General Description
The MAX14912 peripheral module (MAX14912PMB) provides the hardware to evaluate the MAX14912 octal digital output driver. Refer to the MAX14912 IC data sheet for detailed information regarding operation of the IC.

The module can be used in various ways; Maxim sells a low-cost USB2PMB1#, USB2PMB2#, or USB2GPIO# adapter board that uses the Munich GUI software for communication through a USB cable. This is not included with this board. Alternatively, any microcontroller or FPGA with a 12-pin Pmod™-compatible connector can be used. Another option for the user is to wire-wrap a temporary connection from their system to the pins on connector X1. The Pmod PCB dimension is just 50mm long x 20mm wide, with the width determined by the size of the X3 connector.

Features
- Easy Evaluation of the MAX14912
- High speed Push-Pull Digital Output
- High Side Switch option featuring Safe-Demagnetization for Safe Turn Off of Unlimited Inductance
- Works with USB2PMB2# or USB2GPIO# Adapter and Munich GUI Software

Ordering Information appears at end of data sheet.

Contents
- MAX14912PMB# with the MAX14912

Pmod is a trademark of Digilent Inc.
Quick Start Guide

Required Equipment
- MAX14912PMB#
- 24V DC supply (>3A recommended) - not supplied
- USB2PMB2# (or USB2GPIO#) adapter with Munich GUI and micro-USB Cable - not supplied
- Windows® 7, Windows 8.1 or Windows 10 PC with a spare USB port

Note: In the following sections, software-related items are identified by bolding. Text in bold refers to items directly from the EV system software. Text in bold and underline refers to items from the Windows operating system.

Procedure
If the USB2PMB1 or USB2PMB2 or USB2GPIO adapter is used, the user can download software by following the steps below to get started. In this description the USB2PMB2 adapter is used:

1) Visit www.maximintegrated.com/evkitsoftware to download the latest version of the Munich(GUI) software, version 2.19 or later, Munich_GUISetupV2.19.ZIP.
2) Save the software to a temporary folder. Unzip the .ZIP file and double-click the .EXE file to run the installer. A message box asking Do you want to allow the following program to make changes to this computer? might appear. If so, click Yes.
3) The installer includes the drivers for the hardware and software. Follow the instructions on the installer and once complete, click Finish. The default location of the software is in the program files directory.
4) Connect the MAX14912PMB# Pmod connector X1 to the connector on USB2PMB2#.
5) Connect a 24V DC supply to MAX14912PMB# using barrel connector X2.
6) Connect the USB2PMB2# to the PC with the micro-USB cable. Windows should automatically recognize the device and display a message near the System Icon menu indicating that the hardware is ready to use.
7) Once the hardware is ready to use, launch the software. The status bar in the GUI should display Disconnected in the bottom right-hand corner. Go to the Device tab to select the MAX14912PMB#.
8) Click the button for each switch to set the corresponding output on (pin in high) or off (pin in Low) to set the MAX14912 outputs. Note that this board configures MAX14912 to be in Push-Pull mode. MAX14912 can be programmed, such that each individual output can be either Push-Pull or High-Side mode. In High-Side mode, the MAX14912 features fast and safe demag.

Windows is a registered trademark and registered service mark of Microsoft Corporation.

Figure 1. MAX14912PMB# Block Diagram
Detailed Description of Software

Connect to Hardware

The Device menu has options to search and connect to the hardware. Use the Scan Adapters option to search for the USB2PMB2 modules connected to the PC. If modules are found, the serial numbers of the modules are listed in the USB2PMB2s menu item. Select the serial number in the USB2PMB2s list to connect the software to communicate with that module. The software can only communicate to one module at a time only.

Setting MAX14912 Outputs

Each of the eight outputs are set as on or off by moving the corresponding button for the specific channel. Click the button for each switch to set the corresponding output on (pin in high) or off (pin in low) to set the MAX14912 outputs. When the output is on, the Green LED for that output is illuminated. If there is a fault, such as open load or undervoltage, the RED LED for that output is illuminated.
Detailed Description of Hardware
The MAX14912PMB hardware provides everything needed to evaluate the MAX14912 using the SPI serial interface, and includes the MAX14912, a terminal for the 8 external loads, and a 24V DC power connector. An optional USB2PMB2 module can be used with the Munich GUI to provide the USB-to-MAX14912 interface to control the MAX14912. The USB2PMB2# adapter provide a 3.3V input from the USB interface providing V_L to MAX14912. Note an external 24V DC supply is required even if used with the USB2PMB2# and a USB cable.

Pmod Style Connector
The MAX14912PMB# can plug directly into a Pmod-compatible port through X1. Note the pin definitions are SPI, and the user must configure the microcontroller or FPGA to match MAX14912 signals. For more information on the interface and control, refer to the MAX41912 IC data sheet. See MAX14912PMB Schematic for the X1 pinout.

External Supply
An external 24V DC supply is required to be connected to X2. The rating of this supply must be aligned to the load connected to X3.

LEDs
The 4 x 4 LED driver crossbar matrix offers a pin-optimized configuration for driving 16 LEDs. Per-channel output status and the fault conditions are indicated by individual LEDs, 8 Green LEDs for status and 8 Red LEDs for faults. If a FAULT LED is turned on for an output, the corresponding STATUS LED is always turned off. This mitigates false information about the status of the affected OUTPUT pin.

External Loads
An output connector is provided for each output along with a GROUND signal. See MAX14912PMB Schematic for the X3 pinout.

Ordering Information

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#Denotes RoHS compliant.
## MAX14912PMB EV Kit Bill of Materials

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**Notes:**
- **MAX14912PMB DEMO BOARD**
- **PCB:** PCB: MAX14912PMB_DEMO_B

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**Additional Notes:**
- The MAX14912 Peripheral Module is evaluated using the MAX14912.
- The bill of materials includes various components such as capacitors, resistors, connectors, and other parts.
- Each component is listed with its quantity, reference design, manufacturer part number, manufacturer, and description.

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**Contact:**
- Maxim Integrated
- www.maximintegrated.com
Revision History

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For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim’s website at www.maximintegrated.com.

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