TWR-K40X256
Low-power MCU with
USB and segment LCD

freescale
semiconductor

Get to Know the TWR-K40X256

Primary Connector

Infra-red

General Purpose Tower Plug-In (TWRPI) Socket

SW5 (Reset)

Power/OSJTAG Mini-B USB Connector

Secondary Connector

SW3

SW4

Touch/SLCD TWRPI Socket

LED/Touch Buttons E1–E4

MK40X256 VMD100 Microcontroller

MMA7660 Accelerometer

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

TWR-K40X256

The TWR-K40X256 microcontroller module is part of the Freescale Tower System, a modular development 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 today by visiting **freescale.com/tower** for additional Tower System microcontroller modules and compatible peripherals.

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

Potentiometer

SD Card Socket

VBAT (RTC) Battery Holder

Figure 3: Back Side of TWR-K40X256 Module.

Step-by-Step Installation Instructions

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

STEP 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.

STEP 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.

STEP 3
Tilt the Board

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

STEP 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 and minutes, potentiometer percent, and temperature.

STEP 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**.

STEP 6

Learn More About the Kinetis K40 Microcontrollers

Find more MQX and bare-metal labs and software for the Kinetis K40 microcontrollers at **freescale.com/TWR-K40X256**.

Jumper Options

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

Jumper	Option	Setting	Description
J11	MCU Power Connection	**ON**	Connect on-board 3.3V 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 3.3V supply
		2-3	Connect VBAT to the higher voltage between on-board 3.3V 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 5V supply to JTAG port (supports powering board from JTAG pod supporting 5V supply output)
		OFF	Disconnect on-board 5V supply to JTAG port

Jumper	Option	Setting	Description
J6	IR Transmitter Connection	ON	Connect PTD7/CMT_IRO to IR Transmitter (D507)
		OFF	Disconnect PTD7/CMT_IRO from IR Transmitter (D507)
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

To learn more about the **TWR-K40X256** and other Freescale Kinetis microcontroller products, please visit **freescale.com/TWR-K40X256, freescale.com/Kinetis** and **freescale.com/Tower.**

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