

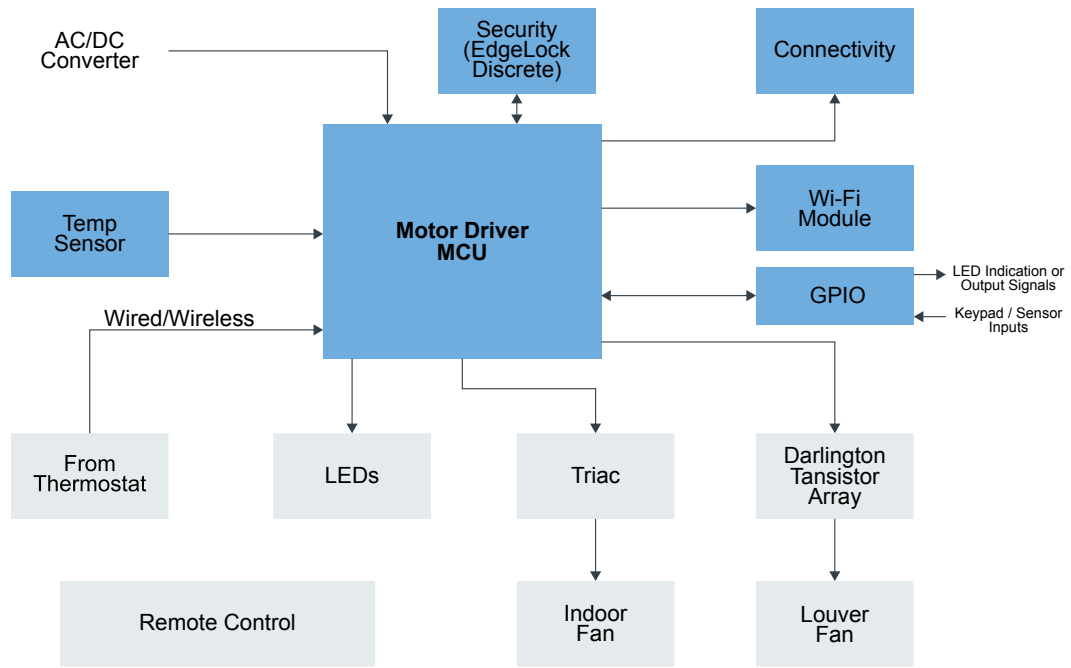


Air Conditioning (AC)

Last Updated: Feb 20, 2024

Air conditioning (AC) systems usually consist of an external unit, an internal unit and a remote control. These systems are based on inputs from a variety of sensors, controlling different types of motors such as stepper motors for flaps and DC/BLDC blower fan motors – and even an air purifying filter control. NXP offers semiconductor solutions for modern air conditioning systems that provide advanced motor control, increased power efficiency, quieter operation, a range of user interfaces and both IR and RF-based remote control.

Indoor Unit Block Diagram



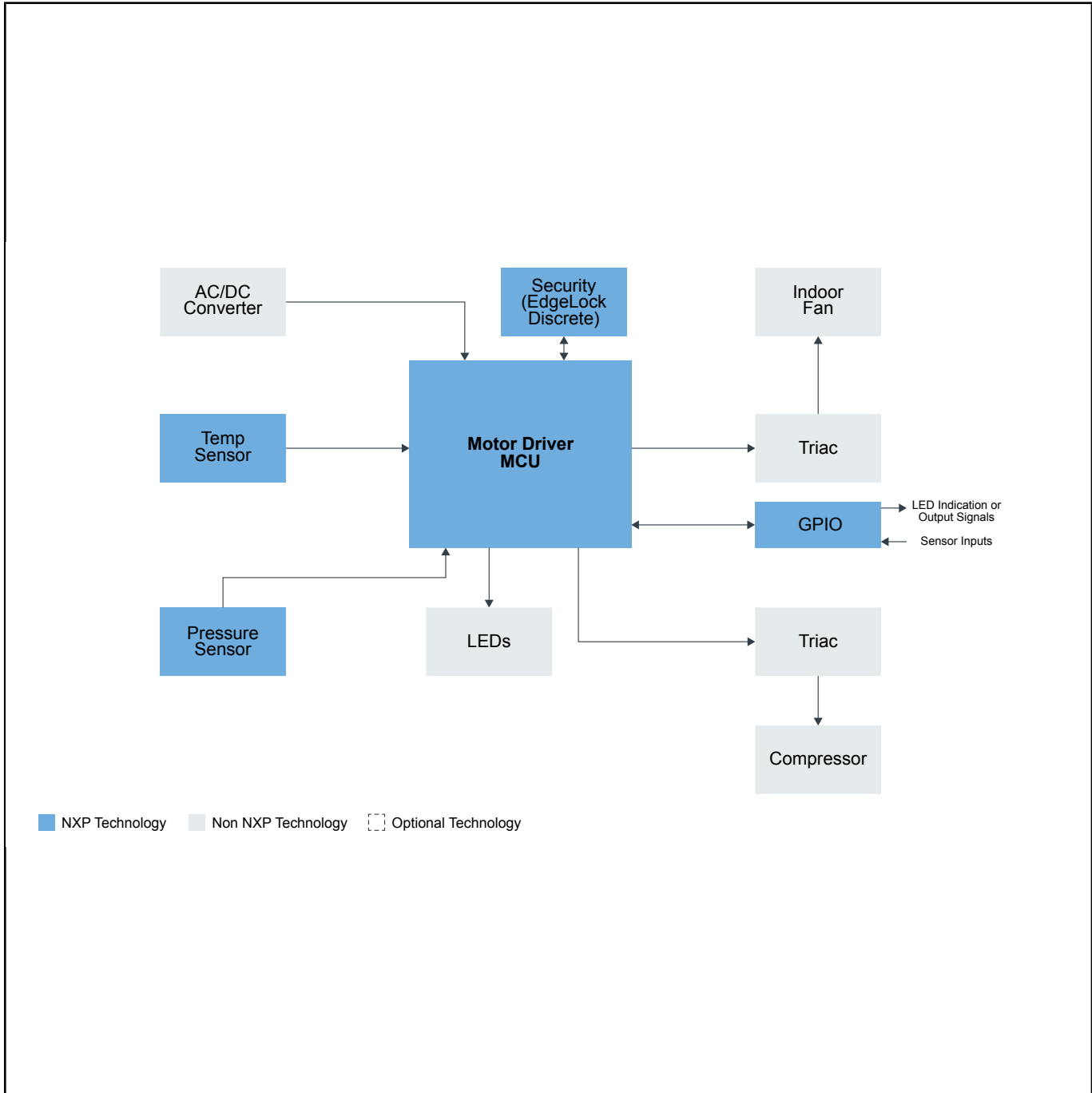
■ NXP Technology
 ■ Non NXP Technology
 Optional Technology

Recommended Products for Indoor Unit

MCU Driver	<ul style="list-style-type: none"> • MCX-A14X-A15X: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals • MCX-N94X-N54X: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security • KV3x: Kinetis® KV3x-100–120 MHz, Advanced 3ph FOC / Sensorless Motor Control MCUs based on Arm® Cortex®-M4 • KE04: Kinetis® KE04-48 MHz, Mainstream Microcontrollers (MCUs) based on Arm® Cortex®-M0+ Core • i.MX-RT1050: i.MX RT1050 Crossover MCU with Arm® Cortex®-M7 Core
Connectivity	<ul style="list-style-type: none"> • JN5169: ZigBee and IEEE802.15.4 Wireless Microcontroller with 512 KB Flash, 32 KB RAM

Air Conditioning GPIO	<ul style="list-style-type: none"> • PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features
Air Conditioning GPIO	<ul style="list-style-type: none"> • MCX-A14X-A15X: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals • MCX-N94X-N54X: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security • PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features

Outdoor (Compressor) Unit Block Diagram

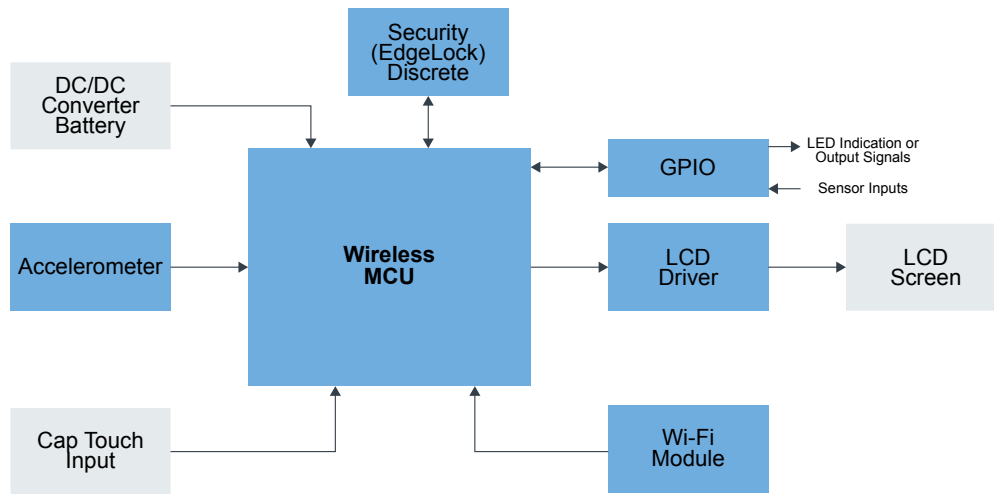


Recommended Products for Outdoor (Compressor) Unit

MCU Motor Driver	<ul style="list-style-type: none"> • MCX-A14X-A15X: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals
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Air Conditioning GPIO	<ul style="list-style-type: none"> • PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features
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Remote Control Block Diagram



■ NXP Technology
 ■ Non NXP Technology
 Optional Technology

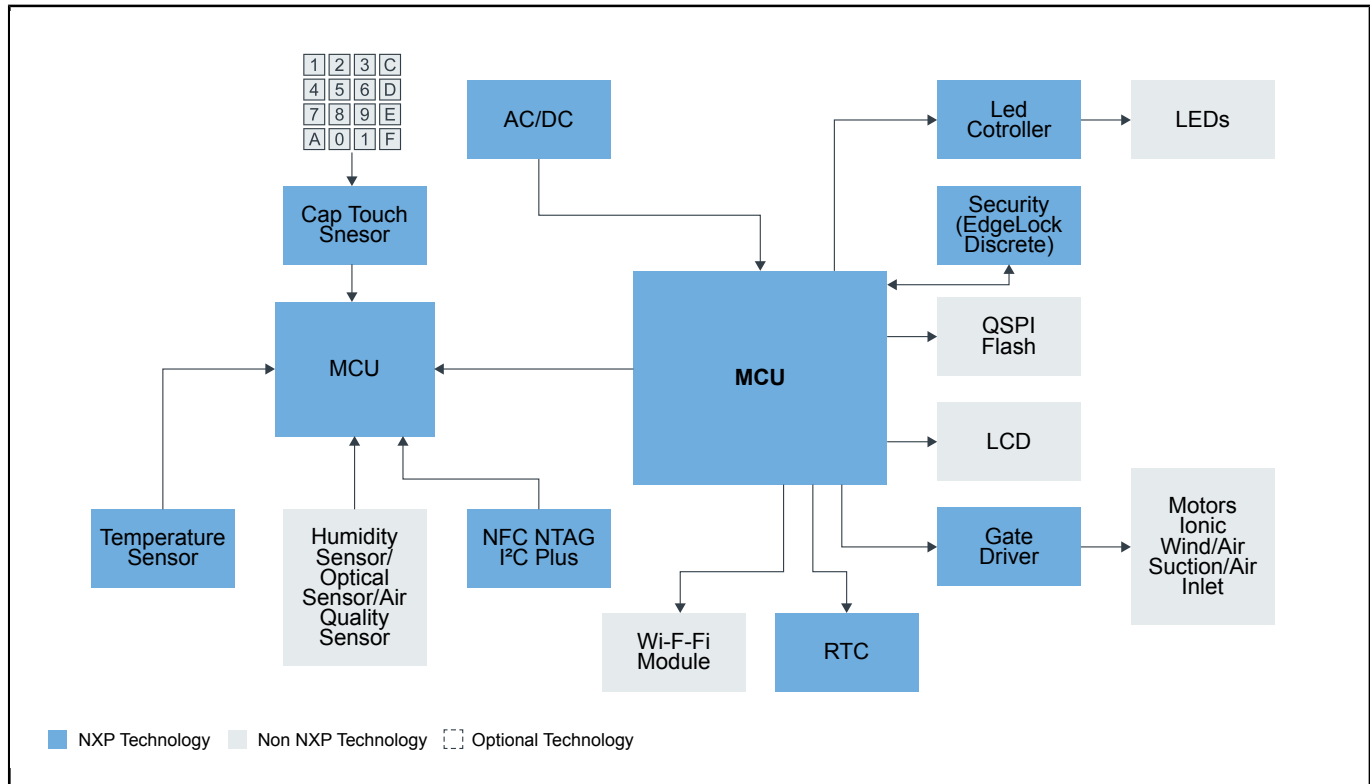
Recommended Products for Remote Control

Wireless MCUs	<ul style="list-style-type: none"> • MCX-A14X-A15X: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals • MCX-N94X-N54X: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security • JN5169: ZigBee and IEEE802.15.4 Wireless Microcontroller with 512 KB Flash, 32 KB RAM
Wi-Fi	<ul style="list-style-type: none"> • 88W8977: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution
Accelerometer	<ul style="list-style-type: none"> • FXLS8967AF: ±2g/±4g/±8g/±16g, Low Power 12-bit Digital Accelerometer

LCD Driver	<ul style="list-style-type: none"> • PCA85132U: LCD Driver for Low Multiplex Rates
Security (EdgeLock Discrete)	<ul style="list-style-type: none"> • SE050: EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT security with high flexibility • SE051: EdgeLock® SE051: Proven, Easy-to-Use IoT Security Solution with Support for Updatability and Custom Applets • EDGELOCK-A5000: EdgeLock® A5000 Plug and Trust Secure Authenticator: Authentication Made Secure, Scalable and Easy
Air Conditioning GPIO	<ul style="list-style-type: none"> • PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features
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Air Conditioning GPIO	<ul style="list-style-type: none"> • MCX-A14X-A15X: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals

- [MCX-N94X-N54X](#): MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security
- [PCAL9714](#): 14-Bit SPI I/O Expander with Agile I/O Features
- [PCAL9722](#): 22-Bit SPI I/O Expander with Agile I/O Features

Air Purifier Block Diagram



Recommended Products for Air Purifier

MCU	<ul style="list-style-type: none"> • MCX-A14X-A15X: MCX A14x/15x MCUs with Arm[®] Cortex[®] M33, Scalable Device Options, Low Power and Intelligent Peripherals • MCX-N94X-N54X: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security • LPC84X: LPC840: 32-Bit Arm[®] Cortex[®]-M0+-Based Low-Cost MCU • i.MX-RT1050: i.MX RT1050 Crossover MCU with Arm[®] Cortex[®]-M7 Core
AC/DC	<ul style="list-style-type: none"> • TEA19361T: GreenChip SMPS Primary Side Control IC with QR/DCM Operation
Temperature Sensor	<ul style="list-style-type: none"> • P3T1035xUK: I3C, I²C-Bus, ±0.5 °C Accuracy, Digital Temperature Sensor • P3T2030xUK: I3C, I²C-Bus, 2.0 °C Accuracy, Digital Temperature Sensor • PCT2075: I²C-Bus Fm+, 1 Degree C Accuracy, Digital Temperature Sensor and Thermal Watchdog
LED Controller	<ul style="list-style-type: none"> • PCA9952_PCA9955: 16-Channel Fm+ I²C-Bus 57 MA Constant-Current LED Driver
RTC	<ul style="list-style-type: none"> • PCF85263A: Tiny Real-Time Clock/Calendar with Alarm Function, Battery Switch-Over, Time Stamp Input and I²C-Bus
Gate Driver	<ul style="list-style-type: none"> • GD3100: Advanced High Voltage Isolated Gate Driver for IGBT and SiC MOSFETs

NFC	<ul style="list-style-type: none">• NTAG5-LINK: NTAG[®] 5 Link: NFC Forum-Compliant I²C Bridge for IoT on Demand
Security (EdgeLock Discrete)	<ul style="list-style-type: none">• SE050: EdgeLock[®] SE050: Plug and Trust Secure Element Family – Enhanced IoT security with high flexibility
Cap Touch Sensor	<ul style="list-style-type: none">• Touch Software

View our complete solution for [Air Conditioning \(AC\)](#).

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