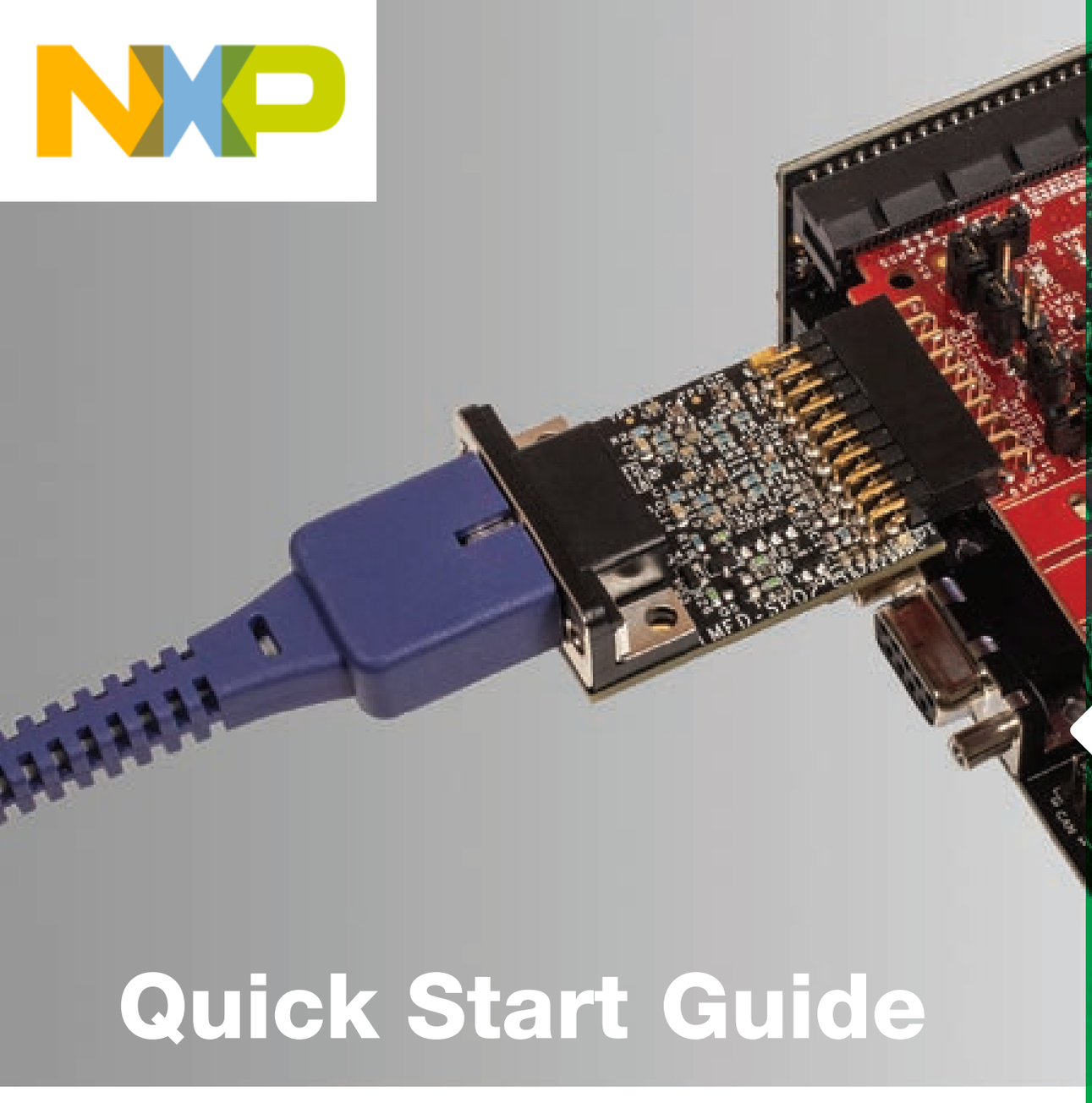


Quick Start Guide

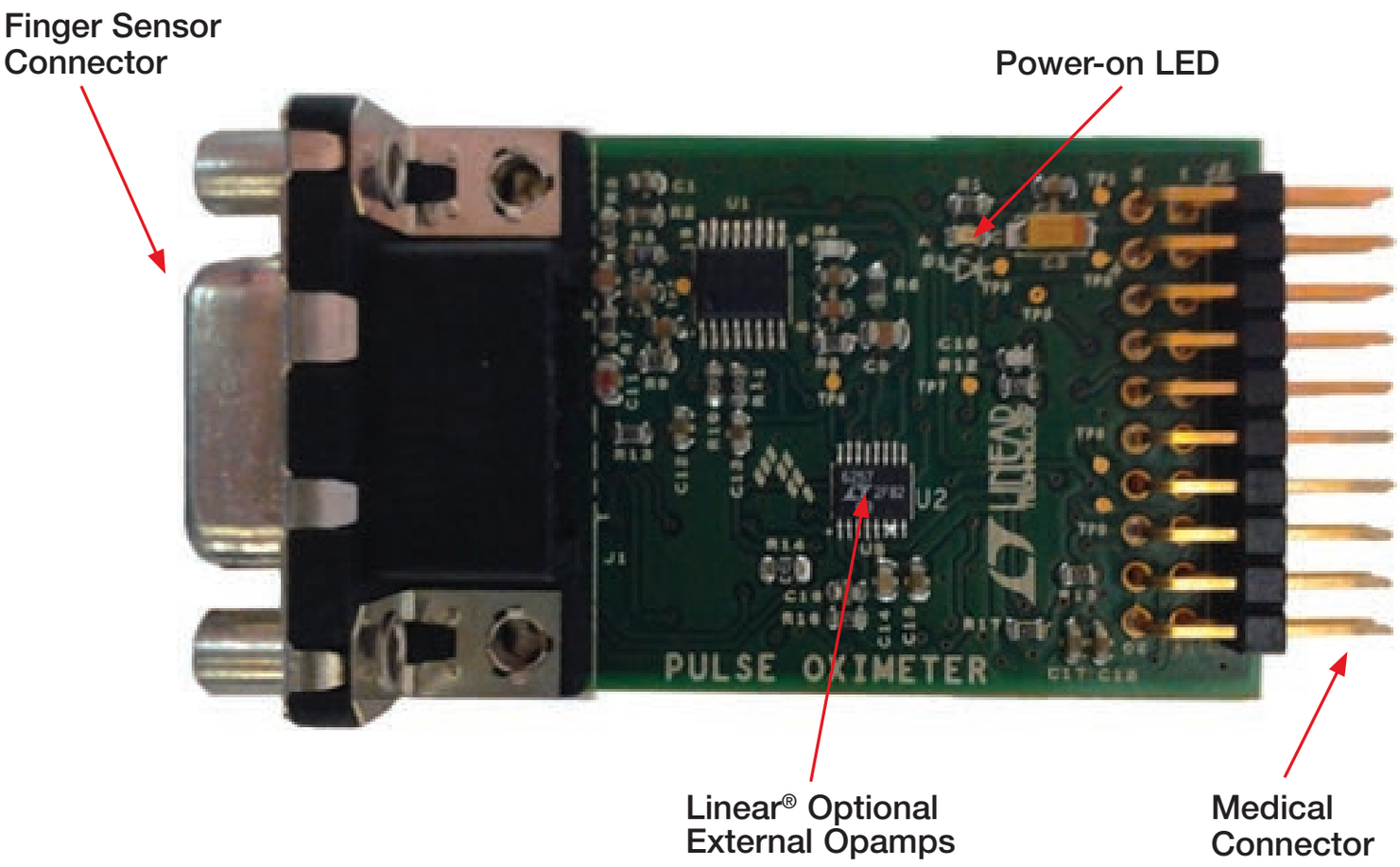
MED-SPO2

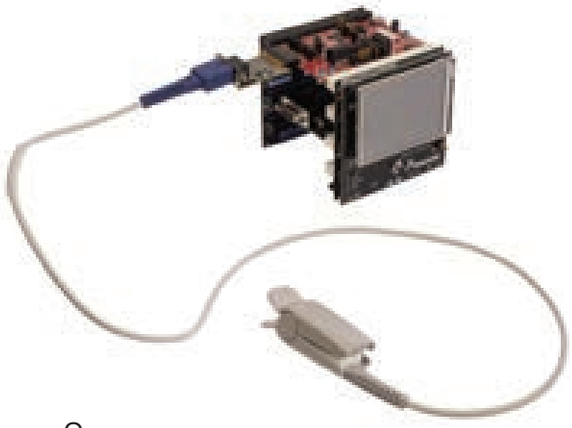
Pulse Oximetry
Plug-in Board

freescale™

TOWER SYSTEM

Get to Know the MED-SPO2 Board





MED-SPO2
Freescale Tower System

The MED-SPO2 plug-in board is compatible with the Freescale Tower System, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Elevate your design to the next level with this industrial powerhouse by building your Tower System today.

MED-SPO2 Features

MED-SPO2 is a pulse oximetry development board ideal for designing applications requiring SPO2 or beats per minute (bpm) measurements using noninvasive procedures. This board is reduced in size and includes most of the required components for pulse oximetry implementation.

Features

- Tower System compatible
- Integrates most required components for pulse oximetry
- Reduced in size

Step-by-Step Installation Instructions

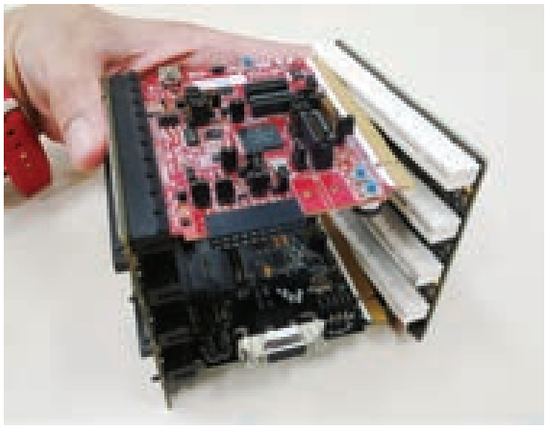
In this quick start guide, you will learn how to set up the MED-SPO2 and Tower System and run the included demonstrated software. For more detailed infomation, review the user manual at **freescale.com/healthcare**.

1 Verify the Jumper Configuration

Verify the jumper configuration on each board according to the Jumper Configurations table found later in this guide.

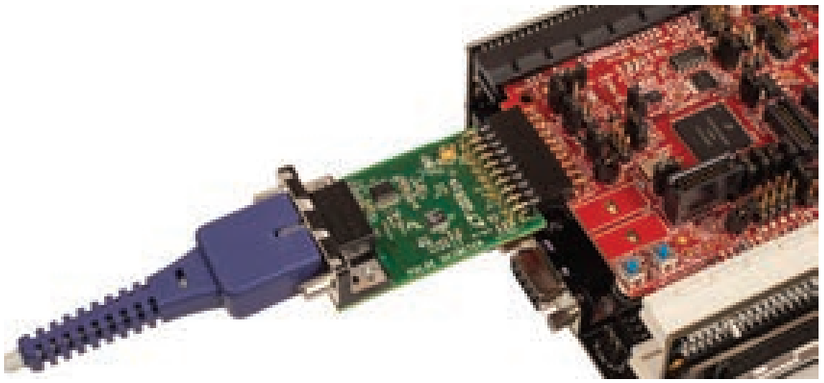
2 Assemble the Tower System

Assemble the Tower System by matching primary and secondary sides on the serial and MCU boards to corresponding elevators.



3 Connect the MED-SPO2 AFE

Connect the MED-SPO2 AFE to the medical connector on TWR-K53N512 board as shown below. Ensure that the MED-SPO2 connector pins match with the pins on the TWR-K53N512 connector.

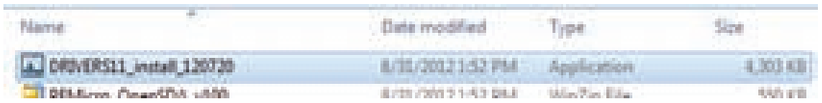


4 Download and Install Software

Download and install IAR Embedded Workbench 6 for ARM. A 30-day trial version can be downloaded from **iar.com**.

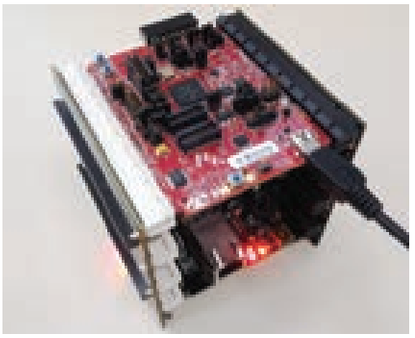
5 Install the Drivers

Install P&E Micro drivers. The installer is located in IAR installation folder\arm\drivers\pemicro.



6 Connect a USB Cable

Connect a USB cable from the computer to the USB port on the TWR-K53N512 board. Wait for drivers to install.



7 Download the Application Note

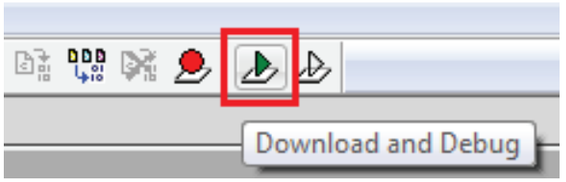
Go to **freescale.com** and conduct a parametric search for AN4327. Download AN4327SW.zip.

8 Open the File

Open the file MED-SPO2.eww using IAR from \Software\MED-SPO2 MK53N512\app\cdc\iar_ew\kinetis.

9 Load the Firmware

Click the Debug button to load the firmware to the MCU.



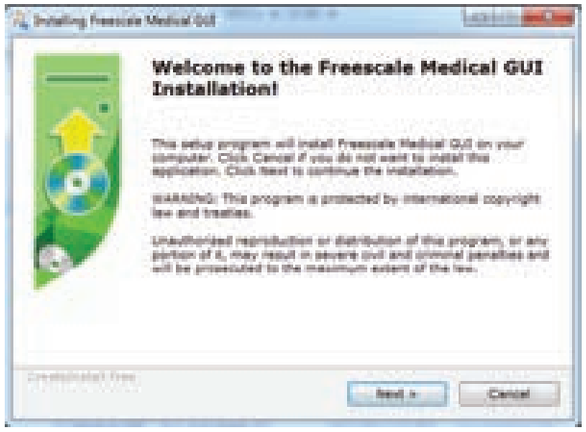
Step-by-Step Installation Instructions

Continued

10 Install the Software

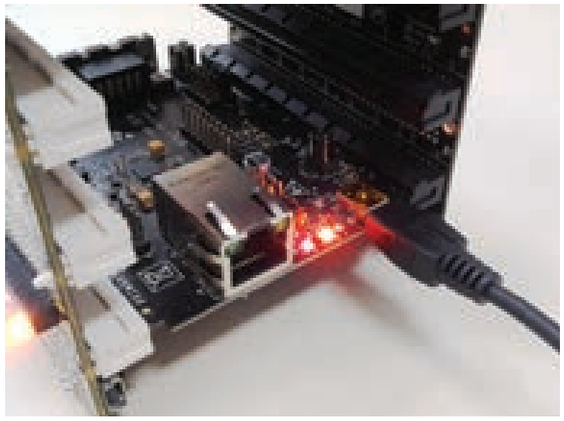
Install the Medical GUI software. It can be downloaded from **freescale.com**.

Note: Make sure you have already installed Java® JDK on your computer. Look for JDK folder in: C:\Program Files\Java



11 Change the Connection

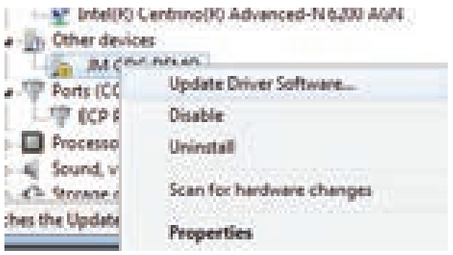
Disconnect the USB cable from the TWR-K53N512 and connect it to the TWR-SER board.

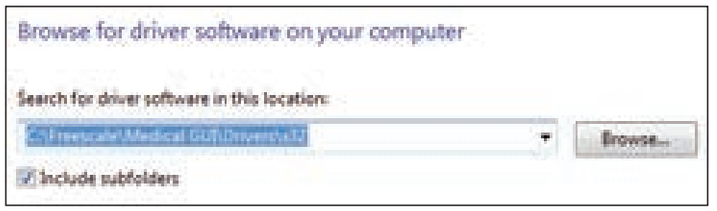


12 Install Drivers for JM CDC Demo

If the driver is not installed automatically, open Device Manager and install drivers for JM CDC Demo. Drivers can be found here:

- 32-bit version:
  C:\Freescale\Medical GUI\Drivers\x32
- 64-bit version:
  C:\Freescale\Medical GUI\Drivers\x64





Note: Open the Device Manager by opening the start menu, right-clicking on Computer and selecting Manage. Device manager is on the left options tree.

13 Look for the COM Number

In the device manager, look for the COM number assigned to “Virtual Com Port.”

14 Open the Medical GUI

Open the Medical GUI and select the Virtual Com Port from previous step.

Step-by-Step Installation Instructions

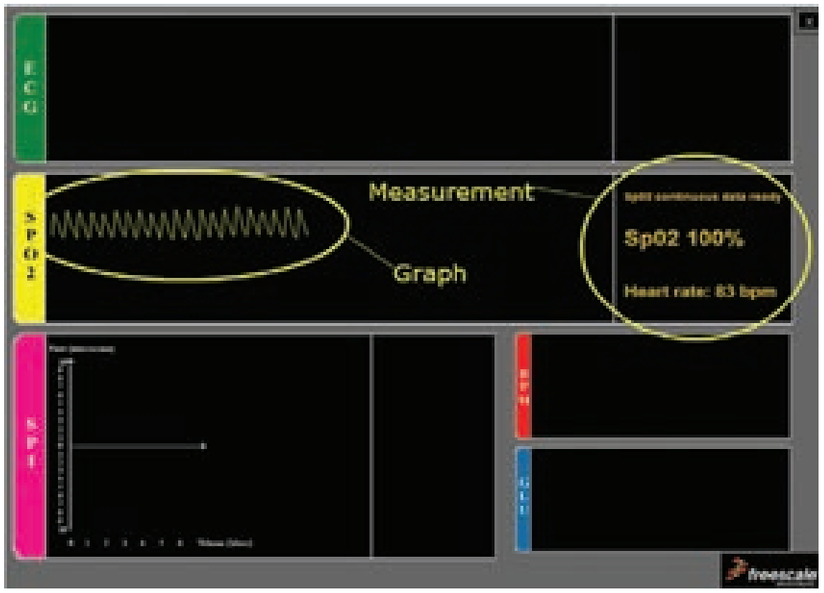
Continued

15 Connect the Finger Sensor

Connect the finger sensor to the DB9 connector on the MED-SPO2 board and place your forefinger in the SPO2 sensor clamp.

16 Start Measurements

In the main screen, click the SPO2 section (yellow) to start/stop measurements.



MED-SPO2 Jumper Options

The following is a list of jumper options. The default installed jumper settings are shown in white text within the green boxes.

TWR-K53N512 Jumper Configurations

Jumper	Position	Function
J1	Open	R71 to ADC1_DM1
J3	Open	FlexBus Latch OE
J4	2-3	Medical Connector Pin 4 Function
J11	**1-2**	External Oscillator Selection
J15	**Connected**	Core VDD
J17	**Connected**	Oscillator Power Enable
J18	**Connected**	USB0_VBUS Voltage In
J24	**1-2**	SYS_PWR Select
J28	**Open**	Disable JM60 Bootloader
J34	**Open**	Oscillator OE Control

TWR-SER Jumper Configurations

Jumper	Position	Function
J10	**1-2**	VBDEV Source
J16	3-4	USB Mode Select
J2	**1-2**	CLK_SEL Source

Visit **freescale.com/healthcareAFE** for the latest information, including:

- AN4327 application note

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

Freescale and the Freescale logo are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. Tower is a trademark of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners. © 2013 Freescale Semiconductor, Inc.

Document Number: MEDSPO2QSG REV 0