

Enabling Smarter Thermostats with SimpleLink™ Wi-Fi® Wireless MCUs



Smart Thermostats are becoming more popular as energy consumption and costs for heating and cooling increase, propelling the need for smarter ways to keep energy consumption down. Thermostats are leading the way to help improve efficiency as they have evolved from fixed versions of the past to programmable and now smart thermostats. These revolutionary devices utilize wireless connectivity and environmental sensors to monitor the room, learn the occupancy patterns of its occupants, adjust comfort settings and reduce consumption.

Creating a [low-power, connected MCU](#)-based Smart Thermostat that links a variety of sensors [securely](#) to the Cloud that enables remote monitoring and control is the goal of most smart thermostat designers

Simplify your Smart Thermostat designs by utilizing the SimpleLink™ Wi-Fi®-CERTIFIED devices that enable best-in-class [low power](#) and interoperability, [enhanced IoT security](#) and readily available [resources](#) that will help get to market even faster.

Features	Benefits
Low power	<ul style="list-style-type: none"> Best-in-class low power consumption reduces load on 24VAC line-powered devices or extends 2x AA battery life over 1 year in always-connected mode and up to 3 years in intermittently connected modes. Tested utilizing TI's proprietary network learning algorithm that ensures a robust, consistent low-power performance when tested with >210 access points.
Integration	<ul style="list-style-type: none"> Dual-core connected wireless MCU technology provides two separate execution environments. <ul style="list-style-type: none"> One Wi-Fi-CERTIFIED network processor handles all Wi-Fi and Internet-level protocols One customer-dedicated ARM®-M4 offering 256-KB RAM with optional 1-MB XIP Flash, flexibility and ease in development with available 12-bit ADC, 2x UARTs, I²S and multiple GPIOs to support a variety of sensors, relays and systems-level needs Supports SimpleLink MCU Platform with common SDK core that makes platform (BLE, Sub 1GHz and MCUs) expansions easier.
Security	<ul style="list-style-type: none"> Embedded enhancements assist in protecting against theft and hostile takeover of identity, keys, data and code without the need for any other external components.
Certified & robust	<ul style="list-style-type: none"> Wi-Fi-CERTIFIED ICs and regulatory Certified Modules drastically reduce complexity, time, resources and thousands of dollars in costs associated with the certification process.
Cloud integration	<ul style="list-style-type: none"> Get to market faster with the right Tools and easy-to-integrate certified IoT cloud agents (HomeKit, AWS, Azure, IBM, etc.) that reduce development complexity, costs and enable faster implementation times.

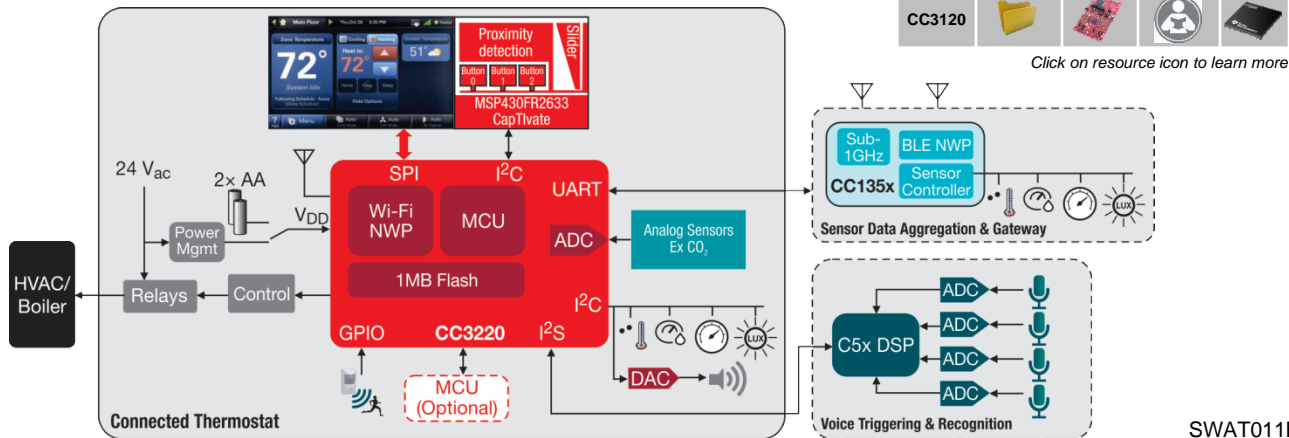
Learn more at TI [Thermostat Reference Design](#)

[Thermostat Blog](#)

[Thermostat Video](#)

Device	Product Folder	Tools Folder	Users Guide	Data sheet
CC3220				
CC3120				

Click on resource icon to learn more



IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2019, Texas Instruments Incorporated