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# Quick Start Guide

**TWR-KL25Z48M**  
Development Kit for Kinetis  
KL2/1 MCU Families



**TOWER SYSTEM**

# Step-by-Step Installation Instructions

## 1 Download Software and Tools

Download installation software and documentation under

**“Jump Start Your Design”**  
at [freescale.com/TWR-KL25Z48M](http://freescale.com/TWR-KL25Z48M).



## 2 Install Software and Tools

Install the OpenSDA Tower Toolkit to install the OpenSDA and USB-to-Serial drivers.

## 3 Configure the Hardware

Connect one end of the USB cable to the PC and the other end to the Power/OpenSDA mini-B connector on the TWR-KL25Z48 module. Allow the PC to automatically configure the USB drivers if needed.

## 4 Touch Electrodes

Touch the pads and the LEDs will turn on.

## 5 Tilt the Board

When board is picked up, the four LEDs will toggle in the direction of the inclination. Toggling frequency will increase as the tilt angle increases.

## 6 Move the Potentiometer

The TWR-KL25Z48M LED will blink at a frequency proportional to the resistance of the potentiometer.

## 7 Explore Further

Explore Kinetis KL2/1 MCU ultra-low-power modes and USB communication by conducting the additional labs located at [freescale.com/TWR-KL25Z48M](http://freescale.com/TWR-KL25Z48M).

# Get to Know the TWR-KL25Z48M

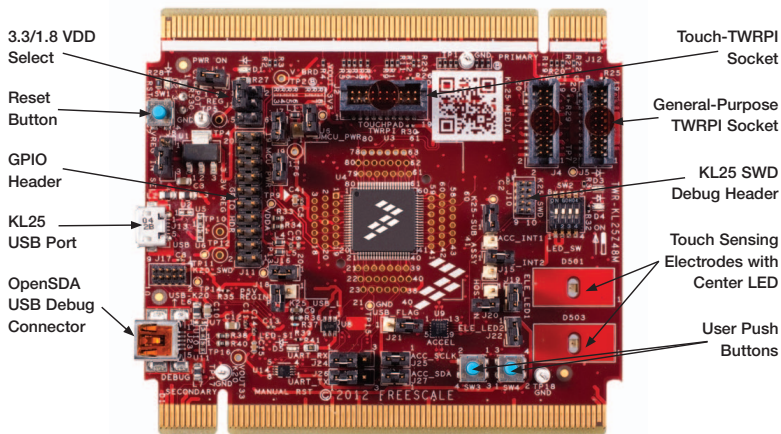


Figure 1: Front side of TWR-KL25Z48M module

# Get to Know the TWR-KL25Z48M (continued)



Figure 2: Back side of TWR-KL25Z48M module



## TWR-KL25Z48M Freescale Tower System

The TWR-KL25Z48M MCU module is designed to work either in standalone mode or as 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](http://freescale.com/Tower) for additional Tower System MCU modules and compatible peripherals.

# TWR-KL25Z48M Features

- Tower System compatible MCU module
- MKL25Z128VLK4 MCU (48 MHz, 128 KB flash, 16 KB RAM, low power, 80 LQFP package)
- Dual role USB interface with Micro-AB USB connector
- Touch Tower plug-in socket
- General-purpose Tower plug-in (TWRPI) socket
- On-board debug circuit MK20D50 OpenSDA with virtual serial port
- Three axis accelerometer (MMA8451Q)
- Four (4) user-controllable LEDs
- Two (2) capacitive touch pads
- Two (2) user push buttons switch
- Infrared transmit and receive
- Potentiometer
- General-purpose pin header to directly access MCU signals

## Tools

- Freescale CodeWarrior Development Studio for Microcontrollers V10.3 (CW-MCU10)
- IAR EWARM V6.40
- Processor Expert with MQX™ Lite integration available for CodeWarrior or a standalone for integrating generated code into other IDEs

## TWR-KL25Z48M Jumper Options

The following is a list of all the jumper options. The default installed jumper settings are listed in the last column.

Jumper	Jumper Designator	Signal	Default Option
V_BRD	J7	V_BRD	<b>DEF: 1-2 VBRD to MCU_PWR</b>
	J9	VDDA_HDR	<b>DEF: 1-2 VDDA to MCU_PWR</b>
VREG IN Selector	J8	VREG IN SELECTOR	<b>DEF: 1-2 Regulator powered by OpenSDA USB</b>
Board Power Selection	J3	Board Power Selection	<b>DEF: 1-3 P3.3V_REG powers V_BRD(MCU_PWR)</b>
USB	J18	KL25 USB VREGIN	<b>DEF: OPEN</b>
	J20	K25 USB ENA	<b>DEF: OPEN</b>
	J21	K25 USB FLGA	<b>DEF: OPEN</b>
Infra-Red	SW2 6-3	IRDAJ	<b>OPEN</b>
	SW2 5-4	CMPO_IN0	<b>OPEN</b>
Potentiometer	J1	POT 5K	<b>DEF: 1-2</b>

Jumper	Jumper Designator	Signal	Default Option
Accelerometer	J27	SDA Accelerometer Enable	<b>DEF: 1-2</b>
	J25	SCL Accelerometer Enable	<b>DEF: 1-2</b>
	J14	ACCELEROMETER INT1	<b>DEF: OPEN</b>
	J15	ACCELEROMETER INT2	<b>DEF: OPEN</b>
LEDs	J19	LED Orange Enable	<b>DEF: 1-2</b>
	J22	LED Yellow Enable	<b>DEF: 1-2</b>
	SW2 8-1	LED Green Enable	<b>OPEN</b>
	SW2 7-2	LED Red Enable	<b>OPEN</b>
UART	J24	KL25 UART RX (OpenSDA or Elevator)	<b>DEF: 2-3</b>
	J26	KL25 UART TX (OpenSDA or Elevator)	<b>DEF: 2-3</b>



## Get Started

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“**Jump Start Your Design**” at [freescale.com/TWR-KL25Z48M](http://freescale.com/TWR-KL25Z48M).

## 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.

For more information, visit [freescale.com/Tower](http://freescale.com/Tower)  
Join the online Tower community at [towergeeks.org](http://towergeeks.org)

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