EV Charging Station

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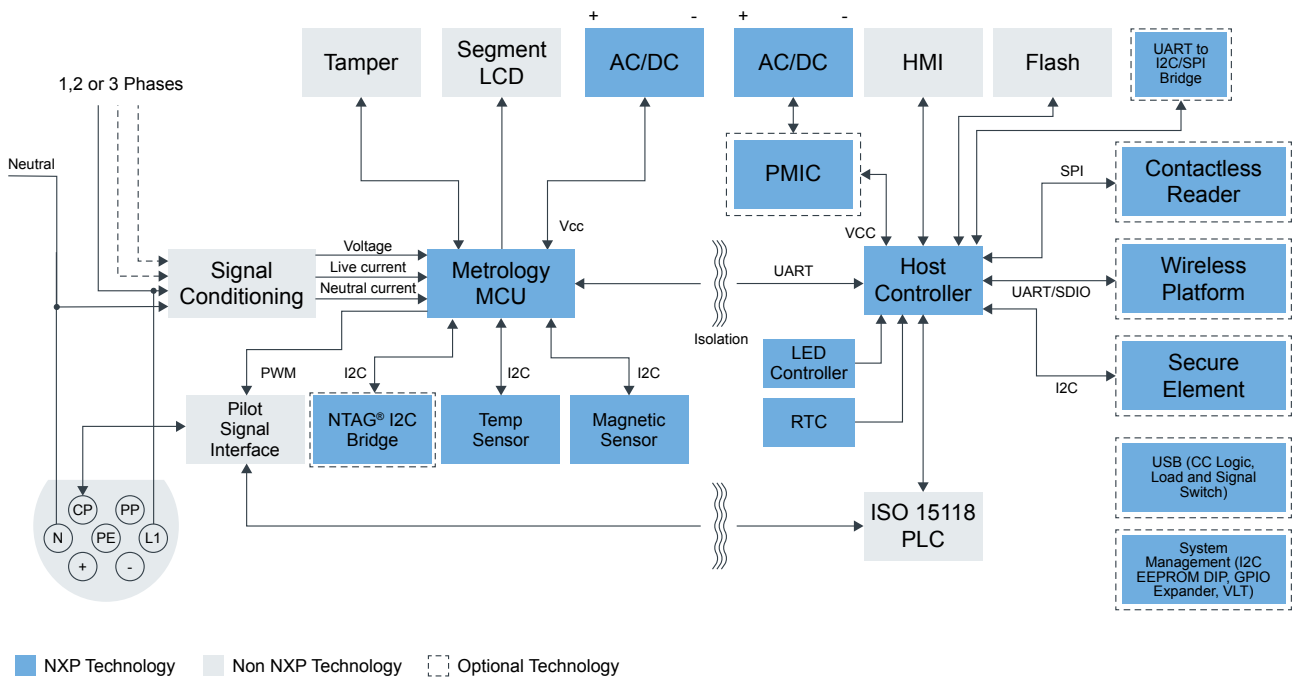
An Electric Vehicle (EV) charging station supplies power for recharging electric vehicles. Typical EV charging stations are made up of at least one smart controller board and one power socket board. The smart controller manages security, services and connectivity to a remote server and the power socket board distributes and measures energy.

EV charging stations require high levels of efficiency, accuracy, connectivity and security. NXP solutions meet the requirements with accurate power measurement, device management and data security. Our rich enablement supports faster time to market with less complexity and reduced cost, and NXP's product longevity program supports longer product lifecycles.

AC Residential Charging Station (Level 1,2 or 3) Block Diagram

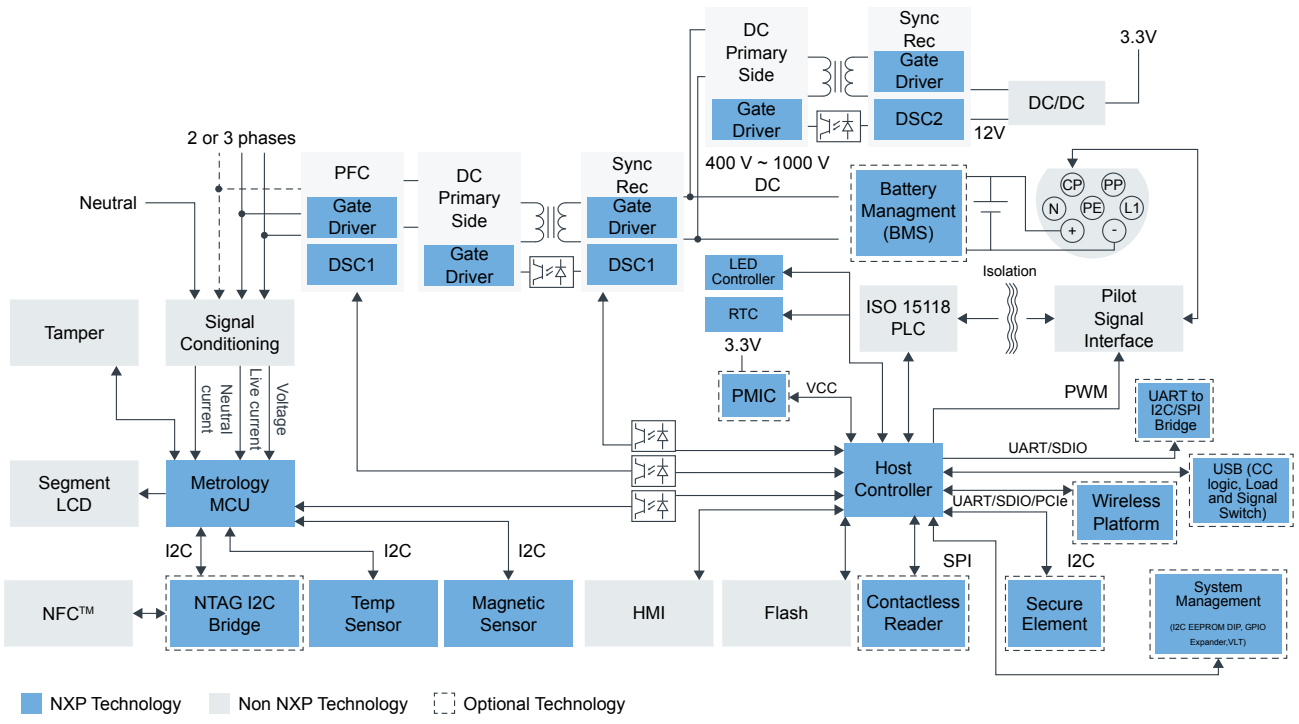


Recommended Products for AC Residential Charging Station (Level 1,2 or 3)	
Metrology MCU	• MCX-A14X-A15X: MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals • MCX-N94X-N54X: MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security • KM3x: 50–75 MHz Precision Metrology MCUs with Segment LCDs Based on Arm® Cortex®-M0+
Contactless Reader	• PN5180: Full NFC Forum-Compliant Frontend IC
AC/DC	• TEA1723DT: HV Start-up Flyback Controller with Integrated MOSFET for 11 W Applications, F~Burst = 1270 Hz

NTAG I2C Bridge	• NTAG_I2C: NTAG I²C Plus 2K: NFC Forum Type 2 Tag with I²C Interface
Secure Element	• SE050: EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT security with high flexibility
Host Controller	• i.MX RT Crossover MCUs: i.MX RT Crossover MCUs • i.MX8M: i.MX 8M Family - Arm® Cortex®-A53, Cortex-M4, Audio, Voice, Video • iMX8XLite: i.MX 8XLite Applications Processors for Telematics, V2X and Industrial Control • i.MX8MNANO: i.MX 8M Nano Family - Arm® Cortex®-A53, Cortex-M7 • LPC5500 Arm Cortex-M33: LPC5500 Series: Arm® Cortex®-M33 Based Microcontroller Series for Mass Market, Leveraging 40nm Embedded Flash Technology
Magnetic sensor	• NMH1000: NMH1000 Ultra-Low Power and Low-Voltage Magnetic Switch
Temperature Sensor	• P3T1035xUK: I3C, I2C-Bus, ±0.5 °C Accuracy, Digital Temperature Sensor • P3T2030xUK: I3C, I2C-Bus, 2.0 °C Accuracy, Digital Temperature Sensor • P3T1750DP: I3C/I2C-Bus, ±1 °C Accuracy, Digital Temperature Sensor • PCT2075: I²C-Bus Fm+, 1 Degree C Accuracy, Digital Temperature Sensor and Thermal Watchdog • P3T1755DP: I3C/I2C-Bus ±0.5 °C Accurate Digital Temperature Sensor
Wireless Platform	• K32W041AM-A: K32W041AM/A: High Performance, Secure and Low-Power MCU for Zigbee®, Thread™ and Bluetooth® LE 5.0 with High Tx Power Option • K32W061_41: K32W061/41: High-Performance, Secure and Ultra-Low-Power MCU for Zigbee®,Thread™, and Bluetooth® LE 5.0 with Built-In NFC Option • IW416: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution • OL2385AHN: Low-Power Multi-Channel UHF RF Wireless Platform
PMIC	• PCA9450: Power Management IC (PMIC) for i.MX 8M Mini/Nano/Plus
RTC	• PCF2131: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal • PCF8563: Real-Time Clock/Calendar • PCF8523: 100 NA Real-Time Clock/Calendar with Battery Backup
LED controllers	• PCA9632: 4-Bit Fm+ I²C-Bus Low-Power LED Driver • PCA9955BTW: 16-Channel Fm+ I²C-Bus 57 MA/20 V Constant-Current LED Driver • PCA9959: 24-Channel SPI Serial Bus 63 mA/5.5 V Constant Current LED Driver
System Management	• PCA9555A: Low-Voltage 16-Bit I²C-Bus I/O Port with Interrupt and Weak Pull-Up • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features • PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features • PCAL6408A: Low-Voltage Translating, 8-Bit I²C-Bus/SMBus I/O Expander • PCAL6416A: Low-Voltage Translating 16-Bit I²C-Bus/SMBus I/O Expander • NTS0104: Dual-Supply Translating Transceiver (Open-Drain, Auto-Direction Sensing) • NTB0104: Dual-Supply Translating Transceiver (Auto-Direction Sensing, Three-State) • PCA9306: Dual Bidirectional I2C-Bus and SMBus Voltage-Level Translator • PCA9561: Quad 6-Bit Multiplexed I²C-Bus EEPROM DIP Switch
Bridge	• Bridges: Bridge IC Solutions • SC18IM704: UART to I²C-Bus Bridge • SC18IS606: I²C-Bus to SPI Bridge • SC18IS604: SPI to I²C-Bus Bridge
USB or analog switch	• NX5P3090UK: USB PD and Type-C Current-Limited Power Switch • NX3P1108UK: Logic-Controlled High-Side Power Switch • NX20P0477: USB Type-C CC Smart Protection

	• NX3DV221: High-Speed USB 2.0 Switch with Enable • NX3DV642GU: Three-Lane High-Speed MIPI-Compatible Switch • NX5L2750CGU: Analog Switch with Negative Swing Audio Capability • PTN5150: CC Logic for USB Type-C Applications

DC Charging Station (DC Fast, DC Rapid or DC Ultra) Block Diagram



Recommended Products for DC Charging Station (DC Fast, DC Rapid or DC Ultra)	
Metrology MCU	• 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 • KM3x: 50–75 MHz Precision Metrology MCUs with Segment LCDs Based on Arm® Cortex®-M0+
Temperature Sensor	• P3T1035xUK: I3C, I2C-Bus, ±0.5 °C Accuracy, Digital Temperature Sensor • P3T2030xUK: I3C, I2C-Bus, 2.0 °C Accuracy, Digital Temperature Sensor

	• P3T1750DP: I3C/I2C-Bus, ±1 °C Accuracy, Digital Temperature Sensor • PCT2075: I²C-Bus Fm+, 1 Degree C Accuracy, Digital Temperature Sensor and Thermal Watchdog • P3T1755DP: I3C/I2C-Bus ±0.5 °C Accurate Digital Temperature Sensor
NTAG I2C Bridge	• NTAG_I2C: NTAG I²C Plus 2K: NFC Forum Type 2 Tag with I²C Interface
Mag + Accel Sensor	• FXLS8974CF: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital IoT Accelerometer
Contactless Reader	• PN5180: Full NFC Forum-Compliant Frontend IC
Secure Element	• SE050: EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT security with high flexibility
Host Controller	• i.MX RT Crossover MCUs: i.MX RT Crossover MCUs • IMX8MPLUS: i.MX 8M Plus – Arm® Cortex®-A53, Machine Learning, Vision, Multimedia and Industrial IoT • iMX8XLite: i.MX 8XLite Applications Processors for Telematics, V2X and Industrial Control • i.MX8MNANO: i.MX 8M Nano Family - Arm® Cortex®-A53, Cortex-M7 • LPC5500 Arm Cortex-M33: LPC5500 Series: Arm® Cortex®-M33 Based Microcontroller Series for Mass Market, Leveraging 40nm Embedded Flash Technology • S32G2: S32G2 Processors for Vehicle Networking
Wireless Platform	• K32W041AM-A: K32W041AM/A: High Performance, Secure and Low-Power MCU for Zigbee®, Thread™ and Bluetooth® LE 5.0 with High Tx Power Option • K32W061_41: K32W061/41: High-Performance, Secure and Ultra-Low-Power MCU for Zigbee®,Thread™, and Bluetooth® LE 5.0 with Built-In NFC Option • IW416: 2.4/5 GHz Dual-Band 1x1 Wi-Fi® 4 (802.11n) + Bluetooth® 5.2 Solution • OL2385AHN: Low-Power Multi-Channel UHF RF Wireless Platform
DSC1	• MC56F83xxx: Performance Level Digital Signal Controllers, USB FS OTG, CAN FD
DSC2	• MC56F81xxx: Up to 100MHz Digital Signal Controllers with DSASS and Operational Amplifier
RTC	• PCF2131: Nano-Power Highly Accurate RTC with Integrated Quartz Crystal • PCF8563: Real-Time Clock/Calendar • PCF8523: 100 NA Real-Time Clock/Calendar with Battery Backup
BMS	• Battery Management System (BMS): Battery Management System (BMS)
Gate Driver	• GD3160: Advanced High Voltage Isolated Gate Driver with Segmented Drive for SiC MOSFETs
PMIC	• PCA9450: Power Management IC (PMIC) for i.MX 8M Mini/Nano/Plus
Magnetic sensor	• NMH1000: NMH1000 Ultra-Low Power and Low-Voltage Magnetic Switch
System Management	• PCA9555A: Low-Voltage 16-Bit I²C-Bus I/O Port with Interrupt and Weak Pull-Up • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features

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View our complete solution for EV Charging Station.

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