

Part Number: LP-EM-CC1354P10-1

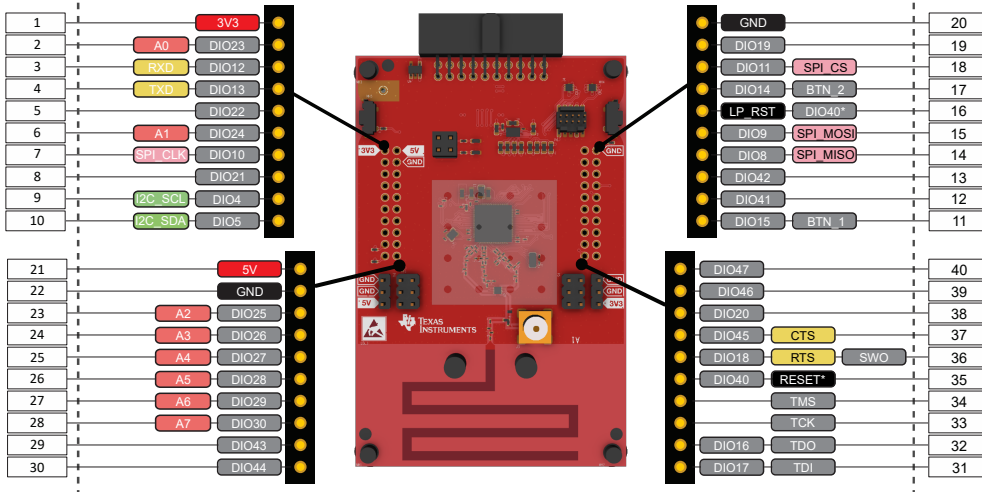
LaunchPad™ Development Kit

Connect your LaunchPad to a computer
and visit dev.ti.com

Meet the
CC1354P10-1

The BoosterPack™ connector

The pinout to connect BoosterPack accessories (available separately) are shown below.



UART (DIO12, DIO13), Reset (LP_RST) and JTAG (TMS, TCK, TDO and TDI) are also present in the LP-EM Debug Connector. Power (GND, 3V3 and 5V) is also provided.

*These functions are not connected to the LaunchPad connector by default.

XDS110 EnergyTrace™ Technology

The LP-EM-CC1354P10-1 is compatible with EnergyTrace technology. EnergyTrace implements a new method for measuring MCU current consumption. It uses a DC-DC solution to measure the time density of charge pulses, allowing accuracy on ultra low power measurements. Its high dynamic range (700 nA to 400 mA) and fast sampling rate (256 KSPS) captures the complete operational profile of the wireless MCU.

EnergyTrace Profile

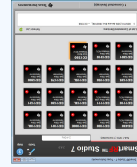
EnergyTrace Profile runtime and energy data for low power modes along with each function run during Active Mode.

Graphical Power Data in Code Composer Studio

These two tabs of the EnergyTrace Technology window show a graph over time of power and energy.

Available in the LP-XDS110ET Debug Probe and selected LaunchPads

Find more information at
ti.com/EnergyTrace



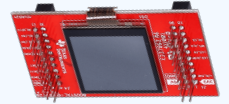
SmartRF Studio
A powerful application to evaluate radio performance. LaunchPads are supported by professional IDEs that provide industrial-grade features and full debug-capability. Set breakpoints, watch variables, profile code, inspect memory and more.



Professional Software Tools
www.ti.com/ccs

Software Tools

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BoosterPack Ecosystem

- Sharp® 128x128 Memory LCD and microSD card
- BoosterPack
- 1.28 128 x 128 pixel LCD (LS013B7DH03)
- microSD card slot
- DCDC 3V to 5V converter
- Ultra-low-power operation

SimpleLink ULP Sense BoosterPack

- Flow meter measurements
- Ultra low power accelerometer
- Two cap touch buttons
- Analog Light Sensor
- Reed switch
- 0-200k Ω potentiometer

>> See them all @ ti.com/boosterpack

A closer look at your new LaunchPad Development Kit

Featured microcontroller: CC1354P10

This LaunchPad is great for...

- Battery-operated wireless applications operating in the Sub-1 GHz (868 and 915 MHz) and 2.4 GHz ISM RF bands. It features two Sub-1 GHz RF paths up to +14 and +20 dBm and one 2.4 GHz up to +5 dBm
- Adding RF capabilities to your product using one of the supported protocols: Bluetooth LE, Zigbee, IEEE 802.15.4g, Wi-SUN®, Wireless M-Bus, MIOTY® and proprietary protocols

What comes in the box?

LP-EM-CC1354P10-1 LaunchPad

CC1354P10 Microcontroller

- 48 MHz CPU
- 1 MB Flash, 256 kB RAM
- Programmable radio supporting various protocols and up to +20 dBm at either 868/915 MHz or 2.4 GHz
- Low power consumption

QSG
This Quick Start Guide

10-pin Debug Cable

2-wire Power Cable

- Four 32-bit or eight x 16-bit timers
- ADC with 8 channels, 12 bits and 200 ksamples/s
- DAC with 8 bits
- Serial communications: UART, SPI, I2C
- Two comparators
- Real-time clock

LP-EM-CC1354P10-1 Overview

LP-EM Debug Connector
Together with a LP-XDS110 or LP-XDS110ET, allows:
- Debugging and programming
- Communicating to the host via UART
- Powering the microcontroller

10-pin Debug Connector
Allows using an external JTAG Debug Probe to debug/program the device

Button/Switch
BTN-1 (DIO15)

20-pin BoosterPack plug-in module connector
(J1, J2, J3 & J4)

Button/Switch
BTN-2 (DIO14)

User LEDs
Red (DIO6)
Green (DIO7)

CC1354P106T0RSK Wireless Microcontroller
(under the RF shield)

Antenna

Hardware setup

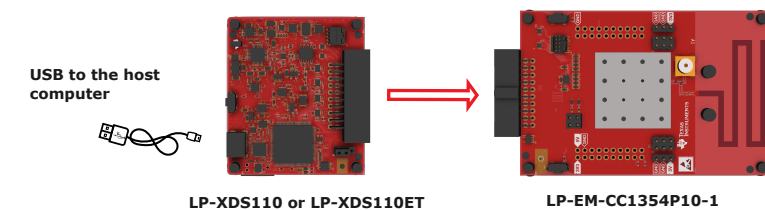
What do you need?

To use your new LaunchPad, you need to connect an external Debug Probe to either the 20-pin LP-EM Debug connector on the edge of the board or to the 10-pin Debug connector and supply power separately.

Option 1: Using the LP-EM Debug Connector

This is the easiest way to setup the hardware. It requires either an **LP-XDS110** or **LP-XDS110ET** Debug Probe (sold separately).

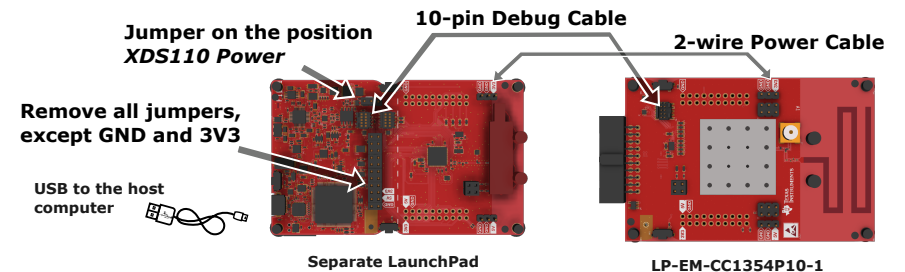
Simply connect the edge connector of the Debug Probe to the edge connector of the LaunchPad and connect the USB port of the Debug Probe to the host computer. A secondary UART communications channel will also be available and power to the LaunchPad will be provided directly.



Option 2: Using the 10-pin debug connector

Either a standalone debug probe or a separate LaunchPad with a built-in debug probe can be used.

Connect the two boards as shown in the picture below:



For additional details, consult dev.ti.com/?id=LP-EM-CC1354P10-1

When using the 10-pin debug connector, the UART communications channel must be wired separately (this connector does not carry UART signals).

If using a standalone Debug Probe, consult its documentation to see if it supports the ARM Cortex-M 10-pin standard.

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