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Manual Updated on 07-01-2016

GETTING STARTED

"PLAN YOUR WORK & WORK YOUR PLAN"

The above quote is something my grandfather has always told me, and this holds true with the *DATAMAXX*. If you plan out where things will be installed and take care to avoid ignition components then your installation will be stress free and your signals will look clear and smooth. If you dive in without reading the manual, you will get frustrated and your end result may be noisy hard to read signals, so "Plan your work and work your plan."

1. Read the entire Getting Started section
2. Install all modules
3. Install all sensors
4. Run all of the wires to the modules
5. Terminate wires into Main & Analog modules
6. Fill out the *DATAMAXX* configuration page
7. Perform your "Initial Calibration"
8. Record a test run to confirm calibration

1. The first step would be to take stock of all the parts you have ordered and try to get a mental picture of where you want the main module, how you're going to mount the sensors, and where you're going to run the wires in order to avoid ignition components. The more time you spend efficiently planning, the better off you're going to be. In general, you want ignition wires to flow down one side and all of the data logger wires to be on the other side; this may take re-wiring some components, but will be well worth the time.

2. It is now time to install the modules (Main, Analog, LCD, EGT, and Remote SD). It is recommended that you locate the Main and Analog modules in a covered area that is relatively vibration free and not anywhere near an ignition component. Ignition components include ignition boxes, ignition coils, the wire from the ignition to coil, distributors, magnetos, solenoids and even ignition kill switches. If you do not have an LCD or Remote SD module, you will want to locate the main module somewhere convenient so you can easily access the SD card. Please refer to each modules installation details located in the modules section of your manual.

3. Now you can install your sensors. First mount all of your sensors in the appropriate places. Each sensor has an overview, part numbers, installation instructions, calibration, testing associated with it, and should be read over carefully before attempting to install. Do not run any wires until all of the sensors are installed in the correct location.

4. Once the modules and sensors have been installed, we can wire the car. This is by far the most crucial and important part of the installation process. Sensor wires should be at least 8" away from any ignition component otherwise your signals will be erratic and hard to read. Ignition components

include ignition boxes, ignition coils, the wire from the ignition to coil, distributors, magnetos, solenoids and even ignition kill switches. It is recommended to use MSD 8.5mm superconductor wires as these offer the best protection from ignition interference noise.

If possible, you want to run all of your data wires together on the opposite side of your ignition components. For more information on the importance of avoiding ignition noise, see "How to Wire Correctly" & "Avoiding RFI Noise" in the additional information section.

5. Now is the time to terminate the wires into the main and analog modules. Although this step may be a little intimidating, it is actually quite simple when you take your time with it—the more time you spend on this step, the better your installation will look. Remove the lid and look on the backside of it for an un-obstructed view of the wiring diagram. I recommend connecting your power, ground, RPM's, switches and lights first. Once that is done you can install your analog sensors.

When it comes to analog sensors (pressure and temp sensors), you can install them in any of the 4 analog channels. It does not matter which analog channel you use as we will tell the software later which sensor you plugged into each location. We strongly recommend using the supplied heat shrink labels to identify each wire going into the module. However, do not heat shrink them onto the entire unit until you are done—you can also line the labels up to make them look professional. For more information, refer to each sensors installation instructions, as well as "How to Wire Correctly" in the Additional Information section.

6. The next step is to fill out the *DATAMAXX* configuration page. This is extremely important because you need to know exactly where the sensors are physically installed so that we can tell the software, and calibrate them appropriately. Be sure to list what type of sensor it is, and refer to the sensors specific instructions for RTD and GND dip switch settings if it is a single wire sensor. After writing everything in your configuration sheet, make sure that your dip switch settings match your module. Note that as a default, you will only need to change the dip switch if you are using one of the Economy sensors.

7. It is now time to tell the software and the hardware what is actually installed on your system. You can either read the "Initial Calibration" in the Software section, or watch the instructional screen shot video that was included with your software. If you cannot find your disk then the instructional video is available on our website at: www.computech.com.

8. Now that you have installed all of your modules, sensors, and wires as well as performed the initial calibration, we need to test the system to ensure that everything is working properly. It is best to actually fire up the car at this point as we are looking to see if the pressure and temperature sensors react in the proper way. If possible, put the car on jacks and allow the drive shaft to move enough to pick up a reading. If any problems occur at this point, refer to the troubleshooting guide or call our 24/7 tech line at 301-884-5718, otherwise the system should be functional and your readings should be smooth and easy to read.

DATAMAXX CONFIGURATION

Main Module

Engine RPM:	_____	Cylinders:	_____	PuP:	____	GND:	____
Mag RPM:	_____	Cylinders:	_____	PuP:	____	GND:	____
Driveshaft RPM:	_____	Magnets:	_____				
Inputshaft RPM:	_____	Magnets:	_____				
Switch 1:	_____	Light 1:	_____				
Switch 2:	_____	Light 2:	_____				
Analog M1:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog M2:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog M3:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog M4:	_____	Sensor Type:	_____	RTD:	____	GND:	____

Analog Module A

Analog A1:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A2:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A3:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A4:	_____	Sensor Type:	_____	RTD:	____	GND:	____

Analog Module B

Analog A1:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A2:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A3:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A4:	_____	Sensor Type:	_____	RTD:	____	GND:	____

Analog Module C

Analog A1:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A2:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A3:	_____	Sensor Type:	_____	RTD:	____	GND:	____
Analog A4:	_____	Sensor Type:	_____	RTD:	____	GND:	____

EGT Module Odd

Exhaust 1:	_____
Exhaust 3:	_____
Exhaust 5:	_____
Exhaust 7:	_____

EGT Module Even

Exhaust 2:	_____
Exhaust 4:	_____
Exhaust 6:	_____
Exhaust 8:	_____

Temp Module

Temp 1:	_____
Temp 2:	_____
Temp 3:	_____
Temp 4:	_____

MODULES

MAIN MODULE

Overview:

The Main Module is the heart and brain of the *DATAMAXX* system. It serves as the communication hub, and has the largest capacity for sensors. The Main Module also has 5 CAN Bus ports that act as the communication medium to LCD, Analog, and EGT modules. This unit will store your custom calibration in itself so that every log file recorded will have the correct location of where each sensor is installed and what it is named. The main module alone only draws about 400mA and it is not necessary to place a fuse inline, but if desired should be 2 Amps or less. Please note that you can only place a single SD card in the DataMaxx system at a time, whether that be in the Main, LCD or Remote SD module is up to you.

Capabilities:

4 RPM Channels
4 Analog Channels
5 CAN Bus Connections
3 Switch inputs
2 Light outputs
1 SD Card slot

Installation:

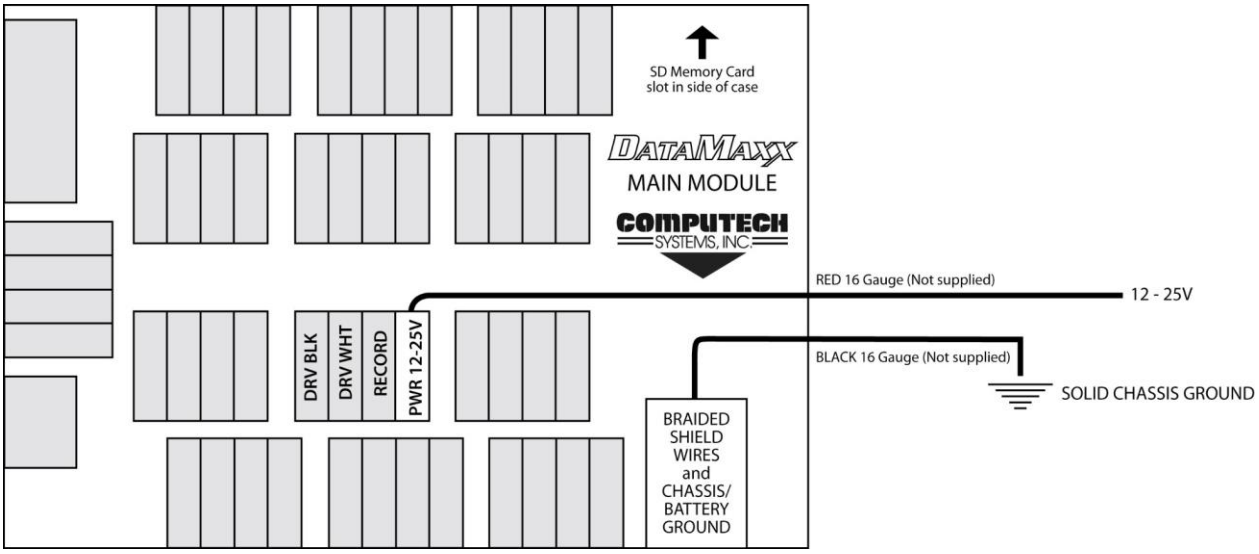
The Main Module should not be mounted where it is exposed to rain, excessive engine exhaust, or transmission heat. If you are not using an LCD Dash unit then you will need to mount the Main Module where you can easily access the SD memory card slot. For more information on avoiding ignition interference, refer to "Avoiding RFI Noise" in the Additional Information section.

The Main Module is the only part of the system that receives a power connection and powers the rest of the system through this one power wire. The best Main Module power connection is the same place you power the majority of your electronics and tachometers. The next best connection is directly to the positive and negative terminals on your battery.

Connect the positive wire to the Main Module red color-coded terminal labeled "POWER 11-25V" (id #36), and connect the negative (ground) wire to one of the shield terminal screws.

For more information on correctly wiring your *DATAMAXX,* refer to the "Additional Information: Advanced Wiring Techniques".

After the system is completely installed, including the sensors and the wiring, you can move on to calibrating the entire system. To do so, it is recommended to go to the Initial Calibration of the Software section. Additionally, you can refer to each individual sensors calibration instructions.



Light Scheme:

Blinking Pattern for GREEN LED	**Meaning**
Green Light Blinking	**Normal.** System is operating correctly.
Green Light Pulsating	**Recording Normal**. Seeing a half blink in between the normal blinks means the light is pulsating and recording. Note that it will only pulsate if the SD card is located in the Main module. If the SD card is in the LCD, or Remote SD, it can record correctly, but the main module light will not pulsate.
Other Green Light Patterns	Refer to the Main Module Troubleshooting.

Blinking Pattern for RED LED	**Meaning**
No Red Blinks	**Normal**, the SD card is in the system and ready to record.
Two Red Blinks	**CAN Bus Error**. See Main Module Troubleshooting.
Three Red Blinks	**SD Card Missing**. This is a normal condition when there is not currently an SD card in the system.
Other Red Blink Patterns	Refer to the Main Module Troubleshooting.

Default Dip Switch Settings:

A: MAG PuP	OFF	E: A1 RTD	OFF
B: MAG GND	ON	F: A1 GND	ON
C: INP PuP	ON	G: A2 RTD	OFF
D: INP GND	ON	H: A2 GND	ON
		I: A3 RTD	OFF
		J: A3 GND	ON
		K: A4 RTD	OFF
		L: A4 GND	ON

Additional Information:

Recording: The Main Module has a dedicated terminal for a record switch. Connecting a switch to this terminal (id #35) will automatically enable recording without any additional configuration.

Wiring: When wiring the main module, strip back the insulation for each wire, place into appropriate terminal and screw terminal to tightly connect to the *DATAMAXX*. Be sure to connect all shield wires to one of the four ground / shield drain screws. For more information on wiring correctly, refer to the "How to Wire Correctly" in the Additional Information section.

LCD MODULE

Overview:

The LCD Module is an optional module that allows live data to be displayed right in your vehicles dash. It is completely customizable and shows 10 separate channels of data per page, with an unlimited combinations of information. The LCD has customizable warning and shift lights, playback features, maximum recall, record button and night/day mode. The screen is completely customizable using the DataMaxx software.

Capabilities:

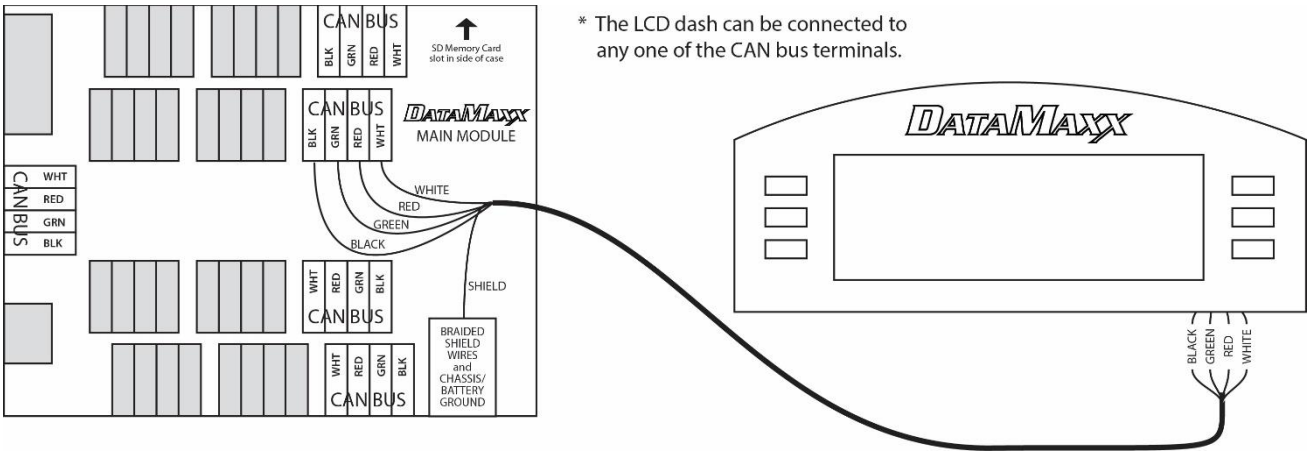
10 Channels of Data per Page
Customizable Warning and Shift Lights
Variable Speed Playback
Maximum Recall
Night and Day mode
SD card slot

Installation:

Your LCD Dash came with a hard stock drawing cut out that is to scale, which will allow you to drill the necessary holes with ease. The rubber shock absorbers that act as the mounting bolts should not be removed, and removal will void your warranty. After drilling the holes you can mount your LCD Dash, taking care to not over tighten the 4 nuts on the back of the shock absorbers. If you would like, you can use the Blue Loctite to ensure the nuts do not loosen up. If you do over tighten, you will break the shock absorber in half, and will have to have that component replaced before installing.

After installing the Main and LCD module, as well as all of your sensors, you can then run the LCD wire back to the Main module. When determining the path the LCD cable will take, you want to make sure that it does not come near any ignition components and is not crimped at a tight angle. Failure to do so may result in your LCD updating slowly or not communicating at all.

Once you have routed the LCD wire to the Main module, you are ready to terminate it. Since the LCD utilizes a CAN Bus cable, you can connect it to any one of the five CAN Bus ports inside the main module (it does not matter which one). You can refer to the back of the lid on the Main module to determine which ports are actually CAN Bus ports. Strip each individual wire back just enough so that it will make a good connection, and make sure that the shield wire is connected to one of the four ground posts—ensuring any ignition noise picked up on the wire will drain to ground appropriately. Refer to the "How to Wire Correctly" topic in the Additional Information section for more tips on wiring.



Additional Information:

Customizing: You have complete control over which channels are displayed in which position and making modifications to it is easily accomplished using the DataMaxx Software. The details of how to customize the LCD Dash are also described in detail in "Initial Calibration" in the Software section. You must go through the initial calibration at least once before customizing the LCD Dash.

Simply record a short 5 second test log file, or open up your most recent log file. Select Edit, Properties, and then select the Configure LCD Button. This will open a virtual version of your LCD Dash that you can easily modify. It is recommended to first go to "Page 4" and delete it, this will then take you to "Page 3", which you can delete as well. Page 2 consists of all 8 of your EGT sensors, so if you do not have the 8 EGT kit you can delete page 2 as well.

Now simply select each drop down menu and change it to display the sensor you would like to see in that area. Unless you are using this on a street car and need to see MPH, I would recommend leaving both of the center channels as "Engine".

Record: Press and release the "Record" button in order to start recording. The "Recording" icon will be displayed above-right of the round RPM graph. To stop recording, simply press and hold the button for 2-3 seconds, releasing after seeing the appropriate response on the LCD. For more information on recording, refer to "Recording a Log file" in the Additional Information section.

Menu: In the menu there are options to toggle between day and night, set the clock, and modify the intensity of the back light, button, contrast, playback rate, and both yellow and red LED's.

Channels: The channels button will allow you to toggle through multiple pages that can be customized through the software, allowing an unlimited combination of information to be displayed. In the software, these are listed as "Pages", and hitting the "Channels" button on the LCD will toggle between your users defined Pages.

Max Recall: Hitting the Max button will display the maximum data from the last log file that was recorded to the SD card. If there are no runs on the card, then a log file not found message will be displayed. Occasionally, if the log file is long enough, you may need to hit the Max button a second time if the first time does not achieve the desired result.

Run #: Hitting the Run button allows you to toggle thru all the runs currently on your SD card. After finding the run you want, you can choose either "Max" or "Playback" to view the desired information. Keep in mind that each time you download a log file to the DataMaxx software the correct way (using the SD button), the log file is physically deleted off of the card and will not be able to be played back on the dash.

Playback: Hitting the Playback button allows you to play back the data from your SD card at half the speed (0.5X). To pause the screen during playback, simply press the "Playback" button, and press again to resume. If you would like to change the rate of playback, enter the menu options, display adjust, toggle to the Play Rate and adjust the speed. If

you would like to play back a different run, toggle through the different runs using the "Runs" button and then press Playback.

Clock: You can manually set the clock through the menu option or use the software. When sending a configuration change to the *DATAMAXX*, if using an LCD, you will be prompted with a message asking if you would like to set the hardware clock. If you choose yes, your computers current time will be stamped on the SD card. You will then want to quickly insert the card into the *DATAMAXX*, turn on power, and allow the configuration to take place while also changing the clock. Remember that for every second you wait to get the SD card into the DataMaxx, after setting the clock, is a second that the SD card does not know has passed (e.g. if you wait 5 minutes, your LCD clock will be off by 5 minutes).

ANALOG MODULE

Overview:

The Analog Module allows you to expand your system capabilities by adding 4 analog channels. The analog channels would include things like pressures, temperature, shock travel, and accelerometer sensors. You can continue to add the expansion module as your need for sensors arise. This allows you to not spend additional money on extra capacity until you actually need it.

The Expansion Analog Modules are labeled alphabetically in order to distinguish them apart (Analog A, Analog B, Analog C, etc.). If you would like to order an expansion Analog Module and already have one, please specify with our sales reps that you would need the next Module. There is no limit on how many expansion modules you can add to your system so you will never run out of capacity.

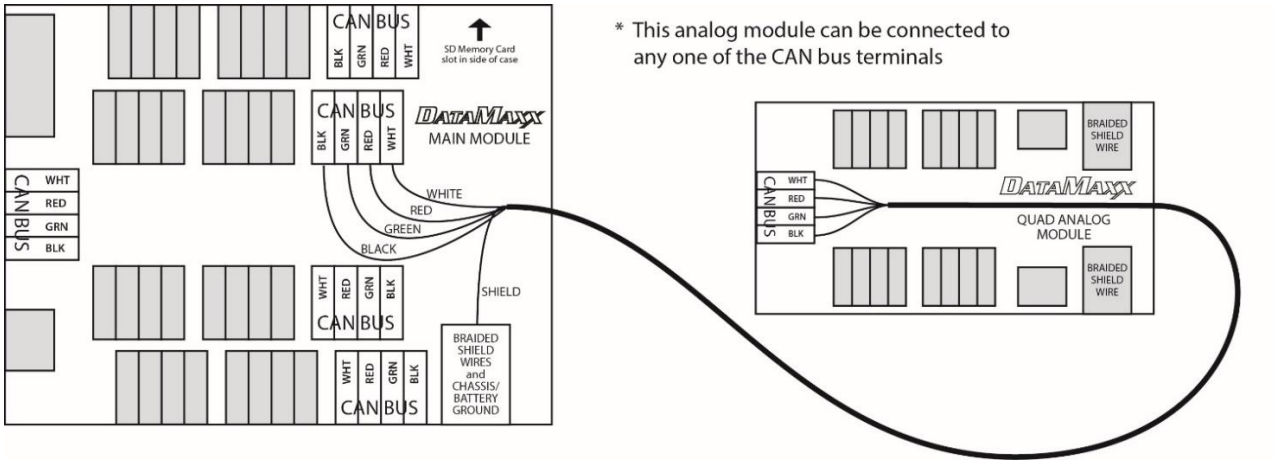
Capabilities:

4 Analog Channels
1 CAN Bus Connection

Installation:

Install the module in a convenient place away from ignition components and connect your supplied CAN Bus cable from the Analog CAN Bus to any Main module CAN Bus terminal. When connection to the Main Module, you can use any of the five CAN Bus terminals available. If you have multiple Expansion Analog Modules, it is possible to piggyback the wires on the CAN Bus system to minimize the amount of wires running. For instance, if you have and Analog A and an Analog B, you can run a CAN Bus wire from Analog B to Analog A. You can then have a single wire going from the Analog A CAN Bus to the Main Module, and everything will work appropriately.

When terminating the wires, you only want to have the shield wire connected at the Main Module as this is the primary ignition noise drain location. Connecting the shield wire in both the Expansion Analog Module, as well as the Main Module will result in no ignition noise drainage and may lead to noisier signals.



Light Scheme:

Blinking Pattern for GREEN LED	Meaning
Normal Green Blink	**Normal**
Any Other Green Blink Pattern	See Analog Module Troubleshooting.
Blinking Pattern for RED LED	**Meaning**
No Red Blinks	**Normal**, everything's great.
Three Red Blinks	**SD Card Missing**. This is a normal condition when there is not currently an SD card in the system.
Any Other Red Blink Pattern	See Analog Module Troubleshooting.

Default Dip Switch Settings:

A: A2 RTD OFF
B: A2 GND ON
C: A1 RTD OFF
D: A1 GND ON
E: A3 RTD OFF
F: A3 GND ON
G: A4 RTD OFF
H: A4 GND ON

Additional Information:

Multiple Analog Modules: If you have chosen to expand your capability to multiple Analog modules, then you will notice that the serial number of your primary analog will start with an 'A' and your secondary will start with a 'B' (Serial numbers can be found on the underside of the case, or below the retaining bar where the wires enter the case).

REMOTE SD MODULE

Overview:

The SD Remote Mag Module is designed specifically for use in magneto cars, but can also serve as a convenient SD card location. Magneto ignition systems output a wide radius of ignition noise that can cause the SD circuit to stop working, typically causing the log file to end prematurely. We can solve this issue by simply mounting the SD Remote Mag Module physically far away from the magneto system. When using a Magneto, please refer to the "Engine RPM Magneto" section to learn about containing your ignition noise to a specific location.

Capabilities:

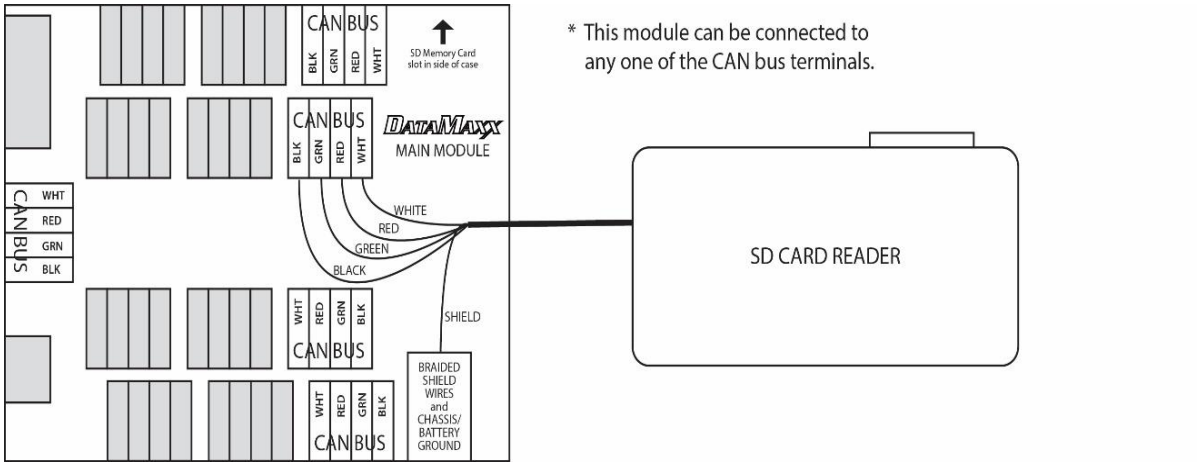
1 SD Card Slot

Installation:

Find a mounting location that is conveniently located and as far away from ignition sources as possible, and attach using the supplied Velcro. After the module has been mounted, you can run the wire from the SD module to the Main module. Do not cut the cable to length until you have verified with at least two individual races that the recording does not cut off and in fact records 100% of your run. For this reason, it may make sense to somewhat temporarily wire the Remote SD module onto the car, just in case you have to re-locate it.

When running the wire, take care to avoid all ignition components as much as possible. Ideally, you want to have all of your ignition wires on one side of the car and all of the data loggers on the other. Once you have run the wire to the Main Module, strip back the insulation so the four colored wires can reach a CAN bus port, and so the bare shield wire can be wrapped around one of the four ground posts. Strip a small section of insulation of each of the four colored wires and place into the appropriately colored terminal, then connect the shield wire to a ground post. It does not matter which CAN Bus port you plug the Remote SD Module into, and it can even be piggybacked onto another one if you have no open CAN Bus ports available.

The Remote SD Module does not need to be calibrated whatsoever. It is a simple plug and play. Keep in mind that you can only have one SD card in the system at a time and that you want to utilize the Remote SD module whenever actually recording a log file down the track.



EXHAUST GAS TEMPERATURE MODULE

Overview:

The EGT Module is designed to eliminate the need for multiple wires running to the main module. It utilizes an analog to digital converter that allows you to run a single wire back to the Main Module and can only accept K-Type Thermocouples. Each EGT Module will have a label designating where each cylinders probe should be plugged into. There are currently Chevy (1,3,5,7 & 2,4,6,8), Ford or Diesel (1,2,3,4 & 5,6,7,8) modules available, as well as expansion temperatures (9,10,11,12 & 13,14,15,16 & 17,18,19,20).

The EGT Modules are a plug and play module and do not require any additional calibrating as long as you plug the correct sensor into the correct spot on the module. By default, all EGT Modules are calibrated for the 1800 degree K-Type Thermocouple, but if desired can be changed to the 470 degree K-Type Thermocouple for lower range temperatures. You can also change the name of the channels if so desired by going through the calibration process in the software.

Capabilities:

4 Temperature Probes

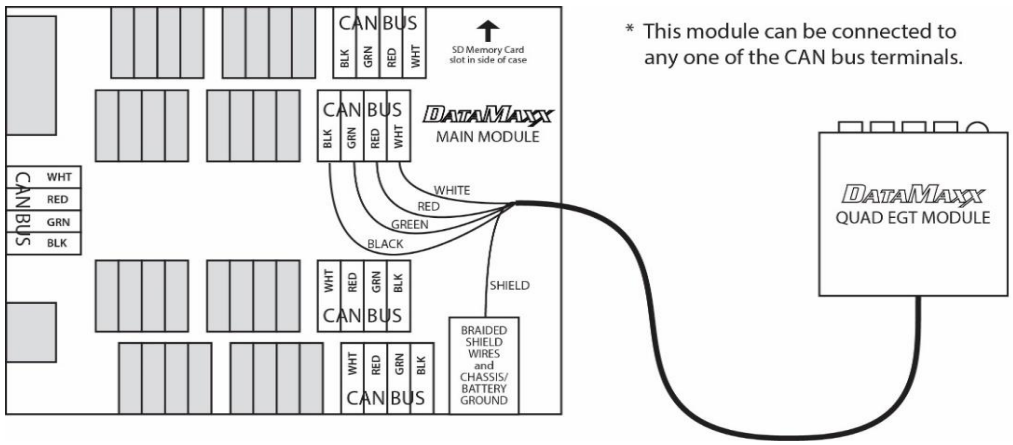
Installation:

Typically, we always recommend mounting the modules first and then mounting the sensors and running the wires. In the case of the Custom 8 Thermocouple kit, we have to do things a little differently. The first step is to install all of the sensors. Please refer to the "Exhaust Gas Temperature Probes" installation instructions in the Sensors section to correctly install the probes. When installing the probes, be sure to make the probe wires "run away" from the spark plug wires. If you need to cross over a spark plug wire then do so with the probe wire underneath, and have them cross at a 90 degree angle. Then wire tie all of the probe leads together as neatly as possible. If you ordered the correct kit, and installed them correctly, you should wind up with all of the yellow K-Type connectors at the same place.

Go ahead and connect all 4 probes to each EGT Module but do not secure the module to the car just yet. With all of the probes connected to the module you can now move the module around the car and find the most suitable location for the EGT module itself. Keep in mind that we want this as far away from ignition components as possible (we realize that you will ultimately be close to the spark plug wires). Once you have a place in mind that is stable, you can physically mount the EGT Module.

Do NOT mount the EGT module directly to the engine block. Installing the EGT modules can be somewhat tricky as there are no bolt holes. One way that has proven successful is mounting to a flat surface using strong Velcro, or securing via wire ties.

After the module has been mounted, wait until you have all of your other modules and sensors installed before running your wires. Doing this will ensure your wires are taking the most logical, and efficient path together. Once all of the Modules and sensors are installed you can run the wire from the EGT module to the Main module. Keep in mind that we want to avoid any ignition component on our way back to the Main Module, and ideally we will have the ignition wires on one side of the car and the data wires on another. Cut to length, strip back the insulation so the four colored wires can reach a CAN bus port, and so the bare shield wire can be wrapped around one of the four ground posts. Strip a small section of insulation of each of the four colored wires and place into the appropriately colored terminal, then connect the shield wire to a ground post. For more information on wiring, see "How to Wire Correctly" in the Additional Information section.



SENSORS

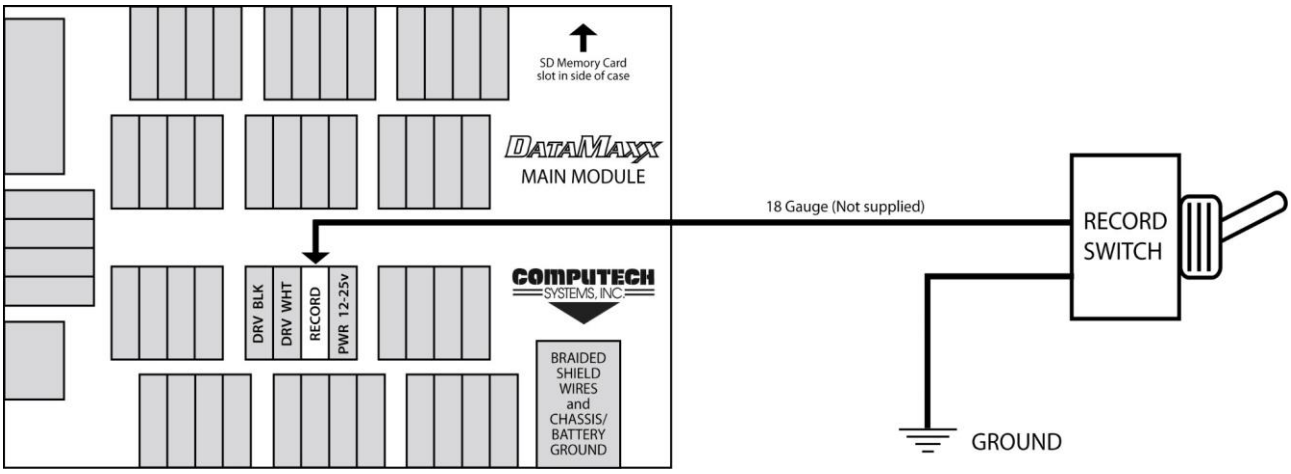
RECORD SWITCH

Overview:

The record switch has a dedicated terminal in the Main module, and is actually treated as a sensor that is either open or closed to ground. You are not required to use this record switch terminal as you have the option of using the LCD record button. Keep in mind that although the system can safely stop the recording when power is turned off after the finish line, if the record switch is not set back to off position before the DataMaxx is powered back up, then it will record another log file upon powering back up.

Installation:

To install a record switch, using the switch supplied by Computech, connect a wire from the Record input (id #35) to one side of your switch. Connect the other side of the switch to a chassis ground.



Calibration:

The *DATAMAXX* unit is pre-configured to start recording whenever the record terminal is connected to ground, so if you install the record switch correctly, you should not need to calibrate. If you do, follow the instructions below.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.

- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Record line, follow it to the right, and click on the finger pushing a red button
- Change the Type of Sensor to either Switch (Ground is 'ON') or Switch (Ground is 'OFF'), and change the Channel Name to what you want.
- Then select the Lights and Record tab and make sure that the check box is selected for “Record Automatically if... Reading is at or BELOW Warn Level 1” and that Warn Level 1 is zero.
- When you are done, select OK, and then “Send Config to DataMaxx”.

Testing:

To test, simply place the SD card into one of the DataMaxx Modules (only one SD card in the system at a time) and turn the record switch on. If the SD card is in the Main Module, you will notice that the green light went from blinking to pulsating. If you have an LCD, you will notice that “Recording” will show up at the upper right area of the screen. You can then confirm that it is working by simply downloading the log file to your DataMaxx software, using the SD button inside of the software itself.

ENGINE RPM

Overview:

The *DATAMAXX* can read your engine RPM from any of the standard ignition systems as well as any magneto. Your engine rpm signal is by far the most used channel and because of that, we want to have the cleanest signal possible. To do this, please follow the instructions below for your specific type of ignition system.

Installation:

Standard MSD Ignition Systems:
If you have a standard MSD ignition box, getting your tach signal is as easy as connecting a wire from the Tach Output of the ignition box to the 'RPM ENG' terminal (id #32) in the DataMaxx main module. You may have to refer to your specific ignitions instructions to find the correct tach output terminal but most of the time MSD makes it pretty obvious with a 'Tach' or 'Tach Output'. Also, because we want the engine RPM signal to be as clean as possible, we want to make sure that the wire takes a clear path to the main module, and if possible, utilize a shielded wire.

Magneto Ignitions:
When utilizing a magneto there are a couple precautions we need to take to ensure the noisy magneto doesn't interfere with the DataMaxx. But first, we must understand what we are dealing with when it comes to magnetos. Magneto ignition systems output an amazing amount of voltage and current, and because of that, they also spread through the air what is called Electromagnetic Interference or EMI /

RFI. If you can imagine your magneto as the center of a donut, and the more rpm you raise the magneto, the bigger that donut will get. Anything inside of the circle of EMI can have is voltage artificially raised and lowered through the air.

Because of this, we need to make sure you follow the best practices when utilizing a magneto ignition system. We essentially want to keep all of the noisy components centered on the source of the noise itself, the magneto. Then we need to utilize the correct spark plug wires and our Remote SD module. We have had 100% success rate with our magneto customers when following these best practices, failure to do so will ultimately end up in inconsistent recordings.

1. You must use MSD 8.5mm Super Conductor spark plug wires
2. You must utilize an MSD Mag Tach Adapter and mount the adapter as close to the magneto as possible
3. You must utilize either a relayed or air solenoid kill switch with the relay mounted as close as possible to the magneto
4. You must use the DataMaxx Remote SD Module and locate it as physically far away from the magneto as possible

We have extensively tested spark plug wires, the noise they output and how it effects our DataMaxx system. Through this exhaustive testing we have found that no other wire offers the performance and the EMI noise suppression as well as the MSD 8.5mm super conductor wires. If you were utilizing a standard ignition system, the noise would be minimal enough to not need these wires, however when using a magneto system, you must run the MSD 8.5mm Super Conductor wires.

The MSD mag tach adapter's job is to take the very noisy magneto signal, absorb and drain that noise and to output a clean tach signal. The rationale behind mounting it as close as possible to the magneto is to reduce the spread of this ignition noise. If the tach adapter box was located 5 feet from the magneto, we would then have a noisy tach signal spreading noise throughout the entire length the wire runs. By mounting it close to the magneto we are keeping all of the noise centered on the magneto. Although we have a specific channel labeled magneto, we recommend connecting the tach output wire from mag tach adapter directly into the 'RPM ENG' terminal (id #32) in the DataMaxx main module.

Many customers install their magneto with what is called a Lightning Wire kill switch, where the wire that goes from the magneto to the switch in the driver's compartment is a hot wire. The problem with this is, if the wire is running 5 feet, you have now created a 5 foot antenna that is spreading noise around the system. By utilizing a solenoid or relayed kill switch, and mounting that close to the magneto, the only thing going to the cockpit is a clean wire instead of a noisy one.

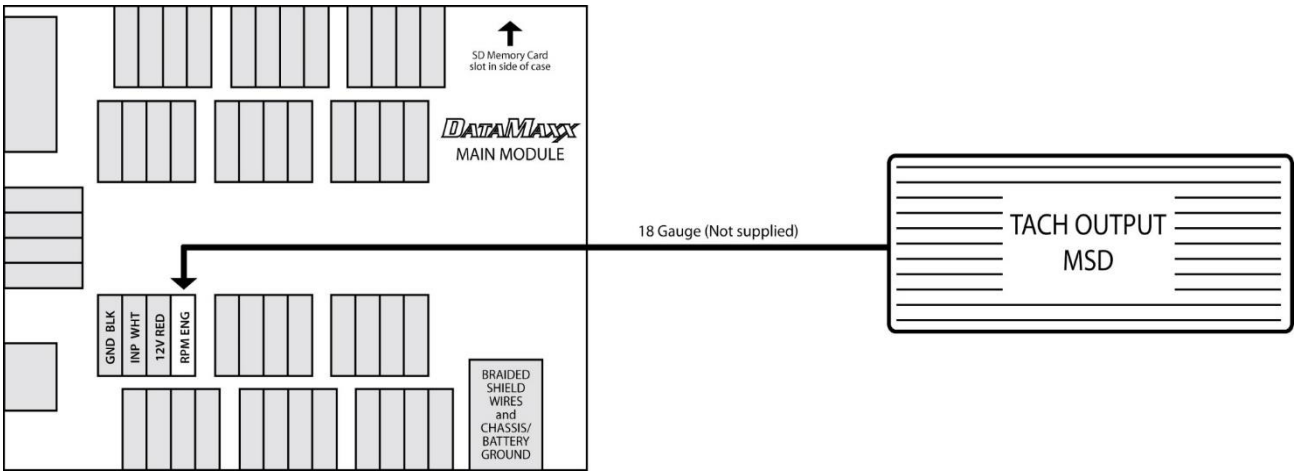
Finally you need to utilize the DataMaxx Remote SD module which was designed specifically to counteract the effects magneto's have on the system. Even if you have followed the first 3 best practices and kept the Airborne Ignition Noise centered on the magneto, we still have Line Ignition Noise to deal

with. Every sensor you have on your car has an extension cable, and that cable is being bombarded with ignition noise on its way back to the DataMaxx, to the point where you can envision them as glowing with noise. When it gets to a DataMaxx module that glowing noise is then drained to ground when we connect our shields. The problem is that the magneto has produced so much noise that it is almost as if our Main Module is also glowing hot from noise, and because the SD card works on a 2.5v circuit it is easier to corrupt. To counteract this we simply mount the remote SD module at least 1 foot away from the main module and as far away from the magneto as we can get.

If you follow these best practices, you can be assured that your signals will look clean and your DataMaxx will operate flawlessly. If you do not follow these instructions with a magneto, or do not follow all 4 best practices, you will have issue with consistency.

WARNING: Connecting the magneto directly to the DataMaxx will result in a failure and void your warranty.

Dip Switch Setting: N/A



Calibration:

The *DATAMAXX* engine RPM channel is pre-configured to an 8 cylinder, four stroke engine, for both normal engine RPM and magneto. You can, however, change the number of cylinders and switch between four and two stroke engines.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Engine RPM line, follow it to the right, and click on the finger pushing a red button.
- Change the "Type of Sensor" and "Channel Name" to what you want.
  - Note that changing the channel name to anything besides "Engine" will disable your calculated channels.
- When you are done, select OK, and then "Send Config to DataMaxx".

Testing:

To test your RPM signal, crank the engine and let it idle. If you have an LCD module, the display should indicate the correct RPM. Your graph should be smooth in general, but keep in mind that many race ignition systems generate a great deal of radio frequency interference, and that the ignition noise can cause erratic RPM readings. If you believe you are a victim of this interference noise, then make sure that all *DATAMAXX* components, including wires, are as far away from ignition components as possible. Also, refer to Avoiding RFI Noise in the Additional Information section.

DRIVE SHAFT RPM

Overview:

The drive shaft RPM will tell you how many revolutions per minute your drive shaft is spinning. Typically each drive shaft kit will come with a 2 magnet collar—although 1, 4 and 8 magnet collars are available for special order. Note that the threads are 5/16".

Part Numbers:

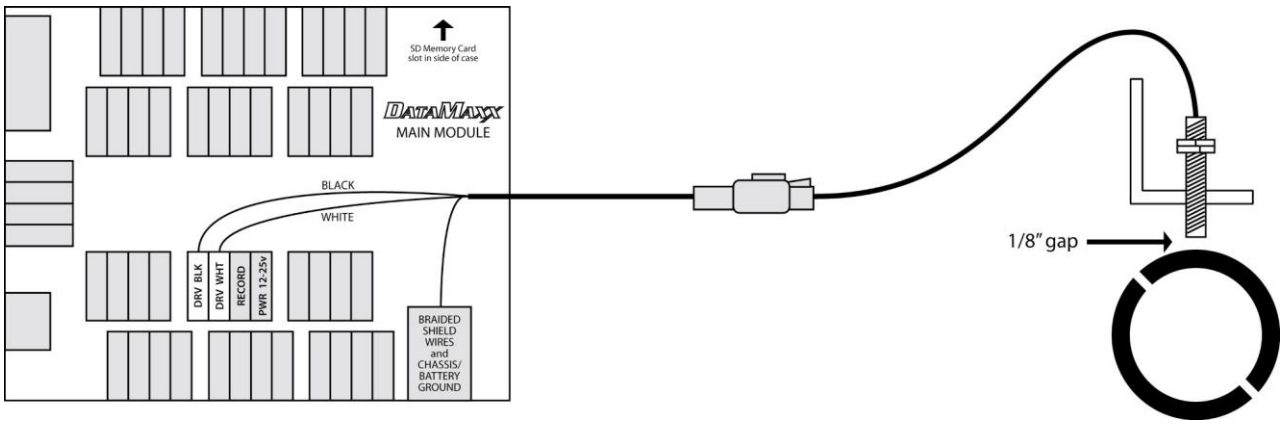
#8010	9" Ford Small Pinion Drive shaft RPM Monitor Kit	1.878"
#8015	9" Ford Large Pinion Drive shaft RPM Monitor Kit	2.190"
#8020	Universal Drive shaft RPM Monitor Kit	

Installation:

First, verify that the collar (if ordered) fits your drive shaft. When installing the collar, you want to make sure that it is located in a position that the sensor can look directly down upon. You also want to make sure that the magnets are completely opposite of each other (180 degrees) and not right next to each other (90 degrees). Doing this will result in a constantly fast, then slow signal, that will look very spiky. If your collar does not tighten down enough, remove it, and shave down the 4 spots where each half of the collar meets each other. Be sure to shave an equal amount off of all 4 edges so the magnets will stay a true 180 degrees apart.

The drive shaft sensor is to be passed through the hole in the bracket and then held in position by the two plastic jam nuts. The sensor should be pointed directly toward the center of the rotating shaft. The exact position of the sensor in the bracket should be adjusted to achieve a gap of approximately 1/8". Using a 1/8" drill bit in between the collar and the sensor will give you a quick and easy gap placement.

Connect the white wire to the Main module "DRV WHT" terminal (id #34) and the black wire to "GND BLK" terminal (id #33).



Calibration:

The *DATAMAXX* drive shaft RPM channel is pre-configured for use with a 2 magnet collar. You have the option of a 1, 2, and 4 magnet configuration, as well as, the ability to use this channel for Engine RPM and switch events.

To Calibrate:

- Record a 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the "Drvshf" line, follow it to the right and click on the finger pushing a red button
- Change the "Type of Sensor" and change the "Channel Name" to what you want.

  - Note that changing the channel name anything besides "Drvshf" will disable your calculated channels.
- When you are done, select OK, and then "Send Config to DataMaxx".

For more information, please see "Initial Calibration" in the Software section.

Testing:

Testing the drive shaft input can be dangerous. The safest method is to wait until you're on the track. Nevertheless, it is possible to test this input by putting the car on stands. Again for the sake of safety, it is not recommended that you run the engine in order to turn the drive shaft and tires. Instead, spin the tires by hand as fast as you can while the transmission is in neutral. The drive shaft should turn fast enough to get a very small reading. If you can't get a reading, you may not be able to turn the tires fast enough, and should wait until you get to the track.

INPUT SHAFT RPM

Overview:

The input shaft RPM will tell you how many revolutions per minute your input shaft is spinning.

Part Numbers:

#8021 Universal Input Shaft RPM Monitor Kit

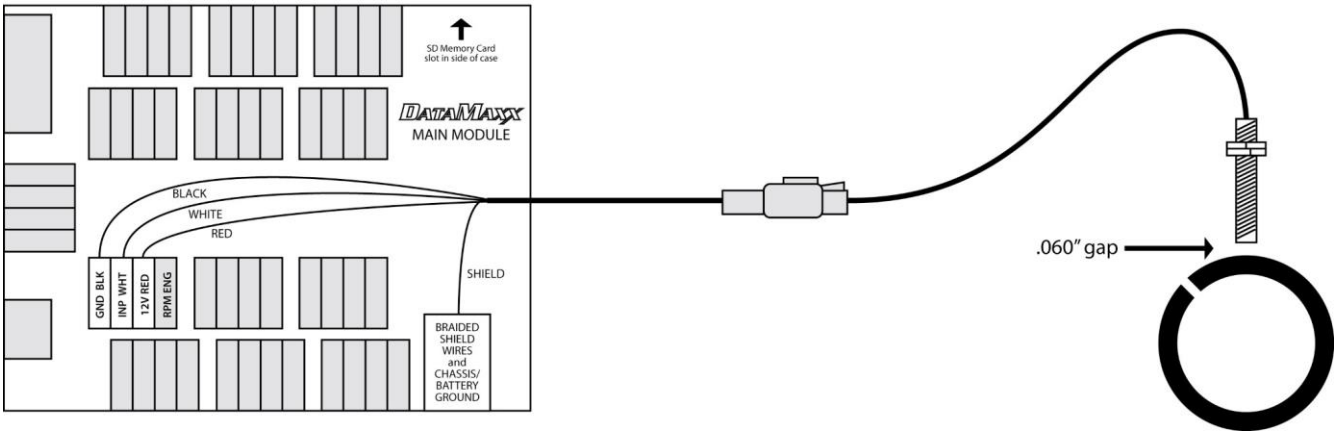
Installation:

For the input shaft sensor and trigger installation, please get specific details from your transmission supplier. The typical sensor gap required for most input shaft installations is approximately .060". The use of the Computech supplied pick-up magnet and alignment of the magnet and sensor are critical for proper operation.

If you are using the 3 wire input shaft sensor that has metal threads, you will need to make sure that the north side (painted side) of your magnet is facing toward your sensor. You can check this easily by placing a compass to the magnet. If the North side points away from the magnet then you are correct. If South points away from the magnet then the magnet needs to be reversed.

Connect the white wire to the Main module "INP WHT" terminal (id #30), the black wire to "GND BLK" terminal (id #29), and the red wire to "12V RED" terminal (id #31).

****Make sure that the dip switches "InpPuP" and "InpGnd" are in the ON position. These are number 1 and 2 on the block of 4 dip switches.**



Calibration:

The *DATAMAXX* input shaft RPM channel is pre-configured for use with 1 magnet. You have the option of a 1, 2, and 4 magnet configuration.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the "Inputshaft RPM" line, follow it to the right, and click on the finger pushing a red button.
- Change the "Type of Sensor" and the "Channel Name" to what you want.
    - Note that changing the channel name anything besides "Inpshf" will disable your calculated channels.
- When you are done, select OK, and then "Send Config to DataMaxx".

Testing:

Crank the engine while the transmission is in neutral so that the input shaft safely turns.

TURBO RPM SENSOR

Overview:

The turbo speed sensor is a special sensor that can detect when the blades of a turbo, or the teeth of a flywheel pass by it. This sensor needs a special adapter box that will come with the sensor. The adapter has the ability to amplify low signals as well as divide a signal by 2, 4, and 8. Primary uses include: monitoring the turbo speed RPM, and determining the RPM of ignition-less engines by monitoring the teeth on the flywheel. Please note that just like the RPM gauge on your street car, that is the number times 1,000, the turbo speed sensor is the same way.

Part Numbers:

#8058 Turbo Speed RPM Sensor

Installation:

If installing into a turbo, please refer to your specific turbo instructions on how deep to install the sensor. If installing the sensor near an open rotating mass, using either the supplied Computech 90 degree bracket or a custom bracket, position the end of the sensor facing toward the target area with a 1/4" gap between the sensor and furthest target area.

After the sensor is installed, connect it to the black divider box. We now need to set the divide by amount. Determine the amount of blades or teeth per revolution, then refer to the Turbo Speed RPM Calibration Table located below. Find your number of blades and then determine if the divide by 2 RPM is higher than expected. If it is, you can leave the box in the divide by 2 setting and move on. If the RPM is not high enough, move over to the divide by 4 and divide by 8 RPM's until you find a value that is larger than your expected RPM. If you have to go to a divide by 4 or 8, remove the 4 screws on the divider box and locate the small area of dip switches. Follow the following chart to correctly set your divide by amount.

Turbo RPM Divide Box Settings

Dip Switches			Divide By
#1	#2	#3	
OFF	ON	ON	/2
ON	ON	OFF	/4
OFF	ON	OFF	/8

After your sensor and divide box have been properly installed and configured, wire the extension cable back to your DataMaxx Main Module. Determine which RPM channel you have free that you are not using. The most common is the Inputshaft channel. Connect the white wire to the Main module "INP

WHT" terminal (id #30), the black wire to "GND BLK" terminal (id #29), the green wire to any Analog 5V terminal and the red wire to "12V RED" terminal (id#31).

Calibration:

To calibrate the turbo RPM sensor, you will first need to know how many blades or teeth per revolution. Determine the amount of blades or teeth per revolution, then refer to the "Turbo Speed RPM Calibration Table" located below. Find your number of blades and then determine if the divide by 2 RPM is higher than expected. If it is, you can leave the box in the divide by 2 setting and move on. If the RPM is not high enough, move over to the divide by 4 and divide by 8 RPM's until you find a value that is larger than your expected RPM. Write down the information below:

Divide By: _____ Max RPM: _____

To Calibrate:

- Record a short 5 second test log file and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the channel where you physically installed the sensor, follow it to the right, and click on the finger pushing a red button.
- To the right of the "Type of Sensor" drop down list, select the calibration button again.
- Click on the "Calibration Builder" tab, and select the check box to "Use Calibration Builder" for this sensor.
- Change decimal points to 0.
- Change units to RPM.
- Change connectivity to Digital Frequency Sensor.
- Set Low Frequency to 0 and Low Reading to 0.
- Delete any text in Mid Frequency and Mid Reading.
- Set High Frequency to 1000 and High Reading to the value you wrote above as Max RPM (do not type in any commas).
- When you are done select OK, then OK again, and then "Send Config to DataMaxx".

For more information, please see "Initial Calibration" in the Software section.

Testing:

Simply fire up the engine to test this sensor. If you have any complications, please call our technical support line at 301-884-5718.

Turbo Speed RPM Calibration Table			
Blades/Teeth	Max RPM x1,000 Per Divide By 2	4	8
1	1920.00	3840.00	7680.00
2	960.00	1920.00	3840.00
3	640.00	1280.00	2560.00
4	480.00	960.00	1920.00
5	384.00	768.00	1536.00
6	320.00	640.00	1280.00
7	274.29	548.57	1097.14
8	240.00	480.00	960.00
9	213.33	426.67	853.33
10	192.00	384.00	768.00
11	174.55	349.09	698.18
12	160.00	320.00	640.00
13	147.69	295.38	590.77
14	137.14	274.29	548.57
15	128.00	256.00	512.00
16	120.00	240.00	480.00
17	112.94	225.88	451.76
18	106.67	213.33	426.67
19	101.05	202.11	404.21
20	96.00	192.00	384.00
21	91.43	182.86	365.71
22	87.27	174.55	349.09
23	83.48	166.96	333.91
24	80.00	160.00	320.00
25	76.80	153.60	307.20
26	73.85	147.69	295.38
27	71.11	142.22	284.44
28	68.57	137.14	274.29
29	66.21	132.41	264.83
30	64.00	128.00	256.00
31	61.94	123.87	247.74
32	60.00	120.00	240.00
33	58.18	116.36	232.73
34	56.47	112.94	225.88
35	54.86	109.71	219.43
36	53.33	106.67	213.33
37	51.89	103.78	207.57
38	50.53	101.05	202.11
39	49.23	98.46	196.92
40	48.00	96.00	192.00
41	46.83	93.66	187.32
42	45.71	91.43	182.86
43	44.65	89.30	178.60
44	43.64	87.27	174.55
45	42.67	85.33	170.67
46	41.74	83.48	166.96
47	40.85	81.70	163.40
48	40.00	80.00	160.00
49	39.18	78.37	156.73
50	38.40	76.80	153.60

Turbo Speed RPM Calibration Table			
Blades/Teeth	Max RPM x1,000 Per Divide By 2	4	8
51	37.65	75.29	150.59
52	36.92	73.85	147.69
53	36.23	72.45	144.91
54	35.56	71.11	142.22
55	34.91	69.82	139.64
56	34.29	68.57	137.14
57	33.68	67.37	134.74
58	33.10	66.21	132.41
59	32.54	65.08	130.17
60	32.00	64.00	128.00
61	31.48	62.95	125.90
62	30.97	61.94	123.87
63	30.48	60.95	121.90
64	30.00	60.00	120.00
65	29.54	59.08	118.15
66	29.09	58.18	116.36
67	28.66	57.31	114.63
68	28.24	56.47	112.94
69	27.83	55.65	111.30
70	27.43	54.86	109.71
71	27.04	54.08	108.17
72	26.67	53.33	106.67
73	26.30	52.60	105.21
74	25.95	51.89	103.78
75	25.60	51.20	102.40
76	25.26	50.53	101.05
77	24.94	49.87	99.74
78	24.62	49.23	98.46
79	24.30	48.61	97.22
80	24.00	48.00	96.00
81	23.70	47.41	94.81
82	23.41	46.83	93.66
83	23.13	46.27	92.53
84	22.86	45.71	91.43
85	22.59	45.18	90.35
86	22.33	44.65	89.30
87	22.07	44.14	88.28
88	21.82	43.64	87.27
89	21.57	43.15	86.29
90	21.33	42.67	85.33
91	21.10	42.20	84.40
92	20.87	41.74	83.48
93	20.65	41.29	82.58
94	20.43	40.85	81.70
95	20.21	40.42	80.84
96	20.00	40.00	80.00
97	19.79	39.59	79.18
98	19.59	39.18	78.37
99	19.39	38.79	77.58
100	19.20	38.40	76.80

Turbo Speed RPM Calibration Table			
Blades/Teeth	Max RPM x1,000 Per Divide By 2	4	8
101	19.01	38.02	76.04
102	18.82	37.65	75.29
103	18.64	37.28	74.56
104	18.46	36.92	73.85
105	18.29	36.57	73.14
106	18.11	36.23	72.45
107	17.94	35.89	71.78
108	17.78	35.56	71.11
109	17.61	35.23	70.46
110	17.45	34.91	69.82
111	17.30	34.59	69.19
112	17.14	34.29	68.57
113	16.99	33.98	67.96
114	16.84	33.68	67.37
115	16.70	33.39	66.78
116	16.55	33.10	66.21
117	16.41	32.82	65.64
118	16.27	32.54	65.08
119	16.13	32.27	64.54
120	16.00	32.00	64.00
121	15.87	31.74	63.47
122	15.74	31.48	62.95
123	15.61	31.22	62.44
124	15.48	30.97	61.94
125	15.36	30.72	61.44
126	15.24	30.48	60.95
127	15.12	30.24	60.47
128	15.00	30.00	60.00
129	14.88	29.77	59.53
130	14.77	29.54	59.08
131	14.66	29.31	58.63
132	14.55	29.09	58.18
133	14.44	28.87	57.74
134	14.33	28.66	57.31
135	14.22	28.44	56.89
136	14.12	28.24	56.47
137	14.01	28.03	56.06
138	13.91	27.83	55.65
139	13.81	27.63	55.25
140	13.71	27.43	54.86
141	13.62	27.23	54.47
142	13.52	27.04	54.08
143	13.43	26.85	53.71
144	13.33	26.67	53.33
145	13.24	26.48	52.97
146	13.15	26.30	52.60
147	13.06	26.12	52.24
148	12.97	25.95	51.89
149	12.89	25.77	51.54
150	12.80	25.60	51.20

Turbo Speed RPM Calibration Table			
Blades/Teeth	Max RPM x1,000 Per Divide By 2	4	8
151	6.49	12.97	25.95
152	6.44	12.89	25.77
153	6.40	12.80	25.60
154	6.36	12.72	25.43
155	6.32	12.63	25.26
156	6.27	12.55	25.10
157	6.23	12.47	24.94
158	6.19	12.39	24.77
159	6.15	12.31	24.62
160	6.11	12.23	24.46
161	6.08	12.15	24.30
162	6.04	12.08	24.15
163	6.00	12.00	24.00
164	5.96	11.93	23.85
165	5.93	11.85	23.70
166	5.89	11.78	23.56
167	5.85	11.71	23.41
168	5.82	11.64	23.27
169	5.78	11.57	23.13
170	5.75	11.50	22.99
171	5.71	11.43	22.86
172	5.68	11.36	22.72
173	5.65	11.29	22.59
174	5.61	11.23	22.46
175	5.58	11.16	22.33
176	5.55	11.10	22.20
177	5.52	11.03	22.07
178	5.49	10.97	21.94
179	5.45	10.91	21.82
180	5.42	10.85	21.69
181	5.39	10.79	21.57
182	5.36	10.73	21.45
183	5.33	10.67	21.33
184	5.30	10.61	21.22
185	5.27	10.55	21.10
186	5.25	10.49	20.98
187	5.22	10.43	20.87
188	5.19	10.38	20.76
189	5.16	10.32	20.65
190	5.13	10.27	20.53
191	5.11	10.21	20.43
192	5.08	10.16	20.32
193	5.05	10.11	20.21
194	5.03	10.05	20.10
195	5.00	10.00	20.00
196	4.97	9.95	19.90
197	4.95	9.90	19.79
198	4.92	9.85	19.69
199	4.90	9.80	19.59
200	4.87	9.75	19.49

DIESEL RPM SENSOR

Overview:

When using a diesel engine, you have two different choices on how you will get your engine rpm and each differs in price and installation.

The first and cheapest option is to utilize a magnetic sensor. This will require you to embed a magnet into either a flywheel or some other pulley. You would then mount the sensor overtop of the magnet and we have engine rpm. The downfall with this method is that it requires drilling your flywheel or pulley and there is the possibility of a magnet flying off if not installed properly.

The less intrusive and more expensive option is to utilize a sensor that can sense the teeth on a flywheel or the bolt heads in a pulley. This sensor does however require the use of an adapter box making the cost significantly more than the magnetic option.
The diesel RPM sensor will allow you to obtain your engine RPM without the use of a magnet. The sensor allows you to sense either the teeth in a flywheel or the bolt heads that mount the flywheel. This kit utilizes an Autometer Diesel tach sensor and a Dakota Digital Tachometer Signal Interface. Please note that the standard Autometer Diesel tach sensor comes with a weather pack connector from factory. As Computech utilizes the more reliable connection of a Deutch connector and shielded cables, a direct sensor replacement will not work unless the connector is changed.

Part Numbers:

#8059 Diesel RPM Sensor

Installation:

Magnetic Sensor:
If you are using the magnetic sensor, the first step is to determine what and where we will embed the magnet. The magnet will need to be within 2” of the center of the rotating mass, so whatever you plan on embedding the magnet in, find the center and measure 2 inches out, the magnet will need to be within that. Before mounting the magnet, make sure that you will be able to get the sensor positioned directly over top of it with a gap of 1/8”.

Once you have determined the location, we want to drill a hole or at the very least start a hole. We do not need to drill all the way through where you plan to mount the magnet, but we will need to get approximately half of the magnet inset into the metal itself. By doing this, when the flywheel spins around, the magnet will be pressing up against the tight fit inside of the flywheel and not be able to spin out. Finally we want to apply a little bit of epoxy or silicone around the magnet where it is not embedded to ensure that it can't fly out the other direction.

Finally we need to install the sensor directly over top of the magnet, as perpendicular as possible. Next we want to adjust the gap to that of a 1/8" drill bit. Please note that if your flywheel or rotating mass is wobbling at all, make sure the closest point does not damage the head of the sensor.

When wiring the Engine RPM using a driveshaft sensor, you want to wire the black wire to the DRV BLK terminal (id #33), and the white wire to Engine terminal (id #32).

Flywheel Sensor:
First we need to install the actual sensor itself. Insert the threaded end of the probe trigger into a bracket (not provided) and secure it with the two adjusting nuts. With the engine off, screw the probe trigger in until it touches, then back off ½ to ¾ turn, leaving a .030" to .050" gap between the end of the trigger and the disk or bolt head. Carefully tighten the adjusting nuts, taking care not to allow the probe trigger to turn.

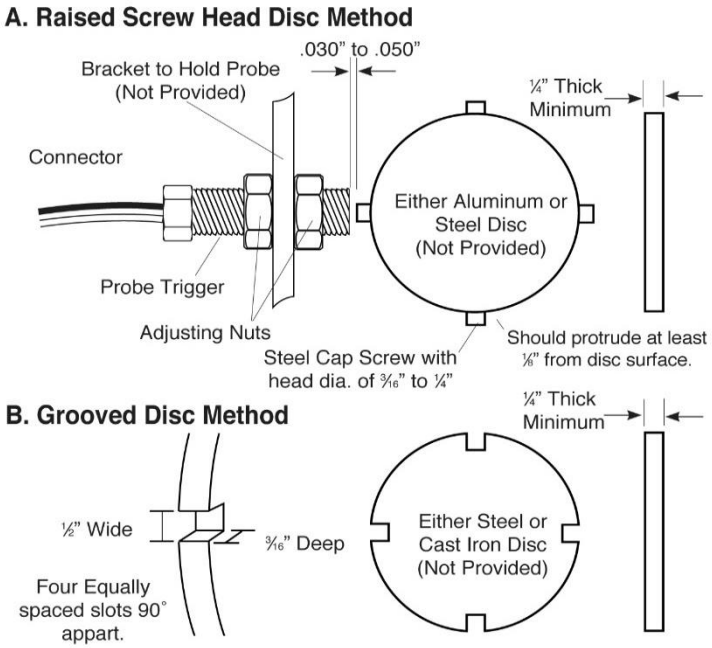
Next we need to determine where we will be mounting the Dakota Digital tachometer signal interface. We recommend that you mount this in close proximity to your DataMaxx Main Module. Once the box has been mounted, we can run the cable from the diesel tach sensor to the tach interface box. Connect the black to "Signal GND" and the white wire to "Signal Input".

Now we need to connect the tach interface box to the DataMaxx main module. Using 16-20 gauge wire, connect the following:

Tach Interface Box	**Connects To**
Power	DataMaxx – Input Shaft 12V RED (Terminal id #31)
Ground	DataMaxx – Input Shaft GND BLK (Terminal id #29)
Sensor Gnd	Autometer Tach Sensor – Black Wire
Signal In	Autometer Tach Sensor – White Wire
Not Used	N/A
Hi Volt	N/A
Normal	DataMaxx – Engine RPM (Terminal id#32)
Out 3	N/A

Probe Installation

1. Disconnect the connector from the probe trigger.
2. Insert the threaded end of the probe trigger into a bracket (not provided) and secure it with the two adjusting nuts (provided) as shown.
3. With engine off, screw the probe trigger in until it touches, then back off ½ to ¾ turn, leaving a .030" to .050" gap between the end of the trigger and the disc or screw. Carefully tighten the adjusting nuts, taking care not to allow the probe trigger to turn.
4. Reattach the connector to the probe trigger.



<u>*Calibration:*</u>

Magnetic Sensor:
The magnetic sensor requires you to change the calibration of the default Engine channel from 8 cylinder to shaft rpm with either a single or 2 magnet configuration.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and lownload the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the "Engine" line, follow it to the right, and click on the finger pushing a red button.
- Change the "Type of Sensor" to either Shaft RPM (1 magnet per revolution) or Shaft RPM (2 magnets per revolution) depending on your configuration.
- When you are done, select OK, and then "Send Config To DataMaxx".

The Dakota Digital tachometer signal interface box is designed to automatically output a clean 8 cylinder engine rpm signal. This means calibrating the DataMaxx should already be done as 8 cylinder engine is already what it is pre-configured for. The calibrating we will need to do is in regards to the tach interface box. The following calibration instructions are specifically for the Dakota Digital DSL-1E module.

To Calibrate:

- Turn power off to Dakota Digital box.
- Hold down the SET button while powering up, it should read 1E1 until you release the button and it will then read set.
- Hit the SET button
  - If # of teeth is between 1-64
    - Hit the INC button until t9r is displayed. Hit SET
  - If # of teeth is between 32-254
    - Hit the INC button until fly is displayed. Hit SET
- Using the INC button, enter the first digit of your number of teeth. When it is correct, hit SET.
- Using the INC button, enter the second digit of your number of teeth. When it is correct, hit SET.
- If there is a third digit, using the INC button, enter the third digit of your number of teeth. When it is correct, hit SET.
- The unit should then read IN. Hit SET and it should read 519.
- Power off and back on. Your Dakota Digital box should now read the number of teeth it is set to read rpm from.

Testing:

Simply fire up the engine to test this sensor. If you have any complications, please call our technical support line at 301-884-5718.

PRESSURE SENSOR

Overview:

Pressure sensors are an analog style sensor that produces a voltage from 0V to 5V depending on the amount of pressure applied and the range of the sensor. There are two different types of pressure sensors that Computech sells, the 3 wire standard ones and the single wire economy oil pressure sensor. Please note that the installation for the two different types is different. If you are using a pressure sensor, you can install it into any available analog channel.

Part Numbers:

#8023	-14.7 to 30 Vacuum Pressure Kit
#8025	0 to 15 Pressure Kit
#8030	0 to 100 Pressure Kit
#8031	0 to 500 Pressure Kit
#8033	0 to 1500 Pressure Kit
#8034	0 to 2000 Pressure Kit

Installation:

The first step to installing the pressure sensor, is determining the best place to locate it. You can install the pressure sensor directly to the engine or selected application or use a type of cushioned clamp to remote mount the sensor away from the engine and the vibration effects that the engine can cause. For both types of sensors (3 & 1 wire) it is recommended to use Teflon tape to ensure a tight seal. However, if using the single wire Economy Oil Pressure sensor, do not use too much Teflon tape and make sure that some of the sensors threads are making good contact with the engine block (The 1 wire sensor depends on making a good ground connection through the engine block and thus completing the circuit, failure to do so will cause the sensor to not read correctly).

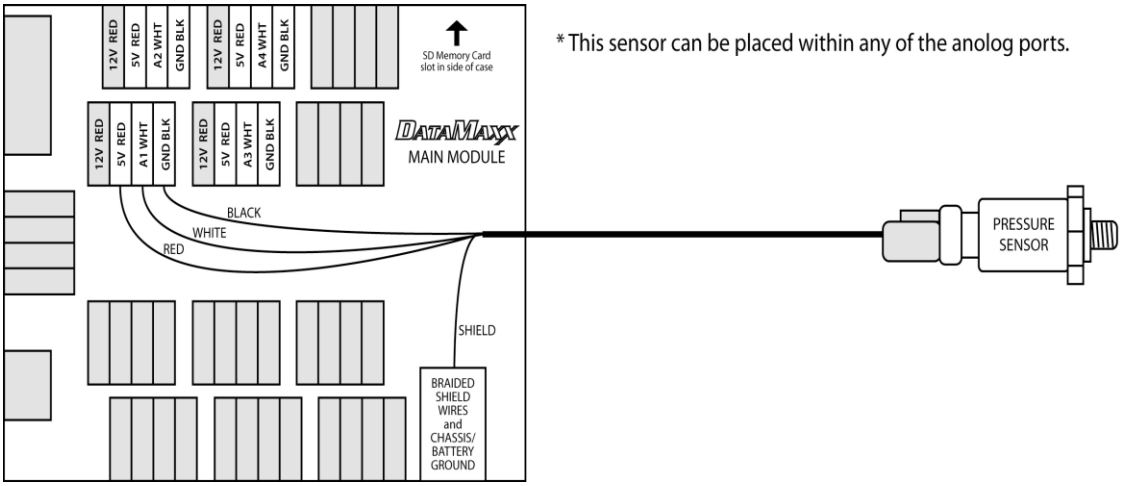
After the sensor is installed, you can run the wire to either your Main Module or one of your Expansion Analog Modules. You can then wire the sensor into any of the open Analog channels. It does not matter which module or which analog channel you wire the sensor into—as we will later calibrate the system and let it know where each sensor was physically installed.

If using the standard *DATAMAXX* pressure sensor (black, round, and will have a *DATAMAXX* label on it) insert the white wire into an available "A- WHT" terminal, the black wire to the "GND BLK" terminal, and the red wire to the "5V RED" terminal.

Note: When using a standard pressure sensor, the dip switch settings for that channel need to be as follows: "A- RTD" terminal OFF and "A- GND" terminal ON.

Dip Switches: RTD – OFF

GND – ON



Calibration

After installing your pressure sensor, you will need to tell the computer and the *DATAMAXX* what type of sensor it is. You will also need to know which Module and analog channel that you have plugged it into.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.
- Change the "Type of Sensor" and the "Channel Name" to what you want.
    - The type of sensor should be listed on the side of the pressure sensor.
- When you are done, select OK, and then "Send Config to DataMaxx".

Dip Switches: 3 Wire RTD – OFF

GND - ON

Testing:

All pressure sensors should read approximately zero when there is no pressure applied. The only way to truly test a pressure sensor is to apply pressure to it and watch for a reaction.
If for some reason a sensor is consistently reading a value other than zero at rest, you can "Zero" a sensor. To do so, please see the "Custom Calibration / Zeroing Sensors" in the Software section.

OIL PRESSURE SENSOR

Overview:

The oil pressure sensor is an economy based single wire pressure sensor. If your pressure sensor has three wires, please refer to the Pressure Sensor instructions. The oil pressure sensor has a maximum range of 100 psi and is only intended to be used for oil pressure.

Part Numbers:

#8026 Oil PSI Sensor

Installation:

When installing the oil pressure sensor, you can mount the sensor directly to the engine.
There is a screw post on the other end of the sensor that you will need to connect a wire to, and run to a *DATAMAXX* module. This module can be either the Main module or an expansion analog module and will be going into an available analog channel.

After mounting the sensor in its correct location, run a single 14-20 gauge wire to an available analog channel. This wire will be plugged into an "A- WHT" terminal, and will not need a ground wire connected as the sensor housing itself acts as the connection to chassis ground.

> **Note:** When using the oil pressure sensor, you must make a change to the dip switch settings. Both the "RTD" and "GND" dip switches must be in the ON position for the specific channel that you installed the economy sensor on. Failure to do so will result in erratic readings.

After wiring the sensor, we need to change a dip switch setting before the hardware will work correctly. To do this, flip the module lid over to expose the unobstructed view of the wiring diagram. Determine which channel you installed the oil pressure sensor in and then locate that specific channels RTD and GND dip switches. Turn both of these switches to the ON position.

Dip Switches: RTD – ON

GND – ON

Calibration

After installing your pressure sensor, you will need to tell the computer and the *DATAMAXX* what type of sensor it is. You will also need to know which Module and analog channel that you have plugged it into.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.
- Change the "Type of Sensor" and the "Channel Name" to what you want.
    - The type of sensor should be listed on the side of the pressure sensor unless it is the single wire economy oil pressure sensor, which will be the Autometer Oil sensor.
        - Note that if you have selected "Autometer Oil" from the drop down list, the corresponding RTD and GND dip switches need to be ON.
- When you are done, select OK, and then "Send Config to DataMaxx".

Testing:

All pressure sensors should read approximately zero when there is no pressure applied. The only way to truly test a pressure sensor is to apply pressure to it and watch for a reaction.
If for some reason a sensor is consistently reading a value other than zero at rest, you can "Zero" a sensor. To do so, please see the "Custom Calibration / Zeroing Sensors" in the Software section.

TEMPERATURE SENSOR

Overview:

Liquid temp kits can be used to measure water temp, oil temp, Trans temp, and cylinder head temp. There are two different types of sensors, K-Type and single wire economy sensors. Depending on which one you have will result in a specific installation and calibration.

Part Numbers:

#8037	Liquid Thermocouple Sensor
#8039	Liquid Temperature Sensor
#4118	Cylinder Head Temperature Kit

Installation:

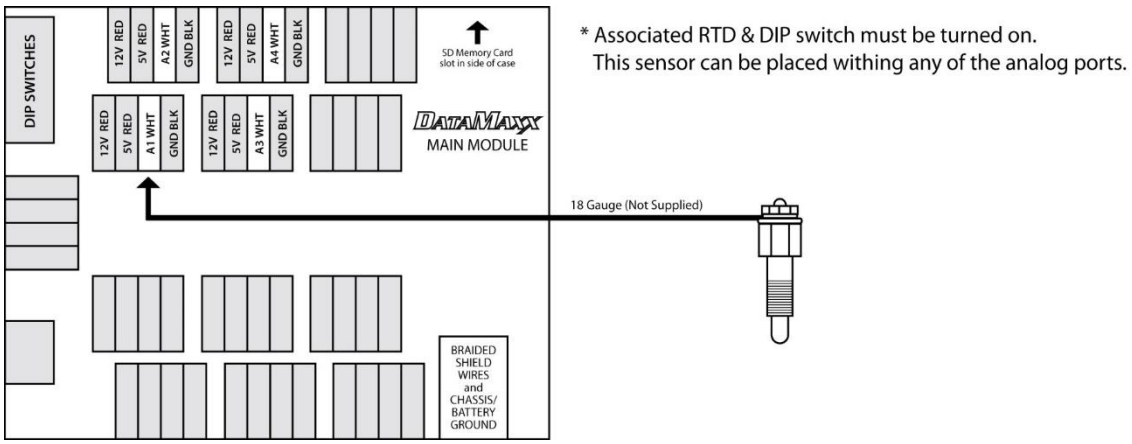
There are two different types of temperature kits: economy and K-type thermocouples. The economy temp sensor will be a small brass sensor that has a single nut on the top of the sensor to connect a wire to. The K-type thermocouples will have a yellow connector with two metal prongs on the end. Please follow the appropriate directions based on which sensor you have.

- Liquid Thermocouple: For the economy temperature kit you can physically install the sensor directly into the engine block, transmission case, etc. When installing, you can use Teflon tape to seal the sensor, but you must leave some of the threads exposed. The reason for this is because we need the sensor chassis itself to have a good connection to ground in order for the sensor to work.

  After the sensor is installed, you can run a wire from the sensor to the DataMaxx system. You then want to terminate the wire into an open Analog channels White signal terminal. Then change the corresponding RTD and GND dip switches to the ON position.

Dip Switch: RTD – ON

GND – ON



Calibration:

After installing your temperature probe you will need to tell the computer and the *DATAMAXX* what type of sensor it is. You will also need to know which Module and analog channel that you have plugged it into.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you installed the sensor on, follow it to the right and click on the finger pushing a red button.
- Change the "Type of Sensor" and the "Channel Name" to what you want.
    - Economy Thermocouple – "Type of Sensor" is "Datcon 02022-00 Temp".
        - Note that if you have selected "Datcon 02022-00 Temp" from the drop down list, the corresponding RTD and GND dip switches need to be ON.
- When you are done, select OK, and then "Send Config to DataMaxx".

Testing:

If the engine is off and cold, the readings should be within 5 to 10 degrees Fahrenheit of room temperature. If the engine is warm, appropriate readings should be seen. If your probes are reading close to 30 degrees, then there is likely an accidental reversal of wires somewhere. If your probe is reading a maximum or close to 470 degrees, then there is an open circuit, and most likely a wire unplugged. Check all connections between the actual probe and the *DATAMAXX* module.

THERMOCOUPLE SENSOR

Overview:

Using exhaust gas temperature probes can be a valuable tool for tuning, and as a warning system to prevent engine damage. Your *DATAMAXX* is designed for use with K-type thermocouple probes for measuring exhaust gas temperature, with a maximum reading capability of approximately 1800 F. Special K-type extension cable must be used, without exception.

Part Numbers:

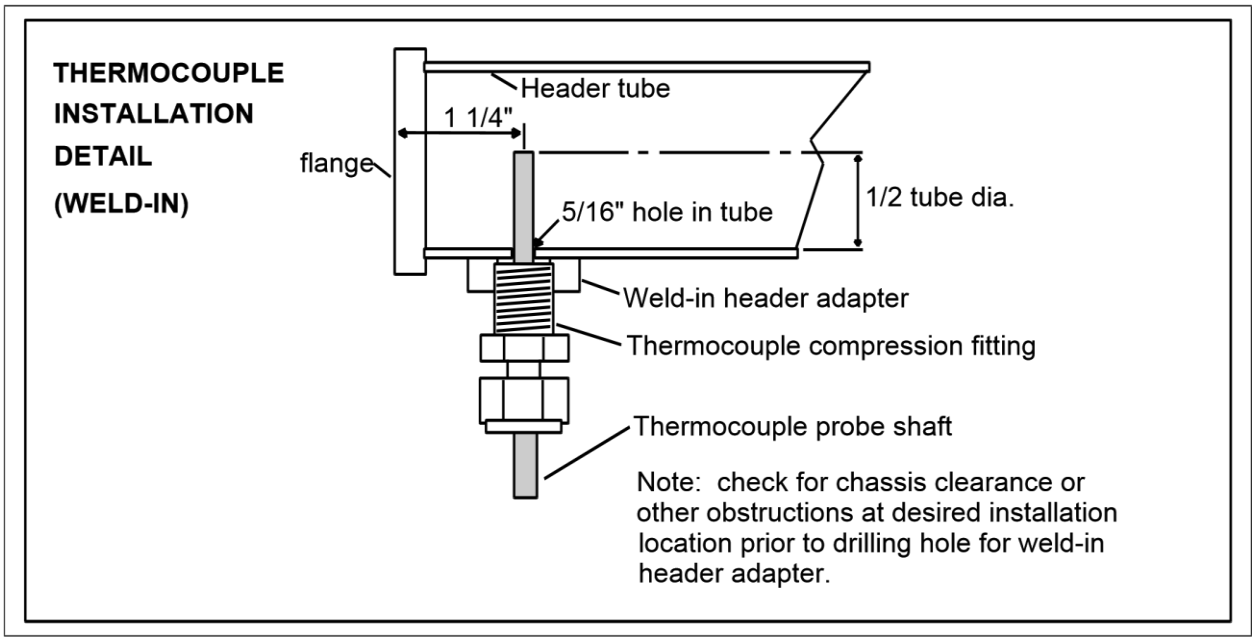
#8035 Single Exhaust Gas Temperature Kit
#8036 Custom 8 Cylinder Thermocouple Kit

Installation:

First, install the sensor probes on the exhaust itself by following the directions below.

1. Measure a spot 1 ¼" from the header flange. If more than one probe is to be mounted, it is important that all probes be located the same distance from the header flange. This will allow for comparison from cylinder to cylinder.
2. Once the spot has been located, drill a 5/16" diameter hole in the header pipe.
3. Center the weld-in weldment on the hole and weld to the header pipe a full 360°.
4. Coat the 1/8" pipe threads on the compression fitting liberally with anti-seize, and install the male connector portion of the compression fitting into the weldment and tighten.
5. Now, using a marker or pencil, make a mark on the probe that is half the diameter of the header pipe ***plus*** 1" (the length of the weldment and the compression fitting) from the exposed tip of the probe. Verify this depth by visual inspection into the pipe. The tip of the probe should reach to the center of the pipe. (For example, for a 1 1/2" header pipe, the mark on the probe should be half of this diameter plus 1" from the tip, which amounts to 1 3/4" from the tip. For a 2" header pipe, the mark should be 2" from the tip.)
6. Slip the nut (with the cup side to the exposed tip of the probe) and the ferrule onto the probe.
7. Insert the probe into the compression fitting base to the point where the ferrule and the line on the probe come together. This will insure that the probe is in the middle of the exhaust stream and will set the ferrule on the probe sheath.
8. Holding the probe in place, tighten the compression nut down tight. **Make certain that the thermocouple probe is in its proper position prior to tightening the compression nut.**
9. Loosen the nut to the point that the probe will turn and, if room permits, align the transition spring and the lead wire at a 90 degree angle from the exhaust pipe. This will position the sender tip correctly in the exhaust stream.

10. Tighten the nut back down to secure the probe.
11. Route the probe's cable to the junction box, using tie wraps along the way, but leaving sufficient slack to easily insert the connector into the appropriate junction box jack. **Do not harness the cable tightly, being sure to use sweeping bends and loosely guiding the cable to the junction box.** This will allow the cable to absorb vibrations along its length.
12. The male connector on the end of the probe's cable should properly mate with any of the thermocouple jacks coming from the junction box, so pay attention to the labels on the junction box lid in order to associate the correct cylinder with the correct channel. Insert the male connector into the appropriate jack. It will only go on one way.
13. The cable may be shortened if required. Cut the cable to the desired length (plus some to spare) and carefully cut the stainless steel over-braid back approximately 1". Shrink tubing should be used over the cable where it exists the connector to make for a neater installation. Make certain that the over-braid in no way comes in contact with the wire terminals in the connector. Strip the RED wire back approximately ½" and connect to the minus (-) terminal in the connector. Repeat the process for the YELLOW wire and connect to the positive (+) terminal. NOTE: Only this wire can be utilized. Substitution of a different wire ***will*** affect the operation of the sensor. **REMEMBER - The RED wire must be connected to the MINUS (-) terminal and the YELLOW wire must be connected to the POSITIVE (+) terminal.**

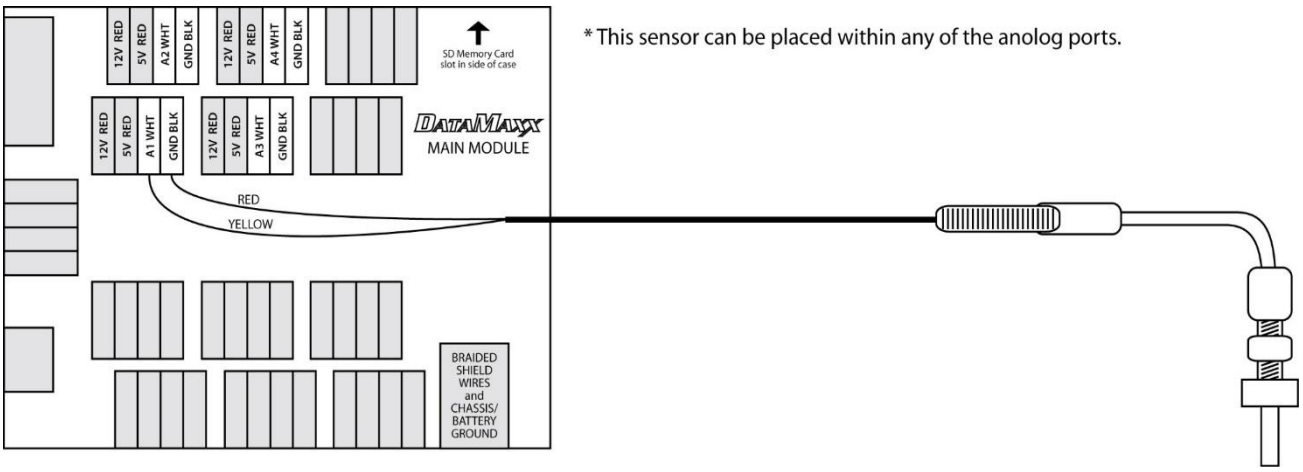


After the sensor itself has been installed, you need to connect it to the DataMaxx system. If you are utilizing an EGT Module then you simply have to plug it into the corresponding channel as indicated on the label of the EGT Module.

If you are installing the sensor into an open analog channel, you will first need to remove the yellow K-type connector. To do this, remove the two screws that hold the case together and then loosen the two

screws that hold the probe wires to the connector. At this point you can shorten the probe lead if you want but be careful as the stainless steel braiding around the sensor can stab you. At this point, we want to visually verify which lead is the red one and which is the yellow. The red lead will go to the Ground Black terminal and the yellow lead will go to the A_ White signal terminal. This may seem counterintuitive as the red lead is going to ground, but this is the correct way.

If you cannot determine which lead is yellow and which is red, do not worry as placing them in incorrectly will not damage the sensor or the DataMaxx. If you are unsure, make your best guess then test the sensor. If the sensor is not reading correctly then swap the leads. If the leads are backwards the temp should read backwards.



Dip Switches: RTD – OFF

GND – ON

Calibration:

If you are installing the EGT probe into an EGT module then there is no calibration needed. Simply plug the probe into the corresponding spot according to the label on the EGT Module and it is ready to go.

If you are installing the EGT probe in an analog channel, you will need to tell the computer and the *DataMaxx* what type of sensor it is. You will also need to know which Module and analog channel that you have plugged it into.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you installed the sensor on, follow it to the right and click on the finger pushing a red button.
- Change the "Type of Sensor" to "EGT" (1800 degree range using K thermocouple) and change the "Channel Name" to what you want.
- When you are done, select OK and then Send Config To DataMaxx

Testing:

If the engine is off and cold, the readings should be within 20 degrees Fahrenheit of room temperature. If the engine is warm, appropriate readings should be seen. If your probes are reading close to 30 degrees, then there is very likely an accidental reversal of wires somewhere. If your probe is reading a maximum or close to 1800 degrees, then there is an open circuit, and most likely a wire unplugged. Check all connections between the actual probe and the *DATAMAXX* module.

OXYGEN SENSOR

Overview:

Oxygen sensors are hands down the best tuning sensor you can purchase for your DataMaxx. Oxygen sensors give you a true Air Fuel Ratio, whereas an EGT sensor gives you the result of air fuel ratio.

The main idea behind oxygen sensors is not to hit an exact number based on what your buddy said. Every engine is different and will react differently to weather changes and tune ups. The goal is to find a tune up that works well for your car then note what the AFR (Air Fuel Ratio) is. From that point forward you want to keep the car tuned to that same AFR number. For example, if your baseline AFR is 13.2 and you go to the track and make a time run and see that the AFR is 13.9, you know the car is too lean and you need to fatten it up.

The stoichiometric difference between lean and rich is 14.7. Anything below 14.7 is rich and anything above 14.7 is lean. The further you get from that number the leaner / richer you are. In general, the majority of our customers like to run their engines between 12.8 and 13.2. This is typically a safe tune up and the engine will typically react to weather changes as we would expect.

If you are using the Computech ET Prediction program available on the "RaceAir Pro" or "RaceBase" program then the oxygen sensors can help there as well. With our ET Prediction program, the goal is to find a tune up where the car reacts to weather the way the program expects it to. Once you find that

baseline where the ET prediction is working perfectly, take note of what your AFR is and strive for that AFR every weekend.

WARNING: DO NOT CONNECT THE RED WIRE FROM THE O2 CONTROLLER BOX TO THE DATAMAXX! IT NEEDS TO GO TO AN EXTERNAL 12V SUPPLY. CONNECTING THIS RED WIRE TO THE DATAMAXX WILL VOID YOUR WARRANTY!

Part Numbers:

#8041	Wego III Wide Band O2Sensor
#8042	Dual Wego III Wide Band O2 Sensor

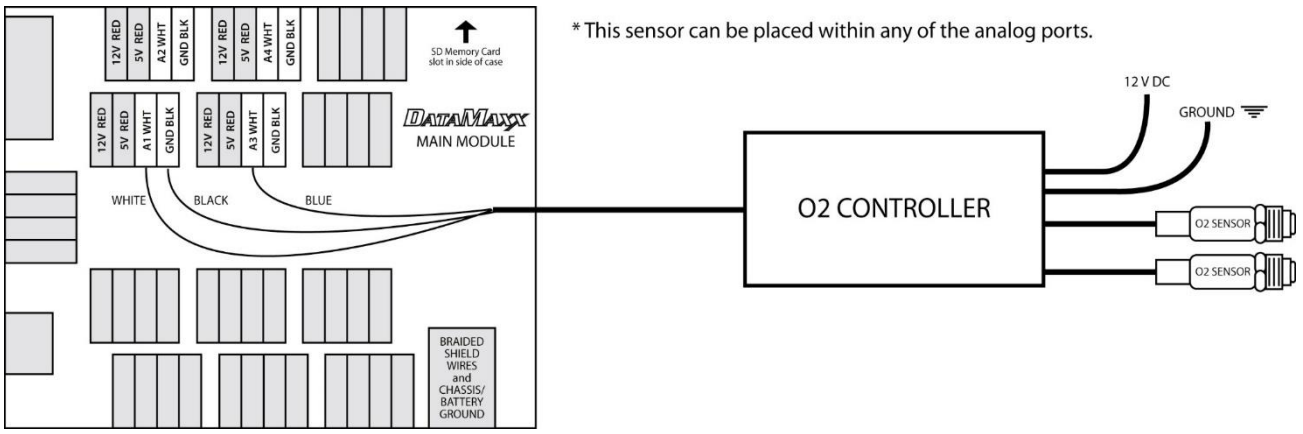
Installation:

1. The oxygen sensor should be located on the header pipe about 6-8 inches from the header flange. Ideally the sensor tip should be face down to avoid accumulation of condensation.
2. An 18 x 1.5 mm weld nut must be welded onto the exhaust pipe. After welding, run an 18 x 1.5 mm tap through the threads. Failure to clean the threads may result in sensor damage. Always use an anti-seize lubricant on the sensor threads
3. Install the Wego IIID unit. The unit is fully sealed, but should be mounted away from sources of engine or exhaust heat. The unit can be secured by means of two #8 screws through the mounting flanges.
4. Connect the Bosch sensors to the 6 pin mating connectors on the Wego wire harness. Connect the black wire to chassis ground, and the red wire to a switched +12 volt power.

   WARNING: DO NOT CONNECT THE RED WIRE FROM THE O2 CONTROLLER BOX TO THE DATAMAXX! IT NEEDS TO GO TO AN EXTERNAL 12V SUPPLY. CONNECTING THIS RED WIRE TO THE DATAMAXX WILL VOID YOUR WARRANTY!

5. The white wire is the signal for the first O2 sensor and should be plugged into a selected “A- WHT” terminal. The blue wire is the signal for the second O2 sensor and should be plugged into a selected “A- WHT” terminal. The thin black wire can go to any one of the Analog GND terminals.

Note: If installing more than 2 Wego controller boxes, you will need to add the filter capacitors.



Dip Switch: RTD – OFF

GND – ON

Calibration:

Calibrating the oxygen sensors is a twostep process. First you need to perform a free air calibration, and then you need to calibrate the DataMaxx so that the software and hardware knows what sensor you have installed.

To Perform a Free Air Calibration

- Take the sensors out of the headers, and let them dangle in the air with the shop doors open.
- Turn the free air calibration trim pots on the Wego as far as you can counterclockwise.
- Turn on power and wait 60 seconds so that the sensors can fully heat up.
- Slowly turn each free air calibration trim pot clockwise until the corresponding LED starts flashing at a rapid rate. Try to set each trim pot at the point where its LED just starts to flash.

To Calibrate:

- Follow the Initial Calibration instructions in the “Software” section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.
- Change the “Type of Sensor” to either “O2 (Daytona WEGO II) Gas AFR” or “O2 (Daytona WEGO II) Meth AFR” and change the “Channel Name” to whatever you desire.
- When you are done, select OK, and then “Send Config to DataMaxx”.

Testing:

If the sensor is mounted in the collector, you are not likely going to get a legitimate reading at idle due to air recursion. There is however a convenient way to test that the sensors are working before going down the track. Turn on the power to the system, and let the oxygen sensors heat up for approximately 2 minutes. Then using a Bic butane lighter, force butane into the tip of the sensor BUT do not light. When the sensor feels the butane it should go from a reading of 18-20 down to a reading of 10-12.

SHOCK TRAVEL SENSOR

Overview:

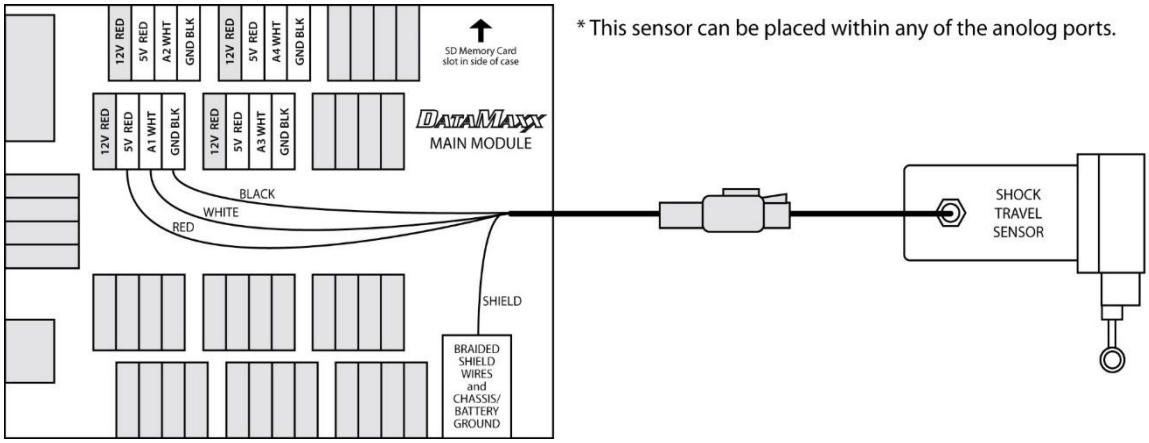
The suspension position transducer is designed to measure suspension movement during the entire data acquisition recording period, however for drag race purposes we are primarily interested in the suspension movement immediately following the initial launch.

Part Numbers:

#8051 Shock Travel Sensor Kit 4" or 8"

Installation:

Installation of the shock travel sensor will be significantly different on every installation. For proper mounting we recommend speaking with your chassis builder for the best way to accomplish this. Keep in mind that you want to position the sensor in a way that allows you to jack up the car without needing to disconnect the sensor. Jacking the car up with the sensor attached, and not properly centered, will cause the sensor to rip apart and be unrepairable.



Dip Switch: RTD – OFF

GND – ON

Calibration:

After installing your shock travel sensor you will need to tell the computer and the *DATAMAXX* what type of sensor it is. You will also need to know which Module and analog channel that you have plugged it into.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the "Analog" channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.
- Change the "Channel Name" to whatever you would like.
- From the "Type of Sensor" drop down list, choose "Custom", and then hit the "Configuration" button to the right of the "Type of Sensor" drop down list.
- Select the "Calibration Builder" tab and then select the check box to use the calibration builder.
- Change the decimals points to 1 and make sure that Direct Voltage is selected.
- Add the following values to the calibration table:
    - If using a 4" shock travel sensor:
        - Low Voltage: 0.035 Low Reading: 4
        - High Voltage: 4.984 High Reading: 0
    - If using an 8" shock travel sensor:
        - Low Voltage: 0.035 Low Reading: 8
        - High Voltage: 4.984 High Reading: 0
- Select Ok, then Ok again, to get back to the channel properties.
- Click on the filter button for the "Shock Travel Sensor", and select the check box to "Automatically zero reading just before launch".
- Select the "All in One View Preferences", and change the shock channel's zone to 6.
- When you are done, select OK, and then "Send Config to DataMaxx".

Testing:

To test the suspension position sensor, bounce the suspension up or down and verify that the reading changes.

ACCELEROMETER

Overview:

The accelerometer will tell you how hard your vehicle is launching. It can help identify tire spin as well as determining a wealth of information.

Part Numbers:

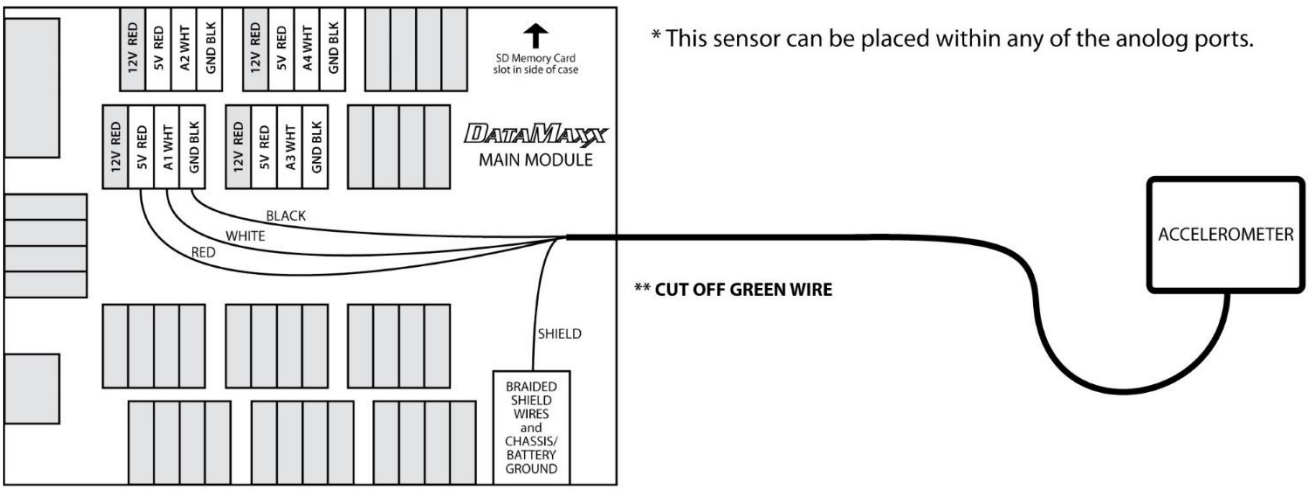
#8040 Single Axis 3.5 G Accelerometer

Installation:

For accurate readings, it is important to properly mount your accelerometer. For single axis accelerometers in drag racing applications, simply make sure that the arrow on the accelerometer point's exactly straight forward. Mounting the accelerometer away from the center of gravity of the car will introduce false readings because "yaw" (mere rotation or spinning) is misperceived as acceleration (changing direction of motion or cornering).

Find a suitable mounting location where the sensor will not be susceptible to excessive vibration. It is also helpful to use 3M foam tape to securely adhere to a surface, but do not actually adhere it until you have calibrated and tested the sensor. Now run the wire to either the Main or Analog module, and connect to a free Analog input. Connect the white wire to "A- WHT", black wire to "GND BLK", and the red wire to "5V RED."

CONNECTING THE ACCEL TO 12V WILL DESTROY THE SENSOR



Calibration:

After installing your accelerometer you will need to tell the computer and the *DATAMAXX* what type of sensor it is. You will also need to know which Module and analog channel that you have plugged it into.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.
- Change the "Type of Sensor" to "Accelerometer" and change the "Channel Name" to "Accel".
- When you are done, select OK, then click on the "Filter" button for that specific channel.
- Click on the check box to enable "Automatically zero reading just before launch".
- When you are done, select OK, and then "Send Config to DataMaxx".

Dip Switch: RTD – OFF

GND – ON

Testing:

With the accelerometer wired but not mounted, tilt it so that the arrow points straight up toward the sky. A reading close to one should result. This indicates one earth gravity or one "g" of acceleration. If you point the arrow straight down toward the earth, the reading should be minus one. If you hold the sensor level, the reading should be close to zero. Now, permanently mount the sensor. It is OK if the reading is not perfectly zero, as the software will automatically set it to a zero value at the appropriate place.

THROTTLE POSITION SENSOR

Overview:

The throttle position sensor is a very useful sensor that allows you to determine what percentage your throttle was open throughout the run. There are many different variations of the throttle position sensor depending on the application, and because of that we advise that you always refer to the individual instructions that come with your sensor as well as this guide.

Part Numbers:

#8054 Throttle Position Sensor

Installation:

When physically installing the throttle position sensor on your application, we recommend following any specific instructions that came from the sensor manufacturer.

Once the sensor is physically installed, you should have 3 wires that need to be run back to the data logger. These wires can go to either the Main module or an Expansion Analog module, wherever you have an available analog channel. Most TPS sensors utilize a +5v reference voltage but we recommend verifying that with your specific sensors instructions. Determine which analog channel is available and put the red wire into the +5v RED terminal, the white wire into WHT signal terminal and the black wire into the BLK ground terminal.

Dip Switches: RTD – OFF

GND – ON

Calibration:

After installing the throttle position sensor, we will need to custom calibrate it to your specific application.

To Calibrate:

- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.

- Find the Analog channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.
- Change the channel name to whatever you would like such as TPS or Throttle
- From the Type of Sensor drop down list, select "Volts (not auto battery)" and then select OK.
- If you have an LCD dash, click on the Configure LCD button and make sure that the sensor is being displayed on the dash
- Click the "Send Config To DataMaxx" button, hit OK, OK and then place the SD card into a powered up DataMaxx system
- After the calibration is done, we need to determine the voltage the sensor is outputting at 0% throttle and 100% throttle. **Note: If you do not have an LCD you will need to make a recording, download the log file and refer to that to determine the voltage outputs.
- With the throttle at 0%, write down the voltage output of the sensor
- Press the throttle open 100% (do not push the sensor open all the way but the throttle itself) and write down the voltage output of the sensor
- Record another short 5 second log file and download it properly. (If the channel properties is still open hit "Cancel" to close it before trying to download).
- Go to Edit, then Properties, find your TPS sensor and click on the calibration button.
- Click on the calibration button to the right of the Type of Sensor dropdown list, this will open a new window.
- Click on the Calibration Builder tab at the top and make sure the check box is selected to Use Calibration Builder for this sensor
- For Low Voltage enter the lower of the two voltages you wrote down, then input the corresponding reading. Do not input the percentage sign. Simply put 0 for 0% throttle and 100 for 100% throttle
- If there are values in the mid voltage or mid reading, delete them so the input fields are blank
- For High Voltage enter the higher of the two voltages you wrote down, then input the corresponding reading.
- Hit Ok, then Ok.
- Click on the ALL-IN-ONE View Preferences button and change the zone for your TPS sensor to 8 instead of auto.
- Click OK and you should be asked if you would like to send the configuration to DataMaxx. Select Yes, follow the prompts on the screen and then place the SD card into a powered up DataMaxx system.

Testing:

Testing the Throttle Position Sensor is very easy. The reading should be 0% when there is no throttle and 100% when the throttle is all the way down. If you sensor is reading slightly off of zero, you can perform a zero adjust or simply re-perform the calibration instructions that include determining the different voltages.

SWITCHES

Overview:

Your *DATAMAXX* system has the capability to monitor multiple switched on / off events. You can monitor switches that connect to ground or 12 volts. There are two designated switch inputs and any of the RPM channels can also be converted into switch inputs. If you are monitoring a solenoid, or another "nasty" signal, it is recommended to the optically isolated channels of Input shaft or Magneto.

Installation:

To install a non-powered switch with a common ground, simply connect the switch wire to the SW1 or SW2 input. If not using a common ground connect the ground wire to the ground terminal near the switch signal.

Warning: Both NHRA and IHRA frown upon attaching any electronic device to your trans-brake besides a delay box. Check with your local official before installing any Trans brake switch. Also, connecting a trans-brake to an input that is not optically isolated will cause a power surge to your *DATAMAXX*, possibly destroying it, and voiding your warranty.

If you choose to monitor your trans-brake, connect one wire from your delay boxes trans-brake output to the Mag Signal terminal (id #43). Then make sure that the dip switches Mag PuP (A) is OFF and Mag GND (B) is ON.

If you are trying to connect a 12v to open circuit switch, you will need to place a 1k ohm resistor jumper between the Switch signal terminal and ground. This resistor will allow the DataMaxx to notice a change of state between the 12v power and no power. This should not affect your device being monitored at all but please test thoroughly to ensure. You can call Computech to purchase this resistor if you cannot find it available locally.

Dip Switch: N/A

Calibration:

After installing your switch monitor you will need to tell the computer and the *DATAMAXX* what type of sensor it is. You will also need to know which Module and analog channel that you have plugged it into.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.
- Change the "Type of Sensor" to "Switch (Ground is ON)" and change the "Channel Name" to "Transbrake".
- When you are done, select OK, and then "Send Config to DataMaxx".

Testing:

By default, the LCD will show both switch 1 and 2. Changing the switch should change the display. If you are not using an LCD then recording a log file should display the switches at the top of the screen in zone one. If you are not getting any reaction from your switched input, test by touching a ground input to the switch signal, and a change should appear.

If you are trying to monitor a powered switch yet no change is apparent, it is most likely due to the fact that a 0V reading is not occurring. In order for a powered switch to change it must alternate between a 0V reading and a voltage reading higher than 1.5V. Note that an open circuit is not the same as a 0V reading.

LIGHTS

Overview:

The *DATAMAXX* has two 12V light outputs that can be triggered by any of the sensors you have installed. This allows you to set multiple values to activate the light, such as turning on a warning light when the oil pressure drops below a certain value.

The only caveat is that the light output needs to be an LED light, or utilize a relay in between the light output and the light itself if it draws over 800ma.

Installation:

- LED Light: When installing an LED light you can simply hook the positive end of the led to the L1 or L2 light output and connect the other side to ground.

- Incandescent Light: Because the DataMaxx can only handle powering an 800ma light and most incandescent lights are 1.2 A, we need to hook up an automotive relay between the two. Refer to the specific instructions based on which relay you are using.

  WARNING: DO NOT CONNECT AN INCANDESCENT LIGHT DIRECTLY TO THE LIGHT OUTPUT. DOING SO WILL DAMAGE THE LIGHT OUTPUT AND VOID YOUR WARRANTY. ONLY CONNECT LED LIGHTS OR USE A RELAY IN BETWEEN THE LIGHT OUTPUT AND INCANDESCENT LIGHT.

Dip Switch: N/A

Calibration:

After installing your light, you will need to tell the computer and the *DATAMAXX* which sensors you want to trigger it, and at what level.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Analog channel line that you want to set up a warning light for, follow it to the right, and click on the finger pushing a red button.
- Click on the “Lights and Record" Tab
  - If you want to set the L1 light then set your warn level in “Warn Level 1”. Then select the checkbox for “Main L1” illuminated if reading is “Above” or “Below’ (only check one).
  - If you want to set the L2 light then set your warn level in “Warn Level 2”. Then select the checkbox for “Main L2” illuminated if reading is “Above” or “Below” (only check one).
- When you are done, select OK, and then “Send Config to DataMaxx”.

Testing:

The easiest way to test if a light is reacting correctly would be to use the switch to activate the light. To do so open the channel properties, choose either switch 1 or 2 and click on the calibration button, then the “Lights + Record” tab. Choose “below” and a warn level of zero, then send the configuration to the *DATAMAXX*. Your unit should now be set to turn on a light when a switch is thrown. Quickly throw the switch by connecting the switch signal to ground.

SOFTWARE

INSTALLING THE DATAMAXX VIEWER

Overview:

The DataMaxx software is where you can download your runs, view the information and analyze what it means. This software is where you will be spending the majority of your time so it will pay to learn as much about how to operate it as possible.

We start out with how to install the software then get into how to do your initial calibration. This calibration is critical as we tell the system where each sensor was installed and allow the system to operate correctly. Then we get into some of the different software features and how to perform different tasks.

The software will work with any Windows XP, Vista, 7, 8 or 10 PC.

Installation:

Your *DATAMAXX* system comes with the *DATAMAXX* Viewer CD, and is also available online at www.computech.com. Because we make changes to the software to enhance the user experience, it is recommended to download the latest version of software from our website. To do this, go to www.computech.com then Support and Data Loggers. In the center column you will see a section for Downloads and the latest version of the DataMaxx software. Click on the link and it should ask you if you want to "Run" or "Save" the file. Say run and then follow the instructions in the install wizard. If it asks you if you are sure that you want to run the program, say "Run".

After the DataMaxx viewer software has been installed, we want to install the "SD Formatting" software so that we can clear off the SD cards whenever the need arises. To do this go to www.computech.com, then Support and Data Loggers. In the center column, you will see a section for Downloads and a link for SD Memory Card Formatter. Click on the link and it should ask if you want to "Run" or "Save" the file. Say "Run" and then follow the instructions on the install wizard. If it asks you if you are sure that you want to run the program, say "Run".

If you cannot access the internet with your computer, both the DataMaxx viewer software and the "SD Memory Card Formatting" software are on the disk that came with your system. To install them simply go to Start, then Computer. In the Computer area, you should see your different drives like your hard drive and your CD/DVD drive. Right click on your CD/DVD drive and select "Explore". This will show you the contents of the cd and you can then double click each program to start the install wizard.

SD CARD SETUP WIZARD

After installing your DataMaxx software for the first time, a pop up a window labeled "SD Card Setup Wizard" will appear. This wizard will allow your software to automatically find and associate your SD card reader slot with the DataMaxx. However, to complete this wizard, you will need to have first recorded a DataMaxx log file to one of your SD cards. It is recommended to finish the entire installation first before diving into the computer software.

To complete the SD Card Setup Wizard follow the following directions:

1. Place only one SD card into your DataMaxx hardware—preferably in the Main Module.
2. Using the record switch or the record button on the LCD, record a short 10 second log file.
3. Open up your DataMaxx software and ensure that the SD Card Setup Wizard window is open. If it is not, you can simply go to "Download" → "Run SD Card Setup Wizard" (for new SD card location).
4. Hit the "Next" button so that your SD Card Wizard is on the Request Card section.
5. Place the SD card into your computers SD card reader and hit the "Next" button.
6. Follow the instructions on the screen. If it says "Finished So Soon", then it has found your SD card location and you can hit the "Finish" button.

If you ever change your SD card location (use a different SD card reader) then you will need to run the SD Card Setup Wizard again.

If you go to download a log file and receive the message "No log files found on this media" and are sure that there is a log file on the card, run the SD Card Setup Wizard again.

HOW TO DOWNLOAD LOGFILES CORRECTLY

Downloading your log files correctly is extremely important for a couple of reasons. First, downloading them correctly allows all of your runs to be stored and organized on your computer. It also ensures that your SD card stays clean because each time we correctly download the log file, it saves the runs to your computer and then clears the runs off of your SD card automatically for you. It is also extremely important to download correctly because you cannot calibrate your system unless the log file has been saved to your computer.

Follow the instructions below to correctly download your log file.

1. After recording a log file, place the SD card into your computer.

2. If a window automatically opens up that says something like “Auto Play”, “Removable Disk”, or you see a file like “DATAMX01” then you need to close this window.
3. If a window automatically opens up that has 3 green arrows, then skip ahead to step 5.
4. With the DataMaxx software open, click on the “SD” button on the top toolbar.
5. This window with green arrows is how we organize and save all of our log files. The first green arrow allows you to save a log file to an existing event, the second green arrow allows you to create a new event, and the third green arrow allows you to cancel.
6. If this is the first run of a new event then you want to follow the second green arrow, erase the words “Type New Event Name Here”, but leave today’s date. Then type in the event name for easy referencing, and hit the “Copy Here” button directly to the right.
7. If this is the second or subsequent runs of an event that you already created, follow the first green arrow, and find the event that you would like to save the run to. Click on that event name and hit the “Copy Here” button directly to the right.
8. You should now have a window pop up that tells you that it “Successfully Copied “X” Amount of Log Files”. Select Ok, and it will then open your run.

INITIAL CALIBRATION

Overview:

The first steps in installing the DataMaxx system is to install the modules, then install the sensors and run the wires. If you have not performed these tasks then there is no reason to perform the Initial Calibration, and you need to do that first. Please refer to “Getting Started” in the beginning of the instruction manual.

Now that you have all of the hardware installed, we need to calibrate the system. The DataMaxx system is unique in the fact that we can accept any sensor on the market and it can be installed in many different channels. Because of this, we have to know where you physically installed each sensor. To make life easier for you, please fill out the “Configuration” sheet on page 5. Once you have done this you can follow the instructions below.

Instructions:

1. After you have installed the modules and sensors, ran and terminated the wires, you can fill out the “Configuration” sheet on page 5, and then install the DataMaxx software.

2. Turn power on to your DataMaxx system, place the SD card in the Main Module and record a short 10 second log file. Turn the record switch off, and remove the SD card from the Main module.

3. Place the SD card in your computer. If a window pops up that does not have green arrows, then immediately close it.

4. Open the DataMaxx software. If this is your first time opening the software the SD Card Wizard will be displayed, follow the directions on the screen to set up the SD card. After the SD card has been found it is time to download the log file.

5. To properly download the log file, hit the SD button located in the top toolbar of the software. This will bring up a window with three green arrows. Follow the second green arrow and you will see a text box with today's date and "Type New Event Name Here". Delete the words "Type New Event Name Here", but leave today's date. Then type in "Calibration". This will mean the event name will be today's Date Calibration. Then hit the "Copy Here" button directly to the right. It will then say "Successfully Copied X Log files". Hit Ok.

6. Select Edit and then Properties. This has brought you to the channel properties where you can make all of the changes to the system.

7. The first line is **Record**.
    - This is for the physical record switch and we want to leave this alone.

8. The next line is **Engine**.
    - If you are running an 8 cylinder engine then leave this alone.
    - If you are running anything other than an 8 cylinder engine, follow the line all the way to the right, and click on the "Calibration" button (finger pushing a red button). Change the "Type of Sensor" to the correct number of cylinders, but if possible, leave the name as "Engine"—as we use this naming structure to calculate other channels. Then hit Ok to return to the channel properties.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the "Calibration" button (finger pushing a red button). Select "None" from the top of the "Type of Sensor" drop down list. Then hit Ok to return to the channel properties.

9. The next line is **Drvshf**.
    - Our kits come standard with a 2 magnet collar so if you are using a 2 magnet collar you can leave this line alone.
    - If you are running anything other than a 2 magnet collar, follow the line all the way to the right, and click on the "Calibration" button (finger pushing a red button). Change the "Type of Sensor" to the correct number of magnets, but if possible, leave the name as "Drvshf"—as we use this naming structure to calculate other channels. Then hit Ok to return to the channel properties.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the "Calibration" button (finger pushing a red button). Select "None" from the top of the "Type of Sensor" drop down list. Then hit Ok to return to the channel properties.

10. The next line is **Magneto**.

- If you are using the Magneto channel: Follow the line all the way to the right, and click on the “Calibration” button (finger pushing a red button). Change the “Type of Sensor’ to the correct number of cylinders. Then hit Ok to return to the channel properties.
- If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the “Calibration” button (finger pushing a red button). Select “None” from the top of the “Type of Sensor” drop down list. Then hit Ok to return to the channel properties.

11. The next line is **Inpshf**.
    - If you are using the Input Shaft channel: Follow the line all the way to the right, and click on the “Calibration” button (finger pushing a red button). Change the “Type of Sensor” to the correct amount of magnets per revolution. Leave the channel name as “Inpshf” in order to have the clutch slippage graph work correctly. Then hit Ok to return to the channel properties.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the calibration button (finger pushing a red button). Select “None” from the top of the “Type of Sensor” drop down list. Then hit Ok to return to the channel properties.

12. The next line is the **Switch 1** monitor.
    - If you are using the Switch 1 monitor: Follow the line all the way to the right, and click the “Calibration” button (finger pushing a red button) on. Change the “Channel Name” to whatever you would like. For a switch you have two options, either “Switch (Ground is ON)” or “Switch (Ground is OFF)”. If you are not sure which configuration you need, simply try one, and if it is backwards just change the calibration.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the “Calibration” button (finger pushing a red button). Select “None” from the top of the “Type of Sensor” drop down list. Then hit Ok to return to the channel properties.

13. The next line is the **Switch 2** monitor.
    - If you are using the Switch 2 monitor: Follow the line all the way to the right, and click on the “Calibration” button (finger pushing a red button). Change the “Channel Name” to whatever you would like. For a switch you have two options, either “Switch (Ground is ON)” or “Switch (Ground is OFF)”. If you are not sure which configuration you need, simply try one and if it is backwards, then just change the calibration.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the “Calibration” button (finger pushing a red button). Select “None” from the top of the “Type of Sensor” drop down list. Then hit Ok to return to the channel properties.

14. The next line is the **Main Module A1** channel.

- If you have a sensor installed into the Main A1 channel, follow the line to the right, and click on the "Calibration" button (finger pushing a red button). Refer to your "Configuration" sheet and change the "Channel Name' to whatever you like and then change the "Type of Sensor" to whatever type of sensor you have. Then hit Ok to return to the Channel Properties.
- If you have nothing plugged into this channel and not using it: Follow the line all the way to the right and click on the calibration button (finger pushing a red button). Select "None" from the top of the type of sensor drop down list. Then hit Ok to return to the channel properties.

15. The next line is the **Main Module A2** channel.
    - If you have a sensor installed into the Main A2 channel, follow the line to the right and click on the calibration button (finger pushing a red button). Refer to your Configuration sheet, change the Channel Name to whatever you like, and then change the Type of Sensor to whatever type of sensor you have. Then hit Ok to return to the Channel Properties.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right and click on the calibration button (finger pushing a red button). Select "None" from the top of the type of sensor drop down list. Then hit Ok to return to the channel properties.

16. The next line is the **Main Module A3** channel.
    - If you have a sensor installed into the Main A3 channel, follow the line to the right, and click on the "Calibration" button (finger pushing a red button). Refer to your "Configuration" sheet, and change the "Channel Name" to whatever you like and then change the "Type of Sensor" to whatever type of sensor you have. Then hit Ok to return to the Channel Properties.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the "Calibration" button (finger pushing a red button). Select "None" from the top of the "Type of Sensor" drop down list. Then hit Ok to return to the channel properties.

17. The next line is the **Main Module A4** channel.
    - If you have a sensor installed into the Main A3 channel, follow the line to the right, and click on the "Calibration" button (finger pushing a red button). Refer to your "Configuration" sheet, and change the "Channel Name" to whatever you like, and then change the "Type of Sensor" to whatever type of sensor you have. Then hit Ok to return to the Channel Properties.
    - If you have nothing plugged into this channel and not using it: Follow the line all the way to the right, and click on the "Calibration" button (finger pushing a red button). Select "None" from the top of the "Type of Sensor" drop down list. Then hit Ok to return to the channel properties.

18. The next line is the **Battery** channel.
    - Leave this line alone. We determine what your battery voltage is by monitoring the amount of power your DataMaxx system receives.

19. If you have any expansion Analog Modules, then these will be listed next. Follow the same process as we did for the previous Analog channels, but for your expansion box, instead of the Main Module. If you do not have any expansion Analog Modules then move on to the next step.

20. If you have any EGT Modules, then these will be listed next. The EGT Modules themselves are labeled as to which cylinder probe should be plugged into where. Therefore, it should not be necessary to make any changes to the default calibrations. If you do not have any EGT Modules, then move on to the next step.

21. The next line is the **MPH** channel.
    - If you have a driveshaft sensor and the channel name is "Drvshf", then you can automatically determine your MPH. To do this, follow the line to the right, and click on the "Calibration" button (finger pushing a red button). To the right of the "Type of Sensor" drop down list is another calibration button. Hit this, and make sure that you are on the MPH tab. Then enter in your "Tire Circumference" and "Rear End Ratio". When you are done hit Ok, and Ok again, to return to the channel properties.
    - If you do not want to configure the MPH channel, follow the line all the way to the right, and click on the "Calibration" button (finger pushing a red button). Select "None" from the top of the "Type of Sensor" drop down list. Then hit Ok to return to the channel properties.

22. The next line is the **TIME** channel.
    - The time channel will display the time at the top of your screen, there is nothing you can change here.
23. The next line is the **Convrtr Slip** channel.
    - The Converter Slip channel is a calculated channel that takes the "Engine" and "Drvshf" channel names to calculate the converter slippage. If you do not have two channels that are named precisely "Engine" and "Drvshf", then the calculated channel will not work correctly.

24. The next line is the **Clutch Slip** channel.
    - The Clutch Slip channel is a calculated channel that takes the "Engine" and "Inpshf" channel names to calculate the clutch slippage. If you do not have two channels that are named precisely "Engine" and "Inpshf" then the calculated channel will not work correctly.

25. If you have the "Beta Features" enabled then these ET Slip Calculated channels will show here. For more information about the Beta Features, please see the "ET Slip Calculated Channels" topic in the Software section.

26. Click on the "Send Configuration to DataMaxx (via SD Card)" button at the bottom right of the channel properties screen. If a window opens up saying that there is No LCD Module found, that is ok, select Ok. It should then ask you if you want to set the Hardware Clock. If you are near the DataMaxx system then say Ok, if not then select No (for every second it takes you to get to the system is a second the SD card does not know has past—for instance, if it takes you 3 minutes to get to the DataMaxx your clock will be 3 minutes slow). Then select Ok, and Ok again, then take the SD card out of your computer.

27. Take the SD card to your DataMaxx system, turn the power on, wait at least 5 seconds and then place the SD card into the Main Module. You will notice the lights on the Main Module acting unusual, and if you have an LCD Dash you will see things—such as Config #10 done. Wait approximately 1 minute, and you have completed your DataMaxx Calibration.

SETTING UP YOUR LCD DASH

If you have the DataMaxx LCD Dash, you can completely customize where different information is displayed and how many different combinations of sensors as you would like. To customize your LCD Dash, please follow the instructions below.

Instructions:

1. After your system is correctly calibrated, record a short 5-10 second log file, and download it correctly to your computer. Select Edit, then Properties, and then hit the "Configure LCD Module" button at the bottom of the channel properties.

2. Using the "Page" drop down list, select Page 4, then hit the "Delete Page" button.

3. It will then automatically take you to Page 3, then hit the "Delete Page" button.

4. It will then automatically take you to Page 2. If you have the 8 EGT add on then go ahead to Page 1. If you do not have 8 EGT's then hit the "Delete Page" button.

5. You are now at page 1, which will be your primary page for displaying all of your sensors. All you have to do is click on the drop down list where you would like to see a sensor and select it. If you would like to not show a sensor in a certain location, you can just select –blank— from the drop down list.

6. If you would like to create another page with either more sensors, or a different combination of information, simply click on the "Insert New Page after Current Page" button, and set up your new page.

7. When you are done, simply click Ok to take you back to the Channel Properties.

8. Click on the "Send Configuration to DataMaxx (via SD Card)" button at the bottom right of the channel properties screen. It should then ask you if you want to set the Hardware Clock. If you are near the DataMaxx system then say Ok, if not then select No (for every second it takes you to get to the system is a second the SD card does not know has past—for instance, if it takes you 3 minutes to get to the DataMaxx your clock will be 3 minutes slow). Then select Ok, and Ok again, then take the SD card out of your computer.

9. Take the SD card to your DataMaxx system, turn the power on, wait at least 5 seconds, and then place the SD card into the Main Module. You will notice the lights on the Main Module acting unusual, and if you have an LCD Dash you will see thing—such as Config #10 done. Wait approximately 1 minute and you have completed your DataMaxx LCD Dash Calibration.

SETTING UP WARNING LIGHTS

Your DataMaxx system has the ability to turn on either your LCD Dash warning lights, or external warning lights based on any channels value. This means that you can turn on the LCD Red light if your Oil PSI goes below 20psi, or turn on the LCD Yellow light if the RPM gets above 7300. You also have external light outputs in the Main Module that you can use to power your own warning or shift lights.

Under no circumstance should you enable the DataMaxx system to record automatically based on a certain value. Doing this can cause inconsistent recordings and other issues.

To Set Up Warning Lights:

1. After your system is calibrated, record a short 5-10 second log file, and download it correctly to your computer. Then select Edit, then Properties.

2. Find the channel that you would like to set the warning light for, follow the line to the right, and click on the "Calibration" button (finger pushing a red button).

3. Click on the "Lights & Record" tab.

4. If you want to set the LCD Yellow or Main Module L1:
   (a) Type the value you want the light to be triggered at into Warn Level 1.
   (b) If you want to turn on the LCD Yellow light:
      i. Find the LCD Yellow light illuminated if Reading is at and then select either the "Above" or "Below" checkbox.
   (c) If you want to turn on the Main Module L1:

i. Find the Main L1 light illuminated if Reading is at and then select either the "Above" or "Below" checkbox.

5. If you want to set the LCD Red or Main Module L2:
   (a) Type the value you want the light to be triggered at into Warn Level 2.
   (b) If you want to turn on the LCD Red light:
      i. Find the LCD Red light illuminated if Reading is at and then select either the "Above" or "Below" checkbox.
   (c) If you want to turn on the Main Module L2:
      i. Find the Main L2 light illuminated if Reading is at and then select either the "Above" or "Below" checkbox.

6. Select Ok to get back to the channel properties.

7. Follow steps 2-6 for each channel you would like to set a warning light for.

8. When you are done setting your warning lights, click on the "Send Configuration to DataMaxx (via SD Card)" button at the bottom right of the channel properties screen. It should then ask you if you want to set the Hardware Clock. If you are near the DataMaxx system then say Ok, if not then select No (For every second it takes you to get to the system is a second the SD card does not know has past. For instance, if it takes you 3 minutes to get to the DataMaxx your clock will be 3 minutes slow). Then select Ok and Ok again, then take the SD card out of your computer.

9. Take the SD card to your DataMaxx system, turn the power on, wait at least 5 seconds, and then place the SD card into the Main Module. You will notice the lights on the Main Module acting unusual, and if you have an LCD Dash you will see things—such as Config #10 done. Wait approximately 1 minute and you have completed your DataMaxx LCD Dash Calibration.

ZONES AND SUBZONES

The DataMaxx software is designed to allow you to easily see and understand your cars data. To aide in this process, we separate sensors into different zones. The idea behind this is that you don't want to have a 30psi sensor in the same zone as a 2000 psi sensor because the 30 psi sensor will look like a flat line. The software will automatically place sensors in the correct zone based on the type of sensor it is. You can however customize these zones.

To Customize a Sensors Zone:

1. Open your most recent log file, select Edit, and then Properties.

2. Click on the "All-In-One View" preferences button to show the zones and subzones column.

3. Find the channel you would like to change the zone to and delete the words "Auto" from the zone column. Then simply type in the number you would like that sensor to be in. If you look at the right of the text field, you will see a number in parenthesis as to which zone it is defaulted to.

4. When you are done making all of your zone changes, simply press Ok. It is not necessary to send the calibration back to the DataMaxx as this is a software only setting. This does, however, mean that if you make a zone change on one computer, you will need to do it to any other computers you plan on using to view your log files.

Default Zones:

1. Time & Switches
2. Main RPM (engine, driveshaft, input shaft, magneto)
3. Derived RPM (converter slippage, clutch slippage, gear ratio, mph)
4. Low Range Temperatures
5. Exhaust Gas Temperatures
6. Accessories (accelerometer, oxygen sensors, shock travel)
7. Low Range Pressures (Vacuum, 24 psi, 30 psi, Battery)
8. Mid-Range Pressures (Oil psi, 500 psi)
9. High Range Pressures (2000 psi)
10. ET Slip Calculated Channels (Beta Features)
99. The Hidden Zone. Sensors that are listed as "None" default here

For our customers that are more used to the Racepak style of viewing log files, we have a special view called the "All-In-One" view that is similar. If you consider the bottom of the screen as 0% and the top of the screen as 100% then you can customize where each sensor will be placed in that screen. If you look at the Subzone column, you will see that by default, the RPM channels are in the top third of the screen (66-100)—whereas the low range pressures are at the bottom third (0-33). This is all completely customizable, but simply deleting the words auto and putting in your own range. This allows you to see all of your sensors in one large zone, but have the ability to customize it so that your sensors are not crisscrossing over each other.

FILTERS

The DataMaxx software has filters built into it to ensure that your graphs are as smooth and readable as possible. By default, all of the channels are set to the recommended filter setting of "Smooth by following the general average" with the Heavy filter weight. If you would like to modify a filter setting please follow the instructions below.

1. Open up any of your log files, select Edit, and then Properties.
2. Find the channel you would like to change the filter on, and click on the "Filter" button.
3. Select the "Smooth by following the general average Smoothing" option.
4. Select the filter weight you would like to use (heavy is recommended).
5. When you are done making all of your zone changes, simply press Ok. It is not necessary to send the calibration back to the DataMaxx, as this is a software only setting. This does, however, mean that if you make a zone change on one computer, you will need to do it to any other computers you plan on using to view your log files.

CREATING CUSTOM CALIBRATIONS

The DataMaxx system is unique in the fact that we can adapt most sensors on the market to work with your system. All you need to know is a little knowledge about the sensor and we can custom calibrate your DataMaxx system.

Wiring Custom Sensors:

If the sensor has 3 wires:

1. First determine which each wire represents (ex: power, ground, and signal).
2. Determine whether the sensors needs a 5v or 12v reference voltage.
3. Connect the power wire to either the 5v or 12v terminal of one of your available analog channels (if you are unsure, it is safer to try the 5v first).
4. Connect the signal output wire to the White DataMaxx terminal.
5. Connect the ground wire to the Black DataMaxx terminal.

If the sensor has 2 wires:

1. Odds are it is a Resistive or RTD sensors. In these cases it does not matter which wire is power and ground but double check just in case.
2. Connect one of the wires or the power wire to one of your available "Analog White" signal terminals
3. Connect the other wire or the ground wire to the "Analog Black" ground terminal.

4. Turn the corresponding RTD and GND dip switches to the ON position. Refer to the backside of the lid to determine which of the correct dip switches to change.

If the sensor has 1 wire:

1. Odds are it is a Resistive or RTD sensor.

2. Connect the wire to one of your available "Analog White" signal terminals.

3. Turn the corresponding RTD and GND dip switches to the ON position. Refer to the backside of the lid to determine which of the correct dip switches to change.

Determine the min & max output vs voltage:

In order to get the sensor to read correctly, we need to determine the lowest reading and the voltage associated with it, as well as the maximum reading, and the voltage associated with it. The most accurate way to get this information is to call your sensor manufacturer or search the brand and model of the sensor, along with "Calibration", into Google. You are looking for something like: .5v = 0psi, 4.5v = 150psi.

If you cannot find the calibration information for the sensor, many times you can create your own little test scenario and determine the calibration with a volt meter. Using the voltmeter, measure the voltage output of the white signal wire while it is plugged into the DataMaxx (you can place your lead on the screw terminal area to pick up the voltage). Write down what the min reading is (i.e. 0psi), and the min voltage (i.e. .43v). Then raise the reading as far as you possibly can while you know what that reading is. For example, if you are doing this with a pressure sensor, hook the sensor up to your compressed air. If you know that it has 80 psi, then you now know another calibration point.

If you cannot take your reading to the maximum of 5v and still know what the readout is, you can still calibrate the sensor as long as you have 2 calibration points. Follow the formula below to determine your Min and Max with only 2 points:

Calibrating the Custom Sensor:

After determining your Min and Max output vs voltage, you can calibrate the sensor.

1. Record a short 5 second test log file, and download the log file correctly using the SD button.

2. Select Edit, then Properties. You are now in the Channel Properties area.

3. Find the Analog channel line that you installed the sensor on, follow it to the right, and click on the finger pushing a red button.

4. Find the "Type of Sensor" drop down list, and again click on the finger pushing a red button.

5. Click on the "Calibration Builder" tab and make sure the check box is selected to "Use Calibration Builder" for this sensor.

6. Select the number of decimal points you would like to see. It is recommended to not exceed one decimal point.
7. Change the units to whatever you would like, such as psi, degrees, rpm etc.

8. Unless you are custom calibrating a thermocouple, leave the Connectivity drop down box to Direct Voltage (0V to 5V).

9. Type in the Low Voltage and the Low Reading.

10. Optionally you can add a Mid Voltage and Mid Reading to increase accuracy.

11. Type in the High Voltage and the High Reading.

12. Select Ok, then OK again, then "Send Config to DataMaxx".

Note: Since the DataMaxx software groups each sensor based on its pre-defined range, your custom calibration will most likely throw it into the RPM view or View 2. It is recommended to change this view so that it is with similar ranged sensors. For more information about this, please reference the "Views" topic in the Software section.

ZEROING SENSORS

Sometimes a sensor will not always read absolutely zero, or be off by a certain amount. The DataMaxx software has the ability to rectify this with our "Make Minor Adjustment" feature.

1. Open a log file that needs to be adjusted. Go to Edit, and then Properties.

2. Find the sensor that needs adjusting, follow the line to the right, and click on the "Calibration" button (finger pushing a red button).

3. To the right of the "Type of Sensor" drop down list, click on the "Calibration" button again.

4. Click on the "Calibration Builder" tab at the top, and make sure that the check box is checked for "Use Calibration Builder" for this sensor.

5. The bottom is the area where you can make minor adjustments to all your readings. If your sensor is always reading 2 psi higher than it should then you would want to type in -2, and then hit the "Add Adjustment to All Readings" button.

6. Select Ok, and then Ok again, to get you back to the channel properties.

7. Because this has now changed the sensor to a Custom calibration, the software does not know which zone to place it in. So click on the "All-In-One View" preferences button and change the sensors zone to the correct zone.

8. When you are done, click on the "Send Configuration to DataMaxx (via SD Card)" button at the bottom right of the channel properties screen. It should then ask you if you want to set the Hardware Clock. If you are near the DataMaxx system then say Ok, if not then select No (for every second it takes you to get to the system is a second the SD card does not know has past—for instance, if it takes you 3 minutes to get to the DataMaxx your clock will be 3 minutes slow). Then select Ok, and Ok again, then take the SD card out of your computer.

9. Take the SD card to your DataMaxx system, turn the power on, wait at least 5 seconds and then place the SD card into the Main Module. You will notice the lights on the Main Module acting unusual, and if you have an LCD Dash you will see thing—such as Config #10 done. Wait approximately 1 minute and you have completed your DataMaxx LCD Dash Calibration.

VIEWS

The DataMaxx software has 5 predefined zoned views, 1 "All-In-One" view and 5 customizable views. The predefined zoned views are: All, RPM, Temperatures, Pressures and Accessories. You can customize any of these views by grabbing the horizontal divider that separates the different zones and moving them up or down to maximize or minimize any zone you want. If you do find a custom view that you like, you can save it as one of your custom views by going to "View", "Save View as Custom View", and then select which "User-Defined" view you would like to save it as.

In addition to the views themselves, there are a couple useful features that the software has. On the left hand side of your screen you will have each sensor name that is being shown, followed by a colored box. To hide that line, simply click on the colored box, and the graph will disappear. To make the graph come back, simply click on the spot where the colored box should be, and the graph will re-appear.

There is also a graph highlighting feature that will make it easier to find a specific line in a sea of lines. To do this, simply click and hold on the sensors name on the left and it will cause that specific graph to highlight. To stop the highlighting, simply let go of the mouse. You can also cause it to continuously

highlight by clicking and holding the mouse down on the sensors name, and then move the mouse off the name and let go. It will then continue to highlight until you click on the sensor name again.

Default Views and Associated Zones:

ALL	-	Zones 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
RPM	-	Zones 1, 2, 3
TMP	-	Zones 1, 2, 4, 5
PRS	-	Zones 1, 2, 7, 8, 9
ACC	-	Zones 1, 2, 6, 10

ZEROING RUNS

Zeroing out your runs is extremely important for a couple of reasons. First, it allows you to view your data in relationship to your ET slip. Secondly, it allows you the ability to overlay runs. If you do not zero your runs before overlaying then they will not have the same starting reference point, and you will not get any valuable information from the overlay.

To zero your runs, click on the "RPM" view so that we are looking at a large graph of the Driveshaft sensor. Click your mouse on the spot of the graph, just after the driveshaft line jumps up from zero. Then using your keyboard control, hit the left arrow while watching the Driveshaft value on the left. Continue hitting the left button until your driveshaft value drops to 5 RPM, or below. Once you reach that point, hit the "Z" key on the keyboard. It will then ask you if you want to move the zero time point. Say yes, and you should notice that the time where your curser is, is now at zero seconds. At this point, you can overlay runs and reference your log file in conjunction with your ET Slip.

SHORTCUT KEYS

There are a couple of shortcut keys for the DataMaxx software to make your life a little easier.

I	=	Zoom In
O	=	Zoom Out
W	=	View The Whole Recording
Z	=	Set Zero Time Point
A	=	Show All Of The Run You Care About (only works after zeroing)

HOW TO DELETE EXCESS LOGFILE

If you find that you have extra data at the end of the run that is not needed (you forget to turn off the recording), you can truncate, or delete the unwanted data. To do this, open the log file, place the curser at the point you want to delete everything to the right, then select “View”, “Truncate Log file at Cursor”. A window will pop up asking you if you want to truncate the remainder of the log file, say Ok, it will reopen the run and you should see that, that specific part has been removed.

There is also an option to restore the data that you deleted. To do this, simply open the log file you wish to restore and go to “View”, then “Restore Truncated Log File”. A window will pop up asking you want to restore the log file, say Ok, it will re-open the run and the rest of the log file will be there.

OVERLAYING MULTIPLE RUNS

Overlaying runs is one of the biggest advantages of having a data logger. The ability to record a run, make a change to your setup, make another run and look at the two runs over top of each other can make a big difference. You can easily determine if your shift points were different, what advantages you get from the different shift point, etc. However, to correctly overlay runs, you first need to zero each log file. Without doing this, the two runs will have different starting points and you can't compare them. To learn how to zero your runs, please refer to the “Zeroing Runs” topic in the Software section.

To overlay a run, first open up the first log file you wish to compare. Then click on the “Open Folder” button at the top right of the toolbar, find the log file you wish to overlay, click it once, and then select the “Overlay” button at the bottom. It will then open both log files on top of each other. To close the overlay, simply open another log file by double clicking, or click the “Close Log file” button (folder w/ red square).

ET SLIP INFORMATION

The DataMaxx software has a convenient way to store your ET slip and weather information, as well as a convenient place to keep notes on your run called the “Run Notes”. To access the run notes, you first need to have a log file open, then click on the “Run Notes” icon in the toolbar (pencil w/ a plus sign). When the Run Notes opens, you can place in whatever information you would like.

In order for the software to calculate your ET Slip Calculated channels (Beta Feature), the ET info of your log file needs to be filled out. Once this is done, you will be able to see the values for Feet (ET

Slip), MPH (ET Slip), Accel (ET Slip), HP (ET Slip), and Torque (ET Slip). Without the ET Info entered into the Run Notes, you cannot get the extra calculated channels.

ET SLIP CALCULATED CHANNELS

By using your sensors, we can calculate multiple different graphs that may be helpful to you. These additional calculated channels are Feet, MPH, Accel, HP and Torque. To get these features go to Edit, Properties, and then click on the "Miscellaneous Settings" tab. Check the checkbox for "Enable Untested Beta Features" and select Ok.

Although the "ET Slip Calculated" channels are currently a Beta feature, the "Drvshf" variants are quite accurate. At the moment, we recommend to ignore or hide (by placing the channel into zone 99) the Accel variants, as well as, the Tire spin ft. & %, and as HP (Torque). We are in the process of perfecting these variations, and will incorporate it into the software when it's ready.

EDITING RUN DESCRIPTIONS

You can edit your already saved Run numbers, as well as, add a couple notes to associate with the actual log file filename. To do this, simply click on the "Open Folder" button at the top left of the toolbar (Folder opening). Select the log file you would like to change with a single mouse click, then select the Edit button. You can now change the Run number, as well as, add a Comment for the filename. Many users like to add their ET in the comment section, as they remember ET better than an actual run number.

WHERE YOUR LOGFILES ARE STORED

Your log files are store in "My Documents", in a folder labeled "My DataMaxx". Once you open that folder, you should see that all of your events are actually folders, then inside those folders are your actual runs. This keeps things very organized and gives you more control over the structure of these files. For instance, you can create a folder inside of My DataMaxx called "2012", and place all of your previous year's folders inside of this "2012" folder. The big advantage of this is the ability to minimize the cluster of events when you are trying to open, or find a log file. This is also the only way that you can edit the

name of the event after it has been created. To do this, just right click on the folder you wish to change, and select “Rename”.

My Documents → My DataMaxx is the place you need to go when trying to attach a log file.

EMAILING A LOGFILE

Emailing a DataMaxx log file only requires that you be comfortable sending an email attachment. If you know how to do that then follow these simple instructions.

To Email a Single Log file:

1. Open your email program, or website, and create a new message.
2. Fill in who you are sending it to, a subject line, and whatever additional text you would like in the body of the message.
3. When you are done, select the attach button. Sometimes this will look like a paperclip, other times it may actually say "Attach".
4. This will open up a little window to allow you to find and select a file. Select either "My Documents (Windows XP)" or "Documents (Vista, 7 & 8)".
5. Now you should see a folder labeled "My DataMaxx", double click on that.
6. At this point, you should see a folder for each event that you created, simply double click on the event you want, then select the specific log file you want and select "Attach", "Select", or "Ok".
7. You have now attached a log file to your email and can either continue attaching additional log files, or simply send the email.

To Email A Single Event:

1. If you want to email the entire event, we first need to zip up the event file so that it can email its entirety easily.
2. Click on your “Start” button at the bottom left—Windows Vista, 7 & 8 users will see the Windows logo.
3. Select "My Documents (Windows XP)" or "Documents (Vista, 7, & 8)”.
4. Double click on the folder labeled "My DataMaxx".
5. Find the Event that you would like to email, right click on the folder, select "Send To" and then "Compressed (zipped) folder".
6. You have now created a zipped folder of the event you are trying to email, allowing you to attach a single file that has all of the log files associated with the event.
7. Open your email program, or website, and create a new message.
8. Fill in who you are sending it to, a subject line, and whatever additional text you would like in the body of the message.

9. When you are done, select the attach button. Sometimes this will look like a paperclip, other times it may actually say "Attach".
10. This will open up a little window to allow you to find and select a file. Select either "My Documents (Windows XP)" or "Documents (Vista, 7 & 8)".
11. Now you should see a folder labeled "My DataMaxx", double click on that.
12. You should now see two folders with the name of the event you are trying to email. If you look at the icon for each one, you will see that one looks like an open folder, whereas the other looks like a folder with a zipper. You want to select the one that looks like a zipped up folder and select "Attach", "Select", or "Ok".
13. You have now attached an entire event to your email and can either continue attaching additional log files, or simply send the email.

To Email All of Your Log files:

1. If you want to email all of your log files (which is a good way to back up your data) or get all of your log files on a different computer, we first need to zip up the My DataMaxx so that it can email its entirety easily.
2. Click on your “Start” button at the bottom left—Windows Vista, 7 & 8 users will see the Windows logo.
3. Select "My Documents (Windows XP)" or "Documents (Vista, 7, & 8)”.
4. Right click on the folder "My DataMaxx", select "Send To" and then "Compressed (zipped) folder".
5. You have now created a zipped folder of all of your events that you are trying to email, allowing you to attach a single file that has all of your log files.
6. Open your email program, or website, and create a new message.
7. Fill in who you are sending it to, a subject line, and whatever additional text you would like in the body of the message.
8. When you are done, select the “Attach” button. Sometimes this will look like a paperclip, other times it may actually say "Attach".
9. This will open up a little window to allow you to find and select a file. Select either "My Documents (Windows XP)" or "Documents (Vista, 7 & 8)",
10. You should now see two folders with the name "My DataMaxx". If you look at the icon for each one, you will see that one looks like an open folder, whereas the other looks like a folder with a zipper. You want to select the one that looks like a zipped up folder and select "Attach", "Select", or "Ok”.
11. You have now attached all of your log files to your email and can simply send the email.

SOFTWARE UPDATES

From time to time, we will release software updates based on various customer recommendations. To check if there is a newer version of software available, first go to "Help" then "About", and look at which version you are currently running. Then go to computech.com, Support, Data Loggers and in the center section is an area for downloads. If there is a newer version available, simply click on the link. If you are using Internet Explorer it will ask if you want to Run, Save or Cancel. Select Run. If it tells you that the publisher could not be verified, select Run, and if it asks you if you want to allow it, say Allow. Then just follow the instructions on the install wizard. When you are finished open the software, go to "Help", then "About" and double check to make sure you correctly installed the new version of software.

SOFTWARE TRICKS

Run Highlighting:

The graph highlighting feature will make it easier to find a specific line in a sea of lines. To do this, simply click and hold on the sensors name on the left and it will cause that specific graph to highlight. To stop the highlighting, simply let go of the mouse. You can also cause it to continuously highlight by clicking and holding the mouse down on the sensors name and then move the mouse off the name and let go. It will then continue to highlight until you click on the sensor name again.

Quick Hide:

On the left hand side of the screen you will see sensor names and a colored box after it. By clicking on the colored box, you cause the graph for that sensor to disappear. To make the graph reappear, simply click on the area where the colored box should be.

Scaling:

When looking at a sensor in a zone with other sensors, sometimes you wish to focus on a certain graph, and make that as big as possible. You can do this by right clicking on the sensor name and selecting "Set Scale to this Channel". It with then use as much vertical space as possible for that sensor, maximizing the details you can see. You can also right click in the black background of a zone and either set a manual scale, or go to an automatic scale.

Easy Zoom:

The easiest way to zoom into a specific area of your log file is to click and hold down the mouse to the left of where you want to see, then drag the mouse across to the end of what you want to see, and then let go of the mouse button. This will zoom into just the section where you dragged the mouse.

Channel Values:

When changing between different Views, you will see some sensors values and other ones will be hidden. If you like, you can right click in the black space directly under the sensor names and select either “All Channels Shown” or “Graphed Channels Shown”.

ADDITIONAL INFORMATION

HOW TO WIRE CORRECTLY

How you wire your *DATAMAXX* unit is one of the most critical and important steps in the installation process. Sensor wires should be at least 8" away from any ignition component, otherwise your signals will be erratic and hard to read. Ignition components include ignition boxes, ignition coils, distributors, magnetos, and even ignition kill switches. If possible, you want to run your data cables together back to the main and/or analog module as this will reduce the amount of noise we are susceptible to.

Almost every cable provided with your *DATAMAXX* has a shield (drain) wire. On the *DATAMAXX* Module end of the cable, trim your cable insulation back about 3", leaving all the wires and aluminum foil and shield wire. Next, untwist and cut off the aluminum foil. You should have left the insulated wires plus the bare shield wire.

Prepare the ends of each insulated wire, and affix each under the appropriate screw terminal, leaving the shield wire loose. Tinning each wire with solder before screwing it into the terminal will improve reliability.

As the last step, loop the shield wire under one of the shield screws (near the cable entry). Pull the shield wire so as to drag the sheathed cable right up against the screw terminal. Tighten the screw, then cut off the excess shield wire.

It is helpful to connect several cables without connecting the shield wires. Then, gather multiple shield wires at once, twist them together, and pull the whole assembly under a shield screw.

When wiring an economy sensor that did not have a supplied cable, it is recommended to use a wire between the gauges of 18 to 22.

AVOIDING IGNITION NOISE

You may also need to worry about ignition noise affecting your main *DATAMAXX* unit. If you have a *hot* ignition with no resistance (solid core) in the coil or plug wires, then it is advisable to keep as great a distance as possible between those wires and your *DATAMAXX*. In full bodied cars, if you can mount the unit on the opposite side of a firewall, do so. In open bodied cars, the unit can be mounted in the very rear or the very front. If using solid core wires, and noise is apparent, it is advisable to use MSD 8.5mm superconductor ignition wires that are designed to suppress RFI.

Consider the following tips for avoiding radio frequency ignition (RFI) interference:

1. Always mount your *DATAMAXX* equipment on the OPPOSITE side of the firewall as the motor and ignition system. The firewall will serve as a barrier to radio frequency interference.

2. If possible, mount your *DATAMAXX* equipment near the dash of your car, and pick up power, ground, and RPM signal DIRECTLY from the back of your tachometer. Use short length wires if possible and bind all three wires together.

3. Always minimize wire loops. Any loop whatsoever, even between totally different wires, can act as an antenna. The larger the area of the loop, the more likely it will pick up radio frequency interference. Instead of coiling up excess wire, cut it to length and re-terminate as necessary. Furthermore, in all cases, try to bind your wires and cables directly to and parallel to metal chassis members (especially for tube frame cars).

4. Keep as much distance between ignition components and computer components as possible. Ignition components include spark plug wires, coil wires, the ignition box itself, and most of the wires running to that box. Computer components include the *DATAMAXX* module cases, all wires connecting to those cases, as well as all thermocouple probe cables. One potential problem area is where the thermocouple probe leaves the header pipe, in the vicinity of the spark plug wires. If the probe has a 90-degree bend in it, loosen the bung and turn the probe so that it immediately turns AWAY from the nearest spark plug wire. Then, run the thermocouple cable away from all of the spark plug wires, as much as is practical.

5. Be sure to connect the sensor cable shield wires as described in the two upcoming documentation sections.

DIP SWITCH SETTINGS

The dip switches on the Main and Analog module are used to specify the type of sensor being used.

If you are using a magneto: Turn both dip switches A and B to the OFF position (Mag pup and Mag gnd). The lightning / kill wire needs to be plugged into the mag RPM slot (42) and the mag ground needs to be plugged into the mag gnd slot (41). The mag ground is a separate wire that you run from terminal 41 to a convenient mag or chassis ground location, as close to the magneto as possible.

If you are using an input shaft sensor: Turn both dip switches C and D to the ON position (Inp pup and Inp gnd). Connect your white input shaft wire to the "Inp Wht (#30)", black input shaft wire to GND BLK (#29), and the red input shaft wire to 12V RED (#31). If for some reason you seem to be getting spikes or noise in your readings, then turn dip switch D to the OFF position.

If you are using an economy pressure or economy temperature sensor: An economy sensor will be a brass colored sensor that must be connected using a screw on terminal. Turn the corresponding analog RTD and GND switches to the ON position.

If you are using a standard analog sensor: Standard sensors include any pressure sensor that has a supplied connector, any temperature sensor with a K-type connector and red/yellow wires, or any sensor that needs to be connected to a power connection inside the *DATAMAXX*. If using one of these sensors, turn the corresponding analog RTD to the OFF position, and the GND to the ON position.

RECORDING A LOG FILE

Recording a log file can be done multiple ways.

Record Switch: The first and easiest is to connect a switch to the record terminal (id #35). One side will be connected to the *DATAMAXX* and the other to a convenient chassis ground. The software is already pre-calibrated to trigger recording.

LCD: If you are using an LCD Module, there is a built record button that will automatically trigger recording. To turn off recording, it is necessary to press and hold the record button. The software is already pre-calibrated to trigger recording.

SD CARD INFORMATION

The SD card used with the DataMaxx system is an extremely fast card, and it is recommended to only use one purchased through Computech. The reason for this is that we sample thousands of samples every second and write them instantaneously to the SD card. This requires a fast card, and we have had consistent success with the cards that we supply you with—but less success with other cards on the market (even ones that say they are fast). You can tell if the SD card is an approved one by looking on the label. If it says "Qmemory" or has the Computech logo on it, then it is approved. If not, we cannot guarantee that it will work correctly.

There can only be one SD card in the system at a time. It does not matter if that place is the Main Module, LCD Module or the Remote SD Module. Under no circumstance can there be more than one card in the system at a time.

Downloading run information is done via an SD memory card. After recording a run, place the SD card in your computers digital media slot, open the *DATAMAXX* Viewer software, and click on the "SD" button at the top of the screen. This will automatically save the runs to your computer and delete them from the SD card.

If you are prompted with the message "No log files found. Search for another location?" it means that you either do not have any runs on your SD card or you are looking in the wrong location. If you choose yes to the prompt, it will open a browser window that will allow you to find your SD drive and select it for download.

When using a Main and LCD Module, it is recommended to use the Main module for any calibration purposes. For recording a log file, you can use either the Main or LCD, whichever is more convenient.

If you would like to purchase an additional SD card, the only SD cards that will work with the *DATAMAXX* are ones that are labeled as 150X times faster than the standard card. These cards are available through Computech and at many retail stores, but having the faster than average speed is essential for correct operation.

CAN BUS

The *DATAMAXX* modules communicate with each other using a CAN (Controller Area Network) cable. This CAN system works very similar to the way the internet works, it sends packets across the line with a packet title so the Main Module can tell which module it came from. Because of this it does not matter which CAN Bus terminal you connect your extra modules.

The cable must be 4-conductor twisted pair and shielded, as provided with your unit. The individual colored wires should be connected to the matching color terminal in each module.

ANALOG –VS– DIGITAL

There are two different signal types that can be used with the *DATAMAXX* system, analog and digital. An analog sensor will take a specific voltage and vary the voltage depending on pre-set conditions. The *DATAMAXX* software will then convert the voltage into a useful number in the form of a pressure or temperature. A digital signal is simply either on or off, and is associated with RPM signals and switches.

TROUBLESHOOTING

MAIN MODULE

The first step in troubleshooting the main module is to place the SD card into the main module and turn the power on. At this point we want to look at the LED lights on the Main module to determine what is happening to the system.

- 1 Red Blink: Your SD card is most likely experiencing issues and needs to be re-formatted. Please see "Re-Formatting the SD Card" in the Additional Information section for instructions on how to do this. If after re-formatting it still gives you a single red blink, use the other SD card that was supplied with the system. The only SD cards that will work correctly with the system are ones supplied through Computech, or are the "QMemory" brand.

- 2 Red Blinks: You are getting a generic CAN Bus error. Please see "Diagnosing a CAN Bus Error" in the Troubleshooting section.

- 3 Red Blinks: This is a typical error message letting you know that there is no SD card in the system and it cannot record until there is one. If you do have an SD card in the Main module and are getting this error message, please follow the troubleshooting instructions for '1 Red Blink" above.

- 4-7 Red Blinks: One of your expansion modules (LCD, Analog, EGT or Remote SD) are causing a traffic jam on the CAN Bus. Please see "Diagnosing a CAN Bus Error" in the Troubleshooting section.

- Green Light Blinking: The green light blinking is actually not an error, but an indication that the system is working and has power.

- Green Light Pulsating: This is a normal condition for when the SD card is in the main module and the system is currently recording. If your SD card is in another module (LCD or Remote SD) then the green light on the main module will not pulsate. It will only pulsate when the SD card is in the main and it is recording.

- No Green Light: The first step is to check with a volt meter to make sure that you have power at the power terminal in the main module. If you do have power over 12 volts, turn power off, and remove the 4 screws that hold the circuit board to the case. On the bottom of the circuit board, there is a power transistor that is black and silver and has three prongs that connect it to the board. Make sure that all of the leads are sufficiently attached to the board. If they are not, please call Computech Tech Support to arrange to have the power transistor replaced on your circuit board.

If the power transistor appears to be intact, replace the 4 screws, then remove all of the wires from your main module except for power and ground. Power the system on again, and if it still does not show any green light, contact Computech Tech Support. If the green light turns on and blinks, turn power off to the main module and slowly begin reconnecting each sensor, powering up after each one in order to determine which one is causing the power failure.

- Green Light Always On: This is usually an indication that there is something wrong with the calibration. Please refer to "Factory Reset / Re-Calibration" in the Troubleshooting section.

- No Log files Found: If after recording a log file, you place the SD card in your computer, and select the SD button in the DataMaxx software, if you get a message stating "No log files found on this media." The first step is to determine if there is in fact a log file on the SD card. To do this, go to "Start", "Computer", and then your SD card. If there is a log file it should say DATAMX01 or a number similar. If there is not a log file on your card, please refer to either the "Record Switch" or "LCD Troubleshooting", in regards to recording a log file. If there is, you may simply need to run the SD card setup wizard again. To do this, select "Download", then run "SD Card Setup Wizard" and follow the instructions. When the wizard is complete, hit the SD button again and you should be able to correctly download your log file.

- Corrupted Log file: If when opening a run, you get a message stating that the log file is corrupted, you will need to reformat your SD card. To do so, please refer to "Re-Formatting the SD Card" in the Additional Information section. Now that we have fixed the card, it should work fine with the car off, but we still need to address what corrupted it in the first place. This corruption is almost always a direct result of excessive ignition noise although sometimes it can simply be a bad SD card. Even though it is a different problem, follow the "Getting Cut off Runs" instructions in the Troubleshooting section to make sure you are doing everything possible to combat and prevent excessive ignition noise. If the problem persists, replace your SD card, or call Computech Tech Support.

- Graph Shows Numbers Instead Of Names: If after opening your log file, your channel names to the left are showing a number instead of the name you are expecting, your log file and possibly even your DataMaxx calibration, has been corrupted. Refer to "Factory Reset / Re-Calibration" in the Troubleshooting section to solve the issue. If the problem persists, refer to "Getting Cut off Runs" in the Troubleshooting section to prevent excessive ignition noise.

- Cut off Recordings w/Car off: If you cannot record for extended periods of time without getting a single log file, there is most likely an issue with your SD card. Please refer to "Reformatting the SD Card" in the Additional Information section and try again. If the problem persists, try using your spare SD card.

- Cut off Recordings w/Car on: Please refer to "Getting Cut off Runs" in the Troubleshooting section.

LCD MODULE

If you are having an issue with your LCD, it is recommended that you start off troubleshooting the Main Module as it is the hub of the entire system and can cause issues with other modules. If there are no red lights on the Main module, or the troubleshooting indicates that the problem is the LCD, then follow the troubleshooting steps below.

- Time Is Incorrect: If your time is not reading correctly, you can set it either manually in the LCD or by using the software. To set the clock manually, turn off the DataMaxx and back on, hit Menu, Menu, Menu, Play, Menu. Using the arrows, change the year then hit menu, change the month and hit menu, change the hour and hit menu, and change the minutes and hit menu. At this point it should say Clock Set and you are done. To set the clock with the software, record a short 5 second log file, download the log file using the SD button in the software, select Edit, and then Properties. Select "Send Config to DataMaxx" and when it asks if you want the hardware clock say yes (be sure that your computer clock is correct). Follow the directions on the screen, and when you're done the clock will be set.

- Max / Playback Not Working: In order to see the Maximum or to Playback a log file, the run will have to be on the card still. This means that if you download the log file to your computer, the run is no longer on the card and you can no longer perform a Max or Playback on the LCD Dash. If there is a log file, and hitting either the Max or Play button does not give you the desired result, simply hit the button a second time and it should come up. In order to read either the Max or Playback, the LCD needs to first scan through the log file and can sometimes get hung up on this step—hitting the button a second time should rectify that.

- All Characters Showing: If you turn on the DataMaxx system and your LCD is showing all of the characters or all 8's, you simply need to adjust your contrast ratio. To do this, turn power off, then back on, hit Menu, Menu, Play, Menu, Menu, Menu then hold play down until you can again see the dash as it is supposed to.

- Screen Is Flashing: If the screen and data is flashing in and out or the message under the center gauge is flashing, the SD card most likely needs to be re-formatted. Removing the SD card from the system will most likely stop the flashing. At this point, follow the "Re-Formatting the SD Card" in the Additional Information section. If after re-formatting it exhibits the same issue, replace the SD card with another one provided by Computech.

- No SD Card Found: If upon placing the SD card into the dash, the message underneath still reads "SD Card Missing" then you most likely need to re-format the SD card. To do this, refer to "Re-Formatting the SD Card" in the Additional Information section. If after re-formatting it exhibits the same issue, replace the SD card with another one provided by Computech.

- Sensors Not Reading Correctly: If your sensors are not reading the numbers you would expect on your LCD dash, the issue is most likely associated with the calibration. It is recommended to go that that specific sensor type troubleshooting section to properly diagnose.

- Channel Names But No Numbers: If you can see your custom channel names, but there are not any number readings associated with them, you most likely have a CAN Bus issue and are not getting the data correctly from the Main module to the LCD Dash. Please refer to "Diagnosing a CAN Bus Error" in the Troubleshooting section to determine the cause. If there seems to be nothing wrong with the CAN Bus system, please call Computech Tech Support.

- Cut off Recordings w/Car off: If you cannot record for extended periods of time without getting a single log file, there is most likely an issue with your SD card. Please refer to "Reformatting the SD Card" in the Additional Information section and try again. If the problem persists, try using your spare SD card.

- Cut off Recordings w/Car on: Please refer to "Getting Cut off Runs" in the Troubleshooting section.

ANALOG MODULE

If you are having an issue with your Analog Module, it is recommended that you start off troubleshooting the Main Module as it is the hub of the entire system and can cause issues with other modules. If there are no red lights on the Main module, or the troubleshooting indicates that the problem is the Analog Module, then follow the troubleshooting steps below.

- 2 Red Blinks: You are getting a generic CAN Bus error. Please see "Diagnosing a CAN Bus Error" in the Troubleshooting section.

- 3 Red Blinks: This is a typical error message letting you know that there is no SD card in the system and it cannot record until there is one. If you do have an SD card in the Main module and are getting this error message, please follow the troubleshooting instructions for "1 Red Blink" above.

- Green Light Blinking: The green light blinking is actually not an error, but an indication that the system is working and has power.

- No Green Light: The first step is to check with a volt meter to make sure that you have power at the black and red wire of the CAN Bus in the analog module. If you do have power over 12 volts, turn power off and remove the 4 screws that hold the circuit board to the case. On the bottom of the circuit board there is a power transistor that is black and silver and has three prongs that connect it to the board. Make sure that all of the leads are sufficiently attached to the

board. If they are not, please call Computech Tech Support to arrange to have the power transistor replaced on your circuit board. If the power transistor appears to be intact, replace the 4 screws, then remove all of the wires from your analog module except for the black and red of the CAN Bus. Power the system on again and if it still does not show any green light, contact Computech Tech Support. If the green light turns on and blinks, turn off power, reconnect the Green and White wire of the CAN Bus and power back up. If the light goes out, please refer to "Diagnosing a CAN Bus Error" in the Troubleshooting section. If the green light turns on and flickers, turn power off, and slowly begin reconnecting each sensor, powering up after each one in order to determine which one is causing the power failure.

- Green Light Always On: This is usually an indication that there is something wrong with the calibration. Please refer to "Factory Reset / Re-Calibration" in the Troubleshooting section.

- Sensors Not Reading Correctly: If your sensors are not reading the numbers you would expect on your LCD dash, the issue is most likely associated with the calibration. It is recommended to go that that specific sensor type troubleshooting section to properly diagnose.

REMOTE SD MODULE

If you are having an issue with your Remote SD Module, it is recommended that you start off troubleshooting the Main Module as it is the hub of the entire system and can cause issues with other modules. If there are no red lights on the Main module, or the troubleshooting indicates that the problem is the Remote SD Module, then follow the troubleshooting steps below.

- Getting Cut Off Runs: First go through "Getting Cut off Runs". If you are still having an issue, try moving the Remote SD Module to a different location further away from source of ignition noise. If the problem persists, please call Computech Tech Support for additional information.

EXHAUST GAS TEMPERATURE MODULE

If you are having an issue with your EGT Module, it is recommended that you start off troubleshooting the Main Module as it is the hub of the entire system and can cause issues with other modules. If there are no red lights on the Main module, or the troubleshooting indicates that the problem is the EGT Module, then follow the troubleshooting steps below.

- Channel is Reading 1800 Degrees: If a single channel is reading 1800 degrees, the issue could be either the probe itself or the EGT Module. The first step is to simply swap a good probe with the bad probe, where we plug it into the EGT Module. If the problem follows the probe, then

see the "EGT Sensor Troubleshooting" section. If the problem stays on the same channel with a probe that you know was just working, then the issue is either the EGT Module or calibration.

To check the calibration, record a short 5 second test log file, download to the software using the SD button, select Edit then Properties, and find the channel in question and make sure that the calibration says "EGT (1800 degree range using K thermocouple)". If the calibration is wrong, change it, and send the configuration back to the DataMaxx. If the calibration is correct, then you most likely have an issue with your EGT Module itself, please call Computech Tech Support to arrange to have it repaired.

RECORD SWITCH

- Connect To Ground Test: The simplest way to test that the record channel itself is working is to simply connect a jumper wire from one of the four ground posts, to the record terminal. When you do this, the unit should start recording. If it does, but the record switch itself is not working, perform the "Switch Continuity Test". If connecting the record terminal to ground does not result in recording a log file, please go to Enabling Record Switch.

- Switch Continuity Test: The record switch is quite simple as it only has two terminals on the back side of it. When the switch is off, these two terminals are not connected. When the switch is on, the two terminals are connected together. Using a multi-meter, make sure that the two terminals have continuity when the switch is on. If they do not, throw away the switch and install a new one. If they do have continuity, yet the record switch does not enable recording, whereas the Ground Test does, make sure that one side of the switch is connected to the record terminal whereas the other side is connected to ground. If that is the case, make sure that the ground the switch uses is connected to one of the four ground posts in the DataMaxx. If that is the case then make sure that the wires are not damaged at all.

- Enabling Record Switch: There is the possibility that you can disable the record switch, via the software. If this is the case, the best bet is to send a factory reset to the system. Please note that this will erase your custom calibration, but that you can easily recalibrate it again after resolving this issue. To perform a factory reset, open up your most recent log file, go to Edit, then Properties and then hit the "Factory Reset" button at the bottom left. Follow the instructions on the screen. If this allows you to record correctly, recalibrate your system by following the "Initial Calibration" instructions in the Software section, making sure that you do not modify the record switch settings at all. If it does not resolve your issue, please contact Computech Tech Support.

ENGINE RPM

- Tap Test: If you are not getting any Engine RPM, the first step is to make sure that the channel on the Main Module is working correctly. To do this we need to perform a "Tap Test". Please refer to "Testing RPM Channels" in the Troubleshooting section on instructions on how to do the Tap test properly. If the tap test fails, please call Computech Tech Support for more information. If you get a signal from the Tap test then that tells us that the Module and sensor channel are working correctly and the issue is the source of the Engine RPM.

- Tach Output Test: After we have confirmed that the DataMaxx is functioning properly, we need to examine your tach output line. Typically this line should come from an MSD ignition box, and be a specific colored wire, or labeled terminal. For the 7AL series, there should be a dedicated terminal for you to connect to, labeled either "Tach" or "T". If you have determined that you are tapping into the correct wire, try running a temporary wire from the tach output to the DataMaxx to ensure that we are getting the correct signal. If you get no signal, move on to the "Analog Gauge Test". For the MSD Digital, Programmable and Power Grid ignition systems, the tach output wire should be the gray wire. If the wire is not extended and connected directly to the DataMaxx, then move on to the "Analog Gauge Test". If it is extended, double check your extension job and if satisfactory move on to the "Analog Gauge Test".

- Analog Gauge Test: If you still do not have an Engine RPM registering in the DataMaxx, the final step is to hook your tach output wire to a normal analog style tachometer. If the analog tach shows the RPM correctly, contact Computech Customer Support for more information. If the analog tach does not register an RPM, contact MSD Tech Support for more information.

- Tractor Pullers: If you are using one of the Drive Shaft sensors and a magnet to obtain your Engine RPM you will need to refer to the Drive Shaft RPM troubleshooting section. Before going there however, please make sure that your magnet is less than 1.5" from the center of your rotating mass. Failure to do so will result in receiving an RPM at lower levels and losing it at higher levels.

DRIVESHAFT RPM

- Adjust The Gap: If you are not getting any signal after going down the track, the first step is to adjust the gap between your driveshaft sensor and the collar. It's recommended to first move the sensor closer, incrementally until you cannot move it any closer. If that does not work then start backing it out. Once you find a spot where it works well, you should be good to go. If adjusting the gap does not change anything you need to perform the "Tap Test".

- Tap Test: If adjusting the gap does not work, the next step is to perform a Tap Test. Please refer to "Testing RPM Channels" in the Troubleshooting section on instructions on how to do the Tap test properly. If the tap test fails, please call Computech Tech Support for more information. If you get a signal from the Tap test then that tells us that the Module and sensor channel are working correctly and the issue is either the wiring, extension cable, the sensor itself or the gap and you need to perform the "Magnet Test".

- Magnet Test: The next step after confirming the Tap test works is to remove the sensor from where it is mounted, leaving it wired up to the entire system. We now want to record a log file while waving a magnet in front of the tip of the sensor. To do this properly, you want to get the magnet as close to the tip as possible and move it back and forth rather quickly, and steadily. Doing so should result in at least some random spikes on the graph and if done consistently will result in a steady RPM. If the magnet waving test works and you see an RPM signal on your graph, then you now know that the wiring, extension cable and sensor itself are working correctly and the issue must be your gap. At this point, go back to the 1/8" gap and incrementally move closer. If you still cannot get it after adjusting the gap again, call Computech Tech Support. If the magnet test fails, then we need to "Check the Extension Cable".

- Check the Extension Cable: The first step is to make sure your extension cable is making a good connection at the Module. To do this, it's recommended to physically remove the wires from the terminal, visually inspect them to make sure the insulation was not being crimped down on, and then re-install the wires back into the terminals. Do the Magnet Test again. If the Magnet Test fails again then the final step is to check continuity between the end of the extension cable and the terminals the wire is connected to. To do this, you may have to remove the orange cover off of the extension cable plug—take a pair of needle nose pliers and pull it out. Then check the continuity between the plug and the terminal it is connected to. If you have continuity, your extension cable is fine, and the issue is your driveshaft sensor itself. Contact Computech Tech Support. If the continuity test fails, the issue is your extension cable and you need to replace it with a new one.

INPUT SHAFT RPM

- Adjust The Gap: If you are not getting any signal after going down the track, the first step is to adjust the gap between your driveshaft sensor and the collar. It's recommended to first move the sensor closer, incrementally, until you cannot move it any closer. If that does not work, then start backing it out. Once you find a spot where it works well, you should be good to go. If adjusting the gap does not change anything you need to perform the "Tap Test".

- Tap Test: If adjusting the gap does not work, the next step is to perform a Tap Test. Please refer to "Testing RPM Channels" in the Troubleshooting section on instructions on how to do the

Tap test properly. If the tap test fails, please call Computech Tech Support for more information. If you get a signal from the Tap test then that tells us that the Module and sensor channel are working correctly and the issue is either the wiring, extension cable, the sensor itself or the gap and you need to perform the "Magnet Test".

- Magnet Test: The next step after confirming the Tap test works is to remove the sensor from where it is mounted, leaving it wired up to the entire system. We now want to record a log file while waving a magnet in front of the tip of the sensor. To do this properly, you want to get the magnet as close to the tip as possible, and move it back and forth, rather quickly and steadily. Doing so should result in at least some random spikes on the graph and if done consistently will result in a steady RPM. If the magnet waving test works and you see an RPM signal on your graph, then you now know that the wiring, extension cable and sensor itself are working correctly and the issue must be your gap. At this point, go back to the .60" gap and incrementally move closer. If you still cannot get it after adjusting the gap again, call Computech Tech Support. If the magnet test fails, then we need to "Check the Extension Cable".

- Check the Extension Cable: The first step is to make sure your extension cable is making a good connection at the Module. To do this, it's recommended to physically remove the wires from the terminal, visually inspect them to make sure the insulation was not being crimped down on and then re-install the wires back into the terminals. Do the "Magnet Test" again. If the "Magnet Test" fails again, the final step is to check continuity between the end of the extension cable and the terminals the wire is connected to. You may have to remove the orange cover off of the extension cable plug—take a pair of needle nose pliers and pull it out. Then check the continuity between the plug and the terminal it is connected to. If you have continuity, your extension cable is fine and the issue is your driveshaft sensor itself. Contact Computech Tech Support. If the continuity test fails, the issue is your extension cable, and you need to replace it with a new one.

PRESSURE SENSOR

If your pressure sensor is not reading or working correctly please follow the following steps. If you are using the Economy Oil Pressure Sensor (Brass, single wire sensor), please go directly to "Economy Oil Pressure" below.

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question and verify that the calibration is correct. If it is not, follow the calibration instructions for the "Pressure Sensors" in the manual. If the calibration is correct, "Check the Hardware Settings".

- Check Hardware Settings: The first step is to visually confirm which channel the sensor in question is physically going to. If this is not the same as the calibration, then re-calibrate. If the sensor is going to the channel you thought, then we need to first make sure that the sensor is plugged into the 5V reference voltage terminal and not the 12V one. If that is correct, we then need to make sure that the corresponding RTD dip switch is OFF and that the GND is on. Refer to the back of your lid to determine which dip switch corresponds to which channel.

- Verify Output Voltage: After the calibration and hardware settings have been verified, we need to check the voltage on the white signal wire terminal. To do this, take your volt meter, connect the ground to one of the four ground posts in the DataMaxx, and place the red volt meter lead to the white signal wire screw terminal. Do this when there is no pressure on the sensor and it should be reading 0 psi. If your sensor is a vacuum psi the voltage should be between 1.4v to 1.8v. If your sensor is 15 psi, 30 psi, 100 psi, 150 psi, 500 psi, 1500 psi or 2000 psi the voltage should be between .3v and .6v. If the voltage is within these values then the sensor is working correctly and your calibration is incorrect. Re-calibrate the sensor per the calibration instructions in the "Pressure Sensor" section and follow the "Testing" procedure. If the sensor is reading a flat 0V, be sure to set your volt meter so that it will read a tenth of a volt, if you do not see a decimal point then your voltmeter setting needs to change. If your volt meter is reading a tenth of a volt and yet the sensor is reading a flat 0v, your sensor itself is broken and needs to be replaced. If the sensor is reading above the expected voltage, then there is an open connection between the DataMaxx and the sensor, "Check the Extension Cable".

- Check the Extension Cable: The first thing in verifying your extension cable and connection, is to check that the wires are still well-connected, where they go into the connector. To do this, gently tug on the black, red and white wire where it goes into the connector. If it comes out easily, then you need to replace your extension cable—if it does not, then you need to re-terminate your wires. To do this, simply unscrew the black, red and white wire where it goes into the analog channel. Visually inspect the ends of the wire to ensure that you were not crimping down on the insulation. Then re-terminate the wires back in their appropriate terminals.

OIL PRESSURE SENSOR

If your single wire oil pressure sensor is not reading or working correctly please follow the following steps.

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question and verify that the calibration is set to "Autometer Oil". If it is not, follow the calibration instructions for the calibration instructions for Oil Pressure.

- Check Dip Switch Settings: The single wire oil pressure sensor is one of the few sensors that need to have the default dip switch settings changed. First verify by looking on the back side of the module lid which channel you have the oil pressure sensor installed. Then, using the lid find the corresponding RTD and GND dip switches and make sure that both of these are on.

- Check the Sensors Ground: Because the oil pressure sensor is a single wire sensor, it depends on the sensor threads making a good connection to ground through wherever it is installed. Sometimes an excess of Teflon tape can cause the threads to not make a good connection to ground and can cause inconsistent readings. Sometimes the location you mounted the sensor is floating via a gasket and therefore does not complete the circuit well. To test this, simply make a jumper wire, connect one side to ground, and hold the other side to the chassis of the sensor. If doing this fixes the sensor, then you need a better ground.

TEMPERATURE SENSOR

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question, and verify that the calibration is set to "EGT (1800 degree range using K thermocouple)". If it is not, follow the calibration instructions for the "Exhaust Gas Temperature Probes" in the manual. If the calibration is correct, "Check the Hardware Settings".

- Check Hardware Settings: The first step is to visually confirm which channel the sensor in question is physically going to. If this is not the same as the calibration, then re-calibrate. If the sensor is going to the channel you thought, then we need to make sure that the wires are going to the correct terminals. The red wire should go to the black ground terminal and the yellow wire should go to the white signal terminal. If you are having difficulty determining which color is which, simply try swapping the two as it will not damage the probe or channel. If that is correct, we then need to make sure that the corresponding RTD dip switch is OFF and that the GND is on. Refer to the back of your lid to determine which dip switch corresponds to which channel. If none of the Hardware Settings are incorrect then the problem is most likely a dead probe and will need to be replaced.

THERMOCOUPLE SENSOR

If your probe is plugged into one of the EGT Modules:

- Swap the Probe: If one of your probes is not reading correctly, the first step is to swap the probe in the EGT Module with one that is working correctly (IE, if probe 3 is not reading correct yet probe 5 is, swap the two probes on the EGT Module itself). If the problem stays with the EGT

channel, then go to the "EGT Module Troubleshooting". If the problem follows the probe, then go to "Verify the Calibration".

- Verify the Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question, and verify that the calibration is set to EGT (1800 degree range using K thermocouple). If it is not, follow the calibration instructions for the "Exhaust Gas Temperature Probes" in the manual. If the calibration is correct, "Check the Yellow Connector".

- Check the Yellow Connector: The final step in determining if the probe is dead, is to open up the yellow connector and make sure that the wires are not shorting out each other. If they are not then your probe is most likely dead and you will need to replace it.

If your probe is plugged into one of the analog channels:

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software, and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question, and verify that the calibration is set to "EGT (1800 degree range using K thermocouple)". If it is not, follow the calibration instructions for the "Exhaust Gas Temperature Probes" in the manual. If the calibration is correct, "Check the Hardware Settings".

- Check Hardware Settings: The first step is to visually confirm which channel the sensor in question is physically going to. If this is not the same as the calibration, then re-calibrate. If the sensor is going to the channel you thought, then we need to make sure that the wires are going to the correct terminals. The red wire should go to the black ground terminal and the yellow wire should go to the white signal terminal. If you are having difficulty determining which color is which, simply try swapping the two—as it will not damage the probe or channel. If that is correct, we then need to make sure that the corresponding RTD dip switch is OFF, and that the GND is on. Refer to the back of your lid to determine which dip switch corresponds to which channel. If none of the Hardware Settings are incorrect then the problem is most likely a dead probe and will need to be replaced.

OXYGEN SENSOR

Most installations usually locate the oxygen sensors in the collector. Because this is so close to open air, you are not likely to get a valid reading until you go down the track. If your oxygen sensor is not reading or working correctly after making a pass down the track, please follow the following steps.

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question, and verify that the calibration is correct. If it is not, follow the calibration instructions for the Accelerometer in the manual. If the calibration is correct, "Check the Hardware Settings".

- Check Hardware Settings: The first step is to make sure that the red wire coming from the Daytona WEGO controller is going to a power source outside of the DataMaxx. If that red wire is going to the DataMaxx, there is a strong possibility that you damaged the module; place to an external power source and try again. If the red wire is correct, then visually confirm which channel the sensor in question is physically going to. If this is not the same as the calibration, then re-calibrate. If the sensor is going to the channel you thought, we then need to make sure that the corresponding RTD dip switch is OFF and that the GND is on. Refer to the back of your lid to determine which dip switch corresponds to which channel.

- Free Air Calibration: Take the sensors out of the headers, and let them dangle in the air with the shop doors open. Turn the free air calibration trim pots on the Wego as far as you can, counterclockwise. Turn on power, and wait 60 seconds so that the sensors can fully heat up. Slowly turn each free air calibration trim pot clockwise until the corresponding LED starts flashing at a rapid rate. Try to set each trim pot at the point where its LED just starts to flash. After performing the free air calibration, perform the "Butane Test".

Butane Test: Turn on the power to the system, and let the oxygen sensors heat up for approximately 2 minutes. Then using a Bic butane lighter, force butane into the tip of the sensor BUT do not light. When the sensor feels the butane it should go from a reading of 18-20 down to a reading of 10-12. If the sensor changes and drops down, then the sensors are working correctly. If they do not change at all then call Computech Tech Support for more information

SHOCK TRAVEL SENSOR

If your shock travel sensor is not reading or working correctly please follow the following steps.

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question, and verify that the calibration is either "Shock Travel 4" or "Shock Travel 8". If it is not, follow the calibration instructions for the "Shock Travel Sensor" in the manual. If the calibration is correct, "Check the Hardware Settings".

- Check Hardware Settings: The first step is to visually confirm which channel the sensor in question is physically going to. If this is not the same as the calibration, then re-calibrate. If the sensor is going to the channel you thought, then we need to first make sure that the sensor is plugged into the 5V reference voltage terminal and not the 12V one. If that is correct, we then need to make sure that the corresponding RTD dip switch is OFF and that the GND is on. Refer to the back of your lid to determine which dip switch corresponds to which channel.

- Verify Output Voltage: After the calibration and hardware settings have been verified, we need to check the voltage on the white signal wire terminal. To do this, take your volt meter, connect the ground to one of the four ground posts in the DataMaxx and place the red volt meter lead to the white signal wire screw terminal. If the voltage is within .5v to 4.5v then the sensor is working correctly and your calibration is incorrect. Re-calibrate the sensor per the calibration instructions in the Shock Travel Sensor section and follow the Testing procedure. If the sensor is reading a flat 0V, be sure to set your volt meter so that it will read a tenth of a volt, if you do not see a decimal point then your voltmeter setting needs to change. If your volt meter is reading a tenth of a volt and yet the sensor is reading a flat 0v, your sensor itself is broken and needs to be replaced. If the sensor is reading above the expected voltage, then there is an open connection between the DataMaxx and the sensor, "Check the Extension Cable".

- Check the Extension Cable: The first thing in verifying your extension cable and connection is to check that the wires are still connected well where they go into the connector. To do this, gently tug on the black, red and white wire where it goes into the connector. If it comes out easily then you need to replace your extension cable—if it does not, then you need to re-terminate your wires. To do this, simply unscrew the black, red and white wire where it goes into the analog channel. Visually inspect the ends of the wire to ensure that you were not crimping down on the insulation. Then re-terminate the wires back in their appropriate terminals.

ACCELEROMETER

If your accelerometer is not reading or working correctly please follow the following steps.

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question, and verify that the calibration is correct. If it is not, follow the calibration instructions for the Accelerometer in the manual. If the calibration is correct, "Check the Hardware Settings".

- Check Hardware Settings: The first step is to visually confirm which channel the sensor in question is physically going to. If this is not the same as the calibration, then re-calibrate. If the

sensor is going to the channel you thought, then we need to first make sure that the sensor is plugged into the 5V reference voltage terminal and not the 12V one. If that is correct, we then need to make sure that the corresponding RTD dip switch is OFF and that the GND is on. Refer to the back of your lid to determine which dip switch corresponds to which channel.

- Verify Output Voltage: After the calibration and hardware settings have been verified, we need to check the voltage on the white signal wire terminal. To do this, take your volt meter, connect the ground to one of the four ground posts in the DataMaxx and place the red volt meter lead to the white signal wire screw terminal. If the sensor is level, the voltage should be between 1v to 3v. If the voltage is within these values then the sensor is working correctly and your calibration is incorrect. Re-calibrate the sensor per the calibration instructions in the Accelerometer section and follow the "Testing" procedure. If the sensor is reading a flat 0V, be sure to set your volt meter so that it will read a tenth of a volt, if you do not see a decimal point then your voltmeter setting needs to change. If your volt meter is reading a tenth of a volt and yet the sensor is reading a flat 0v, your sensor itself is broken and needs to be replaced. If the sensor is reading above the expected voltage, then there is an open connection between the DataMaxx and the sensor, and the sensor will need to be sent back to Computech.

THROTTLE POSITION SENSOR

If your single wire oil pressure sensor is not reading or working correctly please follow the following steps.

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question and verify that the calibration is set to "Custom". Click on the calibration button to the right, then click on the calibration button to the right of the Type of Sensor drop down list. Open the Calibration Builder tab and make sure your voltages are entered correctly.

- Check Dip Switch Settings: The throttle position sensor should always be a standard analog signal and because of that the corresponding dip switches should be RTD-Off and GND-On.

SWITCHES

If your switch is reading opposite, then simply swap the switch calibration to the other value. If your switches are not triggering as you would expect, the issue could either be the source signal, or the channel itself. Follow the instructions below, and if none resolve the issue then the problem is the source signal.

- Tap Test: Connect a short 6" wire to ground and simply tap the other side to the switch White signal terminal. Then should cause the state of the switch to turn on and off. If it does not, then your switch input terminal may be damaged. At this point you, can use one of your other RPM inputs (Mag, Inp, Drv, or Eng) or send the Main module back for repair.

- Verify The Calibration: Record a short 5 second log file, and download to your computer using the SD button in the DataMaxx software and save to an event. Once the log file is open, select Edit, then Properties. Find the channel in question, and verify that the calibration is either Switch (Ground is ON), or Switch (Ground is OFF). If it is not, follow the calibration instructions for the "Switches" in the manual. If the calibration is correct, then the issue is most likely the source signal of what you are trying to monitor. Call Computech Tech Support for more information.

LIGHTS

If there is an issue with your light output not working, the best bet is to setup the light to turn on when recording and then test it with a voltmeter. If that does not work then the Light output itself may be blown.

- Setup Temp Warn Light: Record a short 5 second log file, and download the log file correctly using the SD button. Select Edit, then Properties. Find the Record line, follow it to the right, and click on the finger pushing a red button. Click on the "Lights and Record" tab. If you are trying to test the L1 output then select "Main L1 light illuminated if reading is at or BELOW Warn Level 1". If you are trying to test the L2 output then select "Main L @ light illuminated if reading is at or BELOW Warn Level 2." When you are done, select OK, and then "Send Config to DataMaxx".

- Test with Voltmeter: After setting up the temporary warn light, disconnect the existing light that is plugged in and instead place the voltmeter in the output terminal. Turn on the record switch, (hitting the LCD button will not work, it must be a record switch) and if the voltage goes to 12v then your light output is working and the issue is either your light or your warning light setup. Please refer to "Setting up Warning Lights" in the software section. If there is no voltage, then

the light output is most likely blown and will need to be sent back to Computech for repair when convenient.

TESTING RPM CHANNELS

If you need to test one of your RPM Channels (Engine, Drivshf, Inpshf, Mag, Switch 1 or Switch 2) then follow the instructions below.

1. Remove the wire in question from the terminal.
2. Create a jumper wire by stripping both ends of an 8" wire.
3. Screw one end of the jumper wire into the terminal in question.
4. Power up the DataMaxx system, place the SD card into the main module and begin recording.
5. Quickly tap the other end of the jumper wire to one of the 4 ground posts for approximately 15 seconds.
6. Stop the recording, correctly download the log file, and go to a view that will show you the RPM channel in question.

At this point, if you see any type of jump in signal then the channel itself and the DataMaxx are working correctly. If you do not see any signal, send a "Factory Reset" to the system and repeat the test. If the test fails after a Factory Reset, please call Computech Tech Support.

DIAGNOSING A CAN BUS ERROR

The first step of diagnosing a CAN Bus error is to verify that you are in fact getting a CAN Bus error. To do this, simply insert the SD card in the main module with the power on and wait approximately 20 seconds. If you do not see any red lights then you do not have a CAN Bus error. If you see the red light blink in a pattern of either 2 red blinks or 4-7 red blinks then you do in fact have a CAN Bus error.

You can think of the CAN Bus as a large 10 lane highway with traffic moving in both directions. On rare occasion a module can "crash" and cause a pile up on the CAN Bus highway. When this happens it is hard to predict whether the crash will block all lanes and bring traffic to a stand-still, or if it will allow traffic to freely flow in all the other lanes except the one that crashed. Because of these differences, sometimes a CAN Bus failure can cause the entire system to shut down and other times it can cause just the affected module to shut down.

The real question is to determine which module has "crashed" on the CAN Bus. The best way to do this is to divide and conquer. Disconnect a module, then re-power the DataMaxx. If the error goes away

then you know that the unit you just disconnected was the one that crashed. Disconnect your modules in the following order (skip over ones you don't have).

- Remote SD Module
- Expansion Analog Module
- LCD Module
- EGT Module

If you find that removing one of the modules gets rid of the CAN Bus error, the next step is to reconnect the module into the system. The most common cause for a CAN Bus wire is faulty wiring, so the mere act of disconnecting and re-connecting the module in question will usually solve the issue. If when you re-connect the module, the CAN Bus error comes back, the next step is to send a factory reset and re-calibrate the system. To do this, please follow the "Factory Reset / Re-Calibration" instructions below. If the "Factory Reset / Re-Calibration" does not resolve the issue then the module that "crashed" will most likely need to be sent back for repair. Please call Computech Tech Support to arrange the repair.

FACTORY RESET / RE-CALIBRATION

Your DataMaxx system is custom calibrated based on your specific installation. Occasionally this calibration file can get corrupted and need to be reset. To perform a factory reset and re-calibration please follow the instructions below.

1. Open the DataMaxx software, and open a log file where everything was working well.
2. Select Edit, then Properties, then select the "Factory Reset" button.
3. After sending the "Factory Reset" to your card, power up the DataMaxx and place the SD card in.
4. Wait 2 minutes, remove the SD card, and place it back in your computer.
5. With the "Channel Properties" window still open on your good log file, hit the "Send Config to DataMaxx" button.
6. Place the SD card in the main module and wait 2 minutes.

At this point, you have performed a factory reset and re-calibrated the DataMaxx system.

GETTING CUT OFF RUNS

If your DataMaxx recording is cutting off in the middle of the run, you most likely have an ignition noise problem. The first step is to check to see if you are getting an error light on the Main module with the SD card in the Main module. If you are getting a red light, please refer to the "Main Module Troubleshooting' section to diagnose and resolve the issue.

The next step is to determine if the recording issue also applies to when the car is off. To do this, simply record a 5 minute recording (time it) and download the log file. If the 5 minute recording is cut off or downloads multiple log files, then the issue is most likely related to your SD card, please see "Reformatting the SD Card" in the Additional Information section. If you see that it recorded for the full 5 minutes then we know that the run cutoff issue is directly related to the environment that occurs when your engine is running. If this is the case, the answer is almost always excessive ignition noise.

The best way to combat ignition noise is to follow a couple general practices for avoiding RFI Noise. Read and make any changes to your system that is detailed in the "Avoiding RFI Noise" in the Additional Information section. After you have taken all of the precautions to minimize your ignition noise, try recording going down the track again. If you still have an issue, you may be a candidate for a Remote SD Module, a box that was specifically designed to get the SD card as far away as possible from any potential ignition noise. Please call Computech Tech Support so that we can discuss your options in resolving your run cutoff issue.

DATA HAS NOISE OR SPIKES ON GRAPH

Spikes and noise on your graph are almost always associated with excessive ignition noise. The first step to ensuring your graphs are clear and easy to read is to set each channels software filter to "Smooth by following the general average" with the heavy filter weight. You can see how to do this by reading "Filters" in the Software section.

If the filters do not do enough to clean up your graph lines, then your ignition noise is high enough that physical changes to your setup probably need to be made. Refer to "Avoiding RFI Noise" in the Additional Information section on how to reduce the ignition noise in your installation, and get cleaner, smoother lines. It is also very important to wire the car correctly, including your shield wires, so please read "How to Wire Correctly" in the Additional Information section for wiring best practices.

If your fuel pressure sensor appears to be noisy, the issue is more likely related to how the fuel flows through your system and not ignition noise. Your fuel pump does not stay at a steady pressure because the pump itself actually pulsates, albeit very quickly. Your fuel pump will push fuel, then push over, and over again. All of this happens extremely fast, but the DataMaxx system records very fast as well. The DataMaxx actually sees when the pump just starts to push the fuel and the pressure is low, then it sees where the pump is pushing the most, and the pressure is higher. The pump takes a quick break to gather more fuel and the pressure drops again. Because of this pulsing nature in fuel pumps, and the

quickness, the DataMaxx has to sense every little change—this can cause your fuel pressure reading to look noisy, when it is in fact very real, and true data. If you would like to make the line smooth (even though that is not the true data), call Computech Tech Support and we can walk you through applying a filter heavier than the heavy setting.