Quick Start Guide

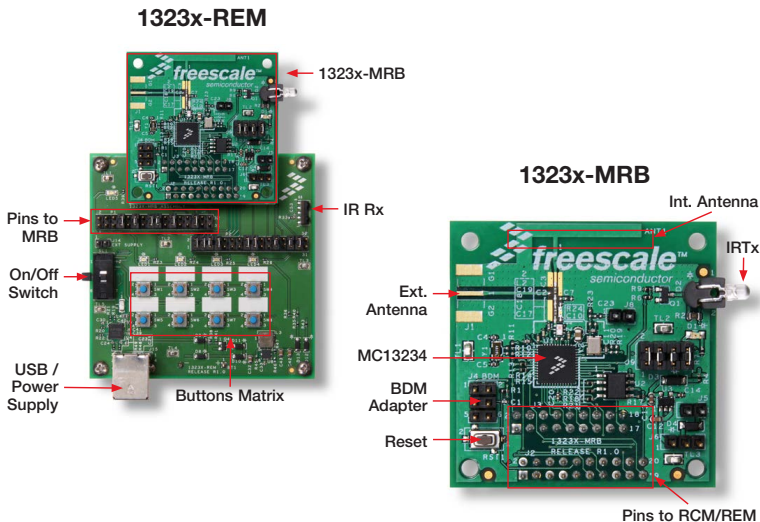**MC13234 Connectivity Test Demo**
Boards configuration and software

freescale

Get to Know the MC13234

In this quick start guide, you will learn how to set up the MC13234 transceiver with the REM board right out of the box. The MC13234 comes pre-programmed with the connectivity test demo, which allows you to execute basic radio functionality and monitor it with a PC through a serial connection.

1323x-REM

1323x-MRB

Pins to MRB

IR Rx

On/Off Switch

USB / Power Supply

Buttons Matrix

1323x-MRB

Int. Antenna

IRTx

Ext. Antenna

MC13234

BDM Adapter

Reset

Pins to RCM/REM

Kit Contents

- MC13234 transceiver
- 1323x-MRB (modular reference board)
- 1323x-REM (remote extender motherboard)
- BeeKit wireless connectivity toolkit
- CodeWarrior development studio
- USB multilink BDM
- USB cables

Content Descriptions

- 1323x-MRB—The 1323x-MRB contains the MC13234 integrated circuit and all necessary input/output connections. It is a self contained module in a compact reference design.

- 1323x-REM—The 1323X-REM is a remote extender.

- BeeKit Wireless Connectivity Toolkit— BeeKit is a stand-alone software application targeting Windows® operating systems and provides a GUI that users can use to create, modify, save and update wireless networking solutions. HCS08 solutions created on BeeKit are exported to the CodeWarrior Development Studio

- USB Multilink BDM—The USB multilink BDM is a debug interface which allows a PC access to the background debug mode (BDM) on the MCU.

- CodeWarrior Development Studio— The CodeWarrior Development Studio IDE integrates the development tools for the ColdFire, ColdFire+, DSC, Kinetis, Qorivva, RS08, S08 and S12Z architectures into a single product based on the Eclipse open development platform.

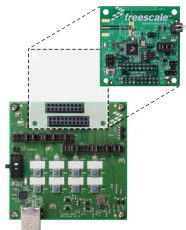# Step-by-Step Installation Instructions

The MC13234 comes pre-programmed with the connectivity test demo for the REM board to provide a demonstration of the MC13234 capabilities.

1 Run the Demo

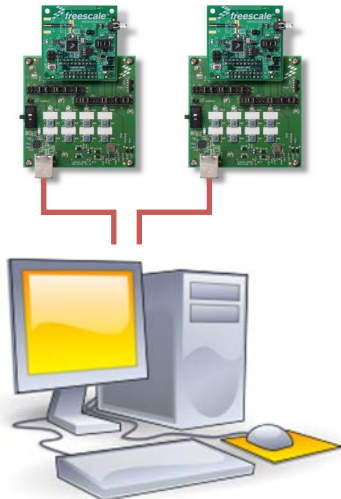1. Connect two 1323x-MRBs to their respective REM board headers.
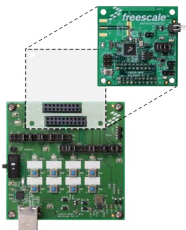

1323x-MRB (1) + REM (1)   **1323x-MRB (2) + REM (2)**

2. Connect both boards through a USB cable to a PC.

3. Power on the boards.

4. Configure UART/USB virtual COM port to start a serial communication with the boards. Each board requires its own connection. In this case, we will use HyperTerminal from Windows.

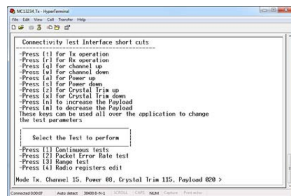5. Select the corresponding COM port and ensure the settings are configured as follows for each connection:
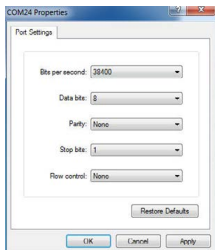
6. Press "OK" and press the "Reset" button on each board.

7. You will see the Connectivity Test Demo menu.

8. Press "Enter" to see available tests.

Note: At this point, you can edit different settings for the tests with the interface shortcuts as shown in the image.

This quick start guide will only demonstrate how packet error rate and range tests work.

2 Conduct a Packet Error Rate Test

The packet error rate (PER) test is a unidirectional test that sends a number of packets from a transmitter to a receiver all on a single channel.

1. Once you are in the Connectivity Test Demo menu, press "2" on both terminals to select PER test.

2. From now on, one board will be used as a receiver (Rx) and the other as the transmitter (Tx).

3. Receiver

   a) Press "R" to set the board in Rx operation.

   b) Press the space bar to start listening to packets.

   c) Terminal should display the message "PER Test Rx Running."

4. Transmitter

   a) Press "T" to ensure the board is in Tx operation.

   b) Start sending packets over the air (OTA) by selecting the number of packets to be sent.

5. Once the PER test is complete, a summary of received/sent packets will be displayed. You should be able to see if packets were not received due poor signal or interference.

6. Press "Enter" to go back to previous menu.
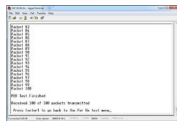
Transmitter   **Receiver**

3 Conduct a Range Test

The range test uses the link quality indicator (LQI) to monitor the variation of distance between the transmitter and the receiver during a normal transmission. LQI values range from 0 to 255.

1. Once you are in the Connectivity Test Demo menu, press "3" on both terminals to select Range test.

, one board will be used as a receiver (Rx) and the other as the transmitter (Tx).

3. Receiver

   a) Press "R" to set the board in Rx operation.

   b) Press the space bar to start listening to packets.

   c) Terminal should display the message "Range Test Rx Running."

4. Transmitter

   a) Press "T" to ensure the board is in Tx operation.

   b) Press the space bar to start sending packets over the air.

5. If Rx hasn't been started, Tx will show a "Packet Dropped" message for each packet sent.

6. After packets are sent from transmitter, the terminal will display the packets as being received with its respective LQI value. The stronger the signal, the closer to 255 the LQI value will be.

7. Press space bar to stop Tx/Rx.

8. Press "Enter" to return to the previous menu.
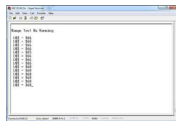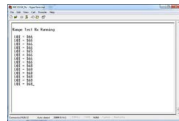
Transmitter   **Receiver**

4 More Information

Detailed instructions on how to run these and other demos can be found in the SMAC for S08 demonstration application user guide (SMAC08DAUG).

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/mc1323x