



## Quick Start Guide TWR-K60D100M Development Board

100 MHz Arm® Cortex®-M4 MCU, 512 KB Flash,  
128 KB SRAM, Ethernet, USB Full-Speed,  
Cryptographic Acceleration

TOWER SYSTEM MODULE FOR K10D, K20D, K30D  
AND K60D KINETIS SUB-FAMILY MCUs



## Quick Start Guide

### GET TO KNOW THE TWR-K60D100M BOARD



Figure 1: Front side of TWR-K60D100M module



Figure 2: Back side of TWR-K60D100M module



## TWR-K60D100M NXP TOWER SYSTEM BOARD

The TWR-K60D100M module is part of the NXP Tower System, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. The TWR-K60D100M can be used with a broad selection of Tower System peripheral modules.

### TWR-K60D100M FEATURES

- MK60DN512VMD10 MCU (100 MHz Arm® Cortex®-M4 core, 512 KB flash, Ethernet, USB FS OTG, encryption, 144 MAPBGA)
- Integrated open source JTAG (OSJTAG) circuit
- MMA8451Q 3-axis accelerometer
- Four user-controlled status LEDs
- Four capacitive touch pads and two mechanical pushbuttons
- General-purpose TWRPI socket (Tower plug-in module)
- Potentiometer, SD card socket and coin-cell battery holder

## SOFTWARE INSTALLATION INSTRUCTIONS

In this Quick Start Guide, you will learn how to set up the TWR-K60D100M board and run the included demonstrated software. For more detailed information, review the user manual at [www.nxp.com/TWR-K60D100M](http://www.nxp.com/TWR-K60D100M).

### 1 Configure the Hardware

Connect one end of the USB cable to the PC and the other end to the Power/OSJTAG mini-B connector on the TWR-K60D100M module. Allow the PC to automatically configure the USB drivers if needed.

### 2 Run the Quick Start Demo

The LEDs on the board, D7 and D11, will gradually illuminate as the board is tilted. When rotated around the accelerometer's x-axis the Blue LED (D11) will illuminate. Similarly, the red LED (D7) will gradually illuminate as rotated around the y-axis.

### 3 Download Software



Download installation software and documentation at

[www.nxp.com/TWR-K60D100M](http://www.nxp.com/TWR-K60D100M).

### EXPANDED SOFTWARE AND TOOLS NOW AVAILABLE FOR KINETIS® MCUs

Additional details regarding the Quick Start Demo are included as part of the software development kit (SDK).

To take your design to the next level, leverage the MCUXpresso SDK and other online enablement software and tools for Kinetis MCUs, available for download at the relevant links listed here.

- MCUXpresso SDK at [www.nxp.com/mcuxpresso](http://www.nxp.com/mcuxpresso)
- MCUXpresso IDE at [www.nxp.com/mcuxpresso](http://www.nxp.com/mcuxpresso)
- MCUXpresso Config Tools at [www.nxp.com/mcuxpresso](http://www.nxp.com/mcuxpresso)
- Bootloader for Kinetis MCUs at [www.nxp.com/kboot](http://www.nxp.com/kboot)

### TWR-K60D100M JUMPER OPTIONS

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

JUMPER	OPTION	SETTING	DESCRIPTION
J13	V_BRD Voltage Selection	1-2	On-board power supply set to 3.3 V
		2-3	On-board power supply set to 1.8 V (Some on-board peripherals may not operate)
J14	MCU Power Connection	ON	Connect MCU to on-board power supply (V_BRD)
		OFF	Isolate MCU from power (Connect to ammeter to measure current)
J12	VBAT Power Selection	1-2	Connect VBAT to on-board power supply
		2-3	Connect VBAT to the higher voltage between on-board power supply or coin-cell supply

## TWR-K60D100M JUMPER OPTIONS CONT.

JUMPER	OPTION	SETTING	DESCRIPTION
J10	Clock Input Source Selection	1-2	Connect main EXTAL to on-board 50 MHz oscillator (Y1)
		2-3	Connect EXTAL to the CLKIN0 signal on the elevator connector
		3-4	Connect ENET_CLKIN to the CLKIN0 signal on the elevator connector
J19	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 from JTAG port
J2	IR Transmitter Connection	ON	Connect PTD7/CMT_IR0 to IR transmitter (D5)
		OFF	Disconnect PTD7/CMT_IR0 from IR transmitter (D5)
J3	IR Receiver Connection	ON	Connect PTC6/CMP0_IN0 to IR receiver (Q2)
		OFF	Disconnect PTC6/CMP0_IN0 from IR receiver (Q2)
J4	IR Receiver Connection	ON	Connect USB0_VBUS from elevator to VREGIN
		OFF	Disconnect USB0_VBUS from elevator to VREGIN
J1	GPIO to Drive RSTOUT	1-2	PTE27 to drive RSTOUT
		2-3	PTB8 to drive RSTOUT
J5	Potentiometer Shunt	ON	Connect potentiometer to ADC
		OFF	Disconnect potentiometer (For lower power measurement)
J7	Oscillator Enable	ON	Disables 50 MHz oscillator (Y1)
		OFF	Enables 50 MHz oscillator (Y1)

## SUPPORT

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

## WARRANTY

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



## Get Started

Download installation software and documentation at [www.nxp.com/TWR-K60D100M](http://www.nxp.com/TWR-K60D100M).

[www.nxp.com/TWR-K60D100M](http://www.nxp.com/TWR-K60D100M),  
and [www.nxp.com/Tower](http://www.nxp.com/Tower)

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