



# Kinetis K40 MCUs Quick Start Guide

Low-power MCU with  
USB and segment LCD

Tower System  
Development Board  
Platform



## Get to know the TWR-K40X256

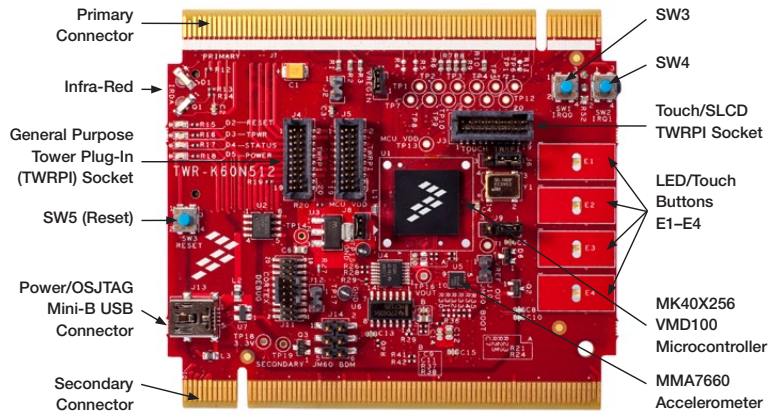


Figure 1: Front Side of TWR-K40X256 Board Not Including TWRPI

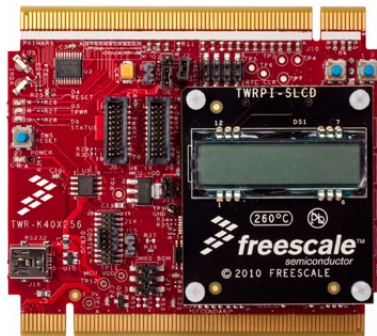


Figure 2: Front Side of TWR-K40X256 Board with TWRPI-SLCD Attached



### TWR-K40X256

The TWR-K40X256 controller board is part of the Freescale Tower System, a development board platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Take your design to the next level and begin constructing your Tower System rapid prototyping platform today by visiting [freescale.com/Tower](http://freescale.com/Tower) for additional Tower System controller boards and compatible peripherals.

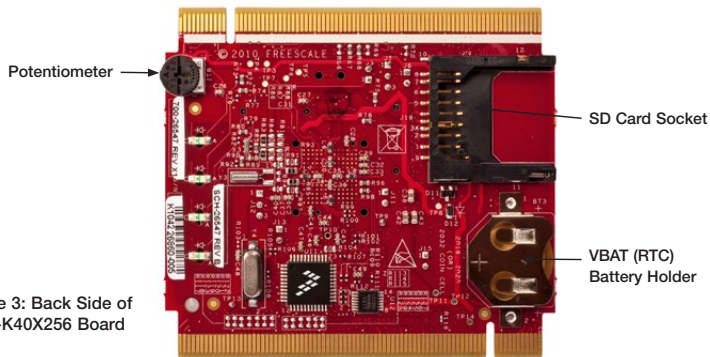


Figure 3: Back Side of TWR-K40X256 Board

## Step-by-Step Installation Instructions

In this Quick Start Guide, you will learn how to set up the TWR-K40X256 board and run the default demonstration.

### 1 Install the Software and Tools

Install the P&E Micro Kinetis Tower Toolkit to install the OSJTAG and USB-to-Serial drivers. These can be found on the DVD under Software.

### 2 Configure the Hardware

Install the included battery into the VBAT (RTC) battery holder. Then, plug in the included Segment LCD Tower Plug-In (TWRPI-SLCD) into the Touch/SLCD TWRPI socket. Finally, connect one end of the USB cable to the PC and the other end to the Power/OSJTAG mini-B connector on the TWR-K40X256 module. Allow the PC to automatically configure the USB drivers if needed.

### 3 Tilt the Board

Tilt the board side to side to see the LEDs on E1–E4 light up as it is tilted.

### 4 Navigate the Segment LCD

The Segment LCD will come up displaying the seconds elapsed since boot-up. Press **SW4** to toggle between viewing the seconds, hours, minutes, potentiometer percent and temperature.

## Step-by-Step Installation Instructions (cont.)

### 5 Explore Further by Conducting Lab 1: TWR-K40X256 Quick Start Demo

Explore all the features and capabilities of the pre-programmed demo by reviewing the lab document located at [freescale.com/TWR-K40X256](http://freescale.com/TWR-K40X256).

### 6 Learn More About the Kinetis K40 Microcontrollers

Find more MQX™ RTOS and bare-metal labs and software for the Kinetis K40 microcontrollers at [freescale.com/TWR-K40X256](http://freescale.com/TWR-K40X256).

## Jumper options

The following is a list of all the jumper options. The **default** installed jumper settings are shown in the shaded boxes.

Jumper	Option	Setting	Description
J11	MCU Power Connection	ON	Connect on-board 3.3 V supply to MCU
		OFF	Isolate MCU from power (connect an ammeter to measure current)
J12	VBAT Power Selection	1-2	Connect VBAT to on-board 3.3 V supply
		2-3	Connect VBAT to the higher voltage between on-board 3.3 V supply or coin-cell supply
J13	OSJTAG Bootloader Selection	ON	OSJTAG bootloader mode (OSJTAG firmware reprogramming)
		OFF	Debugger mode
J15	JTAG Board Power Connection	ON	Connect on-board 5 V supply to JTAG port (supports powering board from JTAG pod supporting 5 V supply output)
		OFF	Disconnect on-board 5 V supply to JTAG port
J6	IR Transmitter Connection	ON	Connect PTD7/CMT_IRO to IR Transmitter (D3)
		OFF	Disconnect PTD7/CMT_IRO from IR Transmitter (D3)
J3	VREGIN Power Connection	ON	Connect USB0_VBUS from Elevator to VREGIN
		OFF	Disconnect USB0_VBUS from Elevator to VREGIN
J5	FlexBus Address Latch Selection	1-2	FlexBus address latch disabled
		2-3	FlexBus address latch enabled



## et Started



Download installation software and documentation under  
“**Jump Start Your Design**” at [freescale.com/TWR-K40X256](http://freescale.com/TWR-K40X256).

## Support

Visit [freescale.com/support](http://freescale.com/support) for a list of phone numbers within your region.

## Warranty

Visit [freescale.com/warranty](http://freescale.com/warranty) for complete warranty information.

To learn more about the **TWR-K40X256** and other Freescale Kinetis microcontroller products, visit [freescale.com/TWR-K40X256](http://freescale.com/TWR-K40X256), [freescale.com/Kinetis](http://freescale.com/Kinetis) and [freescale.com/Tower](http://freescale.com/Tower)

For more information, visit [freescale.com](http://freescale.com)

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