

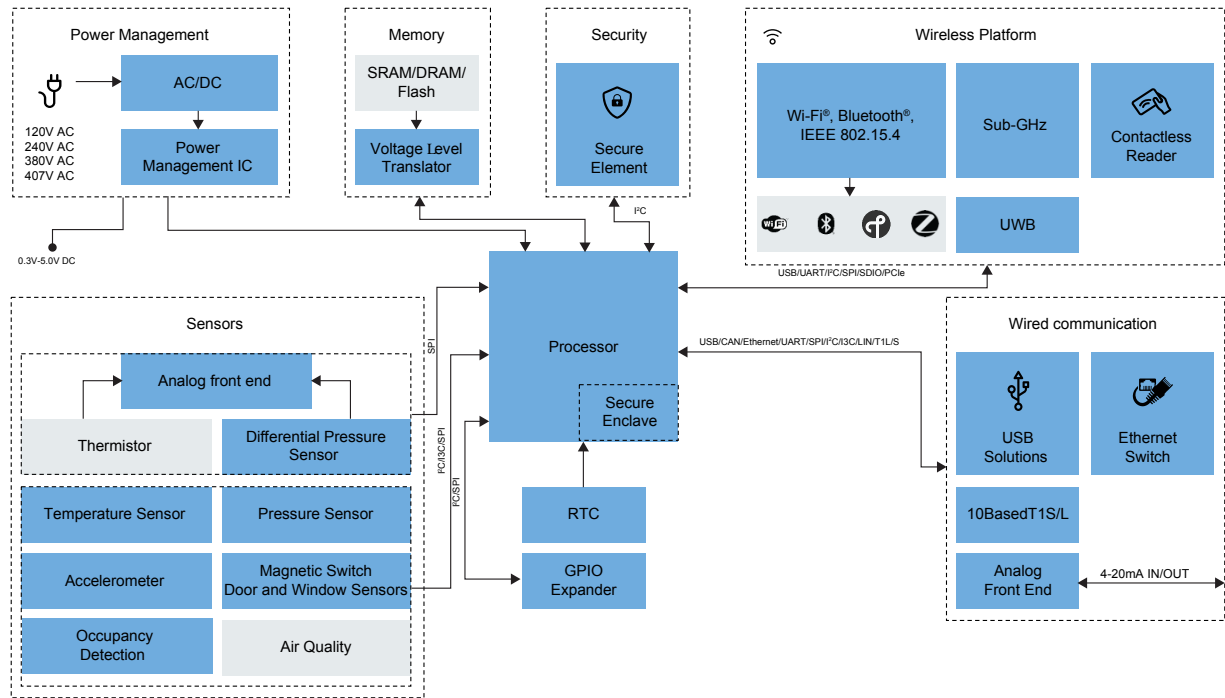


Building I/O Controller

Last Updated: Jan 9, 2025

Input and Output Controllers (I/O Controllers) ensure connectivity and control of systems, processes and devices inside the building. They manage analog and digital inputs and act as mediators between central processing and building devices. Depending on the building automation system design, I/O controllers can be centralized or distributed. NXP enables management of building automation protocols with highly scalable processing power and a rich set of analog interfaces and provide scalable advanced security mechanisms ensuring cyber resilience. NXP incorporate a range of wireless technologies bringing new experiences while easing workflow management.

Building I/O Controller Basic Block Diagram



■ NXP technology ■ Non NXP technology □ Optional

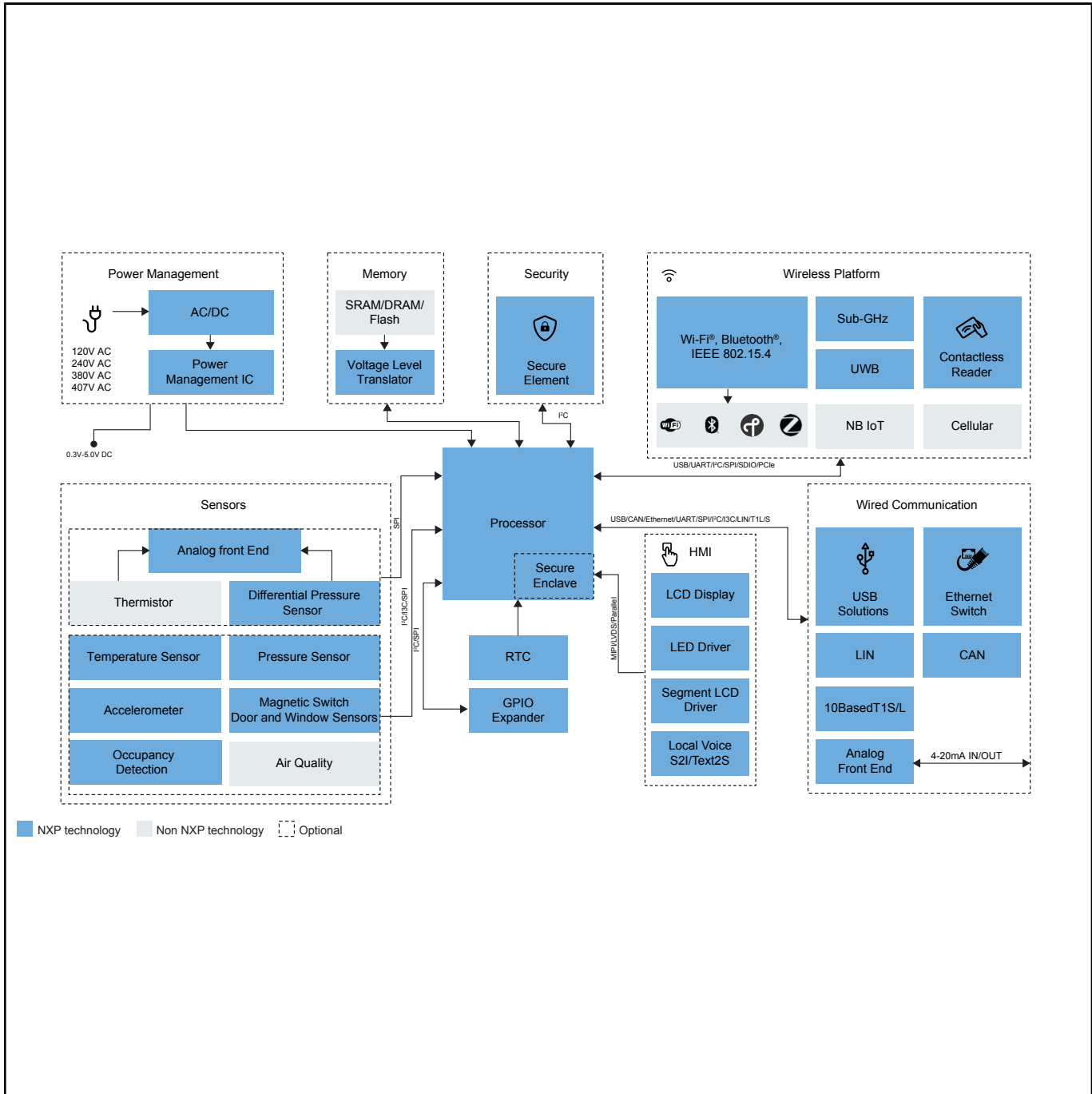
Recommended Products for Building I/O Controller Basic

AC/DC	<ul style="list-style-type: none"> • TEA1723DT: HV Start-up Flyback Controller with Integrated MOSFET for 11 W Applications, F~Burst = 1270 Hz
Secure Enclave	<ul style="list-style-type: none"> • i.MX8ULP: i.MX 8ULP Applications Processor Family • i.MX93: i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU
Sub Gig Transceiver	<ul style="list-style-type: none"> • OL2385AHN: Low-Power Multi-Channel UHF RF Wireless Platform • UBX100: UBX100 Sub-GHz Wireless M-Bus Solution
UWB	<ul style="list-style-type: none"> • SR250: Trimension SR250: Secure UWB IC for Industrial IoT Ranging and Radar Applications

Voltage Level Translator	<ul style="list-style-type: none"> • NTS0302JK: 2-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) • NTS0304E: 4-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) • NTS0308E: 8-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing)
Secure Element	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
Analog Front End	<ul style="list-style-type: none"> • NAFEx3388: Highly Configurable 8/4 Channel 24/16 bits ±25 V Universal Input Analog Front-End with Excitation Sources
Differential Pressure Sensor	<ul style="list-style-type: none"> • MPXx5004: Differential and Gauge, Integrated Pressure Sensor (0 to 3.92 kPa)
Temperature Sensor	<ul style="list-style-type: none"> • P3T1084UK: I3C/I²C-Bus ±0.4 °C Accurate Digital Temperature Sensor • P3T1755DP: I3C/I²C-Bus ±0.5 °C Accurate Digital Temperature Sensor
Pressure Sensor	<ul style="list-style-type: none"> • MPL3115A2: Absolute Digital Pressure Sensor (20 to 110 kPa) • NBP8-9x: Highly Integrated Battery Pressure Monitor Sensor
Magnetic Switch	<ul style="list-style-type: none"> • NMH1000: NMH1000 Ultra-Low Power and Low-Voltage Magnetic Switch
Accelerometer	<ul style="list-style-type: none"> • FXLS8974CF: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital IoT Accelerometer
Occupancy Detection	<ul style="list-style-type: none"> • SR250: Trimension SR250: Secure UWB IC for Industrial IoT Ranging and Radar Applications
Processor	<ul style="list-style-type: none"> • 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 • i.MX8ULP: i.MX 8ULP Applications Processor Family
RTC	<ul style="list-style-type: none"> • PCF2131: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal
GPIO Expander	<ul style="list-style-type: none"> • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features • PCAL6416A: Low-Voltage Translating 16-Bit I²C-Bus/SMBus I/O Expander
Contactless Reader	<ul style="list-style-type: none"> • PN7220: PN7220: High-Performance, One-Chip NFC Controller for EMVCo 3.1 and NFC Forum Operation
USB Solutions	<ul style="list-style-type: none"> • CBTL02043A_CBTL02043B: 3.3 V, Two Differential Channel, 2-1 Multiplexer/Demultiplexer Switch • PTN5110: USB PD TCPC PHY IC
10BaseT1S	<ul style="list-style-type: none"> • TJA1410: TJA1410, 10BASE-T1S PMD Transceiver

Ethernet Switch	<ul style="list-style-type: none"> • 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®
Power Management IC	<ul style="list-style-type: none"> • 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

Building I/O Controller Advanced Block Diagram



Recommended Products for Building I/O Controller Advanced

AC/DC	<ul style="list-style-type: none"> • TEA1723DT: HV Start-up Flyback Controller with Integrated MOSFET for 11 W Applications, F~Burst = 1270 Hz
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Secure Enclave	<ul style="list-style-type: none"> • i.MX8ULP: i.MX 8ULP Applications Processor Family • i.MX93: i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU
Local Voice S2I/Text2S	<ul style="list-style-type: none"> • i.MX-RT1160: i.MX RT1160 Crossover MCU Dual-Core Arm® Cortex®-M7 and Cortex-M4 • IMX8MPLUS: 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 • i.MX8ULP: i.MX 8ULP Applications Processor Family
UWB	<ul style="list-style-type: none"> • SR250: Trimension SR250: Secure UWB IC for Industrial IoT Ranging and Radar Applications
Power Management IC	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • NTS0302JK: 2-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) • NTS0304E: 4-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) • NTS0308E: 8-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing)
Secure Element	<ul style="list-style-type: none"> • 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 802154	<ul style="list-style-type: none"> • 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
Sub Gig Transceiver	<ul style="list-style-type: none"> • OL2385AHN: Low-Power Multi-Channel UHF RF Wireless Platform • UBX100: UBX100 Sub-GHz Wireless M-Bus Solution
Contactless Reader	<ul style="list-style-type: none"> • PN7220: PN7220: High-Performance, One-Chip NFC Controller for EMVCo 3.1 and NFC Forum Operation
Analog Front End	<ul style="list-style-type: none"> • NAFEx3388: Highly Configurable 8/4 Channel 24/16 bits ±25 V Universal Input Analog Front-End with Excitation Sources
Differential Pressure Sensor	<ul style="list-style-type: none"> • MPXx5004: Differential and Gauge, Integrated Pressure Sensor (0 to 3.92 kPa)
Temperature Sensor	<ul style="list-style-type: none"> • P3T1084UK: I3C/I²C-Bus ±0.4 °C Accurate Digital Temperature Sensor • P3T1755DP: I3C/I²C-Bus ±0.5 °C Accurate Digital Temperature Sensor
Pressure Sensor	<ul style="list-style-type: none"> • NBP8-9x: Highly Integrated Battery Pressure Monitor Sensor • MPL3115A2: Absolute Digital Pressure Sensor (20 to 110 kPa)
Accelerometer	<ul style="list-style-type: none"> • FXLS8974CF: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital IoT Accelerometer
Magnetic Switch	<ul style="list-style-type: none"> • NMH1000: NMH1000 Ultra-Low Power and Low-Voltage Magnetic Switch
Occupancy Detection	<ul style="list-style-type: none"> • SR250: Trimension SR250: Secure UWB IC for Industrial IoT Ranging and Radar Applications

Processor	<ul style="list-style-type: none"> • 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 • i.MX8ULP: i.MX 8ULP Applications Processor Family
RTC	<ul style="list-style-type: none"> • PCF2131: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal
GPIO Expander	<ul style="list-style-type: none"> • PCAL6416A: Low-Voltage Translating 16-Bit I²C-Bus/SMBus I/O Expander • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features
LED Driver	<ul style="list-style-type: none"> • PCA9552: 16-Bit I²C-Bus LED Driver with Programmable Blink Rates
Segment LCD Driver	<ul style="list-style-type: none"> • PCF8531U: 34 X 128 Pixel Matrix Driver • PCF2119X: LCD Controllers/Drivers
USB Solutions	<ul style="list-style-type: none"> • CBTL02043A_CBTL02043B: 3.3 V, Two Differential Channel, 2-1 Multiplexer/Demultiplexer Switch • PTN5110: USB PD TCPC PHY IC
LIN	<ul style="list-style-type: none"> • TJA1020: LIN Transceiver
10BaseT1L	<ul style="list-style-type: none"> • TJA1410: TJA1410, 10BASE-T1S PMD Transceiver
CAN	<ul style="list-style-type: none"> • TJA1043: High-Speed CAN Transceiver with Standby and Sleep Mode • TJA144x: Automotive CAN FD Transceiver Family
Ethernet Switch	<ul style="list-style-type: none"> • 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®
LCD Display	<ul style="list-style-type: none"> • PCF8531U: 34 X 128 Pixel Matrix Driver

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