

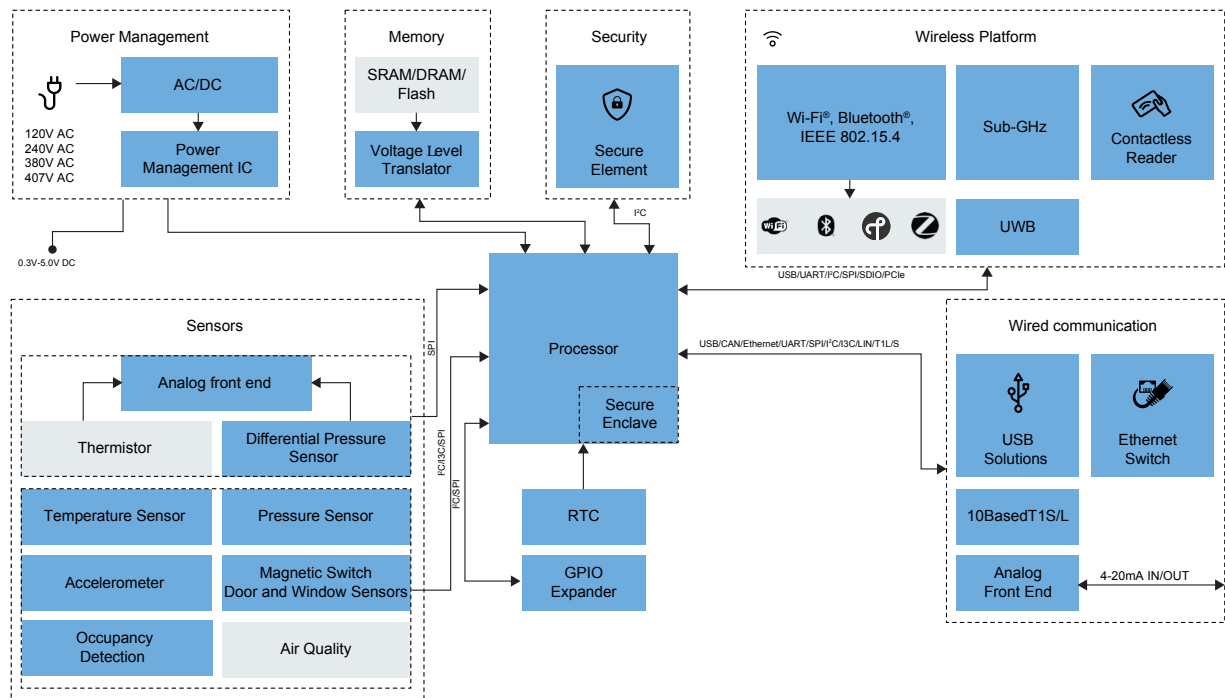


# Building I/O Controller

Last Updated: Feb 26, 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

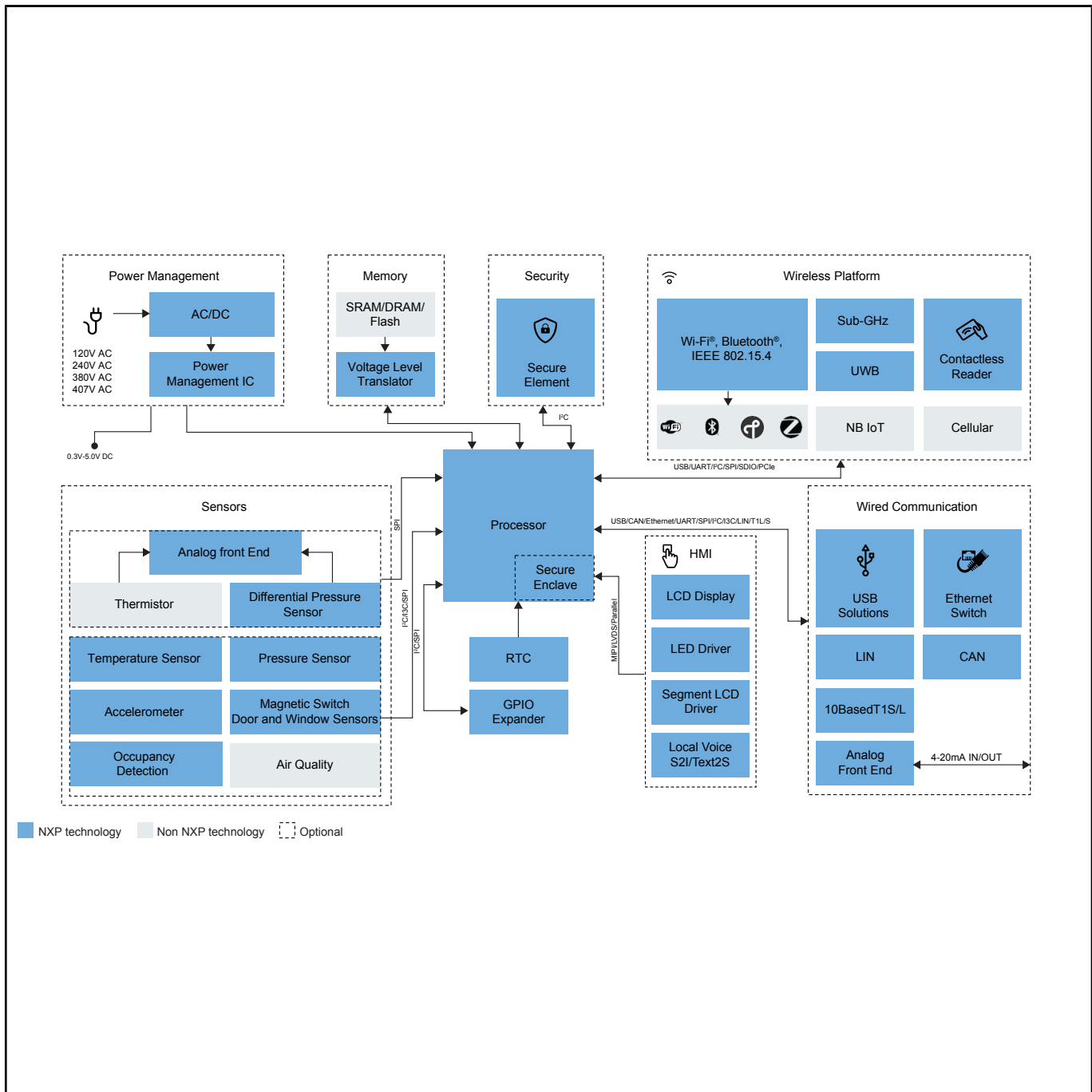
### Recommended Products for Building I/O Controller Basic

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

Voltage Level Translator	<ul style="list-style-type: none"> <li>• <a href="#">NTS0302JK</a>: 2-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing)</li> <li>• <a href="#">NTS0304E</a>: 4-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing)</li> <li>• <a href="#">NTS0308E</a>: 8-Bit Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing)</li> </ul>
Secure Element	<ul style="list-style-type: none"> <li>• <a href="#">SE050</a>: EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT Security with High Flexibility</li> <li>• <a href="#">EDGELOCK-A5000</a>: EdgeLock® A5000 Plug and Trust Secure Authenticator: Authentication Made Secure, Scalable and Easy</li> </ul>
Wi-Fi, Bluetooth, IEEE 802.15.4	<ul style="list-style-type: none"> <li>• <a href="#">IW612</a>: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.4 + 802.15.4 Tri-Radio Solution</li> <li>• <a href="#">RW612</a>: Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4</li> <li>• <a href="#">MCX-W71X</a>: MCX W71x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE</li> </ul>
Analog Front End	<ul style="list-style-type: none"> <li>• <a href="#">NAFEx3388</a>: Highly Configurable 8/4 Channel 24/16 bits ±25 V Universal Input Analog Front-End with Excitation Sources</li> </ul>
Differential Pressure Sensor	<ul style="list-style-type: none"> <li>• <a href="#">MPXx5004</a>: Differential and Gauge, Integrated Pressure Sensor (0 to 3.92 kPa)</li> </ul>
Temperature Sensor	<ul style="list-style-type: none"> <li>• <a href="#">P3T1084UK</a>: I3C/I<sup>2</sup>C-Bus ±0.4 °C Accurate Digital Temperature Sensor</li> <li>• <a href="#">P3T1755DP</a>: I3C/I<sup>2</sup>C-Bus ±0.5 °C Accurate Digital Temperature Sensor</li> </ul>
Pressure Sensor	<ul style="list-style-type: none"> <li>• <a href="#">MPL3115A2</a>: Absolute Digital Pressure Sensor (20 to 110 kPa)</li> <li>• <a href="#">NBP8-9x</a>: Highly Integrated Battery Pressure Monitor Sensor</li> </ul>
Magnetic Switch	<ul style="list-style-type: none"> <li>• <a href="#">NMH1000</a>: NMH1000 Ultra-Low Power and Low-Voltage Magnetic Switch</li> </ul>
Accelerometer	<ul style="list-style-type: none"> <li>• <a href="#">FXLS8974CF</a>: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital IoT Accelerometer</li> </ul>
Occupancy Detection	<ul style="list-style-type: none"> <li>• <a href="#">SR250</a>: Trimension SR250: Secure UWB IC for Industrial IoT Ranging and Radar Applications</li> </ul>
Processor	<ul style="list-style-type: none"> <li>• <a href="#">i.MX-RT1160</a>: i.MX RT1160 Crossover MCU Dual-Core Arm® Cortex®-M7 and Cortex-M4</li> <li>• <a href="#">i.MX8MPLUS</a>: i.MX 8M Plus – Arm® Cortex®-A53, Machine Learning, Vision, Multimedia and Industrial IoT</li> <li>• <a href="#">i.MX8MMINI</a>: i.MX 8M Mini - Arm® Cortex®-A53, Cortex-M4, Audio, Voice, Video</li> <li>• <a href="#">i.MX93</a>: i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU</li> <li>• <a href="#">i.MX8ULP</a>: i.MX 8ULP Applications Processor Family</li> </ul>
RTC	<ul style="list-style-type: none"> <li>• <a href="#">PCF2131</a>: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal</li> </ul>
GPIO Expander	<ul style="list-style-type: none"> <li>• <a href="#">PCAL9722</a>: 22-Bit SPI I/O Expander with Agile I/O Features</li> <li>• <a href="#">PCAL6416A</a>: Low-Voltage Translating 16-Bit I<sup>2</sup>C-Bus/SMBus I/O Expander</li> </ul>
Contactless Reader	<ul style="list-style-type: none"> <li>• <a href="#">PN7220</a>: PN7220: High-Performance, One-Chip NFC Controller for EMVCo 3.1 and NFC Forum Operation</li> </ul>
USB Solutions	<ul style="list-style-type: none"> <li>• <a href="#">CBTL02043A_CBTL02043B</a>: 3.3 V, Two Differential Channel, 2-1 Multiplexer/Demultiplexer Switch</li> <li>• <a href="#">PTN5110</a>: USB PD TCPC PHY IC</li> </ul>
10BaseT1S	<ul style="list-style-type: none"> <li>• <a href="#">TJA1410</a>: TJA1410, 10BASE-T1S PMD Transceiver</li> </ul>

Ethernet Switch	<ul style="list-style-type: none"> <li>• <a href="#">TJA1103</a>: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver</li> <li>• <a href="#">TJA1120</a>: TJA1120, ASIL B Compliant Automotive Ethernet 1000BASE-T1 PHY Transceiver</li> <li>• <a href="#">i.MX-RT1180</a>: i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock®</li> </ul>
Power Management IC	<ul style="list-style-type: none"> <li>• <a href="#">PF09</a>: 9-Channel PMIC for High-Performance Applications, ASIL D and SIL-2</li> <li>• <a href="#">PCA9451A</a>: PCA9451A Power Management IC for i.MX 93x/91x Application Processor</li> <li>• <a href="#">PCA9450</a>: Power Management IC (PMIC) for i.MX 8M Mini/Nano/Plus</li> </ul>

## Building I/O Controller Advanced Block Diagram



### Recommended Products for Building I/O Controller Advanced

AC/DC	<ul style="list-style-type: none"> <li>• <a href="#">TEA1723DT</a>: HV Start-up Flyback Controller with Integrated MOSFET for 11 W Applications, F~Burst = 1270 Hz</li> </ul>
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Secure Enclave	<ul style="list-style-type: none"> <li>• <a href="#">i.MX8ULP</a>: i.MX 8ULP Applications Processor Family</li> <li>• <a href="#">i.MX93</a>: i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU</li> </ul>
Local Voice S2I/Text2S	<ul style="list-style-type: none"> <li>• <a href="#">i.MX-RT1160</a>: i.MX RT1160 Crossover MCU Dual-Core Arm® Cortex®-M7 and Cortex-M4</li> <li>• <a href="#">i.MX8MPLUS</a>: i.MX 8M Plus – Arm® Cortex®-A53, Machine Learning, Vision, Multimedia and Industrial IoT</li> <li>• <a href="#">i.MX8MMINI</a>: i.MX 8M Mini - Arm® Cortex®-A53, Cortex-M4, Audio, Voice, Video</li> <li>• <a href="#">i.MX93</a>: i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU</li> <li>• <a href="#">i.MX8ULP</a>: i.MX 8ULP Applications Processor Family</li> </ul>
UWB	<ul style="list-style-type: none"> <li>• <a href="#">SR250</a>: Trimension SR250: Secure UWB IC for Industrial IoT Ranging and Radar Applications</li> </ul>
Power Management IC	<ul style="list-style-type: none"> <li>• <a href="#">PF09</a>: 9-Channel PMIC for High-Performance Applications, ASIL D and SIL-2</li> <li>• <a href="#">PCA9451A</a>: PCA9451A Power Management IC for i.MX 93x/91x Application Processor</li> <li>• <a href="#">PCA9450</a>: Power Management IC (PMIC) for i.MX 8M Mini/Nano/Plus</li> </ul>
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Secure Element	<ul style="list-style-type: none"> <li>• <a href="#">SE050</a>: EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT Security with High Flexibility</li> <li>• <a href="#">EDGELOCK-A5000</a>: EdgeLock® A5000 Plug and Trust Secure Authenticator: Authentication Made Secure, Scalable and Easy</li> </ul>
Wi-Fi Bluetooth IEEE 802154	<ul style="list-style-type: none"> <li>• <a href="#">IW612</a>: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.4 + 802.15.4 Tri-Radio Solution</li> <li>• <a href="#">RW612</a>: Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4</li> <li>• <a href="#">MCX-W71X</a>: MCX W71x Secure and Ultra-Low-Power MCUs for Matter, Thread, Zigbee and Bluetooth LE</li> </ul>
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Occupancy Detection	<ul style="list-style-type: none"> <li>• <a href="#">SR250</a>: Trimension SR250: Secure UWB IC for Industrial IoT Ranging and Radar Applications</li> </ul>

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LED Driver	<ul style="list-style-type: none"> <li>• <a href="#">PCA9552</a>: 16-Bit I²C-Bus LED Driver with Programmable Blink Rates</li> </ul>
Segment LCD Driver	<ul style="list-style-type: none"> <li>• <a href="#">PCF8531U</a>: 34 X 128 Pixel Matrix Driver</li> <li>• <a href="#">PCF2119X</a>: LCD Controllers/Drivers</li> </ul>
USB Solutions	<ul style="list-style-type: none"> <li>• <a href="#">CBTL02043A_CBTL02043B</a>: 3.3 V, Two Differential Channel, 2-1 Multiplexer/Demultiplexer Switch</li> <li>• <a href="#">PTN5110</a>: USB PD TCPC PHY IC</li> </ul>
LIN	<ul style="list-style-type: none"> <li>• <a href="#">TJA1020</a>: LIN Transceiver</li> </ul>
10BaseT1L	<ul style="list-style-type: none"> <li>• <a href="#">TJA1410</a>: TJA1410, 10BASE-T1S PMD Transceiver</li> </ul>
CAN	<ul style="list-style-type: none"> <li>• <a href="#">TJA1043</a>: High-Speed CAN Transceiver with Standby and Sleep Mode</li> <li>• <a href="#">TJA144x</a>: Automotive CAN FD Transceiver Family</li> </ul>
Ethernet Switch	<ul style="list-style-type: none"> <li>• <a href="#">TJA1103</a>: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver</li> <li>• <a href="#">TJA1120</a>: TJA1120, ASIL B Compliant Automotive Ethernet 1000BASE-T1 PHY Transceiver</li> <li>• <a href="#">i.MX-RT1180</a>: i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock®</li> </ul>
LCD Display	<ul style="list-style-type: none"> <li>• <a href="#">PCF8531U</a>: 34 X 128 Pixel Matrix Driver</li> </ul>

View our complete solution for [Building I/O Controller](#).

**Note:** The information on this document is subject to change without notice.

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