



TWR-K60D100M Quick Start Guide

Low-Power MCU with USB, Ethernet and Encryption

Tower System



Efficient Solutions optimized for low power





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 Freescale Tower System Board

The TWR-K60D100M module is part of the Freescale 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.





- 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

Step-by-Step Installation Instructions

In this Quick Start Guide, you will learn how to set up the TWR-K60D100M module and run the default demonstration.

Install the Software and Tools

Install the P&F Micro Kinetis Tower toolkit. The toolkit includes the OSJTAG and USB-to-serial drivers. These can be found on line at freescale.com/TWB-K60D100M

Configure the

Install the included battery into the VBAT

(RTC) battery holder. Then, connect one

end of the USB cable to the PC and the

other end to the power/OSJTAG mini-B

connector on the TWB-K60D100M module. Allow the PC to automatically

configure the USB drivers if needed.

Hardware



Tilt the board side to side to see the LEDs. on D7. D8. D9 and D11 light up as it is tilted. While the board is held flat, touch the pads on D7. D8. D9. D11 to toggle the LEDs.



Tilt the

Board

Memory Game

Press SW2 to play a memory recall game using the touch pads D7. D8. D9 and D11. A sequence will light up, then press the touch pads in the order flashed. If an incorrect sequence is touched or too much time has elapsed, the LEDs will blink rapidly and the game will reset.

Press SW1 to return to the accelerometer demo.





Sup-by-Step Installation Instructions (cont.)



Explore all of the features and capabilities of the pre-programmed demo by reviewing the lab document located at freescale.com/TWR-K60D100M.

Learn more about the 6 Kinetis K60 MCUs

Find more MQX™ RTOS and baremetal labs and software for the Kinetis K60 MCUs at freescale.com/TWR-K60D100M.

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 ouput)
		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)

et Started Download installation software and documentation under "Jump Start Your Design" at freescale.com/TWB-K60D100M.

Visit **freescale.com/K60** or **freescale.com/Kinetis** for information on the TWR-K60D100M module, including:

- TWR-K60D100M user guide
- TWR-K60D100M schematics
- Tower System fact sheet

Support

Visit **freescale.com/support** for a list of phone numbers within your region.

Warranty

Visit freescale.com/warranty for complete warranty information.

For more information, visit freescale.com/Tower Join the online Tower community at towergeeks.org

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