Multiple Diagnostic Interface 2 User Guide

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Introduction

The Multiple Diagnostic Interface 2 (MDI 2) User Guide provides a quick reference and overview of the Multiple Diagnostic Interface 2 system.

Everything contained in this manual is based on the latest production information available at the time of publication. The right is reserved to make changes at any time without notice.

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Customer Support Overview

To obtain assistance with your TIS software, contact the ACDelco Aftermarket Support Center.

Before Calling

Before making a call for ACDelco Aftermarket support, be sure to have the following information ready:

- Business name, address, ACDelco TDS Login ID, and the technician's Telephone number
- Tell when the problem occurred
- List any error messages
- Give vehicle entry information

Making the Call

The ACDelco Aftermarket Support Center telephone lines operate from 8:00 AM to 8:00 PM (Eastern Standard Time) Monday through Friday.

In the United States and Canada to contact Customer Support, dial:

1-888-212-8959

Important PC Hardware Guidelines

ACDelco provides IT guidelines to help users have a seamless experience when using TIS2Web software applications. To avoid unnecessary compliance issues with TIS2Web, please review and adhere to the stated infrastructure guidelines at the following link: http://www.gmdesolutions.com/services/standards.php

These guidelines for GM Dealers also apply to Independent Service Centers, Professional Service Centers and Key Fleets using ACDelco Aftermarket subscriptions. For questions on these guidelines, contact 888-212-8959, prompt #2.

Symbols Used

Warning Notices - Structure and Meaning

Warning notices warn of dangers to the user or people in the vicinity. Warning notices also indicate the consequences of the hazard as well as preventive action. Warning notices have the following structure:

Warning Symbol	KEY WORD – Nature and source of hazard.
	Consequences of hazard in the event of failure to observe action and information given.
	Hazard prevention action and information.

The key word indicates the likelihood of occurrence and the severity of the hazard in the event of non-observance:

Key word	Probability of occurrence	Severity of danger if instructions not observed
DANGER	**Immediate** impending **danger**	**Death** or **severe** injury
WARNING	**Possible** impending **danger**	**Death** or **severe** injury
CAUTION	Possible **dangerous situation**	**Minor** injury

Symbols in this Document

Symbol	Designation	Explanation
!	Attention	Warns about possible property damage.
i	Information	Practical hints and other useful information.

Symbols on the Product

Observe all warning notices on products and ensure they remain legible.

Important User Information

To increase effectiveness with the Multiple Diagnostic Interface 2 (MDI 2), users should familiarize themselves with the format and information contained in this guide. Every attempt has been made to provide complete and accurate technical information based on factory service information available at the time of publication. However, the right is reserved to make changes at any time without notice.

Before starting up, connecting and operating the MDI 2, it is absolutely essential that the operating instructions/owner's manual and, in particular, the safety instructions are studied carefully. By doing so you can eradicate any uncertainties in handling this product and thus associated safety risks upfront; something which is in the interests of your own safety and will ultimately help avoid damage to the device. When this product is handed over to another person, not only the operating instructions but also the safety instructions and information on its designated use must be handed over to the person.

Safety Instructions

Please read and review all instructions, warnings and information included in this manual prior to start-up, connection and operation of the MDI 2 Vehicle Communication Interface.

This user manual is written for safe convenient setup and use of the product. We recommend that you carefully read the manual prior to using the MDI 2 and software.

⚡	DANGER – High Electrical Voltage Certain risk of personal injury or death Always consult the vehicle's service manual for safety precautions and procedures when working with high voltage vehicle systems and/or passive restraint devices such as airbags, pretensioners and other deployable devices.

⚠	WARNING – Dangerous Exhaust Gas Possible risk of personal injury or death When performing any checks with the engine running in an enclosed space such as a garage, be sure there is proper ventilation. Never inhale exhaust gases; they contain carbon monoxide - a colorless, odorless, extremely dangerous gas which can cause unconsciousness or death

⚠	WARNING – Parking Brake Possible risk of personal injury To help avoid personal injury, always set the parking brake securely and block the drive wheels before performing any checks or repairs on the vehicle.

⚠	CAUTION – Battery Clamps – Polarity Possible risk of personal injury Do not clasp battery clamps together when connected simultaneously to the vehicle's 12 volt cigarette lighter or power supply. Reverse

	polarity in the vehicle's cigarette lighter may be present. Damage could occur to the MDI 2 or to the vehicle. Make sure all cables and adapters are firmly connected before starting to use the MDI 2 Always read the instructions completely before attempting a new procedure.

Electromagnetic Compatibility

The MDI 2 satisfies the requirements of the EMC directive 2004/108/EG.

The MDI 2 is a class/category A product as defined by EN 55 022. The MDI 2 may cause high-frequency household interference (radio interference) so that interference suppression may be necessary. In such cases the user may be required to take the appropriate action.

Electronic Waste Disposal

This MDI 2 is subject to European guidelines 2002/96/EG (WEEE). Old electrical and electronic devices, including cables and accessories or batteries must be disposed of separately from normal household waste. Please use the return and collection systems in place for disposal in your area.

Damage to the environment and hazards to personal health are prevented by properly disposing of the MDI 2.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her expense.

All work conducted on electrical devices may be performed by persons with sufficient knowledge and experience in the field of electrics and hydraulics.

WiFi Compliance

This equipment complies with the following worldwide wireless standards.

Safety / Environmental Compliance

This equipment complies with the following worldwide safety and environmental standards.

Product Description

Overview

The Multiple Diagnostic Interface 2 (MDI 2) is used by professional technicians as an aid in diagnosing and repairing automotive electrical and electronic systems. The MDI 2 is designed to connect the vehicle to a host PC computer application which then functions through the MDI 2 for data transfer and Electronic Control Unit (ECU) reprogramming.

Using the MDI Manager PC application software, you configure the MDI 2 to communicate with a host computer. The MDI 2 is capable of communicating over a USB cable, Ethernet cable, or wireless network (WLAN).

User group

The product may be used by skilled and instructed personnel only. Personnel scheduled to be trained, familiarized, instructed or to take part in a general training course may only work with the product under the supervision of an experienced person.

PC System Requirements

The MDI 2 Software runs on a PC/Laptop. The user interacts with the MDI 2 software for device setup, and configuration for SAE J2534 or ISO 22900 data transfer and ECU reprogramming.

The following table lists the minimum PC/laptop requirements for installing and running the MDI 2 Software:

Item	System Requirements
Operating System	WIN 7 or Win 8 (32 bit and 64 bit PCs)
Available hard disk space	100 MB or greater
RAM	512 MB or greater
CPU	1 GHZ or higher
Communication Ports	2 USB
Video Resolution	1024 x 768 or higher

MDI 2 Kit Contents

The MDI 2 Kit includes hardware and cables needed to transfer data and reprogram ECUs on vehicles through the DLC connector.

GM MDI 2 KIT (WIRELESS)
EL-52100

EL-52100-1

EL-52100-3

EL-52100-4

EL-49755-1
SOLD SEPARATELY
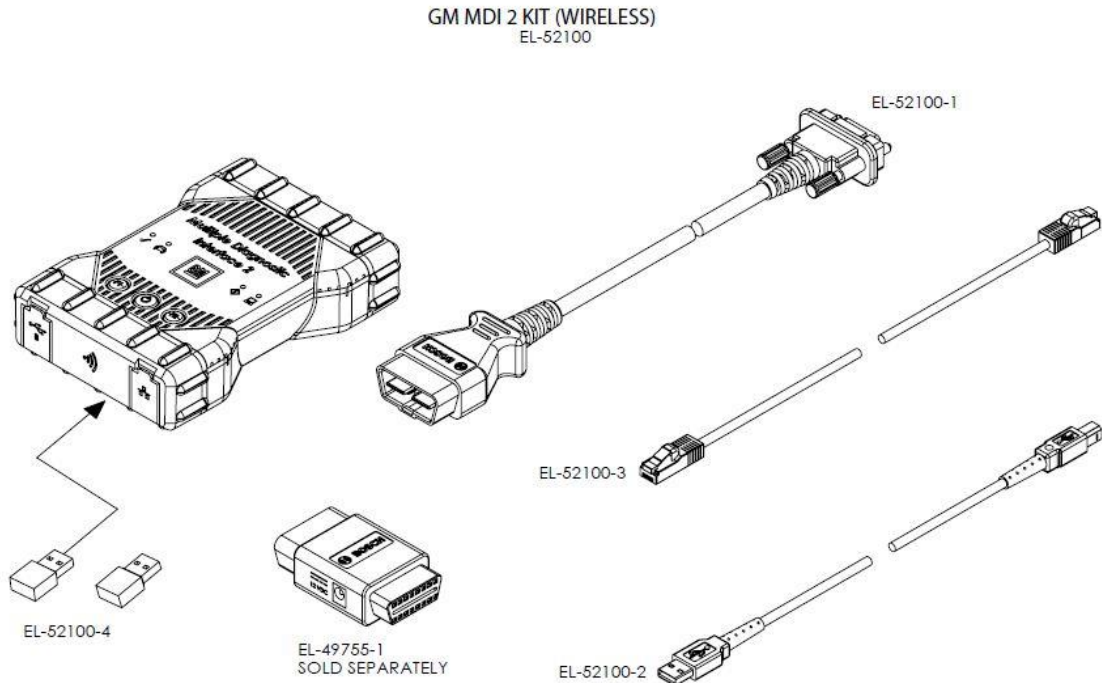
EL-52100-2

1699200183 Rev. D

The Wireless MDI 2 Kit (Bosch p/n EL-52100) US and Canada - Includes the MDI 2 assembly with two USB Wireless Adapters, DLC Cable, USB Cable, and Ethernet Cable. The Self Test Adapter is sold separately.

MDI 2 Connectors and Controls

A number of standard connectors and controls are available on the MDI 2 to facilitate operation and communication with vehicles and workshop networks. These connectors and controls are shown in the following illustrations.
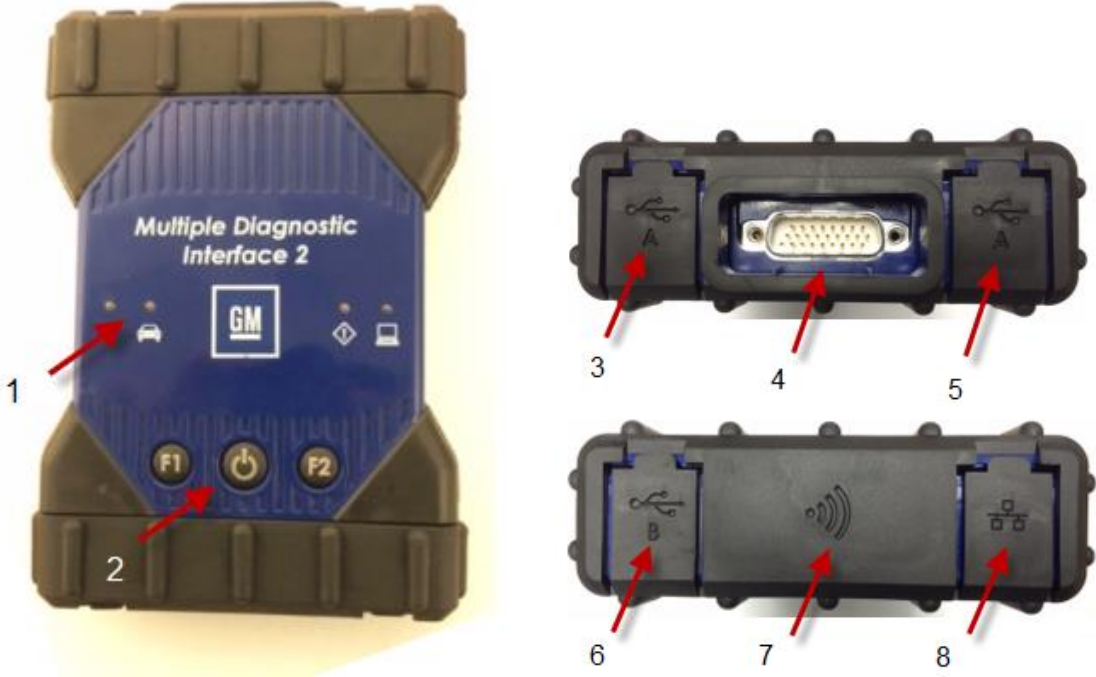
Item	Description
1	LED Indicators
2	Power Button LED
3	USB Port Type A
4	DB26 Connector (DLC Cable)
5	USB Port Type A
6	USB Port Type B - PC Connection Port
7	Wireless Adapter
8	Ethernet Port

Universal Serial Bus (USB – Item 6)

The MDI 2 has a fixed USB configuration which cannot be changed. This ensures that the MDI 2 can always be connected to a single PC running the MDI Manager software so you can configure LAN or WLAN settings required by your local network. In addition, it is important to note that a USB connection is recommended to configure and update the firmware on the MDI 2. USB connection must be made directly with the PC port. Do not connect through a USB hub.

Ethernet

The Ethernet connection on the MDI 2 is set up and configured while the device is connected over USB to a PC running the MDI Manager software. It is possible to update the firmware on the MDI 2 using an Ethernet connection.

Wireless Local Area Network (WLAN)

The 802.11n WLAN connection on the MDI 2 is set up and configured while the device is connected over USB to a PC running the MDI Manager software.

MDI Manager Software

The MDI Manager software is a host computer application which runs on the Microsoft Windows operating system to configure and update MDI 2s. The MDI Manager software allows the configuration of MDI 2-to-host PC communications and facilitates MDI 2 firmware updates.

SAE J2534 Pass-Thru Support

The MDI 2 has been validated to work with General Motors PC based diagnostics and reprogramming applications.

The MDI 2 supports pass-thru programming of the flash calibration files that are stored in a vehicle onboard controller (e.g., PCM, ABS, VTD). Refer to specific operating instructions provided by General Motors.

The MDI 2 design is based on the SAE J2534 Pass-Thru and ISO 22900 Modular Vehicle Interface standards, therefore the MDI 2 may also be compatible with vehicles built by other OEMs

MDI 2 Features

<u>Data Link Connector Cable</u>

The Data Link Connector Cable is the external test equipment (ETE) cable that connects the MDI 2 to the vehicle's SAE J1962 Data Link Connector (DLC). The DLC Cable with the grey SAE 1962 connector is specifically designed for the MDI 2 and measures 1.8 meters in length.

<u>Power Source</u>

The MDI 2 is intended to be powered from the vehicle battery via the DLC Cable for normal use. If the MDI 2 does not have sufficient power (12V) to perform vehicle diagnostics, the MDI 2 will inform you of insufficient power for diagnostics by blinking the Vehicle LED in the color *Red*. This scenario can be seen when the MDI 2 is only

powered from the 5V USB connection to the PC. If 12V power is lost or not detected while the MDI 2 is communicating with the GDS2 or Tech2Win application, the MDI 2 speaker will also beep to inform you of the loss of power. Beeping may occur if the DLC is accidently dislodged.

The MDI 2 may be powered over USB only to perform firmware updates from your PC. 12V power can be supplied by the vehicle DLC or the DLC Cable Self Test Adapter.

Some IMPORTANT information about powering your MDI 2:

- 12V is required for Vehicle Communication
- 12V is required for Wireless Configuration and use
- 12V is required for use of the Self Test Adapter
- 5V or 12V required for MDI 2 firmware Update or Recovery

Note: The DLC Cable Self Test Adapter cannot be used for vehicle diagnostics.

LED Indicators

Seven Light Emitting Diodes (LEDs) are located on the front of the MDI 2. The LED indicators provide the following status information.

LED Symbol	LED Function
🚗	Vehicle Communication
◈	Error Indicator
🖳	PC Host Communication
⏻	Power Button
✔	Power On Self Test
F1	Function 1
F2	Function 2

Getting Started

The following sections provide the information needed to begin using the MDI 2 including installing the MDI Manager software, updating the firmware on the device, configuring connection methods, and communicating with the vehicle.

Installing the MDI Manager Software

The MDI Manager software is installed on the PC and provides access to the MDI 2s located on your network. The MDI Manager must be installed on the PC in order to configure, update and run diagnostic applications targeted for the PC. Initially you use the MDI Manager software to set up the configuration of each MDI 2. The MDI Manager is also used to update the firmware on the MDI 2. Use the following procedure to install the MDI Manager software on your PC.

Visit the TIS2Web/GlobalTIS website to determine if a newer version of MDI Manager software is available for your device. If the software on the website is newer than your PC, download the software to your computer.

If you downloaded the software from the website, double-click the downloaded file and follow the instructions on the screen. The InstallShield Wizard starts and guides you through the software installation.

The InstallShield wizard displays a panel indicating that the program is ready to be installed. Click Install to proceed with the installation. A progress bar shows the status of the installation. [You can click Cancel if you want to halt the installation process. You are prompted to respond if you are sure you wish to cancel the installation.]

Click Finish to complete the installation. The InstallShield Wizard places the MDI Manager icon on your desktop.

Setting Up the MDI 2 Hardware

Installing Your Wireless Adapter

The wireless adapter must be installed into the MDI 2 before you can use the wireless features.

Use the following procedure to install the wireless adapter into your MDI 2.

- Ensure power is removed from MDI 2.
- Remove the lower boot from the MDI 2.
- Install the wireless adapter into the USB port.
- Replace the lower boot on the MDI 2.

If you have a wireless MDI 2 kit and are planning to use Point-to-Point wireless communication, you must install the second wireless adapter from your kit into the PC. Use the following procedure to install your wireless adapter into your PC.

Identify a USB 2.0 port on your PC that is accessible. Do not plug wireless adapter into a USB hub.

Install the wireless adapter into the PC USB port. You may have to wait for your PC to install and configure the wireless adapter driver onto your PC.

Reminder: You should use Windows to Safely Eject the wireless adapter before physically removing it from your PC.
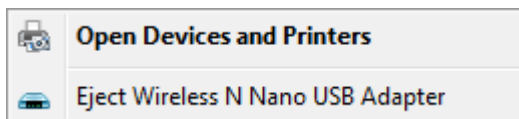
Identifying Your MDI 2

The MDI 2 label is located on the back of the MDI 2. The MDI 2 identification number has two parts: a manufacturing code for traceability and a unique serial number. The serial number is used to identify the MDI 2 in the MDI Manager software. You will need to refer to this serial number when you are using MDI Manager to configure the MDI 2 and perform software updates.

Updating the MDI 2 Software

The MDI 2 is shipped from the factory without firmware. Before operating your MDI 2 we recommend visiting the TIS2Web/GlobalTIS website to see if a newer version of the MDI 2 firmware is available for your MDI 2. Your first connection is to the PC where you have installed MDI Manager software. You will need the USB cable to configure your MDI 2 using MDI Manager.

Use the following procedure to update the firmware on your MDI 2

Select the MDI Manager icon from the PC Desktop. Before proceeding to the next step, make sure your MDI 2 is powered on and the MDI 2 is connected to the PC using the USB cable. The MDI 2 will boot in Recovery Mode.(only in factory setup)

When you click on the new MDI 2, the Connect button will change to the Recover button. Your MDI 2 will be displayed without the serial number when initially connected to MDI Manager.

Select the Recover button to start the update process

Select the Start Update button to install firmware on the MDI 2.

Do not unplug the MDI 2 from the PC or remove power from the MDI 2 during the update process. Select OK to continue.

The update process will take about 5 minutes to complete. Once the update process is complete the MDI 2 will automatically reboot. Wait until you hear the beep from the MDI 2 before proceeding to use your MDI 2.

Configuring the MDI 2 Using MDI Manager

In order to configure a MDI 2 to communicate on your network you must connect the MDI 2, via USB, to a PC running MDI Manager software. The MDI Manager icon displayed on the MDI 2 will inform you of the communication method to be used if the <Connect> button is selected.

Icon	Description
	MDI Manager will connect to MDI 2 via USB
	MDI Manager will connect to MDI 2 via Ethernet
	MDI Manager will connect to MDI 2 via Wireless
	Wireless Point-to-Point is not set up. Connect MDI 2 to the PC using USB cable to complete setup.
	Wireless adapters in the PC and in the Tester are incompatible with each other.
	MDI Manager is connected to the MDI 2

Use the following steps to configure your MDI 2

Double-click the MDI Manager icon on your desktop to launch the MDI Manager software.

In the MDI Manager software MDI 2 Explorer tab, select the MDI 2 in the window. Click the Show Details button to see details about the selected MDI 2.

Click the Connect button to connect to the selected MDI 2 over USB. The MDI 2 is displayed with a green check mark on your display indicating that your MDI Manager software is in control of that MDI 2. Note: If your MDI 2 is connected to another networked PC, it will still be detected by the MDI Manager but will not be available for selection. [If your MDI 2 is connected via USB to your computer, the MDI Manager functions on all tabs are available; if your MDI 2 is not connected via USB, the functions on the Network Setup and MDI 2 Update tabs are not available.]

Check PC and MDI 2 Software Versions

Typically, the MDI Manager software installed on your PC and the software installed on the MDI 2 must have matching versions in order for the MDI 2 to operate properly. Use the following steps to check your software versions.

1. Connect the MDI 2 to your computer via USB cable.
2. Double-click the MDI Manager icon on your desktop to launch the MDI Manager software.

3. On the MDI 2 Explorer tab, select your MDI 2 in the window.
4. Click the Show Details button to see the detail view of the selected MDI 2.

The MDI 2 Detailed View window shows the PC S/W Version information for the MDI Manager software and the MDI 2 firmware Version for the MDI 2 as well as available interfaces and IP addresses. If both the MDI Manager software version and the MDI 2 software version match, you can use your MDI 2 with this PC.

Setting Up Wireless Communications

The MDI 2 is capable of communicating on your workshop network over Wireless. The Network Setup tab in the MDI Manager software provides a number of functions used to select and configure the MDI 2 network connection interfaces including wireless access and security settings.

You must be connected to the MDI 2 via USB to access the settings on the Network Setup tab. If you are not connected via USB, the controls on the Network Setup tab are disabled.

The MDI 2 supports two methods for wireless communication. With the Access Point Wireless Communication method the MDI 2 connects to your PC through an access point in your workshop. With the Point-to-Point Wireless Communication method the MDI 2 connects to your PC directly using a USB wireless adapter. Each of these methods are described in the following sections.

Enabling Access Point Wireless Communication

Your MDI 2 can be configured for Access Point Wireless Communication. Before starting, you need to know the following:

1. An IP Address and Subnet Mask to assign to your MDI 2 (if your LAN does not automatically assign IP addresses)
2. Wireless communication access point SSID (network name)
3. Wireless security password (encryption key)
4. The illustration below shows several MDI 2s connected to a single laptop PC using a wireless access point.
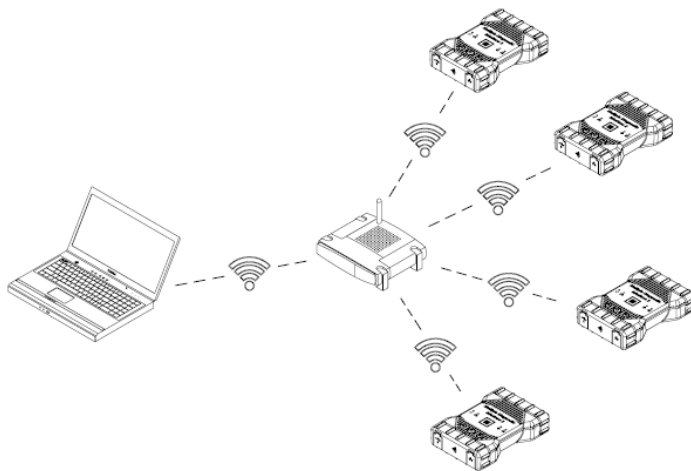
Use the following procedure to configure your MDI 2 for wireless communication in your environment. Before modifying the MDI 2 communications interface, contact your IT Administrator.

1. Start the MDI Manager software by clicking on the MDI Manager icon.
2. Plug the MDI 2 into external 12v power.
3. Plug the USB cable into the PC and MDI 2 and allow the MDI 2 to boot completely.
4. Select and Connect to your MDI 2 in the MDI Manager software MDI 2 Explorer tab.
5. Select the Network Setup tab.
6. From the Wireless tab, select the Enable Wireless Interface check box in the Interface Control section. Once you enable the interface, the IP Address Configuration box and the Apply and Cancel buttons become active.
7. Select Obtain an IP address automatically if your LAN automatically assigns IP addresses. Otherwise enter the assigned IP Address and Subnet mask given to you by your IT Administrator.
8. Select Access Point to begin wireless access point configuration.
9. Specify the network name:
    a. If your access point uses a hidden SSID or if you are not within range of the access point you will select the Enter Network Name [SSID]: radio button and type the network name.
    b. If you are within range of your wireless access point, choose the Select from available network list radio button and then select Refresh to cause the MDI 2 to search for wireless network signals. The detected networks are displayed in the Network Name box.

10. After you have entered the network name, select Configure.

11. Enter the security settings that are required by your network, then select Next.

12. Select Yes to reconfigure your MDI 2, or if you want to start over select No.

13. Choose the Properties tab to verify that the MDI 2 is configured correctly. You can also disconnect the USB cable to verify that the wireless connection is working.

14. Record or print your settings as they are displayed on the Properties tab for future reference.

Enabling Point-to-Point Wireless Communication

Your MDI 2 will initially be configured for Point-to-Point Wireless Communication on the PC you are connected to. Before starting, please verify your MDI 2 kit is the Wireless-Point-to-Point kit 8200171 (Bosch p/n 1699200171) which includes the MDI 2 assembly with two D-Link Wireless 802.11n USB Adapters.

The illustration below shows a single MDI 2 connected to a laptop PC using Point-to-Point Wireless communication.

If you need to re-configure Point-to-Point on your MDI 2, use the following procedure. Note that the steps presented below assume you are running the Windows 7 operating system on your PC. The steps for other versions of the Windows operating system may be slightly different.

1. Insert the Wireless USB adapter in an available USB port on your PC. Do not plug the wireless adapter into a USB hub. Power-on your PC.
2. Connect the MDI 2 to your PC using the USB cable and allow the MDI 2 to boot completely. Do not plug the MDI 2 USB cable into a USB hub.
3. Start the MDI Manager software by double-clicking the icon on the PC desktop.
4. The Point-to-Point connection is automatically configured. Wireless communication will be available when you are powered through the DLC Cable.

If you have the need to reset your Point-to-Point passphrase, you can use the following steps. The following steps assume you are running the Windows 7 operating system on your PC.

1. On the right-hand side of the Windows Task Bar, click the View Wireless Networks button. A list of the available wireless networks in range of your PC is displayed.
2. Select Open Network and Sharing Center.
3. Select Manage Wireless Networks from the left column.
4. Select Change adapter menu and choose MDI from the list.
5. Remove your stored Point-to-Point network. The name will contain MDI and the last 8 digits of the MDI 2 serial number, (MDIXXXXXXXX).
6. When you reconnect the MDI 2 to the PC using the USB cable, a new passphrase will be established.

Set Factory Default
Selecting the Set Factory Default button on the Network Setup tab reconfigures your MDI 2 to the Point-to-Point communications settings it had when it left the factory. Any software upgrades that have been installed to the MDI 2 are still installed. When the MDI 2 reset is finished, the MDI Manager software displays the MDI 2 Explorer tab. All wireless AP configurations will be lost.

Power On Self-Test (POST)

When you first apply power to a MDI 2 with firmware, the Power On Self-Test (POST) runs. You should observe a sequence of lights and hear the "BEEP' indicating that the MDI 2 is working properly.

1st Stage

2nd Stage

3rd Stage

4th Stage (beep)
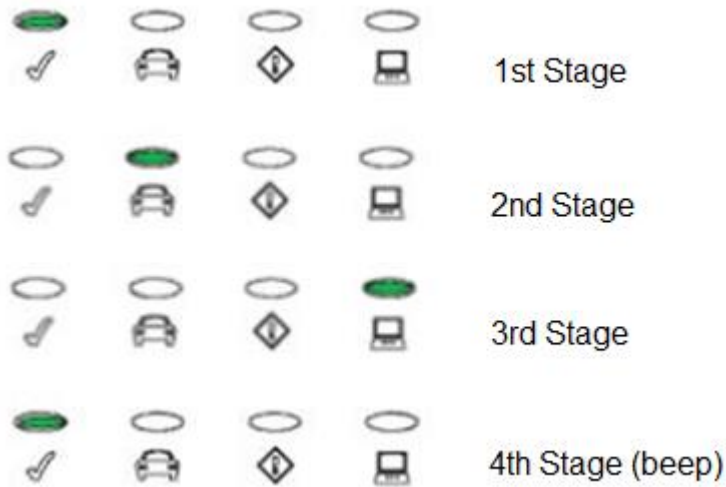
If a failure occurs, one long audible beep will be heard and a Test Failure light sequence displays which includes the red Error LED.

Connecting the MDI 2 to a Vehicle

The MDI 2 Vehicle Communication Interface kit contains an external test equipment (ETE) cable that connects the MDI 2 to the vehicle's SAE J1962 Data Link Connector (DLC).
Refer to the electrical wiring diagram for the vehicle you are testing to determine the location of the DLC on the vehicle.
Connect the 26-pin end of the ETE cable to the top of the MDI 2, then tighten the screws.
Connect the 16-pin end of the ETE cable to the vehicle DLC connector.

Powering the MDI 2

The MDI 2 will be powered by the vehicle's 12-volt battery.

Finishing Up

After using the MDI 2, a few simple steps help you leave the vehicle electronic system(s) in the proper state and ensure that you get the most use out of your diagnostic tools:

1. Before turning the MDI 2 off, exit any running PC computer applications.
2. Turn the MDI 2 off by removing power. The Power LED turns off.
3. Disconnect the MDI 2's DLC cable from the vehicle.
4. Disconnect the USB cable from the PC and the MDI 2.
5. Store the MDI 2, cables, and other parts in a secure, dry location.

SAE J2534 Configuration

The MDI 2 is a SAE J2534 device that connects between your computer and the vehicle's SAE J1962 DLC connector for pass-thru programming of the vehicle's ECUs. The SAE J2534 Configuration Application is installed on your PC at the same time as the MDI Manager software, allowing you to keep your OEM PC application connected to a MDI 2. In addition, this

application provides API Monitoring controls to aid in investigating problems encountered while using any J2534 devices (including the MDI 2).

J2534 Device Configuration Application

The Device Configuration controls in the J2534 Configuration Application allow you to define a default MDI 2 and a connection sequence that a SAE J2534 compliant PC application will follow to connect to your MDI 2s. Note: This feature does not apply to PC Applications using the ISO 22900 standard.

The J2534 Config App (MDI) is located in the programs menu: Start>All Programs>General Motors>GM MDI Software.

There are two controls in this area: the Default Device control and the Auto-Connection Order control.

The Default Device text box allows you to type the serial number of the MDI 2 that you want to define as your default device.

The Auto-Connection Order control allows you to select multiple connection methods.

- Device on USB
- Default Device
- Device Explorer

If the box to the left of the method is checked, then the connection method is attempted when connecting. If the box is not checked, then the connection method is skipped. The connection methods are attempted sequentially from top to bottom.

To change the order, select a connection method and click the up or down arrow to the right of the Auto-Connection Order window.

The Device on USB connection method attempts to connect to a MDI 2 via USB, even if that MDI 2 is not the Default Device.

The Default Device connection method attempts to connect to the Default Device (MDI 2) using the first available connection in the following order: USB, Ethernet, Wireless.

The Device Explorer connection method opens a dialog box which shows if MDI 2s are detected.

MDI 2s that are not available have a red X across them and cannot be selected. MDI 2s that are available can be selected is several ways.

- Right-click a MDI 2 and select from available connections (USB, Ethernet, or wireless).
- Select a MDI 2 and press the Connect button.
- The Auto-Connection strategy connects using the first available connection in the following order: USB, Ethernet, Wireless.
- Right-click a MDI 2 and select from available connections.
- Right-click a MDI 2 and set it as the Default Device.

The Cancel button closes the dialog box without making a connection.

Troubleshooting

This section is intended to help you get back on track if the MDI 2 appears to be operating abnormally. In addition, the most likely cause for the condition is given as well as other possible causes and recommendations on how to isolate or eliminate the problem.

MDI 2 Does Not Pass Power On Self-Test (POST)

Most Likely Cause: Internal problem in the MDI 2.

Recommendations:

Connect the MDI 2 to a PC using USB and perform the recovery procedure.

MDI 2 Error LED Lights After Power On

Most Likely Cause:

A problem has been detected during power on.

Recommendations:

Power down the MDI 2 and verify that it has the same problem when you power up again.

Connect the MDI 2 to a PC using USB and perform the recovery procedure.

MDI 2 Fails to Power Up

The MDI 2 should power up as soon as external power is applied. If the MDI 2 does not turn on, first check the power cable connections. Try supplying power to the MDI 2 from different power sources— the vehicle DLC connector or USB.

Recommendations:

Check that the cables are securely attached to the MDI 2 and the connector pins are clean.

If connecting to the vehicle DLC connector, try powering via USB.

Verify power at the DLC connector.

MDI 2 Vehicle LED is Blinking Red

If the MDI 2 does not detect 12V on Pin 16 of the DLC cable, the MDI 2 will inform the user by automatically turning on and blinking the Vehicle LED red. This condition might be seen if the MDI 2 is only powered by a 5V USB connection or if the DLC Cable has accidently been displaced from the vehicle Data Link Connector and is powered from the backup capacitor. When the MDI 2 detects 12V on Pin 16, the Vehicle LED will stop blinking red.

Recommendations:

Ensure 12V is applied to Pin 16 of the DLC cable

MDI 2 Speaker is Beeping

If the MDI 2 is performing diagnostic services for the PC and does not detect 12V on Pin 16 of the DLC cable, the MDI 2 will inform the user of the loss of power by beeping the speaker. This condition might be seen if the DLC Cable has been removed from the vehicle Data Link Connector while the MDI 2 is still communicating with GDS2 or Tech2Win application. The MDI 2 will continue to beep until the backup capacitor is drained. When the MDI 2 detects 12V on Pin 16, the speaker will stop beeping.

Recommendations:

Ensure 12V is applied to Pin 16 of the DLC cable during a diagnostic session

MDI 2 Turns Off Immediately When Disconnected from the Vehicle During a Diagnostic Session

If the MDI 2 does not remain on during cranking or DLC disconnect, there may be a problem charging the internal capacitor.

The MDI 2 should remain powered up if power is lost during engine cranking or after it is disconnected from power (vehicle DLC) during a diagnostic session. The MDI 2 speaker will beep to notify the user that power has been lost unexpectedly during the diagnostic session.

Recommendations:

Check for 12V power supply at the vehicle DLC connector

Ensure that the MDI 2 has been connected to the vehicle DLC for at least 90 seconds to charge the internal capacitor.

MDI 2 Checkmark LED is Blinking

If the internal temperature of the MDI 2 has exceeded the maximum limit, the MDI 2 will automatically turn off the wireless adapter. This will be visible to the user by the Checkmark LED blinking. When the internal temperature of the MDI 2 lowers to an acceptable value, the wireless adapter will be re-enabled for wireless communication.

Recommendations:

Move the MDI 2 to a cooler location near the vehicle

Suspected Defective Data Link Connector (DLC) Cable

If you suspect a defective DLC Cable, you should perform the Cable Test from the MDI Manager. The MDI Manager software supports a DLC Cable Self Test with the use of the Self Test Adapter. The Cable Test will suggest whether or not the DLC Cable is defective. The Self Test Adapter used for the test is not intended to be used for vehicle communication. The following steps can be followed to perform the DLC Cable Test.

1. Start the MDI Manager software by double-clicking the icon on your desktop.

2. Place the Self Test Adapter on the end of the SAE J1962 DLC cable.
3. Connect the adapter cable to a 12V power source by either connecting the adapter to a vehicle data connector or by plugging in the 12V DC source.
4. Connect your MDI 2 to the MDI Manager using a USB cable.
5. Connect your MDI 2 to the MDI Manager using the Connect button in the Explorer tab.
6. Select the Cable Test button from the Help tab within the MDI Manager software.
7. The MDI Manager software will inform you to ensure the self test adapter is connected to the end of the DLC cable with 12V applied.
8. The MDI Manager software will run a series of tests on the DLC cable. The results will be displayed as PASS or FAIL.

Wireless Communication with Network Unsuccessful using DWA131 E1 dongle

The D-Link DWA131 E1 dongle is not intended to be used for PC wireless communication to a network. The DWA131 E1 dongle is only intended to be used with the MDI 2 for Point-to-Point communication or Infrastructure wireless communication.

Recommendations:

Make sure you do not have two D-Link wireless dongles connected to the PC.

Make sure you are not trying to connect the PC to your dealership network using the DWA131 E1 dongle.

MDI Manager Displays the Yellow Icon over the MDI 2 after previous use

There may be instances when Windows does not recognize the installation of the DWA131 E1 wireless adapter. In these cases, Windows may create a new wireless profile instead of using the existing one already stored on the PC. The yellow icon displayed over your MDI 2 instructs you to plug in the USB cable between the MDI 2 and the PC.

Recommendations:

- Always use Windows to safely Eject the wireless adapter before physically removing it from your PC.
- Unplug and then re-install your wireless adapter. Windows will attempt to recognize the wireless adapter. If successful, the yellow icon will disappear and the MDI 2 will be ready for wireless Point-to-Point communication.

PC Application is Unable to Communicate with the MDI 2 over USB

MDI Manager Software must be installed on the PC, and the MDI 2 must be powered up before it will communicate. The MDI 2 must be configured through USB before it will communicate using any other connection types.

If other applications including the MDI Manager are able to connect to the MDI 2 then

   o Check the Windows Firewall settings to see if the application is being blocked.

If all installed applications are unable to communicate with the MDI 2 then

- Connect the MDI 2 to the PC using USB but do not connect it to the vehicle, Do not connect through a USB Hub or a repeater cable.
- Verify that the USB cables are securely attached and the MDI 2 has completed its power up sequence
- Launch the MDI Manager Application
- Does MDI Manager detect the MDI 2?

If NO

- Try a different USB Cable / Port on the PC
- Check the Windows Firewall to see if the MDI Manager is Blocked. Check that the MDI 2 USB connection is detected by Windows:
- From the Windows Control Panel, open the Network and Dial-up Connections window.
- Check for device name "Bosch VCI". If not running, then the USB driver has not been loaded on the PC. Perform the following troubleshooting steps.
    1. Unplug the USB cable from the PC and plug it back in to the same USB port on the PC. Continue if not resolved.
    2. Unplug the USB cable from the PC and plug it back in to a different USB port on the PC. Continue if not resolved.
    3. With the MDI 2 plugged into the PC with a USB cable, open the device manager from the Windows control panel. In device manager search for an unknown or improperly configured device. The MDI 2 will likely be detected as one of the following:
        - Other device – RNDIS/Ethernet Gadget with a yellow exclamation icon
        - Universal serial bus controllers – Unknown USB Device
            i. Right click on the device name in device manager > Update Driver > Browse my computer for driver software > Browse > C:\Program Files (x86)\GM MDI Software\USBDriver
    4. Plug a different MDI 2 device (MDI #2) into the PC (PC #1). Continue if not resolved.
    5. Plug the original MDI 2 device (MDI #1) into a different PC (PC #2) with MDI manager software installed on it.
    6. Contact Technical Support.

If YES

- Test if connection lost when the MDI 2 is connected to the Vehicle –
    o Check for Ground faults - (Battery Chargers, Hoists…) This issue may be resolved by correcting the ground fault or configuring the MDI 2 to connect wireless or Ethernet.
    o Check for an improperly wired DLC connector

- If the MDI Manager is still not able to communicate with the MDI 2, perform the Recovery Procedure on the MDI 2

PC Application is Unable to Communicate with the MDI 2 over Wireless or Ethernet

Check that the wireless card is properly seated in the MDI 2.

Confirm the MDI can connect over USB

If using point to point confirm the PC has a single dongle connected, connect the MDI 2 to the PC using USB

Confirm the communication is enabled and the IP configuration is properly set using the MDI Manager software

If using infrastructure wireless, contact your IT department and check that your PC is detecting the wireless access point, and the correct security settings have been configured for the MDI 2.

Cleaning and Maintenance

Cleaning and Storing Your MDI 2

The housing of the MDI 2 module may only be cleaned using a soft cloth and a neutral cleaning agent. Do not use any abrasive cleaning agent or rough cleaning cloths.

There are no user serviceable components inside the MDI 2 Vehicle Communication Interface.

Do not open the device. Opening the device will void the warranty.

If the MDI 2, connectors, or cables become dirty, they may be cleaned by wiping them with a rag lightly coated with a mild detergent or non-abrasive hand soap. Do not immerse the MDI 2 or any of its parts or accessories in water.

Although the MDI 2 and accessories are water resistant, they are not waterproof; thoroughly dry them prior to storage if any part is in direct contact with liquids.

Avoid using harsh solvents such as petroleum based cleaning agents, Acetone, Benzene, Trichloroethylene, etc.

Recovering the MDI 2 Software

As a result of a power failure or a communications error during a software update, the MDI 2 software may become corrupted. You may see several symptoms such as error messages directing you to go to RECOVERY mode or an inability to connect to a detected MDI 2.

The following two error messages generally occur during MDI 2 Tester Software download. If you see either of these messages, perform the Recovery Procedure.

"Error reprogramming the MDI 2. Go to Recovery Mode."

"There was a problem reprogramming the MDI 2."

Recovery Procedure

Use the following procedure to recovery the software on the MDI 2.

1. Press and hold the Power button of the MDI 2 down. Release the button when the red Error LED is illuminated. After Error LED is illuminated, the MDI 2 is ready for recovery and the Error LED will remain on.
2. Start the MDI Manager software by clicking the MDI Manager icon on your desktop. Your MDI 2 must be connected via USB or it will not be recognized.
3. When the MDI 2 is detected by the MDI Manager software, the icon will be labeled with "Recover".
4. Select the MDI 2 without the serial number and click the Recover button. The MDI Manager software switches automatically to the MDI 2 Update tab.
5. The Recovery Procedure removes any embedded application software loaded on the MDI 2. Your network settings will be retained.

6. Select the latest version of the MDI 2 Recovery Image and click Start Update. Do not unplug the MDI 2 from the PC or remove power from the MDI 2 during the recovery process.

7. When you see the message indicating that the MDI 2 will automatically restart, click OK. The MDI Manager software switches automatically to the MDI 2 Explorer tab, and your MDI 2 appears when it has finished the restart and Power On Self Test (POST).

Glossary

TERM	DESCRIPTION
DC	DIRECT CURRENT
DLC	DATA LINK CONNECTOR
ETE	External Test Equipment
ETHERNET	STANDARDIZED IEEE 802.3 TWISTED-PAIR WIRE FOR CONNECTING SYSTEMS TO A NETWORK.
HZ	HERTZ - A UNIT OF MEASURE FOR FREQUENCY
LAN	LOCAL AREA NETWORK
LED	LIGHT EMITTING DIODE
MDI MANAGER	PC SOFTWARE THAT CONFIGURES, TESTS, AND UPDATES THE MDI 2
OEM	ORIGINAL EQUIPMENT MANUFACTURER
PC	PERSONAL COMPUTER
POST	POWER ON SELF TEST
USB	UNIVERSAL SERIAL BUS - A COMMON STANDARD FOR INTERFACING WITH A PC
WLAN	WIRELESS LOCAL AREA NETWORK