arm® Cortex®-M7 and Cortex-M4 • i.MX8MPLUS: i.MX 8M Plus – Arm® Cortex®-A53, Machine Learning, Vision, Multimedia and Industrial IoT • i.MX8MMINI: i.MX 8M Mini - Arm® Cortex®-A53, Cortex-M4, Audio, Voice, Video • i.MX93: i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU
Differential Pressure Sensor	• MPXx5004: Differential and Gauge, Integrated Pressure Sensor (0 to 3.92 kPa)
Temperature Sensor	• P3T1084UK: I3C/I²C-Bus ± 0.4 °C Accurate Digital Temperature Sensor • P3T1755DP: I3C/I²C-Bus ± 0.5 °C Accurate Digital Temperature Sensor
Pressure Sensor	• MPL3115A2: Absolute Digital Pressure Sensor (20 to 110 kPa) • NBP8-9x: Highly Integrated Battery Pressure Monitor Sensor
Magnetic Switch	• NMH1000: NMH1000 Ultra-Low Power and Low-Voltage Magnetic Switch
Accelerometer	• FXLS8974CF: $\pm 2g/\pm 4g/\pm 8g/\pm 16g$, Low-Power 12-Bit Digital IoT Accelerometer • FXLS8971CF: $\pm 2g/\pm 4g/\pm 8g/\pm 16g$, Low Power 12-Bit Digital Accelerometer
RTC	• PCF2131: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal
GPIO Expander	• PCAL6416AHF: Low-voltage translating 16-bit I²C-bus/SMBus I/O expander • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features
USB Solutions	• USB Interfaces: USB Interfaces
LED Driver	• PCA9552: 16-Bit I²C-Bus LED Driver with Programmable Blink Rates
LIN	• TJA1020: LIN Transceiver
Ethernet Switch	• TJA1103: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • TJA1120: TJA1120, ASIL B Compliant Automotive Ethernet 1000BASE-T1 PHY Transceiver

	• i.MX-RT1180: i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock®
CAN	• TJA144x: Automotive CAN FD Transceiver Family • TJA1043: High-Speed CAN Transceiver with Standby and Sleep Mode
Segment LCD Driver	• PCF8531U: 34 X 128 Pixel Matrix Driver • PCF2119X: LCD Controllers/Drivers

Energy Management Controller - Basic Block Diagram



Recommended Products for Energy Management Controller - Basic

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Power Management	• PF09: 9-Channel PMIC for High-Performance Applications, ASIL D and SIL-2 • PCA9451A: PCA9451A Power Management IC for i.MX 93x/91x Application Processor • PCA9450: Power Management IC (PMIC) for i.MX 8M Mini/Nano/Plus
Voltage Level Translator	• NTS0308E: 8-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) • NTS0302JK: 2-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) • NTS0304E: 4-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing)
Secure Element	• SE050: EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT Security with High Flexibility • EDGELOCK-A5000: EdgeLock® A5000 Plug and Trust Secure Authenticator: Authentication Made Secure, Scalable and Easy
Wi-Fi, Bluetooth, IEEE 802.15.4	• IW612: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.4 + 802.15.4 Tri-Radio Solution • RW612: Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4 • MCX-W71X: MCX W71x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE • MCX-W72X: MCX W72x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE
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RTC	• PCF2131: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal
Analog Front End	• NAFEx3388: Highly Configurable 8/4 Channel 24/16 bits ± 25 V Universal Input Analog Front-End with Excitation Sources
USB Solutions	• USB Interfaces: USB Interfaces

Ethernet Switch	• i.MX-RT1180: i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock® • TJA1103: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver
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View our complete solution for [Building Energy Management Controller](#).

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