



ULTRA DASH XTREME

Racepak

Ultra Dash

Installation and Operation Instructions
250-DS-UDXEFIM

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INSTALLATION

Selecting a Mounting Location:

Select a mounting location that does not expose the Ultra Dash to temperatures over 185° F. Also avoid exposing the LCD to direct sunlight. Extreme overheating from the sun can temporarily cause the LCD to turn entirely black.

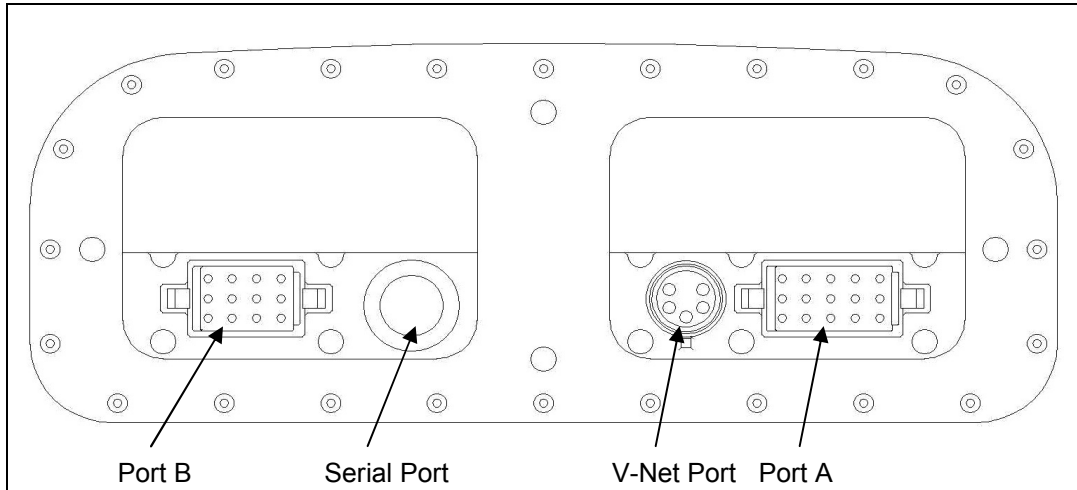
Dash Mounting:

Once you have decided on a mounting location use the supplied template to cut out the rear dash inserts and drill holes for the mounting studs.

Use the supplied machine nuts and locking washers to bolt in the dash. Do not use nylock nuts on the mounting studs.

Port Description and Wiring:

Connector Locations



Port A --- Port A is used to connect the fuel level and remote record/display switch. See the section Port A Wiring for complete instructions.

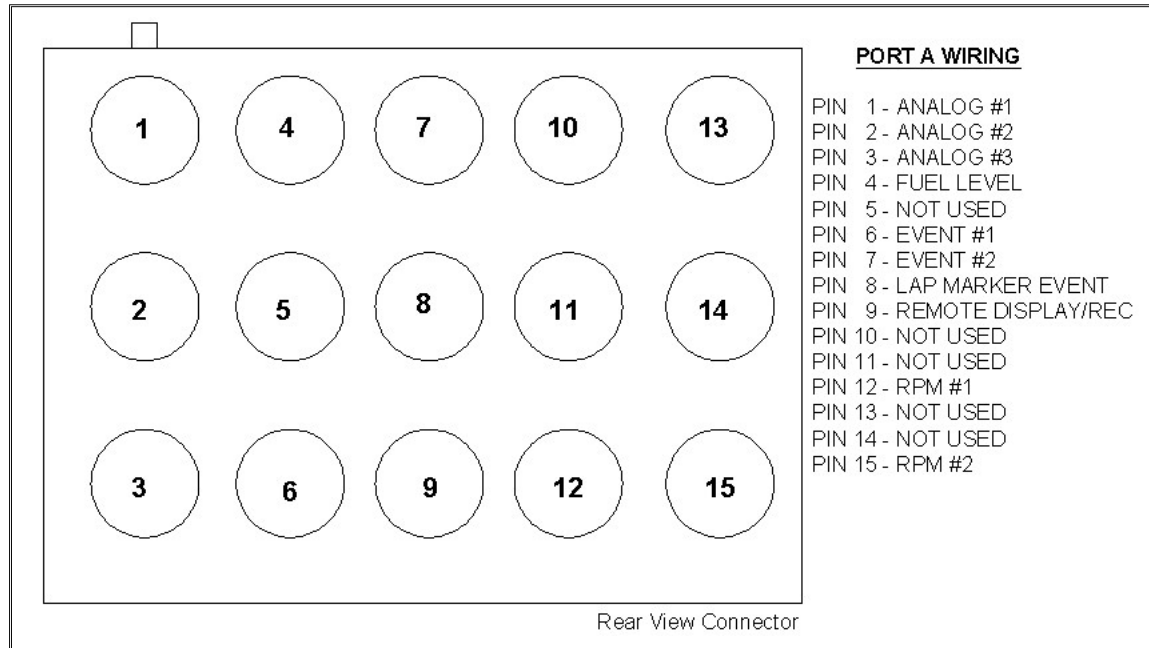
Port B --- Port B is used to connect the cooling fan relay, external warning and shift lights. See the section Port B Wiring for complete instructions.

Serial Port --- The serial port is used to program the dash using the DataLink PC software.

V-Net Port --- The V-Net data port is used to connect to the MEFI4 system and Racepak V-Net modules.

IMPORTANT: All racepak v-net modules, other than the Racepak part number 230-VM-EFIM4, must have a serial above 33000. The serial number is engraved on top of each V-Net module.

Port A Wiring:



Pin 1 – Analog Sensor Input #1 – This pin is internally pulled up for use with resistive type temperature and/or pressure sensors. This channel is disabled in the factory default configuration. The input can be used for any 0 to 5 volt analog transducer as long as the transducer is capable of driving a 1 K ohm load.

Pin 2 – Analog Sensor Input #2 – This pin is internally pulled up for use with resistive type temperature and/or pressure sensors. This channel is disabled in the factory default configuration. The input can be used for any 0 to 5 volt analog transducer as long as the transducer is capable of driving a 1 K ohm load.

Pin 3 – Analog Sensor Input #3 – This pin is internally pulled up for use with resistive type temperature and/or pressure sensors. This channel is disabled in the factory default configuration. The input can be used for any 0 to 5 volt analog transducer as long as the transducer is capable of driving a 1 K ohm load.

Pin 4 – Analog Sensor Input #4 – Fuel level sender input – This input is designed to be used with resistive type fuel senders. Connect this input to your fuel sender output. See the **Fuel Level Sender Calibration** section for programming instructions.

Pin 6 – Event Input #1 – Applying power to this input will trigger an event marker on this channel. This channel is disabled in the factory default configuration.

Pin 7 – Event Input #2 – Applying power to this input will trigger an event marker on this channel. This channel is disabled in the factory default configuration.

Pin 8 – Event Input #3 – Lap Marker Event Switch – Grounding this input will trigger an event marker on this channel. This channel is enabled in the factory default configuration as a lap marker input.

Pin 9 –Event Input #4 – Remote Display/Record Switch – Grounding this input will trigger an event marker on this channel. This channel is enabled in the factory default configuration as a remote display/record button.

If you want to change displays remotely or record data you will need to install the remote record switch. A switch is provided only if you have purchased the optional data recording kit and DataLink software. Install a normally open momentary push button switch in an easily accessible location. Connect one side of the switch to chassis ground. Connect the other side of the switch to this input. Pushing the display/record button for less than three seconds will change display pages. Pushing the display/record button for 3 seconds or more will cause the dash to begin recording data.

Pin 10 –Not Used

Pin 11 – Not Used

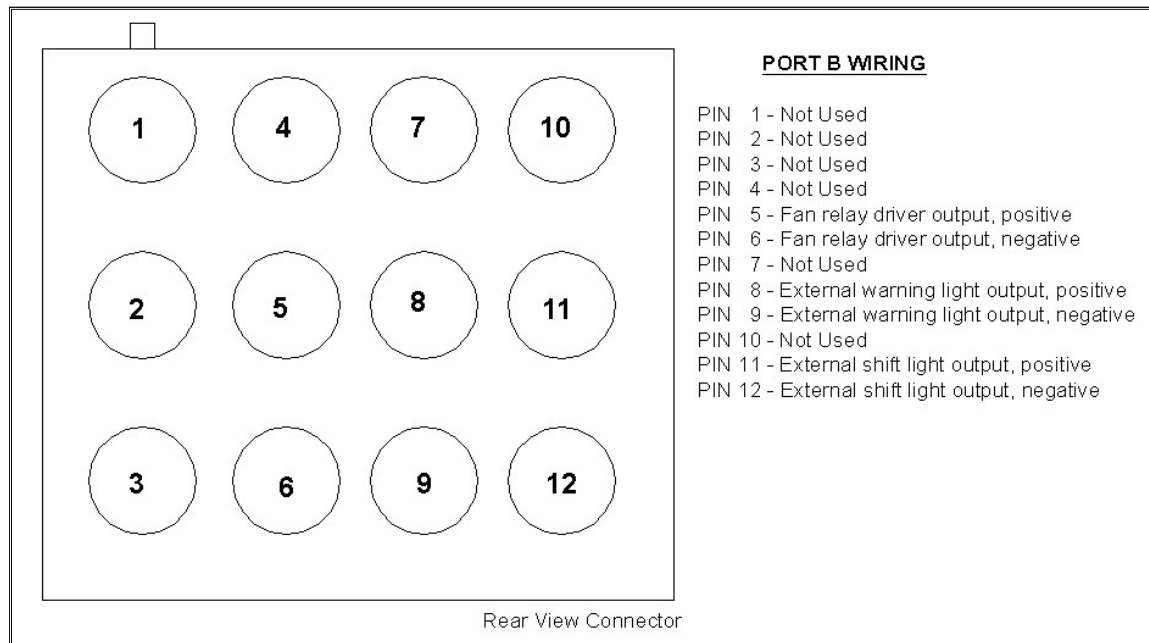
Pin 12 –RPM Input #2 – This input is used to connect an rpm sensor to the dash unit. This channel is disabled in the factory default configuration. The input is user programmable to support either a contact closure type sensor or a zero crossing type sensor. Typical applications would be wheel speed, drive shaft rpm, and fuel flows.

Pin 13 – Not used

Pin 14 – Not Used

Pin 15 –RPM Input #1 – This input is used to monitor the tach output signal from your ignition box. This channel is disabled in the factory default configuration. The tachometer input requires a standard 5 – 20 volt square wave signal to work properly. **DO NOT CONNECT THIS WIRE DIRECTLY TO THE IGNITION COIL, DOING SO CAN DAMAGE THE CIRCUIT.**

Port B Wiring:



Port B uses the 12 position connector and is used for the external shift light, warning light and relay output drivers.

Pin 1 – Not used

Pin 2 – Not used

Pin 3 – Not used

Pin 4 – Not used

Pin 5 – Fan relay driver output, positive – Insert the gray wire in pin position 5. Connect the other end of the gray wire to the positive side of the fan relay coil. Pin 85 on a standard automotive relay. See the **Cooling Fan Wiring Diagram** below.

Pin 6 – Fan relay driver output, negative – Insert the purple wire in pin position 6. Connect the other end of the purple wire to the negative side of the fan relay coil. Pin 86 on a standard automotive relay. See the **Cooling Fan Wiring Diagram** below.

Pin 7 – Not used

Pin 8 – External warning light output, positive – Insert the green wire in pin position 8. Connect the other end of the green wire to the positive side of the warning light.

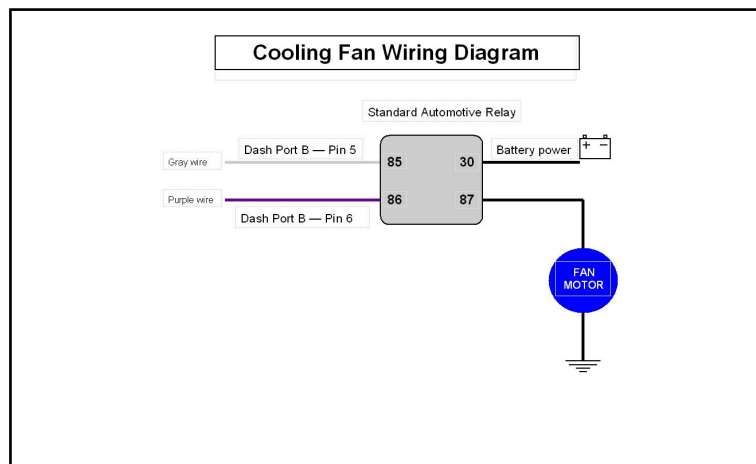
Pin 9 – External warning light output, negative – Insert the yellow wire in pin position 9. Connect the other end of the yellow wire to the negative side of the warning light.

Pin 10 – Not used

Pin 11 – External shift light output, positive – Insert the orange wire in pin position 11. Connect the other end of the orange wire to the positive side of the shift light.

Pin 12 – External shift light output, negative – Insert the blue wire in pin position 12. Connect the other end of the blue wire to the negative side of the shift light.

NOTE: The external warning and shift light output can drive a maximum of 500mA of current each. We recommend using LED style lights due to their low current consumption.



WARNING!!!!

Using the automatic cooling fan controller may cause the fan to turn on at any time. Make sure you disconnect the battery before working near the fan motor. Failure to do so may result in severe bodily injury.

INSTALL THE PROVIDED WARNING LABEL NEXT TO THE FAN

PROGRAMMING AND OPERATION

How the Buttons Work:

Each button can perform three different functions depending on how long the button is held down. In this manual we will refer to the three different button press types as SHORT, MED and LONG. To help determine when to release the button, and as a result the type of button press, you need to look at how many times the warning indicators in the upper corners of the dash flash. If you release the button after one flash a SHORT button press will be entered. Releasing the button after two flashes will result in a MED button press and three flashes will result in a LONG button press. Table 1 list the three different button press types.

Type	Warning Flashes	Time in Seconds
SHORT	1	Less than 2
MED	2	2
LONG	3	3 or more

Table 1

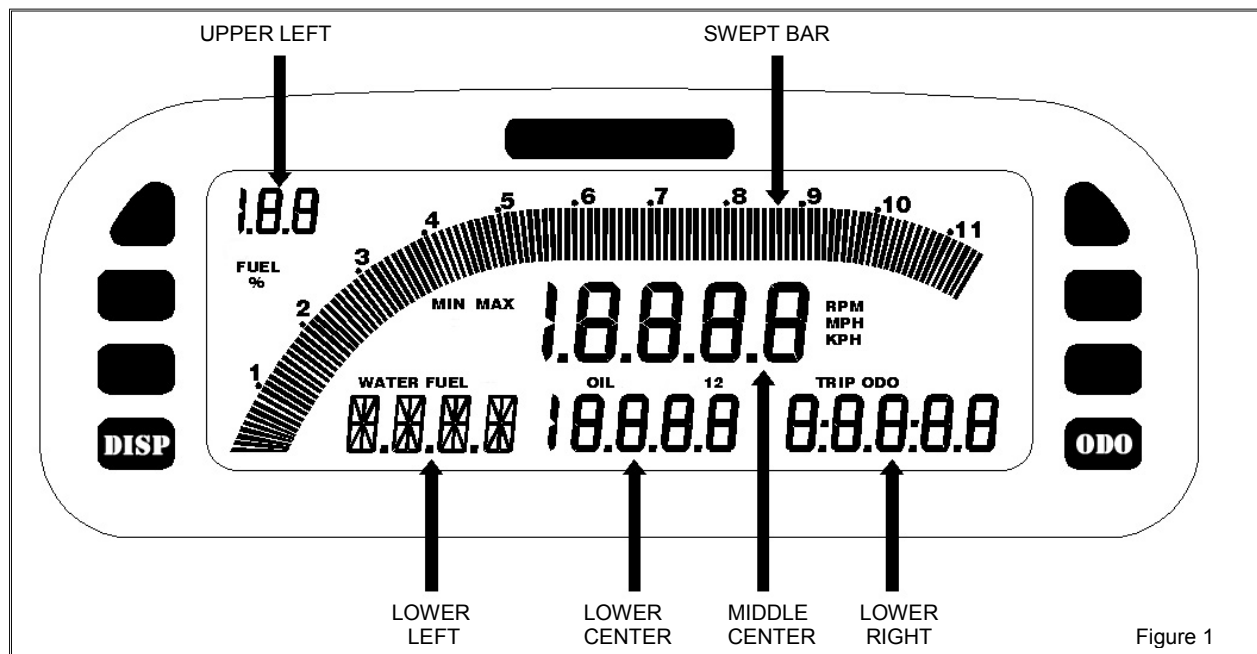


Figure 1

Figure 1 illustrates the channel positions and labels the terminology used in this manual to describe each position on the LCD display. There are six channel positions on the LCD and six indicator lights. The lower left channel position can display both numbers and letters. The other five positions can only display numerical values.

Display Modes:

The behavior of each button press depends on the mode the dash is currently in. See the appropriate section below for a list of button behaviors in each mode.

There are 3 different modes.

- Setup Mode
- Real-time Mode
- Min – Max Recall Mode

Setup Mode:

Enter setup mode by entering a MED press on the **ODO** button by pressing and holding the button for two warning light flashes. While in setup mode a SHORT press on the **DISP** button will change to the next setup parameter. A MED press on the **DISP** button will step back to the previous setup parameter. A SHORT press on the **ODO** will increment the value in small steps. Press and hold on the **ODO** button will increment the value in large steps. A MED press on the **ODO** button will decrement the value. To exit setup mode enter a LONG press on the **DISP** button until the word **WAIT** is displayed in the lower left LCD position. Make sure you do not turn the dash off until the word **WAIT** has disappeared and the dash has reset.

Setup mode button behavior

Button	SHORT Button Press (one light flash)	MED Button Press (two light flashes)	LONG Button Press (three light flashes)
DISP	Move to next setup parameter	Move to previous setup parameter	Exit Setup mode
ODO	Increment setup parameter value in small step	Decrement setup parameter value	Increment setup parameter value in large step (press and Hold)

Setup mode parameters

#	Parameter Description	LCD Code	Available Option Lower Right LCD	<u>Factory Default</u>
1	Default back light intensity level	bLIT	Level 0-9 9 = highest level 6 = factory default	6
2	Default Display Page (see Real-time Mode)	dISP	1 – 2	1
3	Units of Measure	UNIT	0=English 1=Metric	0
4	Odometer start value	OdOS	0 – 327,600 Value entered should be divided by 10. If the desired value is 1000 then enter 100	0
5	Engine RPM Rev. warning and shift light value	REVL	0-20000	8000
6	Low oil pressure warning value	LOIL	0-300	30

7	High oil temperature warning value	HOIL	0-300	220
8	High water temperature warning value	HWAT	0-300	220
9	Cooling fan on temperature	F ON	0 – 300 Deg.	170
10	Fuel level sensor type (see Fuel Level Sender)	FTYP	See table below	6
11	Custom fuel level empty value	FTLO	Only used when fuel level sensor type 11 is selected	0
12	Custom fuel level full value	FTHI	Only used when fuel level sensor type 11 is selected	5000

Speedometer Calibration

The vehicle speed information is received through the MEFI. The speedometer and odometer will be as accurate as the calibration in the MEFI controller.

Fuel Level Sender Calibration


Table 4 shows the six different types of fuel senders supported. If you are not sure of the type you are using you will have to measure the resistance with an ohms meter or for best accuracy use the custom setting. Enter the correct fuel sender type while in the dash setup mode. See **Setup Mode** above.

Fuel Level Sender Types

Dash Setup Fuel Sender Type	Resistance Empty - Full	Typical Application
6	240 - 33 Ohms	Stewart Warner senders
7	16 -158 Ohms	Most Fords, 1989 & later
8	0 - 90 Ohms	Most General Motors 1965 to present
9	73-10 Ohms	Most Ford Prior to 1989 & Chrysler
10	10 – 180 Ohms	VDO senders
11	Custom	Custom calibration

Custom Fuel Level Calibration Procedure

If you have selected the custom calibration table in the fuel level sender configuration you will need to perform the following:

- 1) Empty the fuel tank to the level you wish to call 0%.
- 2) Turn on the dash and enter setup mode by entering a MED press on the  button.

- 3) Step through the setup parameters by entering a SHORT press on the **DISP** button until you reach the FTYP parameter in the lower left LCD position. Use the **ODO** button to select type 11.
- 4) Enter another SHORT press on the **DISP** button to reach the FTLO parameter in the lower left LCD position.
- 5) Enter a LONG press on the **ODO** button to set the tanks empty value.
- 6) Enter a SHORT press on the **DISP** button to reach the next parameter FTHI.
- 7) Fill the fuel tank to the level you wish to call 100%.
- 8) Enter a LONG press on the **ODO** button to set the tanks full value.
- 9) Exit setup mode by entering a LONG press on the **DISP** button to exit.

Real-time Mode:



The dash will power up in Real-time mode each time it is turned on. While in Real-time mode you can scroll between up to four display pages by entering a SHORT key press on the **DISP** button. The lower right LCD section is controlled by the **ODO** button and also has up to four display pages. Enter a SHORT key press on the **ODO** button to switch between the four pages. To reset the TRIP odometer enter a LONG key press on the **ODO** button. If all LCD sections on a display page are disabled, the page will be skipped when pressing the **DISP** button.

Factory default display pages





	LCD Section	Channel Displayed	Display Tag
D I S P L A Y # 1	Swept Bar	Engine RPM
	Middle Center	Engine RPM	RPM
	Upper Left	Battery Voltage	Blank
	Lower Left	Water Temperature	WATER
	Lower Center	Oil Pressure	OIL 1
	Lower Right	Battery Voltage	Blank
D I S P L A Y # 2	Swept Bar	Engine RPM
	Middle Center	Speedometer	MPH or KPH
	Upper Left	Fuel Level	FUEL %
	Lower Left	Water Temperature	WATER
	Lower Center	Oil Pressure	OIL 2
	Lower Right	Man ABS Pressure	Blank
D I S P L A Y # 3	Swept Bar	Engine RPM
	Middle Center	Engine RPM	RPM
	Upper Left	Fuel Pressure	FUEL
	Lower Left	Water Temperature	Blank
	Lower Center	Oil Pressure	Blank
	Lower Right	Odometer	ODO
D I S P L A	Swept Bar	Disabled	
	Middle Center	Disabled	
	Upper Left	Disabled	
	Lower Left	Disabled	
	Lower Center	Disabled	

Y # 4	Lower Right	Trip Odometer	TRIP
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Real-time mode button functions

Button	SHORT Button Press (one light flash)	MED Button Press (two light flashes)	LONG Button Press (three light flashes)
	Change display pages(except lower right)	Switches between Real-time, min & max modes	Reset minimum & maximum recall values
	Change lower right display page	Enter Setup Mode	Reset trip odometer

Min – Max Recall Mode:

The min – max recall mode displays the minimum and maximum reading on all channels since the dash was turned on or the min – max values have been manually cleared. To display the minimum values enter a MED press on the  button. The word MIN will be displayed under the swept bar. To display the maximum values enter another MED press on the  button. The word MAX will be displayed under the swept bar. While you are in min – max mode you may change displays to see additional channels if needed. To return to Real-time mode enter another MED press on the  button. To clear the minimum and maximum values enter a LONG press on the  button.

Programming Using the DataLink PC software (Optional)

Modifying the more advanced features of your dash will require you to use the DataLink programming software as described in this section.

DataLink Software CD Installation

Insert the disk in your CD drive and close the bay door. The installation program should run automatically. If it does not, follow the instructions printed on the CD label.

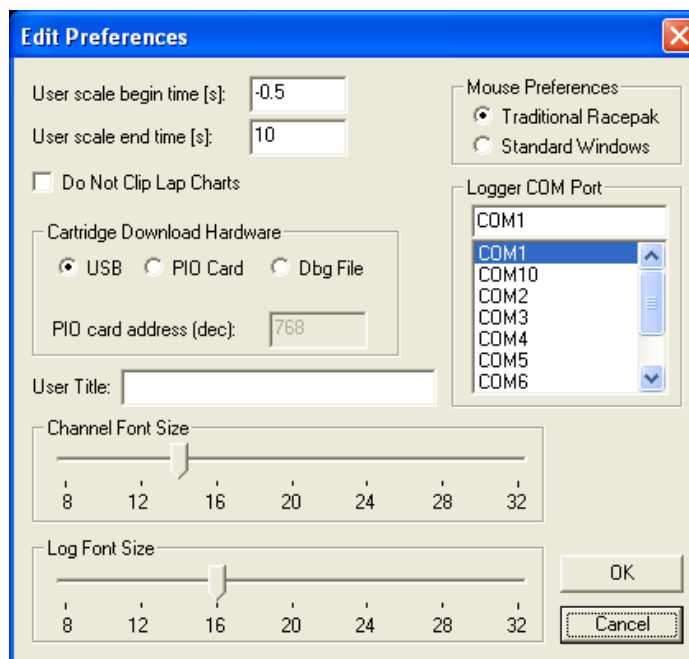
After the program has been installed a new shortcut icon will be added to your desktop with the title "DataLinkII Program". Double click on the icon to start the DataLink software.

The first time you run the software you will be asked for a license disk. If you have purchase the PC download option, insert the license disk provided in the DataLink software manual then click on the OK button. If you have not purchased the PC download option and only need to configure the dash then click on the "Demo Only" button.

Connecting the Data Logger Serial Communications Cable

The next step is to connect the UDX communication cable to the serial communications port on your PC. will be connecting the DB9 female connector end of the logger serial communication cable to the mating connector on your PC. In most computer systems the mating connector will be labeled "Serial" or "COM". If your PC does not have a port you can use a USB to serial adaptor. These adaptors are available at most computer stores around \$50 or less.

The next step in the software installation is to tell the DataLink software which serial communications port on your PC have connected to the serial communications cable. To do this, on your PC and start the DataLink program by clicking on the ICON on Window's desktop. Next click on **Preferences** from the menu bar then select **Settings**. The dialog box on the right will be displayed.



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Locate the **Logger Com Port** selection box and select the communications port to which the serial communications cable is connected. If the serial port you are using is built in to your PC the port should be marked near the connector. If you are using a USB to serial adaptor then you must follow the instructions provided with the adaptor to determine which port the adaptor software has installed itself on. Once you have selected the proper serial port select **OK** to accept your selection..

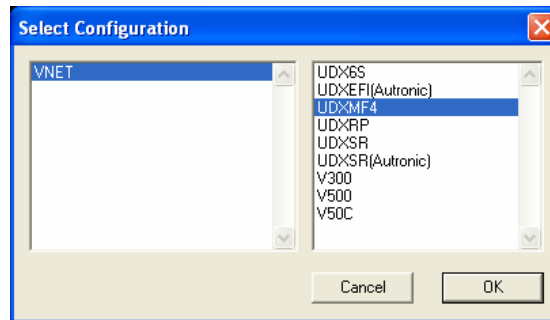
Modifying the Dash Configuration

Each time you wish to modify the configuration of your dash you will need to perform the following steps.

1. Connect your PC to the dash via the serial interface cable.
2. Start the DataLink program on your PC
3. Open the car configuration file by selecting **Open Car Configuration** under **File** from the menu bar.
4. Select the display page number to be modified by positioning the mouse cursor over the channel button and click the **right** mouse button.
5. Make the desired modifications to the display page.
6. Apply power to your dash
7. Send the modified setup to the Ultra Dash.
8. Save the modified car configuration file.

Opening the Configuration File

The first step is to connect your PC to your dash using the serial interface cable supplied with the DataLink software. The next step is to start the DataLink program by clicking on the DataLink icon located on the Windows desktop on your PC. Open the configuration file by clicking **File** on the menu bar then selecting **Open Car Configuration**. The following dialog box will appear.



The list on the left-hand side of the **Select Configuration** box will display all of the file folders in your RacePakData subdirectory that contain valid configuration files. **If you have purchased the PC download option then select the folder on the left that is named VDash and the serial number of your dash.** For instance, an Ultra Dash with the serial number 1001 would be named VDash_1001. The list on the right will now contain the list of configuration files contained in this folder. The factory configuration file will be named using the same convention. **If you have not purchased the PC download option then select VNET on the left side and the configuration named UDXMF4 on the right side.** Select **OK** to open the select configuration file.

Graph		MEFI4SR							
VDASH Module	II/S	Fuel Level 1	II/S	WL3-Oil PSI	II/S	Relay #2	II/S	A/F Cyl 2	II/S
Shift Lite	II/S	Analog In #5	II/S	WL4- Water Temp	II/S	Engine RPM	II/S	Speed	II/S
RPM #1	II/S	Analog In #6	II/S	WL5-Fuel PSI	II/S	Man ABS Press	II/S	Cal #1 - 02 Mod	II/S
Rpm #2	II/S	Aux Digital #1	II/S	WL6-Fuel Level	II/S	Throttle Pos	II/S	Cal Table # 2	II/S
Digital In #1	II/S	Aux Digital #2	II/S	WL7-Bat Volts	II/S	Man Temp	II/S	Cal Table # 3	II/S
Digital In #2	II/S	Dash Page 1	II/S	Warning Light 8	II/S	Battery Volt	II/S	Cal Table # 4	II/S
Digital In #3	II/S	Dash Page 2	II/S	Warning Light 9	II/S	Water Temp	II/S		
Record Button	II/S	Dash Page 3	II/S	Warning Light 10	II/S	Oil Press	II/S		
Analog In #1	II/S	Dash Page 4	II/S	Warning Light 11	II/S	Oil Temp	II/S		
Analog In #2	II/S	WL1-S Light On D	II/S	Warning Light 12	II/S	Pump PSI	II/S		
Analog In #3	II/S	WL2-Oil Temp	II/S	Fan Relay	II/S	A/F Cyl 1	II/S		

The next step is to read the current setting from the dash. To do this, connect the supplied serial cable between the dash and your PC and turn on the dash. Next, start the DataLink software and click on **Edit** from the menu bar and select **Read VNET Config**. A status message box will appear, if everything is working correctly you see the message “Devices Read Successfully” when finished.

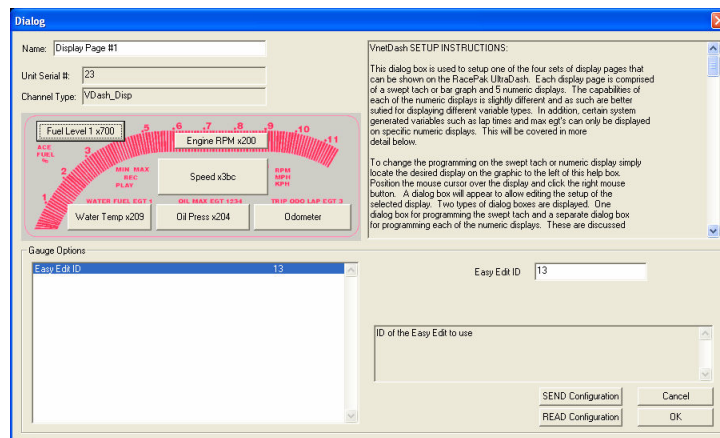
The wrench icon in the run file tab is used to indicate that this file is a car configuration file. Each of the buttons represents one of the devices/channels in your system. For instance, the VDash Module button represents your Ultra Dash and the Dash Page #1 button represents the display #1 configuration.

The configuration file will contain buttons for all of the hardware channels required to properly operate the dash.

Programming the display page properties

The channel buttons labeled “Dash Page #1”, “Dash Page #2”, “Dash Page #3”, “Dash Page #4” represent the four LCD display pages that change when you press the **DISP** button on the dash. If you would like to change the channels displayed on a display page or change the characteristics of the displayed channel perform the following.

- 1) Open the configuration file as described above.
- 2) Right click over the channel button of the display page you wish to change.
- 3) Locate the graphic representation of the dash to the left of the help box and click on the button of the display to be modified.
- 4) Enter the desired parameters.
- 5) Click OK to accept the changes.
- 6) Repeat for all displays positions to be modified.
- 7) When you are finished editing each display set, click on the **SEND Configuration** button in the lower right corner.
- 8) Click the OK button to close the message log when finished.
- 9) Click the OK button in the lower right corner to close the display page dialog box.
- 10) Power to the dash must be cycled before any changes will take affect.



Programming the warning indicators

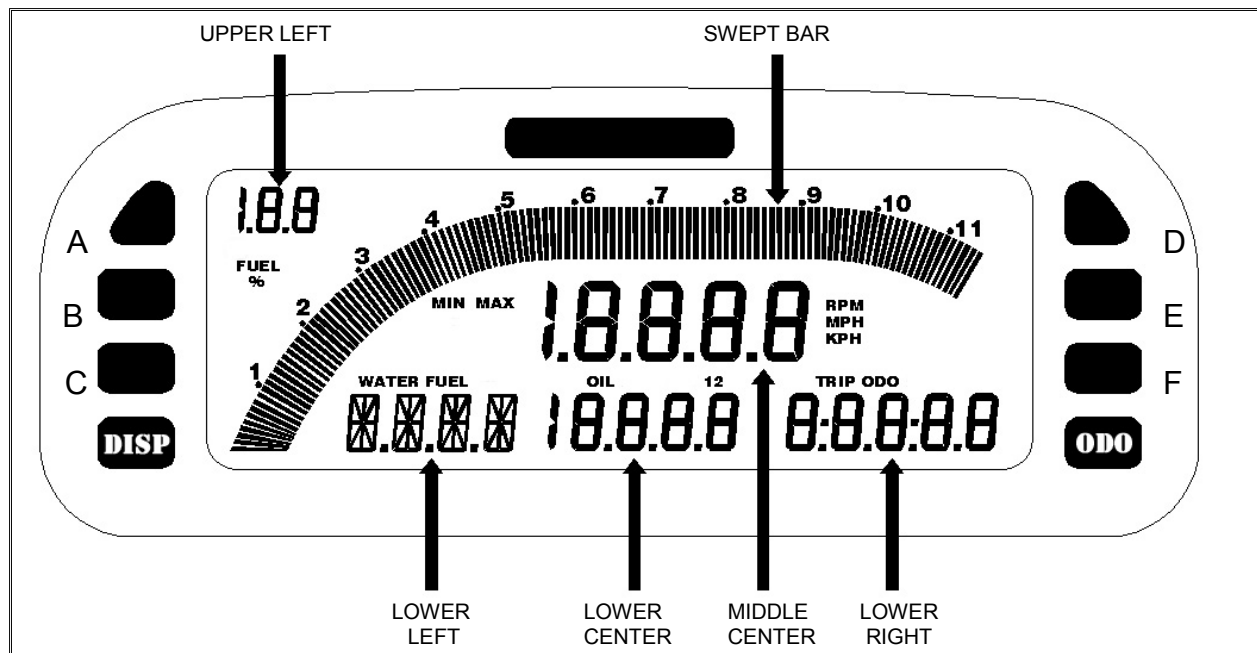
The Ultra Dash has three types of warning indicators.

- Six internal warning lights.
- One external warning light output. (see **Wiring Port B**).
- Alphanumeric display in the lower left position on the LCD.

There are 12 dash warning channels which can be programmed to trigger any combination of warning indicator types. Each warning channel is used to trigger alarm conditions based on up to two data channels. The alarm can be programmed to trigger when either channels meets the alarm condition or both channels meet the alarm condition. For instance, you can program an oil pressure alarm to trigger when engine rpm is above 500 AND oil pressure is below 20 psi. This would result in the oil pressure alarm triggering only when the engine is running AND the oil pressure is low.

Internal warning lights

The dash has six internal warning lights. The internal lights can be programmed to turn on individually or in sets. For the purpose of this discussion we will refer to the six warning light position as A,B,C,D,E,F as shown below.



Each warning light can be programmed to turn on individually or in the following combinations.

- A and D
- B and E
- C and F
- B and E and C and F (bottom four)
- A and B and C and D and E and F (all six)

External warning lights

Each warning channel can be programmed to turn on an external warning light output on Port B any time an alarm is triggered on that channel. This output driver is capable of sourcing a maximum of 500mA.

Alphanumeric display

Each warning channel can be programmed to display a unique four character alphanumeric tag in the lower left display position any time an alarm is triggered that channel.

Changing the warning properties

The channel buttons labeled “RPM Warn”, “Oil Temp Warn”, “Oil Press Warn”, “Fuel Press Warn” and “Warning #6-12” each represent one of the twelve warning channels. If you would like to change or enable a warning channel you must perform the following.

The screenshot shows the 'VNET Warning Module Channel Parameters' dialog box. It contains the following fields and options:

- Name: Oil Press Warn
- Module Type: VDash_WARNMOD2
- Unit Serial #: 27
- Module Number: 3
- Text area: This channel is linked to one of 6 warning lights connected to your on your LCD Dash Module. The output of each light can be controlled by either one or two parameters incorporated into your V_Net System. For instances, in the simplest case the output of the light can be turned on and off via a parameter such as water temperature exceeding a user programmable limit. In a more complex usage the light can be controlled by two parameters incorporated into your V_net system. As an example the light can be set
- Input Channel 1: =Disabled= x0
- Low Alarm Limit: -1
- High Alarm Limit: 0
- Output On When Value Falls: Inside Window, Outside Window
- Channel Combine Logic: Turn Output On When: Both Channels Meet Condition, Either Channel Meets Condition
- Input Channel 2: =Disabled= x0
- Low Alarm Limit: -1
- High Alarm Limit: 1
- Output On When Value Falls: Inside Window, Outside Window
- Module Options:
 - Warning Light On Delay: 0
 - Alarm Light Display Position: 6
 - Display on Ext Alarm: 0
 - Warning Text: OILP
- Warning Light On Delay: 0 (range [0 to 30000])
- Text box: Enter the number of seconds to delay before turning on the warning light after the set point conditions are met. Enter the delay in 1/100ths of a seconds. For instance enter 250 for 2.5 seconds.
- Buttons: SEND Configuration, READ Configuration, Cancel, OK

- 1) Open the configuration file as described in the previous section above.
- 2) Right click on the channel button of the warning you wish to change.
- 3) Rename the channel as appropriate. (example: rename Warning #7 to Battery Warning)
- 4) Change the “Input Channel 1” parameter to the channel you want to trigger the alarm.
- 5) Change the “Low Alarm Limit” and “High Alarm Limit” to the values at which you wish to trigger the alarm.
- 6) Change the “Output On when Value Fall(inside or outside) window” to the desired setting.
- 7) Change the “Input Channel 2” parameter from disabled to the appropriate channel only if you want a second input channel to trigger the alarm.
- 8) Change the “Turn Output On When” parameter to the desired setting only if the “Input Channel 2” parameter is not set to disabled.
- 9) Change the parameters in the “Module Options” text box in the lower left corner as desired.
- 10) When you are finished modifying all of the parameters, click on the **SEND Configuration** button in the lower right corner.
- 11) Click the OK button to close the message log when finished.

12) Click the OK button in the lower right corner to close the display page dialog box.

13) Power to the dash must be cycled before any changes will take affect.

FACTORY DEFAULT WARNING INDICATOR SETTINGS				
Warning or Indictor Cause	Alarm Trigger Condition	Alpha Display	Internal Warning	External Warning
Engine RPM	>8000	ERPM	A,D	NO
High oil temperature	>220	OILT		NO
Oil pressure	<30 or >100	OILP		YES
High water temperature	>220	H2OT		YES
Fuel pressure	<20 or > 100	NONE		NO
Warning #6	Disabled			
Warning #7	Disabled			
Warning #8	Disabled			
Warning #9	Disabled			
Warning #10	Disabled			
Warning #11	Disabled			
Warning #12	Disabled			

Programming the shift light properties

Programming the shift light with the buttons on the dash allows for only a single shift point via the `REVL` parameter in setup mode. The shift light can be programmed with up to six different shift points when using the DataLink PC software. Additionally, using the DataLink software is required to program the logic used to determine which gear you are in. Follow the steps outlined below to program the shift light using the DataLink software.

- 1) Open the configuration file as described in the previous section.
- 2) Right click on the channel button label "Shift Light".
- 3) Adjust the Gear 1 through Gear 6 levels as desired. We recommend programming any unused shift points to the last shift point RPM. For instance, if you are running a 3 speed transmission you will only need the first two shift points. Program the remaining shift points 3, 4, 5 and 6 to the same RPM as shift point 2.
- 4) Adjust the parameters in the Tach Module Options box in the lower left corner as needed. When you click on each parameter an explanation of what the parameter does will be displayed in the lower right corner. Do not change any of these parameters unless you are sure you understand the end result. The default values should work fine for most applications.
- 5) When you are finished modifying all of the parameters, click on the **SEND Configuration** button in the lower right corner.
- 6) Click the OK button to close the message log when finished.
- 7) Click the OK button in the lower right corner to close the display page dialog box.
- 8) Power to the dash must be cycled before any changes will take affect.

VNET Tach Module Channel Parameters

Name: Shift Light

Unit Serial #: 39 Channel Type: VDASH_SHIFTLITE

ULTRA DASH SHIFT LIGHT MODULE SETUP INSTRUCTIONS:
This channel represents the Shift Lite output in your Ultra Dash unit.
The Ultra Dash provides a six stage programmable shift light with user selectable parameters.

PROGRAMMING THE SHIFT POINT RPM'S AND OPTIONS.

INPUT VNET ID
Use this parameter to select the Vnet ID of the channel you wish use trigger the shift light rpm points. Normally this should be set to Engine RPM x200

Shift Points

Gear 1: 8000	Gear 4: 8000
Gear 2: 8000	Gear 5: 8000
Gear 3: 8000	Gear 6: 8000

Input VnetID: Engine RPM x200

Graph Options

Specify Linear Conversion

Raw data value A: 0.0 will become 0.0

Raw data value B: 1.0 will become 1.0

Minimum result value: 0.0 , maximum: 10.0

Display: 3 digits before decimal point, 3 after

Result Unit: Do not display

Smooth Depth [points]

Tach Module Options

Product Version	31
Shift Light Enable Channel	x0
Shift Light Enable Channel Level	0
Shift Light Enable Delay Time	0
Shift Light Rpm Reset Level	2000
Shift Light Reset Time	10
Shift Light Minimum ON Time	0
Rpm Drop for Gear Change	0

Product Version 31

This is the revision level of this product. It is for information only.

SEND Configuration Cancel

READ Configuration OK

Programming the relay driver output channel properties

The dash has two relay driver output channels on port B. Channel 1 is programmed at the factory as a cooling fan controller. Channel 2 is disabled.

- 1) Open the configuration file as described in the previous section.
- 2) Right click on the channel button label of the relay you wish to program.
- 3) Rename the channel as appropriate. (example: rename Relay #2 to My Relay)
- 4) Change the “Input Channel 1” parameter to the channel you want to use to turn the relay output driver on.
- 5) Change the “Low Set Point” and “High Set Point” to the values at which you wish to turn the relay driver on.
- 6) Change the “Output On when Value Fall(inside or outside) window” to the desired setting.
- 7) Change the “Input Channel 2” parameter from disabled to the appropriate channel only if you want a second input channel to turn the relay driver on.
- 8) Change the “Turn Output On When” parameter to the desired setting only if the “Input Channel 2” parameter is not set to disabled.
- 9) Change the parameters in the “Module Options” text box in the lower left corner as desired.
- 10) When you are finished modifying all of the parameters, click on the **SEND Configuration** button in the lower right corner.
- 11) Click the OK button to close the message log when finished.
- 12) Click the OK button in the lower right corner to close the display page dialog box.
- 13) Power to the dash must be cycled before any changes will take affect.

VNET Relay Channel Parameters

Name: Fan Relay Module Type: VDASHRELAY
Unit Serial #: 215 Relay Number: 256 Relay Acknowledge ID: [dropdown]

RELAY MODULE SETUP INSTRUCTIONS
This channel is linked to one of two relay drivers built in to your Dash Unit. Each relay driver can be used to control external power devices such as fuel pumps, water pumps, and/or fan controllers.
The output of each relay can be controlled by either one or two parameters incorporated into your V_Net System. For instance, in the simplest case the output of the relay can be turned on and off via a control switch connected

Input Channel 1
Water Temp x209
Low Setpoint: 100 Output On When Value Falls: Outside Window
High Setpoint: 170 Inside Window
Hysteresis: 5

Channel Combine Logic
Turn Output On When:
 Both Channels Meet Condition
 Either Channel Meets Condition

Input Channel 2
=Disabled= x0
Low Setpoint: -1 Output On When Value Falls: Outside Window
High Setpoint: 1 Inside Window
Hysteresis: 0

Relay Options

Connect Command	40
Channel Name	Relay #1
Product Version	31
Module number	255
Can ID for Primary Control Channel	x209
Primary Low Set Point	100
Primary High Set Point	170
Primary Channel Hysteresis	5
Primary Channel Set Point Exponent	0
Primary Channel Setpoint Window Mode	0
Can ID for Secondary Control Channel	x0
Secondary Channel Low Set Point	-1
Secondary Channel High Set Point	1
Secondary Channel Hysteresis	0
Secondary Channel Set Point Exponent	0

Connect Command: 40 [0 to 4e+006]

Enter the current serial number to program the device with. No two devices might have the same serial number! The Number identifies the device.

SEND Configuration Cancel
READ Configuration OK

Recording Data (optional)

Anytime power is applied to your system the dash is ready to record data from the various sensors connected to the system. When the recording process actually begins and how much data is recorded is determined by how you program the setup features in your data logger. The factory default record length is 600 seconds or 10 minutes. The maximum record length will vary depending on the number of channels that are recorded and their sample rates. If you attempt to exceed the available memory by selecting high sample rates and long record times you will receive a warning message when attempting to send the configuration to the dash.

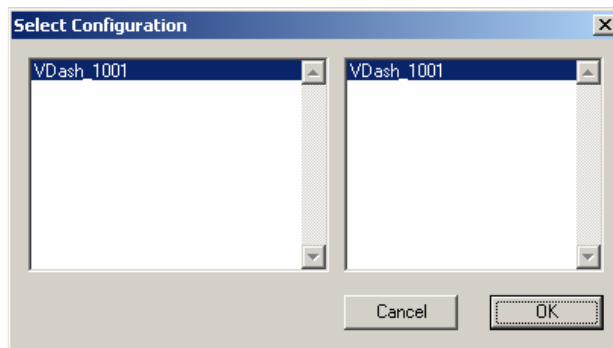
Anytime you press and hold the remote record button for more than 3 seconds the dash will begin to record. In addition, you can select an alternate recording trigger such as engine rpm exceeding a certain threshold. In this mode the logger is programmed to begin recording only after one of the monitored data channels exceeds a preset threshold. For instance, the logger can be programmed to begin recording any time the Engine RPM exceeds 3000 rpm. Once the recording is started it will continue until the maximum record time is reached or until the power is turned off.

Once the recording is started all previously recorded run data is erased and the new recording is initialized. Please note approximately 5 seconds elapses from the time the recording is triggered and the time the first data point is recorded. This is the time required to initialize the recording. The following section will guide you through the setup of your data logger.

Configuring Record Parameters

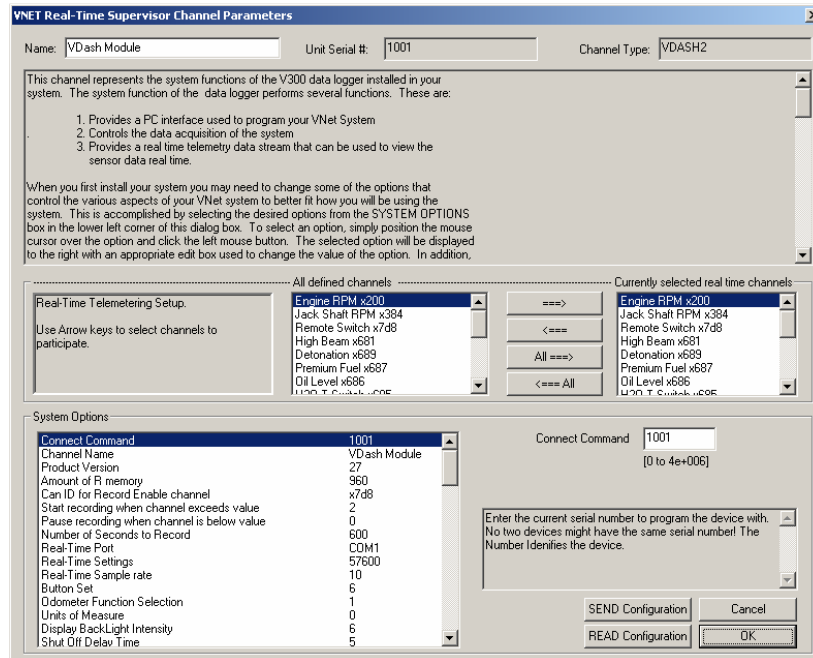
The first step in programming the record parameters in your dash is to connect your data logger to your PC using the serial communications cable. Once the logger is connected turn on power to the dash.

Next start the DataLink program and open the car configuration file for your system by selecting Open Car Configuration from the File menu bar. The Select Configuration dialog box will appear.



The list on the left-hand side of the **Select Configuration** box will display all of the file folders in your RacePakData subdirectory that contain valid configuration files. Select the folder on the left that is named VDash and the serial number of your dash. For instance, an Ultra Dash with the serial number 1001 would be named VDash_1001. The list on the right will now contain the list of configuration files contained in this folder. Select **OK** to open the selected configuration file.

Next position the mouse cursor over the VDash Module channel button and click the right mouse button. The logger edit dialog box will display on your screen.



Located in the lower left-hand corner of the dialog box is the Systems Options section. Several options and their present value will be listed on the left-hand side of the Systems Options section. To select an option for editing simply position the mouse cursor over the option and click the left mouse button. The option will become highlighted and the options edit box and option help box located to the right of the list will be updated with appropriate information for the selected option. Read the help information and enter the new value for the selected option. The options for setting the record parameters are discussed in detail below.

Setting the Record Length

Locate the **Number of Seconds to Record** option and select it as described above. The options edit box will now display the currently programmed number of seconds to record. Enter the new desired value in the edit box.

Setting the Record Enable Channel

The record enable channel and threshold are used as an alternate method to start recording data. Pressing and holding the remote record button or pressing the **REC** button on the dash will always begin a new recording. However, sometimes these buttons are inaccessible or can be easily forgotten. You can automate the start of a recording by programming the record enable channel and threshold parameters.

To program the record enable channel locate the **Can ID for Record Enable channel** option and select it as described above. The options edit box will be updated with the names and ID's of all of the currently parameters measured by your system. To enter a new value click on the down arrow located on the right end of the option edit box as shown below.



A list of the valid channel names and IDs will be displayed. Use the scroll buttons to display all of the values included in the list. When you have located the desired selection position the mouse cursor over the selection and click the left mouse button to accept the selection. The top line of the edit box will be updated with the newly selected value.

Setting the Record Start Threshold

The record threshold option is used to determine when the recording is started. Recording will start any time the value of the selected record enable channel exceeds the value of the record threshold. If you have selected a channel such as Engine Rpm enter the desired rpm above which to start the recording. For instance 3000 rpm. The recording will begin any time the engine rpm exceeds 3000 rpm.

To program the record threshold select the **Start recording when channel exceeds value** option as described above and enter the desired value in the option edit box.

Sending the Record Parameters to the Dash

The final step in programming the record parameters on your dash is to send the configuration you just edited to from your PC to your dash over the serial communication cable. To send the information click on the **Send Configuration** button located in the lower left-hand section of the logger dialog box. A progress box will be displayed showing the information being transferred to your dash. When completed the last line in the progress box should read **Devices Programmed Successfully**.

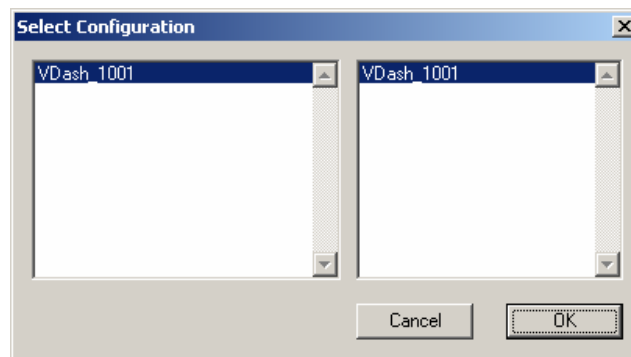
After you have completed the programming of your dash the changes will become effective the next time you turn your data logger on.

Uploading Data (optional)

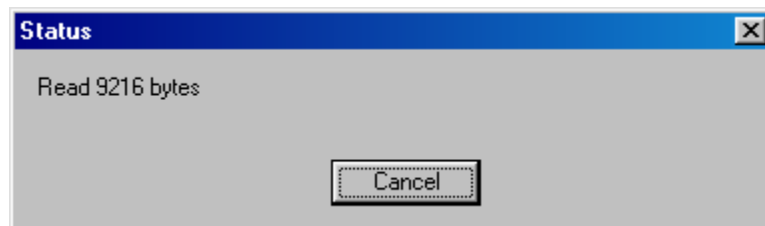
Data from the LDX data logger can be uploaded to your PC for data viewing and analysis using the RacePak DataLink program. To upload data, a serial communications cable must be connected directly between the LDX and an RS-232 serial port on your PC.

Using the Serial Communications Port to Upload Data to your PC

To upload data from your data logger to your PC using the serial port, connect your PC to your data logger system using the serial communications cable provided with your system and turn on the power to your data logger. Next select the **New** file icon in the program taskbar or the **New** menu item selection located in the **File** main menu. The following dialog box will be displayed and you will be asked to select which configuration file to use. The list on the left-hand side of the **Select Configuration** box will display all of the file folders in your RacePakData subdirectory that contain valid configuration files. Select the folder on the left that is named VDash and the serial number of your dash. For instance, an Ultra Dash with the serial number 1001 would be named VDash_1001. The list on the right will now contain the list of configuration files contained in this folder. Select **OK** to begin the data transfer.



The system will upload the data from your data logger. While the data is being uploaded the following progress box will be displayed to inform you of the systems progress.

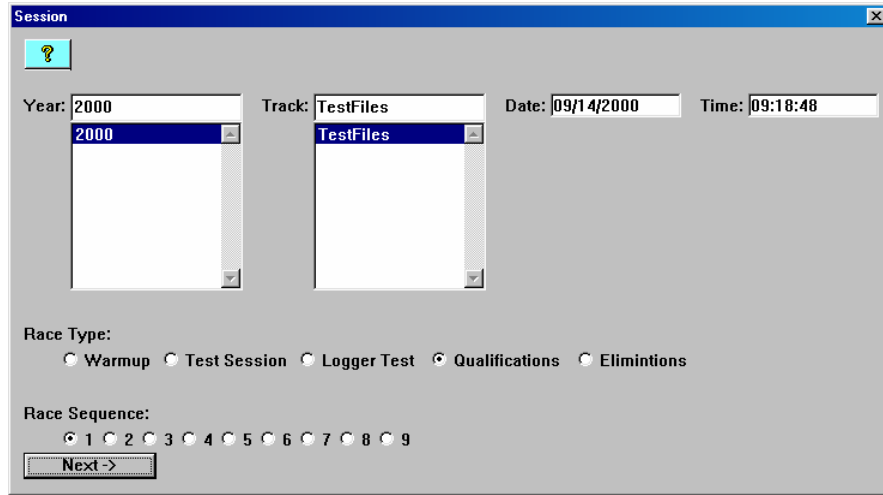


When the download process is completed select the OK button to proceed. To finish the upload processes skip the following section and continue with the section on naming and storing your run data file.

Naming and Storing the Run Data File

After the data has been uploaded a dialog box will be displayed to allow you to enter the session information. Enter the appropriate year and track by selecting the correct value from the selection lists. If the desired year and/or track is not on the corresponding selection list enter the new year or track by typing the name directly into the top selection box. The new year and/or track will be added to the selection list. Select the race type, and race sequence information by clicking on the desired radio button. The system will enter the date and time.

This information will be used to name the data file. The dialog box is shown below. If you need help on filling out the dialog box click on the help icon in the upper left hand corner of the dialog box.



Select **Next**. Additional dialog boxes may be displayed. These are part of the Run Log sections that are user programmable to allow test information to be entered during the download process. Fill out the information as appropriate. The file save dialog box will then be displayed as shown below.



To save and view the file, select the **Save** button. To view the file only, select the **Cancel** button. If you select cancel you can save the file later if desired. A new file tab with the channel data will be opened. You are now ready to view the data.

Refer to the DataLink instruction manual for information on viewing the run data.

Viewing Real Time Data on your PC (optional)

Data from the LDX data logger can be displayed and recorded real time on your PC computer using the DataLink program. Before you can view the data, however, you must first setup the real time parameters in your data logger. To setup your data logger's real time configuration, open your configuration file and right click on the VDash Module channel button. An edit dialog box will be displayed. In the center of the dialog box will be a Real – Time Telemetry Section.

Setting up the Logger Real Time Telemetry Parameters

This section will contain two lists. The list on the left-hand side of the telemetry section will include all of the data channels currently being monitored by your data logger. The list on the right-hand side of the telemetry sections includes all those channels that will be displayed during a real time telemetry session.

To add a channel to the telemetry list highlight the name of the channel in the left-hand list and click on the right arrow → button to add the selected channel to the real-time channel list. To remove a channel from the real-time channel list highlight the name of the channel in the right hand list and click on the left arrow button ←. Remember that only channels in the right hand list will be displayed during a real time telemetry session.

Next select the **Real Time Sample Rate** from the options list in the lower left-hand corner of the dialog box and select the desired real time sample rate. Note: the V_Net Sample rate of each of the modules to be monitored should be equal to or greater than the real time sample rate. If they are not the last data points will be repeated during the sample process.

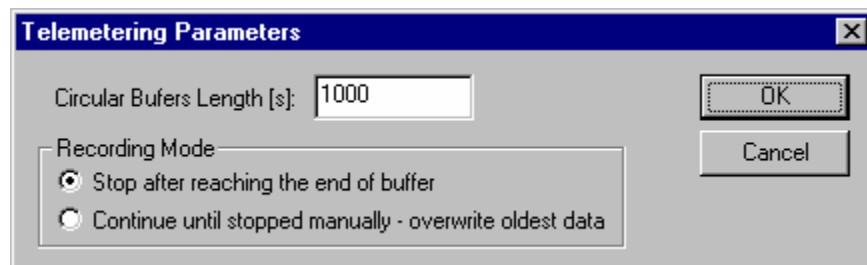
Next select the **Real Time Communications Port** option and type in the name of the serial communications port on your PC you will be using to receive the real time data from the V_Net system.

Normally this is the same as the default Logger Com Port set in the initial software installation. Normally this is COM1.

After you have edited the options use the **Send Configuration** button to transmit the setup data to your data logger. Next select **OK** to exit the edit box. You will need to turn the power to your data logger off and then back on to allow the changes to take effect. When you have completed the edit, save the configuration file.

Entering the DataLink Telemetry Parameters

The final step in setting up the real time telemetry session is to set the DataLink real time recording parameters. These parameters are set by selecting the **Recording Parameter** menu item found in the **Telemetry** main menu selection. The following dialog box will be displayed.

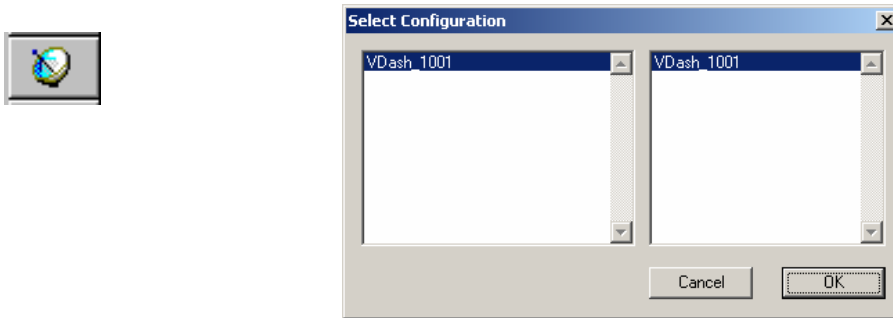


The first parameter **Circular Buffer Length** is used to set the amount of data to record in seconds. The **Recording Mode** is used to determine whether the recording will stop when the maximum record time is reached or whether the oldest data will be overwritten. For example if a Circular Buffer Length of 1000 seconds is entered and stop after reaching end of buffer is selected, the program will record data for 1000 seconds and stop. If continue until stopped

manually-overwrite oldest data is selected the program will continuously record until stop by the operator. Only the last 1000 seconds of data will be stored.

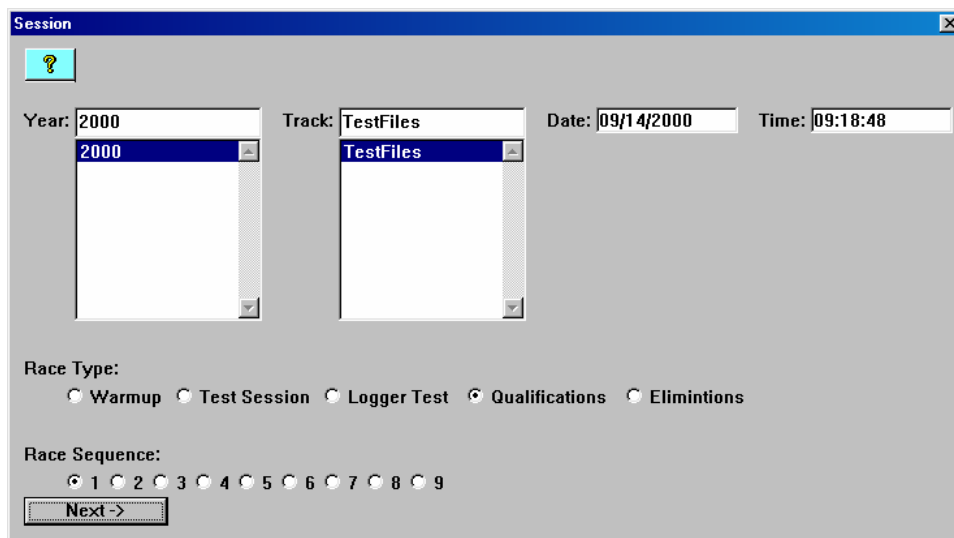
Starting a Telemetry Session

The next step is to start a telemetry session. Select the **Telemetry** icon shown below or the **New Telem Session** menu item located in the File main menu selection. A dialog box, as shown below will be displayed and you will then be asked to select the configuration file to use for this session.



The list on the left-hand side of the **Select Configuration** box will display all of the file folders in your RacePakData subdirectory that contain valid configuration files. Select the folder on the left that is named VDash and the serial number of your dash. For instance, an Ultra Dash with the serial number 1001 would be named VDash_1001. The list on the right will now contain the list of configuration files contained in this folder. Select **OK** to continue.

A dialog box will then be displayed to allow you to enter the session information (the same as when uploading run data). Enter the appropriate year, track, race type, and race sequence information as shown below. The system will enter the date and time.



If you need help in filling out the dialog box click on the help icon located in the upper left-hand corner of the dialog box.

Select **OK** or **Next** depending on your configuration file. Additional dialog boxes may be displayed. These are part of the Run Log sections that are user programmable to allow test information to be entered during the download process. Fill out the information as appropriate.

The file save dialog box will then be displayed. Select the **Cancel** button. A new file tab with the channel data will be opened. Your real time data session is now ready.

The real time session is controlled via two icons located below the context sensitive help icon in the tool bar. Only one icon will be active at a time depending on the status of the telemetry session. The Start Data Acquisition icon is shown active on the left. The Stop Data Acquisition icon is shown active on the right.



Start Data Acquisition - Green Light



Stop Data Acquisition - Red Light

To start the real time data acquisition left click on the **Start Data Acquisition** icon at the bottom of the tool bar. The data acquisition will start at time 0. Once the real time data acquisition has been started the value of the data channels will be displayed next to the channel button in the top portion of the display area. To display the data from a channel on the graphics screen simply select the channel by left clicking on the channel button in the same manner you display data from a recorded file.

To stop the data acquisition left click on the **Stop Data Acquisition** icon located at the bottom of the tool bar. The real time data acquisition session will be suspended.

If you wish to continue the real time data acquisition simply click on the **Start Data Acquisition** icon. The telemetry session will restart at the same point it was suspended. If you wish to restart the session from the beginning select **Erase** from the **Telemetry** main menu. All previously recorded data will be erased from the file.

If you wish to save the data, stop the data acquisition and use click the **Save** icon located in the tool bar or select **Save** located in the **File** main menu.

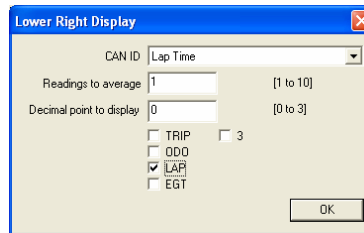
Programming and Operation of Lap Times

Programming the Dash

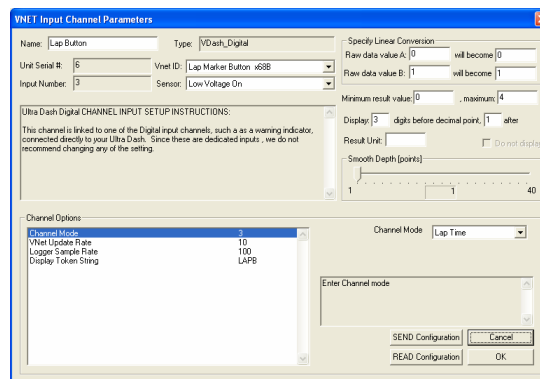
There are two methods that can be used to generate lap times. The first and most accurate method is to use the Racepak infrared lap beacon and receiver system p/n: 230-KT-LAPMARK. The second and least accurate method is to use a button that the driver must push each time the start/finish line is crossed. See the section **Port A Wiring** for installation instructions.

The dash must be programmed in the following manner if you wish to use either of these methods.

1. Program the CAN ID in the lower right hand display of dash display page #1 as 'Lap Time' and put a check mark next to the LAP indicator.



2. If you are using the Racepak infrared lap beacon transmitter and receiver system to generate lap times then install the transmitter and receiver per the instructions provided.
3. If you are using the Lap Event button to generate lap times then program Digital Input #3 channel as follows:
 - a. Program the Channel Mode as 'Lap Time'
 - b. Program the Vnet ID as 'Lap Marker Button x68B'
 - c. Program the Sensor Type as 'Low Voltage On'



Viewing Lap Times

Each time the beacon receiver is triggered by the IR transmitter or the lap event button is pushed the lap number followed by the lap time will be updated and displayed on the dash. If you wish to view times from previous laps simply press the left or right arrow buttons while in real time mode.

Six Month Limited Warranty on Parts and Workmanship

Purchaser's only remedy and seller's only liability shall be to repair or replace materials provided by the purchaser to be defective and returned to seller with a copy of purchaser's receipt. Seller shall not be liable for any injury, expenses, profits, loss or damage, direct, incidental, or consequential, or any other pecuniary loss arising out of the use or inability to use the product in question even if seller has been advised of the possibility of such damages. Because some states do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

It is purchaser's responsibility to notify seller of suspected defects as soon as purchaser becomes aware of them, and to follow seller's instructions to minimize further damage. Seller is not responsible for damage resulting from purchaser's inaction.

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