

# FreescalE MQX RTOS Example Guide

## HMI example

This document describes the HMI example, which demonstrates the use of the HMI layer in MQX to handle buttons, touch electrodes and LEDs.

## Pre-requisites

This example requires BSP with implemented HMI layer (Kinetis K60 for example).

## More reading

The HMI layer uses Touch Sensing Software library.

More information about Touch Sensing Software is available at:

<http://www.freescalE.com/touchsensing>

## The example

The HMI example program demonstrates HMI application layer which handles touch sensing board buttons, push buttons and LEDs. The callbacks for button state changes (push or release) are registered with a callback function to be invoked. One rotary callback is registered for the movement event. Each callback function prints the action which has occurred.

## Running the example

To run the example the corresponding terminal program is needed for printing information and setting desired module.

## Explanation of the example

The application example creates two tasks:

- **The main task** calls the BTNLED client initialization function which initializes touch sensing buttons (TSS), push buttons (LWGPI0) and LEDs available on the tower board. Two LEDs are set and callbacks are registered for the first 12 HMI buttons and one rotary control. Two functions are called in the permanent loop. The poll function which polls TSS and LWGPI0 buttons. The second function is time delay which gives a runtime to execute lower priority task.
- **The shell task** executes the shell (command-line interface). The shell enables to set a HMI TSS module or to get an active module. The HMI TSS module 0 is set by default.

Four shell commands are available:

- o module [number] - tell the TSS layer what TWRPI daughter card is plugged into the board
- o get - get an active HMI TSS module number
- o help - prints all available commands

- o exit - terminates the shell

Three HMI TSS modules are currently supported:

- o Module 0 - no module, electrodes on the board are used only.
- o Module 1 - TWRPI rotary board.
- o Module 2 - TWRPI keypad board.

Note: Module 1 and module 2 are not available on all platforms.

Following figure shows the output in the terminal window application.

