M.1 PERFORMANCE COMPUTER /Owner's Manual

magden

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MAGDEN AUTOMOTIVE is an engineering company focused on innovative display system design based in southern California. We integrate advanced user interface systems with onboard and remote data streams.

Our core innovative strengths are drawn from diversified experience. Software capabilities include advanced system architecture design, data telemetry solutions, embedded platform integration, and end-user application development.

Forty years involvement and combined experience in the OEM, automotive aftermarket, aerospace, marine and professional motorsport industries give Magden an extensive knowledge base and global perspective to guide our customers to the most effective solutions.

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REGISTER YOUR M.1

Return you Product Registration Card or register online at

WWW.MAGDEN-AUTO.COM/USERS

today to get the very most from your purchase.

Registering your model with Magden Automotive makes your eligible for all of the valuable benefits listed below, so don't miss out. Complete and return your Product Registration Card at once, or register online at www.magden–auto.com/users to ensure:

PROOF OF PURCHASE

Returning the enclosed form guarantees that your date of purchase will be on file, so no additional paperwork will be required from you to obtain warranty service.

ADDITIONAL BENEFITS

Registering your product it guarantees that you will receive all of the privileges to which you are entitled, including special money–saving offers and free downloads.

PRODUCT SAFETY NOTIFICATION

By registering your product, you will receive a notification – directly from the manufacturer – in the rare case of a product recall or safety defect.

1 NOTES, WARNINGS & POLICIES

TRADEMARK TM

Specifications and Information contained in this documentation are furnished for information use only and are subject to change at any time without notice and should not be construed as a commitment by manufacturer.

ENVIRONMENTAL PROTECTION ANNOUNCEMENT

Do not dispose this electronic device or packaging into the trash while discarding. To minimize pollution and ensure protection of the environment, please recycle.

USER'S NOTICE

Copyright of this manual belongs to the manufacturer. No part of this manual, including the products and software described in it may be reproduced, transmitted or translated into any language in any form or by any means without written permission of the manufacturer.

This manual contains all information required to use the Magden Automotive Performance Computer and we do assure this manual meets user's requirement but may change at any time without notice. Manufacturer provides this manual "as is" without warranty of any kind and will not be liable for any indirect, special, incidental or consequential damages (including damages for loss of profit, loss of business, loss of use of data, interruption of business and the like).

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies and they are used only for identification or explanation and to the owner's benefit, without intent to infringe.

M.1 VERSIONS

Several versions of the M.1 are manufactured. The most common are M.1B and M.1+, where the M.1+ has the additional sensor inputs. This manual covers the operations of both these versions.

NOTES: Contain helpful information, reminders and recommendations.

- ✕ Do not drop or crush unit when installing.
- ✕ Do not open case to diagnose any problems, will void warranty.
- ✕ Do not expose to water. Avoid spilling liquid on or around unit as liquids may cause shorting and/or failure.

WARNING: Boxes like this contain information that must be followed and observed. Failure to do so may cause component failure or system malfunction.

2 WARRANTY

M.1 PERFORMANCE COMPUTER® by Magden Automotive, L.L.C. warrants that M.1 PERFORMANCE COMPUTER products will not fail under normal use and service for a period ninety (90) days from the date of purchase.

If your M.1 Performance Computer product should fail within the stated warranty period, Magden Automotive, L.L.C. will repair or replace the failed part. To qualify for a warranty replacement or repair, you must; (1) contact Magden Automotive for a **return merchandise authorization (rma) number** and (2) have registered your product with Magden Automotive. After receiving your **RMA number** from Magden Automotive, carefully package and ship (shipping prepaid) to Magden Automotive, Attention: RMA #. Make sure the RMA# is clearly visible on the outside of the package. Include a return address.

To qualify for warranty replacement or repair, you must return the system component, postage prepaid. Include a return address and proof of purchase. The repaired or replacement component will be returned without charge and will continue to be covered for the balance of the original warranty period. Please note that installation error is not considered a manufacture' failure. This is the sole remedy extended for this product.

The above warranty is the sole warranty, other than warranty of title. **Any and all other warranties, including but not limited to those of merchantability and of fitness for a particular purpose, are expressly disclaimed.**

This warranty is void in the case of accident, misuse, or improper electrical or mechanical installation. Please visit www.magden.com/company and click on Warranties for complete warranty information.

M.1 PERFORMANCE COMPUTER® by Magden Automotive, L.L.C. will not be liable for any loss or damage, whether incidental, indirect, consequential, special or otherwise arising from the installation or use of this product. M.1 PERFORMANCE COMPUTER® by Magden Automotive, L.L.C. maximum liability shall not in any case exceed the purchase price of your M.1 PERFORMANCE COMPUTER® product.

WARNING: Do not operate the M.1 in ways that affect your driving. If extended interaction with the unit is necessary, pull over and stop where it is safe to do so.

3 INTRODUCTION TO THE M.1

Thank you for your confidence in Magden Automotive and purchasing the Magden Automotive M.1 Performance Computer. You have selected one of the most innovative products available and are on your way to experiencing a new level of vehicle interaction and information gathering.

The system was designed around a philosophy of “ease of use” and “natural flow.” The best experience comes when the M.1 is mated to a touch screen that will accept a USB cable. Connection to a LCD screen and use of a pointing device are also possible.

The M.1 Performance Computer provides a simple and fun way to view, record, and playback vehicle data. It receives and displays live data from OBD–II channels and optional raw sensor inputs. You are not restricted to the same old gauges invented over 100 years ago. Customization is easy as touching the screen*. Select how you want to view, record and customize the data.

***Touch screen not included.**

4 PACKAGE & SOFTWARE CONTENTS

4.1 PACKAGE CONTENTS

** **OBD–II** On Board Diagnostics version two*

4.2 SOFTWARE CONTENTS

The M.1 is loaded with software that can read your vehicle's data and display it in a unique graphical format. The software also allows you to customize the information presentation and select your personal displaying preferences. The M.1 contains three gauge layout choices, skin selections for each layout, choice of indicator color and choice of gauge text color.

The menu system is an intuitive and quick to learn. Simply touch the screen in different areas to access various features and functions. Touching anywhere outside the GAUGE AREA will access the MAIN MENU. Touching inside a GAUGE AREA will access the available data channels for that gauge position.

To see what software versions you have, access the main menu, select SETUP, scroll right two pages to the third setup dialog, which contains the information.

4.3 HOW ENGINE DATA IS PRESENTED ON THE M.1

The M.1 uses a number of basic components and techniques to display real time engine data. Even as layouts and skins differ, these techniques remains the same.

The following components are shown in a layout:

Label The label informs of which channel is being displayed. See the channel glossary for a list of all channels supported by the M.1. Please note that all channels may not be available in all vehicles.

Units of measure This text shows the metrics being used for the channel. Pressure, for example can be expressed in psi (pounds per square inch), while temperature can be given as fahrenheit. Temperature data, for example, can be deliver in Fahrenheit or Celcius. If the data channel supports different units of measure, the alternatives are available at the top of the gauge menu.

Indicator This is a graphic object displaying the current value of the engine channel within a min/max range. A classic example of an indicator is the needle of a standard gauge.

Multiplier In some Layouts, such as TRADITIONAL, some data channels have a multiplier to display a correct value. An example is the tachometer or RPM data channel, which has a "x1000" multiplier.

Number Some layouts give the value of a channel as a number. Where the indicator provides a good overview of a channel, the number specifies the exact value of the same data at any given time.

4 PACKAGE & SOFTWARE CONTENTS **CONTINUED**

4.4 LAYOUT AND DIAGRAMS

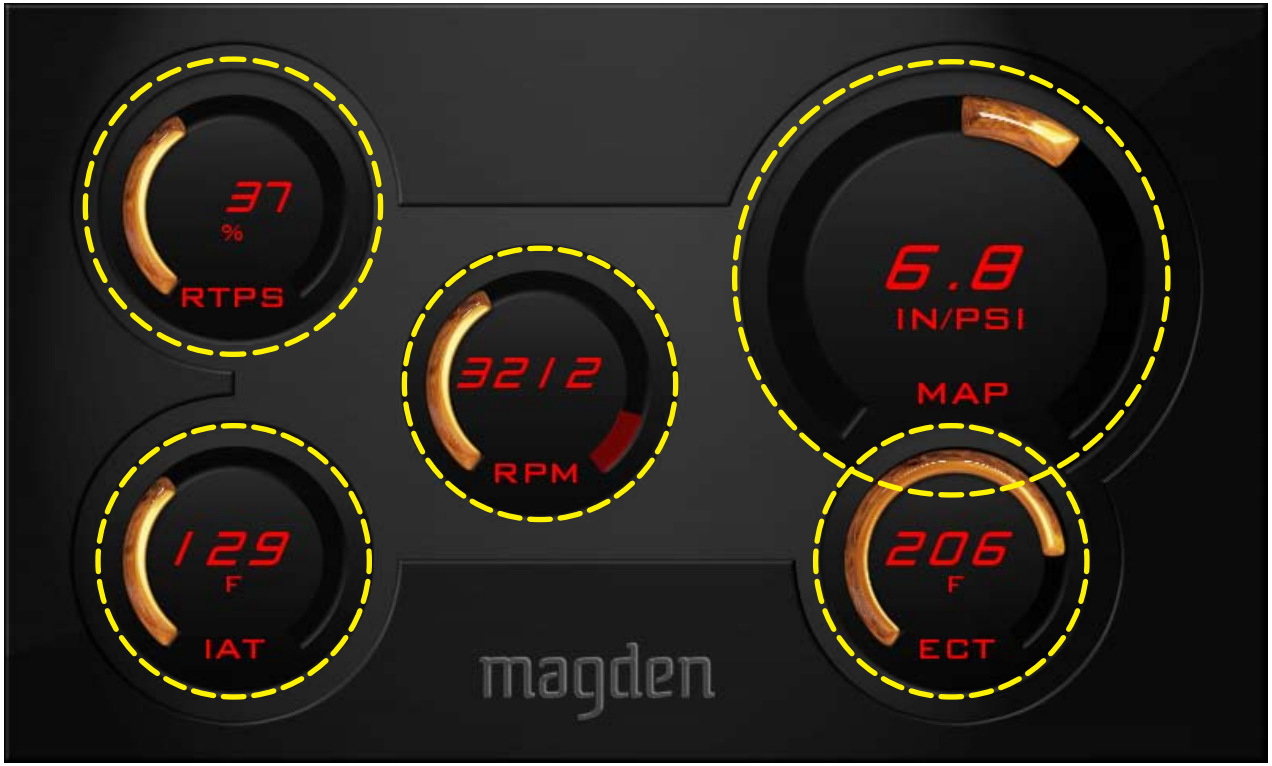
The following section explains the composition of the three layouts the M.1 is shipped with. All layouts provide identical functionality, but differ in how the data is presented.

4.4.1 DATALAB LAYOUT

Datalab presents engine data as progress bars extending left to right. Some channels are displayed as a progress bar extending both left and right from a center location to indicate negative and positive values.

Touching or clicking the screen in the gauge area, outlined in yellow to the left, will bring up the gauge menu. Touching or clickin anywhere else on the screen will bring up the main menu.

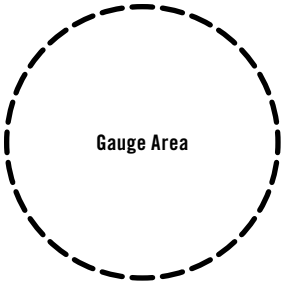
1. Number
2. Unit of measure
3. Label
4. Indicator



4.4.3 SECANTS LAYOUT

4.4.4 SECANTS LAYOUT

The Secants layout displays engine data as a semi-circular indicator extending clockwise around the textual information about the channel. Some channels are shown using a top-centered indicator extending downward left and right to show a negative and positive value.

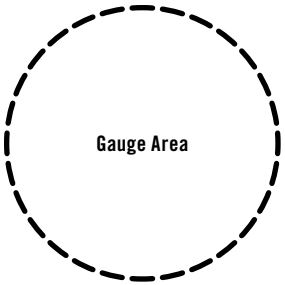


1. Number
2. Unit of measure
3. Label
4. Indicator

4.3.5 TRADITIONAL LAYOUT

The traditional gauges resembles a standard instrument panels with facias and needles. The numbering and layout of the facias adapt dynamically to the range of each channel.

For example, if a vehicle that the M.1 is connected to has an RPM range from 0-6500, the numbers on the RPM gauge will go from 0 to 7 with a x1000 multiplier in the middle. If the vehicle is changed to one with an RPM range of 0-9000, the gauge will change is numbering to 0-9 to reflect the broader range.



1. Number
2. Unit of measure
3. Label
4. Indicator

5 INSTALLATION OF THE M.1

The M.1 can be located inside the vehicle in various locations. Most typical are under the driver's or passenger's seat. Be sure to watch out for heater vents, air bag cables, seat rails, or anything that may come into contact with the M.1 or the wire connections to it.

Some other locations include:

– The center console

– Glove box (if large enough)

– Under the dashboard

– In the the trunk

– Rear compartments

NOTE: You may need cable extensions for remote or custom installation locations.

6 CONNECTIONS

6.1 CONNECTING THE M.1 TO A VIDEO SCREEN

The M.1 has multiple video signal outputs. They are VGA, Composite Video, S-Video, Digital Video Interface (DVI) and Low Voltage Digital Signal (LVDS). DVI and LVDS are optional available upgrades.

NOTE: The M.1's video output is set to a default of VGA and Composite Video, 640 x 480 resolution. To select a different option, see Section 9.3.1.

6.1.1 VGA

Connect the VGA cable from your screen to the M.1's back panel VGA connector. Screw in the locking screws, if equipped, from the VGA cable to the M.1's VGA connection.

6.1.2 COMPOSITE VIDEO

Connect the Composite Video (RCA type) Cable from your video screen to the Composite Video OUTPUT connector on the M.1's back panel.

6.1.3 S-VIDEO

Connect the S-Video cable from your video screen to the S-Video OUTPUT connector on the M.1's back panel.

NOTE: In order to use the S-Video option, an internal jumper needs to be changed. Please consult Magden Automotive Tech–Line for detailed instructions.

6.1.4 DVI

(Digital Video Interface) Connect the DVI cable from your screen to the M.1's back panel DVI connector. Screw in the locking screws, if equipped, from the DVI cable to the M.1's DVI connection. When purchased, this video connector will be set as the default video output source.

6.1.5 LVDS

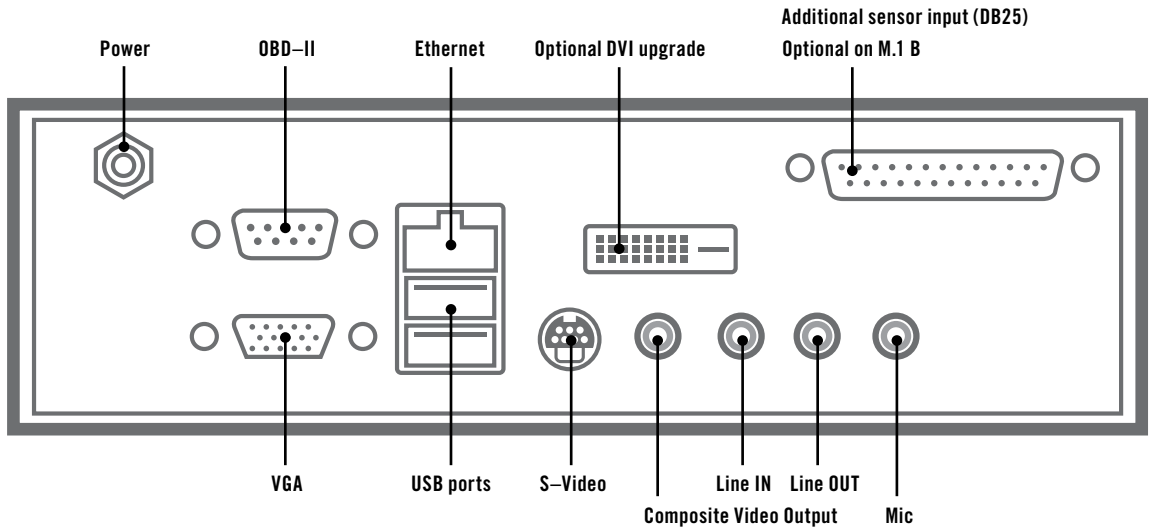
(Low Voltage Digital Signal) Equipped on the upgrade card, but not used at this time. If desired, please inquire with Magden Automotive for screen or panel compatibility.

6.1.6 TOUCH SCREEN USB CABLE

Connect the video screen USB cable to an M.1's USB connection.

6.1.7 USB CABLE FOR POINTING DEVICE.

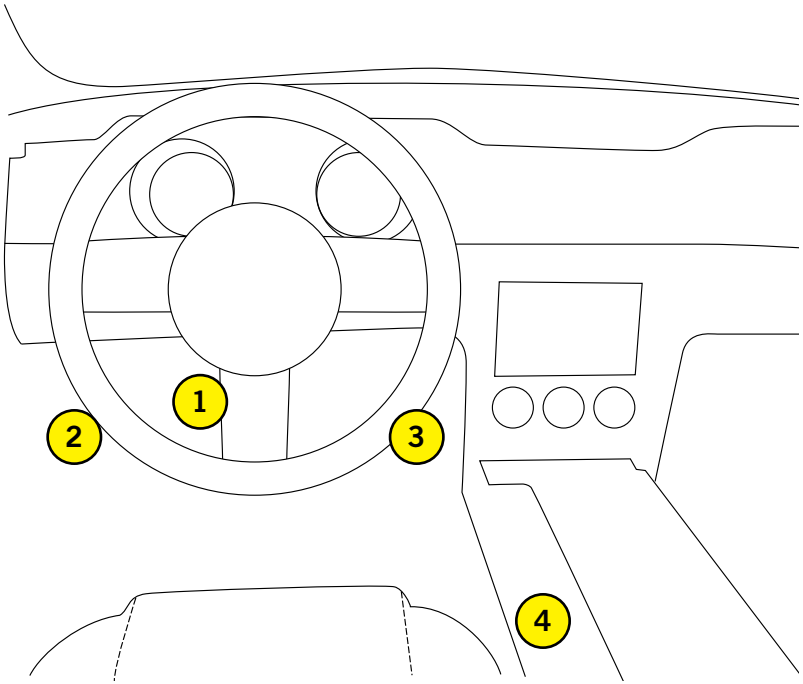
If needed. If a touch screen is not used, a pointing device, such as a track ball or mouse, can be connected to an M.1's USB connection.



6.2 CONNECTING THE M.1 TO THE VEHICLE'S OBD–II CONNECTOR

The connector will be located within three feet of the driver and does not require any tools to be revealed. Look under the dash and behind ashtrays. Areas 1, 2 and 3 are most common.

Securing the OBD-II cable to the M.1 can be done by tightening the thumb screws on the DB9 connector to the OBD–II input on the back of the M.1 unit.



OBD–II connection areas

6.3 CONNECTING THE M.1 TO A +12V POWER SOURCE

6.3.1 CIGARETTE LIGHTER ADAPTER

(included) – Insert the DC plug into the power socket on the back of the M.1 and secure by tightening the lock ring onto the power socket. Insert the cigarette adapter into a 12v source when ready to use.

6.3.2 FUSE VALUE AND REPLACEMENT PROCEDURE

In case the fuse in the cigarette power adapter fails, (LED indicator on cigarette adapter will no longer illuminate), remove the failed fuse and replace with a new fuse of the same size and power rating.

6.3.3 HARD–WIRE INSTALLATION

6.3.3.1 USING THE CIGARETTE ADAPTER CABLE, cut the cigarette adapter off the cable. Split and strip power lead wires according to instructions supplied with crimps or splices being used. Test for continuity to determine which lead is +12 volts and which is GROUND (–). The center of the DC plug (at other end) is for +12 volts.

6.3.3.2 USING YOUR OWN SUPPLIED WIRE, source a DC Plug, 2.5mm x 5.5mm, with locking collar for connecting to the M.1 back panel power socket.

NOTE: If you want to permanently connect power leads to the M.1, be sure to use an in–line switch or attach the power leads to an ignition key–switched power source.

6.4 ETHERNET CONNECTION

May be used for additional features from Magden Automotive. You will be instructed by Magden Automotive if and when to connect the M.1 to a local network connection.

6.5 LINE IN, LINE OUT, (SPEAKER) AND MIC

These are not used at this time. Plugging into any of these connections will not result in any function. These ports may be used in future software upgrades of the M.1.

7 STEPS FOR TURNING THE M.1 ON AND OFF

Connect the M.1 power plug to the M.1, secure locking collar.

Plug in the cigarette adapter to a 12 volt source as a power source to turn ON.

Remove the cigarette adapter to turn OFF.

NOTE: Some vehicles may require the ignition key to be engaged and in the ACC position to supply power to the cigarette lighter plug.

WARNING: Some vehicles supply power to the ciarette lighter plugs at ALL TIMES. Failure to remove the M.1 power plug while the vehicle is not on may result in vehicle battery failure. DO NOT LEAVE THE M.1 PLUGGED IN UNATTENDED.

8 BOOT UP SEQUENCE

8.1. POWER ON

When the M.1 is powered up, it goes through the following sequence of screens. Normal startup time is about 20 seconds. The first screen displayed is the Magden logo, as shown above.

8.2. ECU INITIALIZATION

Initializing ECU* communication screen. If this is the first time the unit is turned on, you will be asked to calibrate the screen at this stage. See chapter 9.3.2 for details.

8.3. BOOT UP COMPLETE

Ready for use, default gauges loaded with RPM data channel.

NOTE: If a USB memory stick is loaded with an upgrade, or other bootable Magden software and connected to the M.1 during boot up, please follow the on–screen prompts.

9 USING THE M.1 MENU

The intuitive menu system is quick and easy to learn. Simply touch the screen in different areas to access various features and functions. Touching anywhere outside the GAUGE AREA will access the Main Menu. Touching inside a GAUGE AREA will access the available Data Channels for that gauge position.

The M.1 Menu System also has a “touch and drag” feature built–in, allowing you to see your selection before making it or for ease of use during some screens.

NOTE: If an incorrect menu selection was made, simply touching outside that menu will remove it.

9.1 MAIN MENU

Touch anywhere on the screen outside the GAUGE AREA. This menu has the following selections:

Since you are setting up the M.1, select “SETUP...” to display the Setup dialog▾

NOTE: To navigate through all menus, touch the right and left arrows. When finished, touch the check icon.

Backward Icon Forward Icon Check Icon

9 USING THE M.1 MENU **CONTINUED**

9.2 FIRST SETUP DIALOG

The first of three setup dialogs allows you to configure Vehicle, Gear Setup, Power Run and A/D Channels.

9.2.1 VEHICLE SETUP REQUIRED FOR CORRECT DATA. Touch the VEHICLE icon and select your vehicle from the menu. Scroll right or left with the arrows. ▾

9.2.2 GEAR CALIBRATION

Required for correct gauge function and power run feature. Touch the GEAR SETUP icon and perform this task while driving the vehicle on a flat straight road. Hold the vehicle steady at 3,000 RPM in each gear. Select gear on video screen while in the same gear. Wait for on–screen prompt for result of gear calibration. Proceed to next gear until all vehicle gears are calibrated, if desired. If the calibration of a specific gear fails, please try again.

WARNING: Obey all posted traffic signs. Magden Automotive LLC does not condone disobeying the traffic laws in effect where this procedure takes place. Magden Automotive LLC does not recommend performing this procedure in a high traffic area or in heavily populated residential areas.

NOTE: Vehicles NOT equipped with 6–speed manual transmissions DO NOT need to calibrate all 6 gears on the M.1. Doing so may cause the Gear Indicator gauge to malfunction. If accidently done, exit the screen. Then re–enter the Setup dialog again and select a different vehicle. Then exit the Setup dialog. Finally, re–enter the Setup dialog and select your vehicle. Proceed to calibrating the gears again.

9.2.3 POWER RUN SETUP

This step is optional and is not required to start using the M.1 after installation.

This feature will test your total vehicle's performance and enables the dynamic HP and torque gauges in all layouts. Touch the POWER RUN icon to start the test and follow the prompts on the screen. Failure to follow the on–screen instructions will result in a failed test or incorrect result.

NOTE: This test is designed to take into consideration your vehicle's weight, rolling resistance and wind resistance at the time of the test. Results may vary from "chassis dynamometers." Vehicle modifications besides engine improvements may vary results, such as; removal of weight, addition or removal of aerodynamic parts; and change of tire size.

NOTE: Second gear calibration must be completed before attempting this task. If gear calibration is not complete, please proceed to step 10c.

NOTE: Correct tire size must be selected for proper Power Run results. If correct tire size is not selected, please proceed to step 10b.

NOTE: Correct vehicle must be selected for proper Power Run results. If correct vehicle is not selected, please proceed to step 10.2.1

NOTE: If you change vehicle in the setup dialog, the power run data is reset and a new power run setup must be done.

9.2.4 ADDITIONAL SENSOR SETUP, IF EQUIPPED

Use this dialog to select the proper channel and label for each Additional Sensor connected to the M.1. Touch the A/D CHANNEL icon and proceed to select the data channel and label for each additional sensor connected to the M.1. Please refer to the Magden Automotive Additional Sensor User Guide section 16e for detailed information.

9 USING THE M.1 MENU **CONTINUED**

9.3 SECOND SETUP DIALOG

This dialog allows you to configure Screen Resolution, Touchscreen Calibration, Set Clock and Tire Size setting.

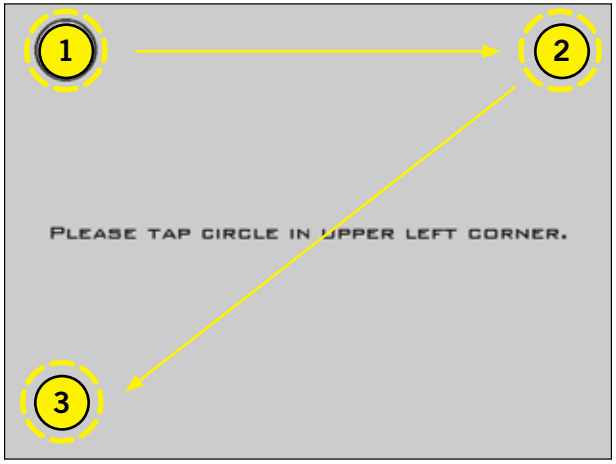
9.3.1 SCREEN RESOLUTION SETTINGS

Touch the SCREEN icon and select the proper setting for your video screen connected to the M.1 by scrolling through the options provided in this dialog. Please refer to your screen specifications for detailed information.

NOTE: If the incorrect choice is selected and your screen does not show any video signal, PRESS and HOLD your finger onto the touch screen, (or if using a pointing device, click and hold) for at least 20 seconds. This will reset the M.1 to its default screen settings. Repeat step 10.3.5 to desired setting.

9.3.2 TOUCH SCREEN CALIBRATION

Touch the TOUCHSCREEN icon and follow the prompts on the screen and touch the upper left corner circle, then upper right corner circle and finally the lower right corner circle, when prompted. If a pointing device is connected, use it to place the cursor in each circle and click.



NOTE: While in any mode, tapping the touch screen 10 times quickly, the Touch–screen Calibration function will appear. Once complete, the system will return you to your previous screen.

WARNING: Touching any other areas outside the displayed circles will result in poor touch screen performance.

9 USING THE M.1 MENU **CONTINUED**

9.3.3 TIME AND DATE SETUP

Touch the SET CLOCK icon and confirm the current date and time on this dialog. If not correct, adjust characters accordingly.

9.3.4 TIRE SIZE SETUP

Touch the TIRE SIZE icon and input your vehicle's drive tire size on this screen. The M.1 is set with the selected vehicle's factory tire size as default.

9.3 THIRD SETUP DIALOG

The third setup dialog is the About pane displays the serial number and a list with all installed software. The software list is divided into publishers (initially just magden), package names and the software version.

10 DATA CHANNEL (GAUGE) SELECTION

For any Gauge Layout, touch the GAUGE AREA of a gauge to change the displayed channel. Repeat for all gauges on the screen. Some data channels have several available units of measurement, such as mph and kph for speed. These channels have the available metrics at the top of the menu. Touch the desired unit of measurement to activate it.

11 LAYOUT SELECTION

Touch anywhere on the screen, outside the GAUGE AREA, to see Main Menu. Select “Layout” from menu and choose desired layout from list.

12 SKIN SELECTION

Touch anywhere on the screen, outside the gauge area, to see Main Menu. Select “Skin” from menu and choose desired skin from list.

13 INDICATOR COLOR SELECTION

Touch anywhere on the screen, outside the GAUGE AREA, to see Main Menu. Select “Indicator Color” from menu and choose desired color from list.

14 GAUGE TEXT COLOR SELECTION

Touch anywhere on the screen outside the GAUGE AREA to see Main Menu. Select “Gauge Text” from menu and choose desired color from list.

15 DATA–LOGGING STEPS

In order to data log information on the M.1, insert a USB memory stick to an available USB port on the M.1. Any memory size is compatible. First, select the desired data channels to data log on the screen. Next, select “Start Log” on the main menu. A red “REC” and icon will appear in the lower right corner.Stop data logging by touching anywhere on the screen.

15.1 STEPS FOR REPLAYING DATA

First, touch the screen to access the main menu. Next, select “Replay Log.” Use the forward or reverse icons to scroll the data log report. Tapping these icons multiple times will change the speed of the report. Touch and drag the chart itself to scroll it in the direction you want.

Finally, once done with the data log report, touch the check icon to exit this screen.

15.2 EXPORTING DATA FOR EXTERNAL USE

The M.1 saves the recorded information onto the USB stick in a .CSV file format. Simply remove the USB stick to transport the data to another computer. The information can be opened or imported into many software programs for further analysis.

16 UPGRADING THE M.1

The M.1 can be upgraded with additional skins, layouts and software downloaded from the magden-auto.com web site. In addition to this, Magden will release software updates with improved performance and functionality. These updates and upgrades are bundled into packfiles which can be read by an M.1. The following section shows how to download and install one or more packfiles.

16.1 DOWNLOAD PACKFILE FROM WEB SITE

This is done from the "My Account" section of the site, where all available packfiles are listed. Once you have selected the upgrade you want to install you can save the download to the desktop of your computer.

16.2 UNPACK DOWNLOAD

The download is saved as a zip-file on your desktop, which on a Windows computer is shown as a compressed folder.

Double click on the zip folder to open a window displaying its content. The zip folder will always contain one or more packfiles with file names ending in ".pfl".

Insert a USB memory stick, which should be newly formated, into your computer and open its icon to show its content. Make sure that there are no old packfiles on the memory stick.

Drag all packfiles from the opened zip-folder window to your USB stick window in order to copy the files from the zip folder to your USB memory stick. Close both windows when the copy has finished.

16.3 EJECT USB STICK

Right click on the USB icon and select "Eject" to prepare the stick for removal. Once the stick is ready to be ejected, remove it from your computer.

16.4 POWER ON THE M.1

Turn on the M.1 and the ignition in your car. Make sure that the ECU has been found and initialized.

NOTE: Wait until the M.1 has found and initialized communications with the vehicle's ECU BEFORE INSERTING THE USB STICK INTO THE M.1.

16.5 ADDING UPGRADE

After a few seconds, the M.1 will show the following screen, asking you if you want to install the found packfiles.

The email part of each line (m1@magden-auto.com) tells you who published the package. The name of the package (web_browser) is given after the slash. The three final digits (1.3.0) show the version of the package.

Touch the check icon to start the install. ▾

16.6 LOADING UPGRADE

The install can take several minutes. The progress of the operation is shown in the following dialog:

16.7 COMPLETING UPGRADE INSTALL

A completed install is confirmed by the following dialog: Remove the USB stick and touch the check icon. Depending on the type of the packfile installed, the M.1 may restart. All installed software is listed in the third setup dialog.

17 TROUBLE SHOOTING

If the M.1 has become corrupted during an upgrade or due to other circumstances, it may be necessary to install it from scratch in order to restore its functionality. This is done by downloading a USB master stick and powering on the M.1 while the stick is already inserted into it. The M.1 will reinstall all the system software and all layout and skins that it came with when it was delivered.

17.1 DOWNLOAD SYSTEM SOFTWARE

The System Software is located at www.magden-auto.com/myaccount. You must enter the serial number of the M.1 to start the download. You should save the download to the desktop of your computer.

17.2 UNPACK DOWNLOAD

The download is saved as a zip-file on your desktop, which on a Windows computer is shown as a compressed folder.

Double click on the zip folder to open a window displaying its content. The zip folder will contain three packfiles (os.pfl, m1bin.pfl and m1core.pfl) and the files initrd and linux.

Insert a USB memory stick, which should newly formatted, into your computer and open its icon to show its content. Make sure that there are no old packfiles on the memory stick.

Drag all five files from the opened zip-folder window to your USB stick window in order to copy the files from the zip folder to your USB memory stick. Close both windows when the copy has finished.

17.3 EJECT USB STICK

Right click on the USB icon and select “Eject” to prepare the stick for removal. Once the stick is ready to be ejected, remove it from your computer.

17.4 INSERT USB STICK INTO POWERED OFF M.1

The M.1 should not be on at this time.

17.5 POWER ON THE M.1

Turn on the M.1 and the ignition in your car.

You will be presented with text showing you that a master install is about to start. You have 30 seconds to change your mind and turn off the M.1 if you want to abort the master install procedure.

17.6 INSTALL STAGES

There are three stages for a master installation. “Formatting” is first, “Installing” is second and “Finishing is last. Complete installation will take a few minutes.

17.7 COMPLETING INSTALL

You will be prompted to remove the USB stick once the installation is complete. Next, power cycle the M.1. Go through the setup and configure the unit to your preference.

If the M.1 does not work after a master installation, please contact Magden for assistance.

WARNING: The following steps shows how to reinstall the M.1 system. This reinstall procedure will reset all settings in your M.1.

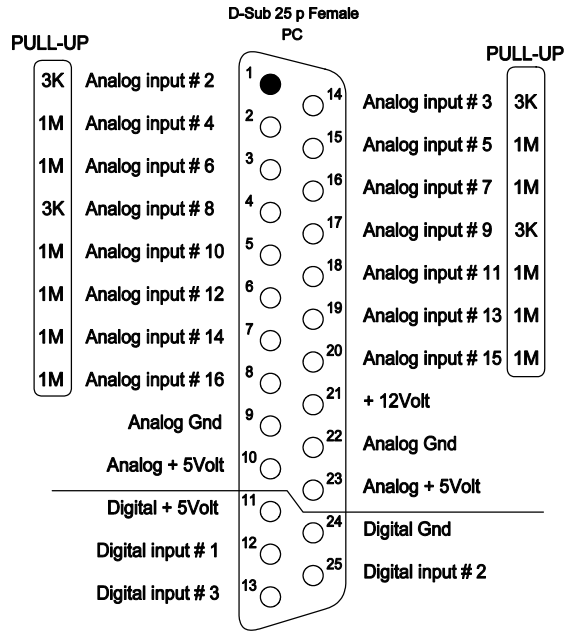
18 ADDITIONAL SENSOR INPUT USER GUIDE

The M.1b (with upgrade) or the M.1+ has the ability to read raw data from sensor added by the user. Below is a list of compatible sensors. These sensors connect to the M.1 at the DB25 connector located on the back panel. See section 16.3 for the DB25 pin assignment. A simple and quick way to add additional sensors is to use the Magden Additional Sensor harness system. One main harness and optional break–out harnesses are available for "Plug and Play."

18.1 COMPATIBLE TYPES OF SENSORS

The M.1 will accept four thermistor, ten (0–5) volt and three digital type sensors.

18.3 M.1 ADDITIONAL SENSOR DB25 CONNECTOR PIN–OUT



18.4 SETUP ADDITIONAL SENSORS ON M.1

Touch anywhere outside the GAUGE AREA to access the main menu. Select "Setup," then select the "A/D Channels". Select the desired channel and label for each additional gauge.

18.5 SELECTING ADDITIONAL SENSOR DATA CHANNELS

Touch the GAUGE AREA of desired location to select an additional sensor data channel. Scroll through all data channel choices until desired channel is reached. Tap the desired data channel.

WARNING: Any mis–wiring that results in damage or destruction of the M.1 unit is not covered by the warranty.

SENSOR/CHANNEL COMBINATIONS

CHANNEL	SENSOR	TYPE	PULLUP (Ohms)
Map (VACUUM ONLY)	GM 1 bar	0-5v	1M
MAP (VAC+BOOST)	GM 2 BAR	0-5V	1M
MAP (VAC+BOOST)	GM 3 BAR	0-5V	1M
Lambda	Innovate LC1	0-5V	1M
TPS	Any rotary pot type	0-5V	1M
FP	GM 10 BAR	0-5V	1M
Fuel	Gems Optical (PN 142700)	0-5V	1M
BAP	GM 1 bar	0-5v	1M
EOP	GM 10 BAR	0-5V	1M
EGT	K-type stainless	0-5V	1M
PIP (Pre-intercoler pressure)	Same as map (2BAR +3BAR	0-5V	1M
AIP (Post-intercooler pressure)	Same as map (2BAR +3BAR)	0-5V	1M
CCP (Crank case pressure)	Same as map (1BAR)	0-5V	1M
WP (Water pressure)	GM 10 BAR	0-5V	1M
ECT	Bosch 0 280 130 026	Thermistor	3K
IAT	Bosch 0 280 130 039	Thermistor	3K
AAT	Bosch 0 280 130 039	Thermistor	3K
EOT	Bosch 0 280 130 026	Thermistor	3K
FDT (Front Diff Temp)	Bosch 0 280 130 026	Thermistor	3K
RDT (Rear Diff Temp)	Bosch 0 280 130 026	Thermistor	3K
CDT (Center Diff Temp)	Bosch 0 280 130 026	Thermistor	3K
GBT (Gear Box Temp)	Bosch 0 280 130 026	Thermistor	3K
PIT (Pre-Intercooler Temp)	Bosch 0 280 130 039	Thermistor	3K
AIT (Post Intercooler Temp)	Bosch 0 280 130 039	Thermistor	3K
FT (Fuel Temp)	Bosch 0 280 130 039	Thermistor	3K

ENGINE CHANNEL GLOSSARY

AAT ___ Ambient Air Temperature
AIP ___ After Intercooler Pressure
AIT ___ After Intercooler Temperature
ATPS __ Absolute Throttle Position
BAP___ Barometric Air Pressure
BAT ___ Battery voltage
BIP ___ Before Interooler Pressure
BIT ___ Before Intercooler Temperature
CCP___ Crank Case Pressure
CDT___ Center Diff Temperature
DHP___ Dynamic Horse Power
DTRQ__ Dynamic Torque
ECT ___ Engine Coolant Temperature
EGT1 __ Exhaust Gas Temperature cylinder 1
EGT2 __ Exhaust Gas Temperature cylinder 2
EGT3 __ Exhaust Gas Temperature cylinder 3
EGT4 __ Exhaust Gas Temperature cylinder 4
EGT5 __ Exhaust Gas Temperature cylinder 5
EGT6 __ Exhaust Gas Temperature cylinder 6
EGT7 __ Exhaust Gas Temperature cylinder 7
EGT8 __ Exhaust Gas Temperature cylinder 8
EOP___ Engine Oil Pressure
EOT___ Engine Oil Temperature
FDT___ Front Diff Temperature
FP____ Fuel pressure
FPW___ Fuel Injector Pulse Width
FT____ Fuel temperature
FUEL __ Fuel level
G-FRC _ G-Force (longitudinal)
GBT___ Gearbox Temperature
GEAR__ Current Gear
IAT ___ Intake Air Temperature (Downstream of supercharger/turbo)
IGN ___ Ignition advance
L100K _ Litres Per 100 KM
MAF___ Mass Air Flow
MAP __ Manifold Air Pressurem, also called boost
MPG __ Miles Per Gallon
O2____ Lambda values
RDT___ Rear Diff Temperature
RPM __ Revolutions Per Minute Engine Speed
RTPS __ Relative Throttle Position (always in 0-99 interval)
SPD___ Speed
TRIM 1_ Fuel trim
WP ___ Water Pressure

