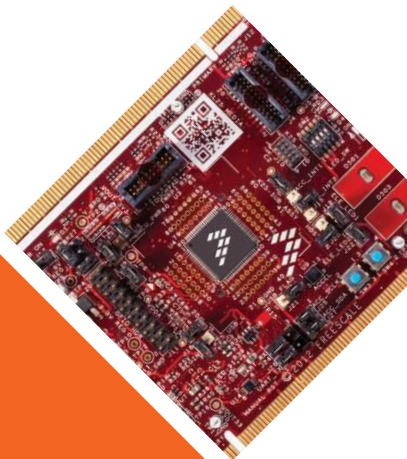# TWR-KL25Z48M
Quick Start Guide

Development Kit for Kinetis
KL2/1 MCU Families

Tower System
Development Board
Platform

freescale™
Kinetis

Get to Know the TWR-KL25Z48M

3.3/1.8 VDD Select

Reset Button

GPIO Header

KL25 USB Port

OpenSDA USB Debug Connector

Touch-TWRPI Socket

General-Purpose TWRPI Socket

KL25 SWD Debug Header

Touch Sensing Electrodes with Center LED

User Pushbuttons

Figure 1: Front side of TWR-KL25Z48M board

32.768 kHz clock

Infrared Port

Potentiometer

Figure 2: Back side of TWR-KL25Z48M board

TWR-KL25Z48M

Freescale Tower System Development Board Platform

The TWR-KL25Z48M boarde is designed to work either in standalone mode or as part of the Freescale Tower System, a modular 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 evaluation board platform today by visiting **freescale.com/ Tower** for additional Tower System boards and compatible peripherals.

5Z48M
Features

- Tower System-compatible board
- MKL25Z128VLK4 MCU (48 MHz, 128 KB flash, 16 KB RAM, low power, 80 LQFP package
- Tower System-compatible board
- Dual role USB interface with Micro-AB USB connector
- Touch Tower plug-in socket
- General-purpose Tower plug-in (TWRPI) socket
- Onboard debug circuit MK20D50 OpenSDA with virtual serial port
- Three axis accelerometer (MMA8451Q)
- Four (4) user-controllable LEDs
- Two (2) capacitive touchpads

- Two (2) user pushbuttons 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 software configuration tool with MQX™ Lite RTOS integration available for CodeWarrior IDE or a standalone for integrating generated code into other IDEs

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**.

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 board. 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**.

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	X-V_BRD X	**DEF: 1-2 VBRD to MCU_PWR**
	J9	VDDA_HDR	**DEF: 1-2 VDDA to MCU_PWR**
VREG IN Selector	J8	VREG IN SELECTOR	**DEF: 1-2 Regulator powered by OpenSDA USB**
Board Power Selection	J3	Board Power Selection	**DEF: 1-3 P3.3V_REG powers V_BRD (MCU_PWR)**
USB	J18	KL25 USB VREGIN	**DEF: OPEN**
	J20	K25 USB ENA	**DEF: OPEN**
	J21	K25 USB FLGA	**DEF: OPEN**
Infra-Red	SW2 6-3	IRDAJ-X	**OPEN**
	SW2 5-4	CMP0_IN0	**OPEN**
Potentiometer	J1	POT 5K	**DEF: 1-2**

Jumper	Jumper Designator	Signal	Default Option
Accelerometer	J27	SDA Accelerometer Enable	**DEF: 1-2**
	J25	SCL Accelerometer Enable	**DEF: 1-2**
	J14	ACCELEROMETER INT1	**DEF: OPEN**
	J15	ACCELEROMETER INT2	**DEF: OPEN**
LEDs	J19	LED Orange Enable	**DEF: 1-2**
	J22	LED Yellow Enable	**DEF: 1-2**
	SW2 8-1	LED Green Enable	**OPEN**
	SW2 7-1	LED Red Enable	**OPEN**
UART	J24	KL25 UART RX (OpenSDA or Elevator)	**OPEN**
	J26	KL25 UART TX (OpenSDA or Elevator)	**DEF: 2-3**
Potentiometer	J1	POT 5K	**DEF: 2-3**

et Started

Download installation software and documentation under
"Jump Start Your Design" at **freescale.com/TWR-KL25Z48M**.

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