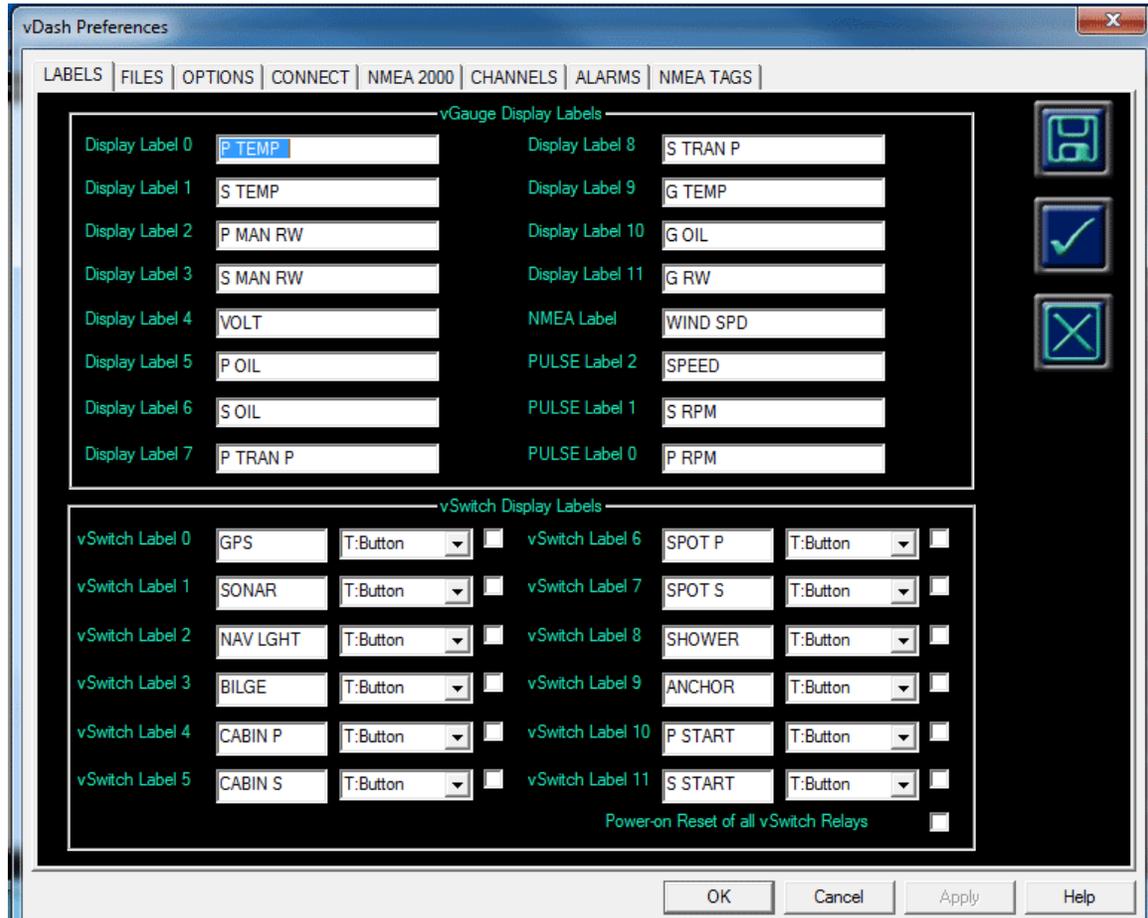


vDash™

Version 3.13.3 User's Manual

Part II – Configuration Screens



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vDash™ is a trademark of Chetco Digital Instruments, Inc.

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Important Product Information

WARNING!

USE THIS UNIT ONLY AS AN AID TO MONITORING ENGINE PERFORMANCE INFORMATION.

CAUTION

When showing sensor data, this unit will only show information based on the sender used and its installed position.

The operating and storage temperature for your unit is from -4 degrees to +167 degrees Fahrenheit (-20 to +75 degrees Celsius). Extended storage temperatures higher or lower than specified will cause the liquid crystal display to fail. Neither this type of failure nor its consequences are covered by the warranty. For more information, consult the factory customer service department.

All features and specifications are subject to change without notice.

Chetco Digital Instruments may find it necessary to change or end our policies, regulations, and special offers at any time. We reserve the right to do so without notice.

All screens in this manual are simulated.

NOTICE!

Free software upgrades will be available on our website at [http:// www.chetcodigital.com](http://www.chetcodigital.com) as they are released. Please check our website periodically for these and other information as they become available.

Thank you for choosing Chetco Digital Instruments

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a

particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the factory customer service department for help.

SPECIFICATIONS

Operating System: Windows XP/Vista/Windows 7

Maximum Update Rate: 1 per second

Supported Units: vGauge/SeaGauge-Remote, vGauge/SeaGaugeG12,
vGauge/SeaGaugeG12C, vGauge/SeaGaugeG18C,
vGauge/SeaGaugeG12N, G24, G24C, G32, G32C,
vSwitch

Firmware Version:..... VGRM3.12, G12R1.14, G12C1.1

Analog Input Channels: 16

Pulse Input Channels:..... 3

NMEA Input Channels:..... 6 (NMEA 0183), optional NMEA 2000

Digital Switch Positions: 12

Display Graphics Options (color): Text, Horizontal Bar Graph, Vertical Bar Graph,
Histogram, Small Dial, Large Full Dial, Large Half
Dial, Extra Large Text.

Display Pages: 8

Digital Interfaces: SERIAL, USB, TCP/IP

LOG File Format: *.CSV, *.TXT (NMEA \$IIXDR)

NMEA 2.0 Instrumentation Sentences \$IIXDR,A \$IIXDR,C \$IIXDR,D \$IIXDR,F
\$IIXDR,G \$IIXDR,I \$IIXDR,P \$IIXDR,R \$IIXDR,S \$IIXDR,T \$IIXDR,U \$IIXDR,V,
\$GPGLL, \$SDMTW, \$SDDBT, \$SDVLW, \$SDVHW

Introduction

Thank you for purchasing a Chetco Digital Instruments product.

vDash™ is a software application utility that provides a virtual dashboard on a Windows XP, Vista or Windows 7 based PC/Laptop. vDash™ works with vSwitch, SeaSwitch, SeaGauge™ and vGauge/SeaGauge™ to allow configuration and data logging via attached serial cable, USB, or Bluetooth wireless interface.

Once installed on your PC/Laptop, vDash™ accepts NMEA 0183 (and optional NMEA 2000 data) from built-in serial ports, parses the recognized sentences and displays the data in a real-time viewer window. Up to 8 display screens can be laid out with a variety of graphic display formats using the point and click interface of attached computer mouse or touch pad. Once the desired formats are configured, vDash™ provides real-time programming of any attached or vGauge/SeaGauge™ product.

vDash™ allows complete configuration and programming of vGauge/SeaGauge™ and via attached PC. Custom user settings are stored in configuration files on the PC and then transferred to the attached units. Unit Firmware updates can also be performed using simple commands.

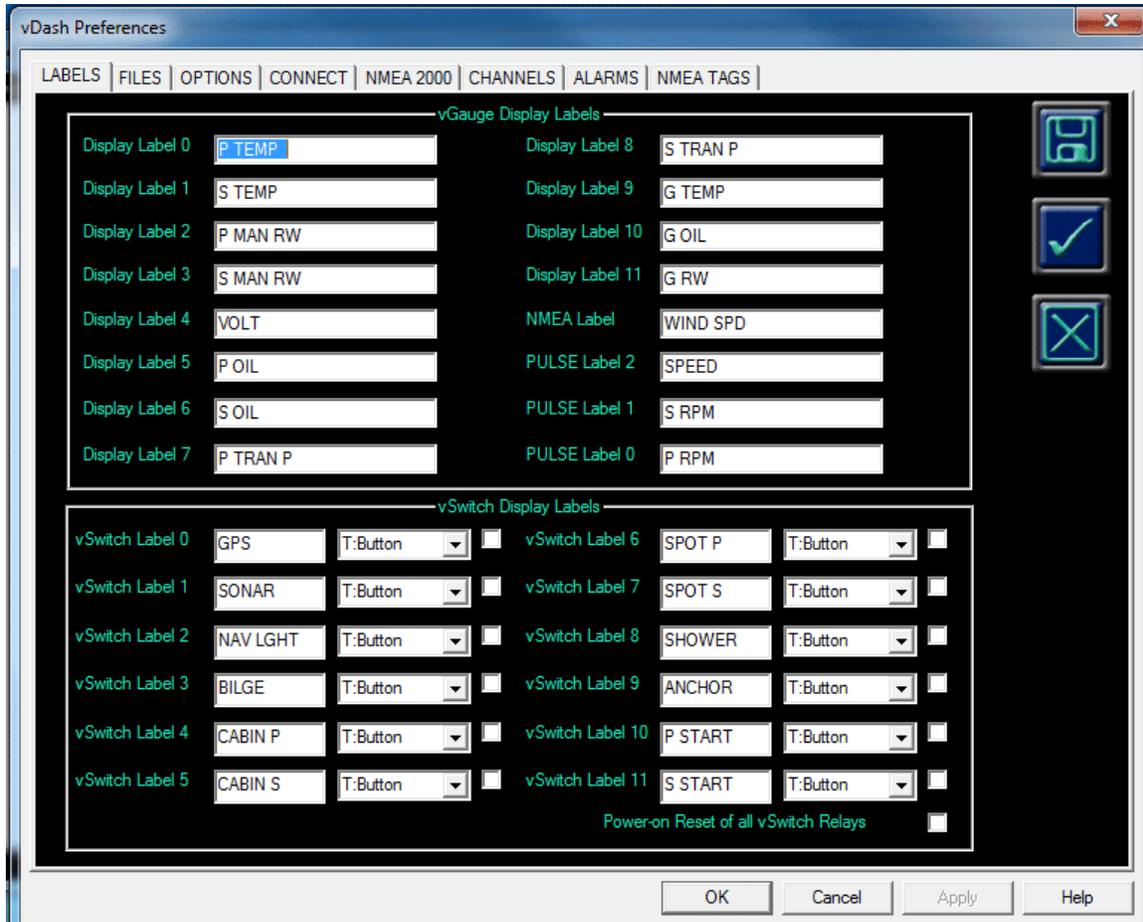
vDash™ provides real-time data logging of sensor data to host PC or optional USB memory stick from vGauge/SeaGauge-Remote units via USB or wireless interfaces.

Configuration Screens Overview

vDash will allow for complete configuration and programming of vGauge/SeaGauge™ units. A series of configuration screens can be accessed via the



SETTINGS icon in the lower right corner of the tools palette.



After selecting the SETTINGS icon, a tabbed property sheet allows selection of the desired settings to view or modify.

The following preference sheets are available.

vDash User's Manual

The following table describes the basic functions of the vDash Utility.

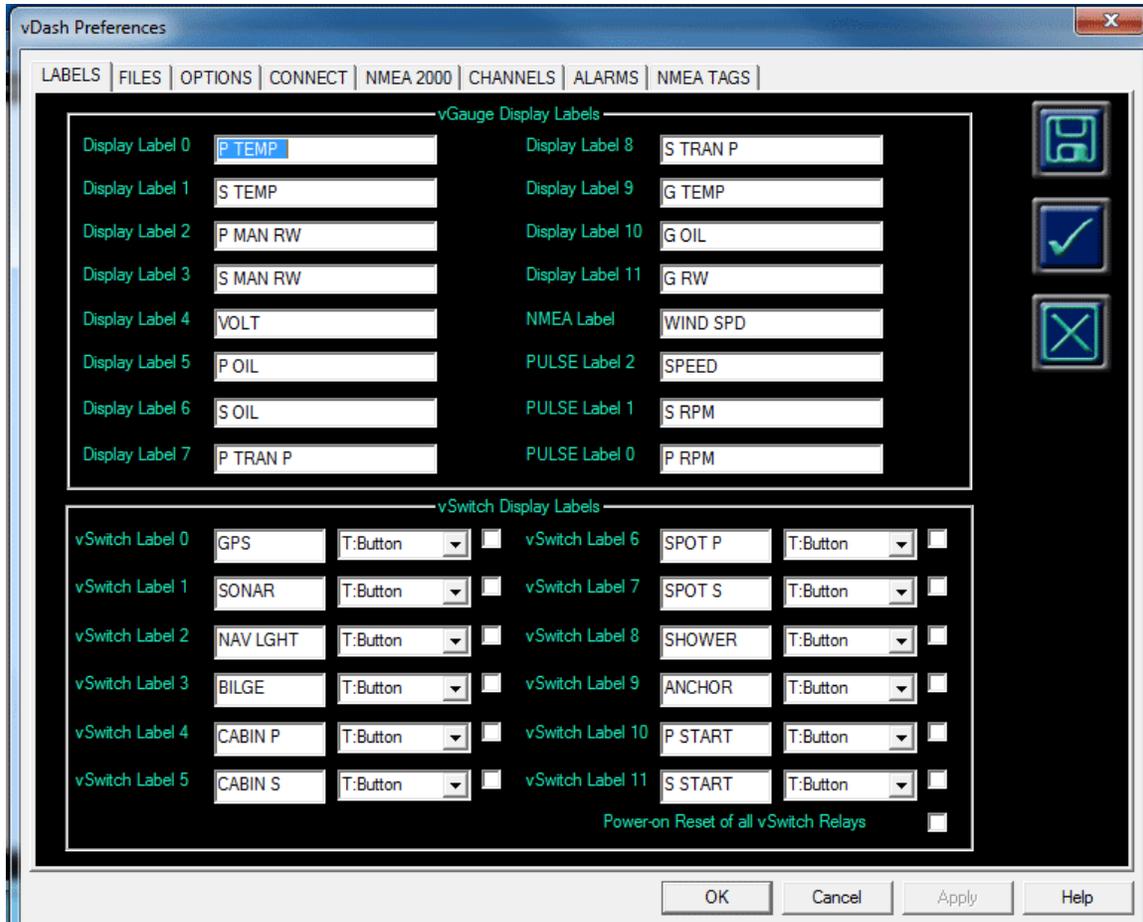
| Sheet | Function |
|------------------|---|
| Labels | Allows for choosing custom sensor labels up to 8 characters |
| Files | Allows choosing file locations and names for various configuration files and calibration tables used by vGauge/SeaGauge |
| Options | Creates an options file used by vGauge/SeaGauge and allows for choosing a file location and name of existing file |
| Connect | Configures the type of connection used to communicate with vGauge/SeaGauge-Remote or vGauge/SeaGauge display heads. It is important to select correct matching communication speeds (BAUD) between devices. |
| NMEA 2000 | Configures the Remote Sensor Unit to source (output) or accept (input) NMEA 2000 data by assigning a PGN number to each channel. |
| Channels | Creates an channels file used by vGauge/SeaGauge and allows for choosing a file location and name of existing file |
| Alarms | Creates an alarms file used by vGauge/SeaGauge and allows for choosing a file location and name of existing file |
| NMEA Tags | Allows configuration of NMEA tags to search for and parsing information for data fields. Also provides for initialization of hour meters and date/time functions. Information is stored in Display Labels file. |

Labels Configuration Screen

vDash will allow for complete configuration and programming of vGauge/SeaGauge™, vSwitch™ units. A series of configuration screens can be accessed via the SETTINGS icon



in the lower right corner of the tools palette.



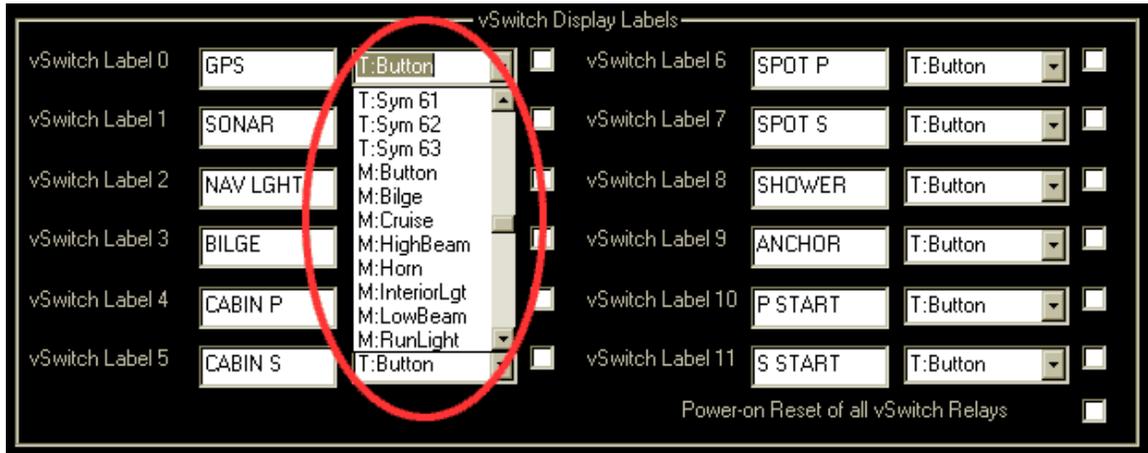
Sensor display labels are user configurable and can be up to 8 characters. The Labels Preference screen allows for entry of text via keyboard into appropriate fields for any of the 16 sensor inputs. These can be labeled in any language that a keyboard outputs.

Text entry allows for upper and lower case letters, numbers, and other symbols such as +, -, ?, <, > and so on.

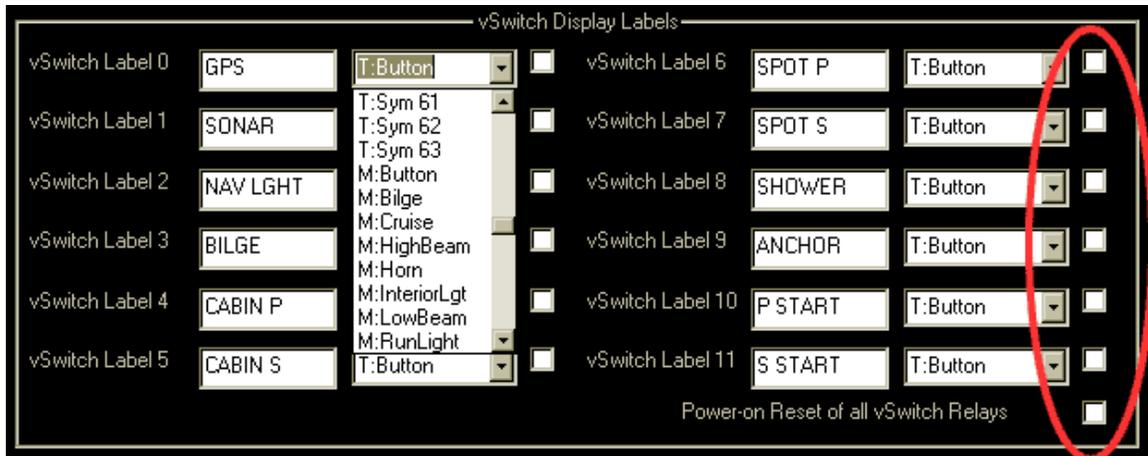
An additional 12 labels can be defined to match relays on a vSwitch module if installed or for 12 indicators lights if no switch module is attached. vSwitch or indicator labels are maximum of 8 characters.

SWITCH ICONS

Switch Buttons can be configured to display push buttons or graphic symbols. Use the drop-down menu next to each switch label to choose the graphic symbol. Symbols prefixed with "T:" are toggle functions and "M:" are momentary functions. Toggle functions stay set when pressed until reset while momentary is only active while being touched.



A check box after each vSwitch label can be used to force the initial state of the selected relay to be in the ON state (if checked) after power up.



If the **POWER-ON RESET** box is not checked (disabled), relays will power-on to the previous state stored in non-volatile memory before power loss.

If the **POWER-ON RESET** box is checked (enabled), relays will always power on the state indicated by the initial state check box after each switch label.

The Display Labels are stored in a configuration file specified in the Files Preference sheet



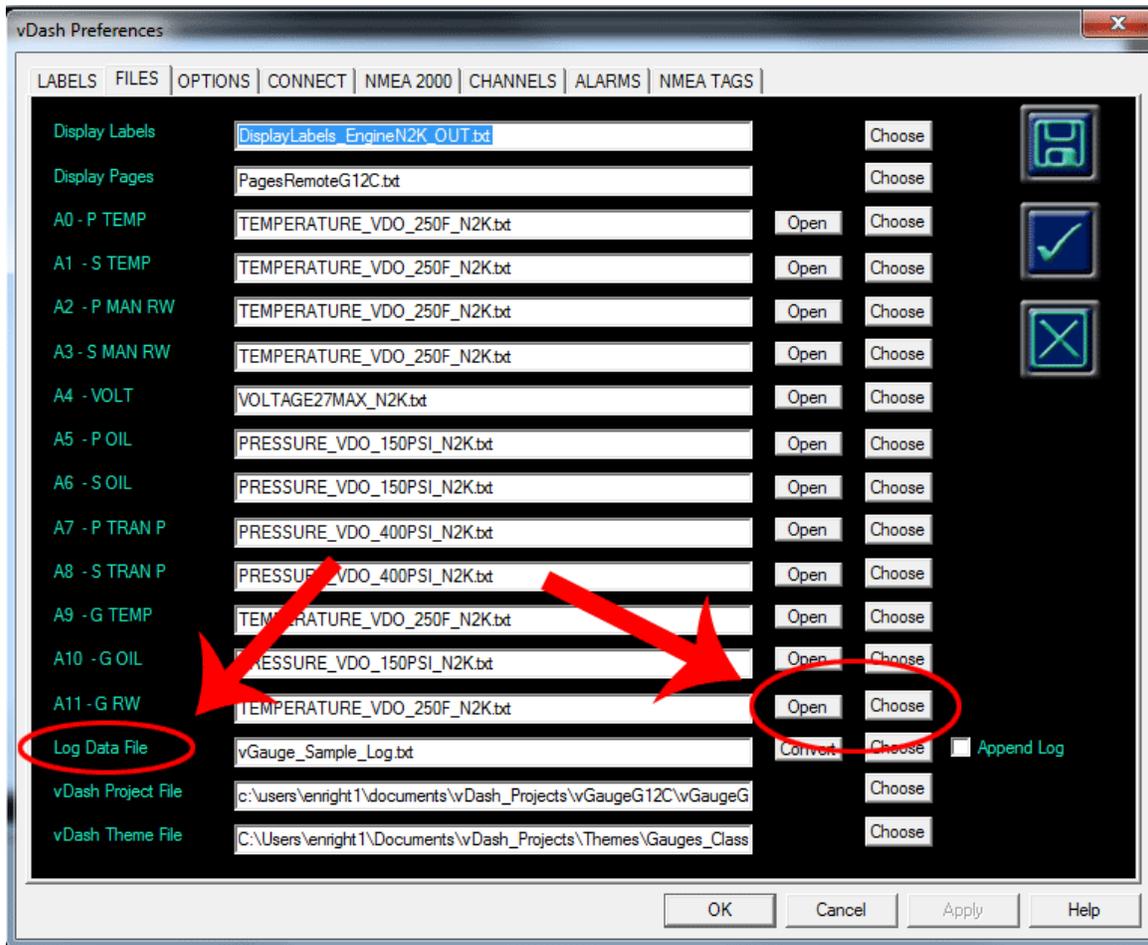
but are not saved until the SAVE icon is selected. Any updates to Display labels on

this sheet will appear in all configuration pop-up menus and other preference sheets after the sheet is closed.

Files Configuration Screen

In most cases no modification to project files will be required. If modification is required follow the following instructions. Any questions please contact your installer or tech support 1-541-469-4783.

vGauge/SeaGauge™ units are programmed by a set of configuration files. The Files configuration screen allows for choosing the location and names of the files.



The CHOOSE button allows for selection of file location and specification of file names. Using the CHOOSE button will bring up a standard Save File dialog and update the file path field when completed.

The OPEN button allows choosing and opening a calibration file for editing.

vDash User's Manual

The Log Data file is used for real time data logging and playback. The Choose button allows specifying a file location and name for this function.

If the file extension for the LOG file is “.txt” – the format for the log file data will be NMEA 0183 \$IIXDR type of sentences. This format is compatible with vGauge/SeaGauge units and vDash for playback of recorded data files.

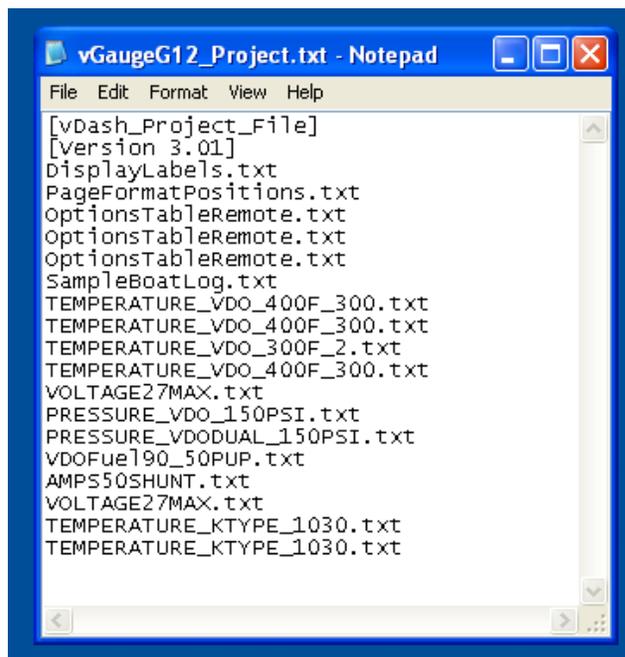
A file extension of “.csv” will generate a comma separated file format compatible with common spreadsheet programs. This format will display all active sensors on the first line of each logging session followed by calibrated and raw sensor data separated by commas on each additional line.

All log files are appended to for each recording session. Choosing a different file name will start then next recording session in a new file.

After a log file is created – if the file properties are changed to **READ-ONLY**, that log file can then be used for playback to vDash or vGauge/SeaGauge units.

Project File

A vDash Project file is a text file that contains a list of all current configuration files. Choosing and saving a vDash Project file allows configuration of separate vGauge/SeaGauge units without having to recreate the file list. You will be prompted for a Project file the first time the application is opened. If no Project file exists, simply enter a name and path a new file will be created. After initial creation, the name and location of the current Project file will be stored.

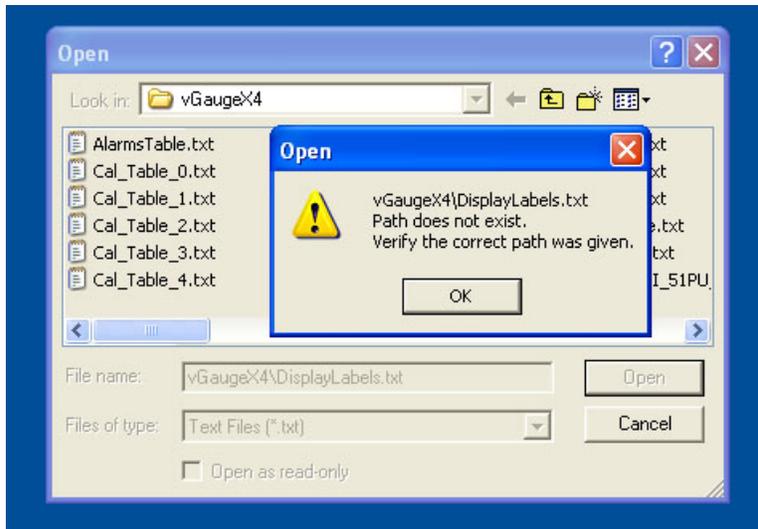


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When creating a new vDash Project file, you will be asked for the names and locations of all other configuration files

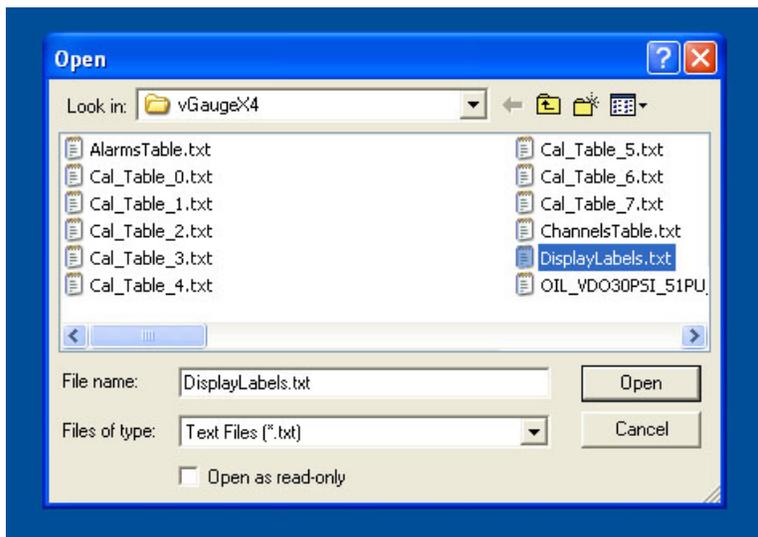
After creating a new Project File you should close the application and restart to ensure all changes take effect.

When changing vDash Project files, you may receive an error message indicating the path to a file does not exist.



This can happen because the current directory is pointing to the folder the application is stored in and not the folder for the configuration files. In this example the program is looking for a file called “DisplayLabels.txt” in a subfolder called “vGauge/SeaGaugeX4” which doesn’t exist in the directory “vGauge/SeaGaugeX4”.

To resolve the error, simply select the correct file name in the OPEN FILE dialog box

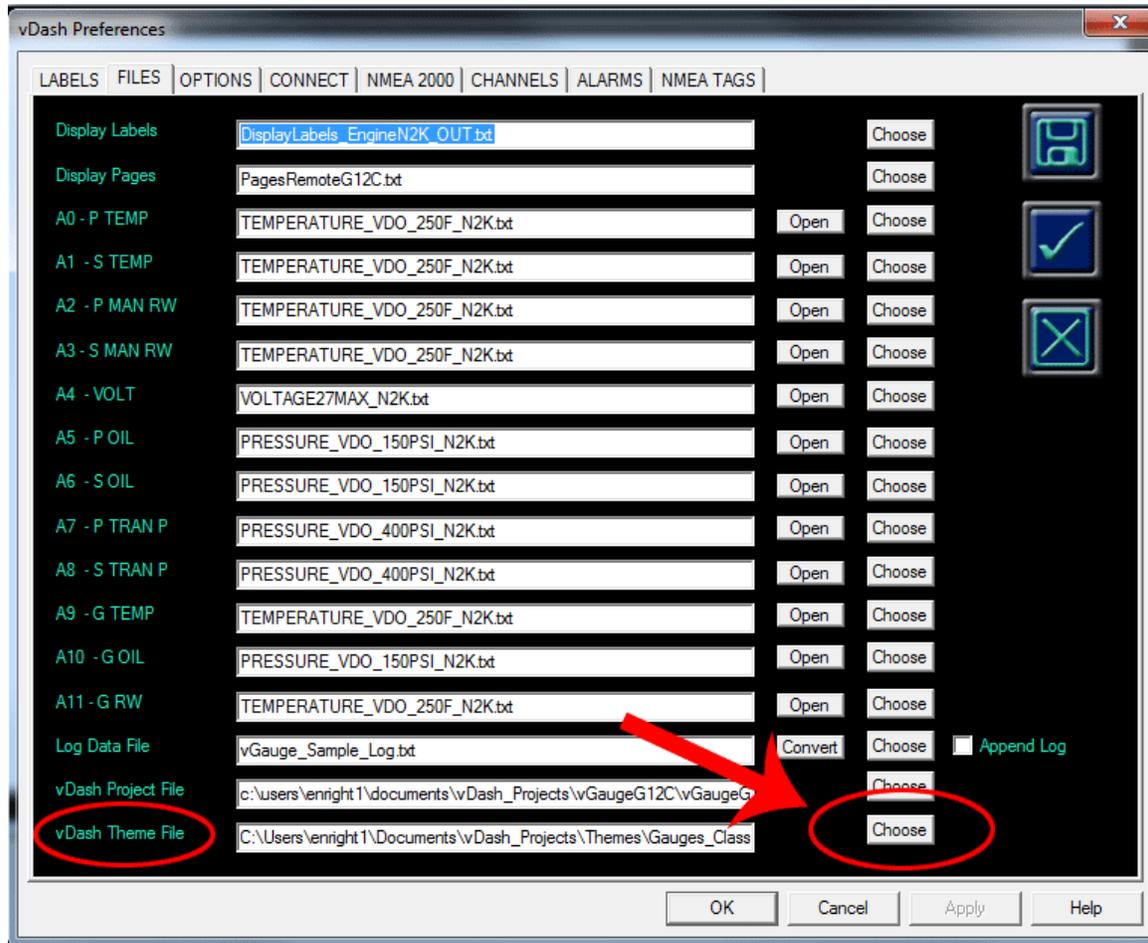


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Theme File

Defines the path to the select Theme Definition file. Once selected, the vDash program must be restarted to load desired Theme.

THEMES directory is contained in the vDash Projects Folder. Subdirectories within the THEMES folder hold the many possible themes styles. Be sure not to move any of these subfolders out of the main Themes directory.



Options Configuration Screen

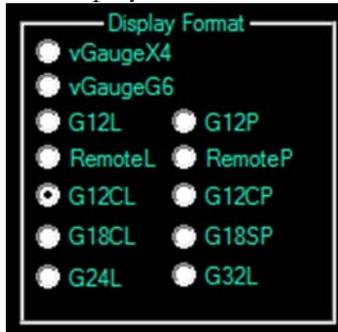
Each vGauge/SeaGauge™ unit requires an OPTIONS file to be loaded for proper configuration. The Options Configuration screen allows for proper selection of various parameters and creates a properly formatted Options file for later loading (FLASH) to the unit. The dialog also allows for selection of an existing Options file.



The OPTIONS panel contains several sections for configuration of vGauge/SeaGauge-Remote and vGauge/SeaGauge Display heads. Not all units use the same options so some settings may change depending on selection.

The Display Format

The display format section is used to select which type of unit is being programmed.



Select the display type to match the desired screen resolution. Screen resolutions determine the number of graphic elements and layouts. After choosing a Display Format and saving the Options File, vDash will automatically resize to a fixed screen resolution. Computer screen resolutions are fixed and can only be modified by choosing different Display Formats.

The following resolutions are available.

vGaugeX4 – 20X4 characters

vGaugeG6 – 240X128

G12L – 320x240

G12P – 240x320

RemoteL 320x240

RemoteP 240x320

G18CL 480x272

G18CP – 272x480

G24Dial – 640x480

G32 – 800x600

Depending on the Display Format chosen, there may be conditions when the vDash screen will not completely fit the computer monitor. For example, a Computer resolution of 800x600 will show only part of the vDash screen if set to G24 or G32 formats. To see the entire vDash screen with tool buttons, set the computer resolution to 1280 x 800 or higher. If your computer screen does not support high resolution, you may not be able to format the larger display formats. In this case choose a smaller screen such as the G12C.

The vGauge/SeaGauge Remote buttons are set for 320 X 240 pixels

Options Section



The Options section allows enabling various status messages on the NMEA 0183 output. These messages can be displayed in the vDash title bar used by other connected device.

Since status messages take longer to transmit, they can be individually disabled if not needed to improve performance.

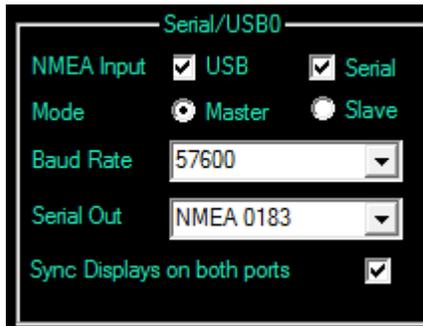
VERSION STATUS MSG – Display current Remote Sensor unit Firmware information in the status bar.
SWITCH STATUS MSG – Enables output of status messages for switch or indicator module. If enabled, current switch or indicator status is output on both ports using format specified. Used by Remote Switch unit to control relay states. Disable if not using a Remote Switch unit.

TACH HOURS MSG – Displays the current tachometer Hours in the vDash Title bar. Outputs current Hour Meter status on selected ports

CLOCK STATUS MSG – Displays the Real Date and Time message from the Remote Sensor unit. The Clock is battery backup so it keeps track even when the power is off. Since the clock updates every second, it can be useful in verifying communication with the Remote Sensor unit.

ENABLE HTTP OUTPUT – Special mode which enables output of data in HTTP POST format. If enabled, serial data will be appended with HTTP POST header compatible with common WEB servers. Only applies to Port 1 output in NMEA 0183 mode. This mode will allow data to be written directly to a HTML document for remote viewing with standard WEB browsers.

SERIAL/USB0 Section



This section is used to configure the Serial Port on the vGauge/SeaGauge-Remote unit or vGauge/SeaGauge Display head. If your PC does not have a serial port available, a Serial to USB adapter can be used on this port (CDI part #VGUSBS002).

BAUD RATE – Determines the communication speed for the serial port. The Speed of the serial port must match the speed of the attached device (Computer, NMEA 0183 device, or Display Head) . Most devices use a default rate of 57600 but other rate may need to be selected. This is especially true for NMEA 0183 devices which may only support 4800 to 38400 baud rates. Consult the specifications of the attached device and set the Baud Rate to match. Serial Port 0 and Serial Port 1 may have different Baud rates.

SERIAL OUT – Sets the proper data format for the Serial output. Many different options are available for each port and they can be set independently. The primary purpose is to choose between Color Display Heads, NMEA 0183 and NMEA 2000 data formats. NMEA 0183 – a industry standard text format that allows devices such as GPS units, Sonar Units and Communications equipment to share and display data.

Disabled - Inhibits any output on the Serial port

NMEA 0183 is a older style plain text format that was widely adopted in the marine industry for interdevice communications. NMEA 0183 is the primary format used by vDash for transmitting and receiving data via Computer Serial and USB ports. You must select NMEA 0183 if connecting to host PC. When using NMEA 0183, then baud rates for both units must match.

NMEA 2000 - is a newer industry standard for networking many devices on a common backbone cable. NMEA 2000 has the advantage of easily adding multiple devices using a robust cabling scheme and standardizes the messaging protocol for integration various equipment. Setting the Serial Port to NMEA 2000 mode is only valid if using an attached Chetco Digital Instruments NMEA 2000 adapter. When set to NMEA 2000 mode, the serial port outputs a custom protocol. **YOU CAN NOT ATTACH DIRECTLY TO A NMEA 2000 NETWORK WITOUT A PROPER ADAPTER.**

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vSWITCH COMMAND – A custom NMEA 0183 protocol for communication with a Remote vSwitch Unit connected to the Serial port. Can only be used by vSwitch units to activate relays in response to vDash or Color Display commands. Allows vSwitch units to be located up to 300' from Remote Sensor units and controlled via touch screen.

G12C Landscape – Sets port to communicate with G12C displays in Landscape mode. This custom protocol can only be used with Chetco Digital G12C color display heads. G12C displays have a resolution of 320 x 240. This mode generates the correct format for placement of graphic elements at this resolution.

G12C Portrait – Sets port to communicate with G12C displays in Portrait mode. This custom protocol can only be used with Chetco Digital G12C color display heads. G12C displays have a resolution of 240 x 320. This mode generates the correct format for placement of graphic elements at this resolution.

G18C Landscape – Sets port to communicate with G18S displays in Landscape mode. This custom protocol can only be used with Chetco Digital G18S color display heads. G18S displays have a resolution of 480 x 272. This mode generates the correct format for placement of graphic elements at this resolution.

G18C Portrait – Sets port to communicate with G18S displays in Landscape mode. This custom protocol can only be used with Chetco Digital G18S color display heads. G18S displays have a resolution of 272 x 480. This mode generates the correct format for placement of graphic elements at this resolution.

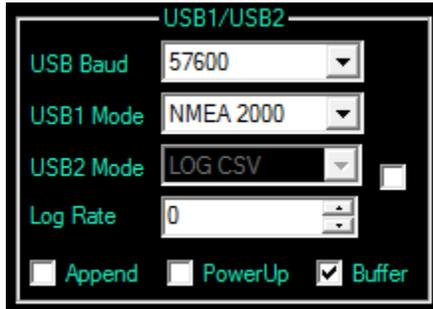
G24C Landscape – sets port to communicate with G24C displays in Landscape mode. This custom protocol can only be used with Chetco Digital G24C color display heads. G24C displays have a resolution of 640 x 480. This mode generates the correct format for placement of graphic elements at this resolution.

G32C Landscape – sets port to communicate with G32C displays in Landscape mode. This custom protocol can only be used with Chetco Digital G32C color display heads. G12C displays have a resolution of 800 x 600. This mode generates the correct format for placement of graphic elements at this resolution.

Sync Displays – When using two display heads connected to both Serial Port 0 and Serial Port 1, it may be desired to have both displays use the exact same gauge layout. Enabling this option allows the first 8 display page formats to be copied to the second 8 pages so that both ports output the same formats when using color display heads connected directly. If this option is selected (checked) you must save the Display Pages to copy the formats and sync both ports.

If this option is not selected (unchecked) each display port can have different Page Layouts (first 8 for Serial Port 0 and second 8 for Serial Port 1). If two different Color Display Heads are used, you must format the first set with the proper Display Format and then switch the Display Format for the second set to see the proper layout.

USB1/USB2 Section



This section is used to configure the USB ports on vGauge/SeaGauge-Remote or vGauge/SeaGauge Display heads. vGauge/SeaGauge-Remote contains two directional USB ports while vGauge/SeaGauge Display heads contain a single USB port.

USB ports can be MASTER or SLAVE. Most computer USB ports are MASTER while devices that attach to them are SLAVES (printers, memory sticks) vGauge/SeaGauge Display head USB ports are SLAVE and can attach directly to any PC USB port for programming. vGauge/SeaGauge-Remote USB ports are configured as MASTER to allow Display Heads to directly attach to them. This presents a problem in that a vGauge/SeaGauge-Remote USB port can not be directly connected to a PC USB port without a special adapter that allows two MASTER USB ports to communicate. Chetco Digital Instruments has developed several types of USB adapters that will allow connection to HOST PC USB, ETHERNET, BLUETOOTH, or WI-FI types of interfaces. Consult you vGauge/SeaGauge-Remote manual or contact Chetco Digital Instruments to obtain information on these products.

BAUD RATE – Determines the communication speed for the serial port. The Speed of the serial port must match the speed of the attached device (Computer, NMEA 0183 device, or Display Head) . Most devices use a default rate of 57600 but other rate may need to be selected. This is especially true for NMEA 0183 devices which may only support 4800 to 38400 baud rates. Consult the specifications of the attached device and set the Baud Rate to match. Serial Port 0 and Serial Port 1 may have different Baud rates.

USB1 MODE - This setting is used to configure the data format and mode for the primary USB port on vGauge/SeaGauge-Remote units.

Disabled - Disables all transmission out of the USB port. Does not effect input of data on USB. Can be used to improve performance if the primary USB port is not being used.**NMEA 0183** - Enables NMEA 0182 \$IIXDR data transmission required by vDash and older G12 display heads. This mode must be selected if using vDash to monitor data or configure units on this port.

NMEA 0183 is a older style plain text format that was widely adopted in the marine industry for interdevice communications. NMEA 0183 is the primary format used by vDash for transmitting and receiving data via Computer Serial and USB ports.

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You must select NMEA 0183 if connecting to host PC. When using NMEA 0183, then baud rates for both units must match.

NMEA 2000 - is a newer industry standard for networking many devices on a common backbone cable. NMEA 2000 has the advantage of easily adding multiple devices using a robust cabling scheme and standardizes the messaging protocol for integration various equipment. Setting the Serial Port to NMEA 2000 mode is only valid if using an attached Chetco Digital Instruments NMEA 2000 adapter. When set to NMEA 2000 mode, the serial port outputs a custom protocol. **YOU CAN NOT ATTACH DIRECTLY TO A NMEA 2000 NETWORK WITOUT A PROPER ADAPTER.** NMEA STATUS – Special version of the NMEA 0183 protocol for Remote Sensor units equipped with dual USB Master ports. When using both USB ports (Data logging via USB2) The USB1 port must be disabled or set to NMEA STATUS mode. NMEA STATUS mode is uni-directional with communication out only. Programming of the Remote Sensor unit can not be done in this mode.

vSWITCH COMMAND – A custom NMEA 0183 protocol for communication with a Remote vSwitch Unit connected to the Serial port. Can only be used by vSwitch units to activate relays in response to vDash or Color Display commands. Allows vSwich units to be located up to 300' from Remote Sensor units and controlled via touch screen.

G12C Landscape – sets port to communicate with G12C displays in Landscape mode. This custom protocol can only be used with Chetco Digital G12C color display heads. G12C displays have a resolution of 320 x 240. This mode generates the correct format for placement of graphic elements at this resolution.

G12C Portrait – sets port to communicate with G12C displays in Portrait mode. This custom protocol can only be used with Chetco Digital G12C color display heads. G12C displays have a resolution of 240 x 320. This mode generates the correct format for placement of graphic elements at this resolution.

G18C Landscape – sets port to communicate with G18S displays in Landscape mode. This custom protocol can only be used with Chetco Digital G18S color display heads. G18S displays have a resolution of 480 x 272. This mode generates the correct format for placement of graphic elements at this resolution.

G18C Portrait – sets port to communicate with G18S displays in Landscape mode. This custom protocol can only be used with Chetco Digital G18S color display heads. G18S displays have a resolution of 272 x 480. This mode generates the correct format for placement of graphic elements at this resolution.

G24C Landscape – sets port to communicate with G24C displays in Landscape mode. This custom protocol can only be used with Chetco Digital G24C color display heads. G24C displays have a resolution of 640 x 480. This mode generates the correct format for placement of graphic elements at this resolution.

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G32C Landscape – sets port to communicate with G32C displays in Landscape mode. This custom protocol can only be used with Chetco Digital G32C color display heads. G12C displays have a resolution of 800 x 600. This mode generates the correct format for placement of graphic elements at this resolution.

USB2 Enable – When using a Remote Sensor unit with dual USB Master ports, USB2 can be disabled if not performing data logging operations. This allows USB1 to operate in bi-directional mode so that programming can be done over the USB interface. This option has no effect for Remote Sensor unit not equipped with dual USB Master ports.

LOG TXT – Logs data to USB Memory stick in plain text file format. Each NMEA 1083 \$IIXDR message is fully written to log file. This file can be later used to play back recorded data in the vDash screen.

LOG CSV – Logs data in comma separated (csv) format with sensor labels and data in column format suitable for analysis in spreadsheet applications.

NMEA STATUS - This mode allows two G12 style display heads to be attached on both USB1 and USB2 ports. This mode can not be used for G12C or G18C displays. vDash can be used to display gauges when using appropriate USB adapter but can not perform programming operations on this port.

vSWITCH COMMAND – A custom NMEA 0183 protocol for communication with a Remote vSwitch Unit connected to the Serial port. Can only be used by vSwitch units to activate relays in response to vDash or Color Display commands. Allows vSwich units to be located up to 300' from Remote Sensor units and controlled via touch screen.

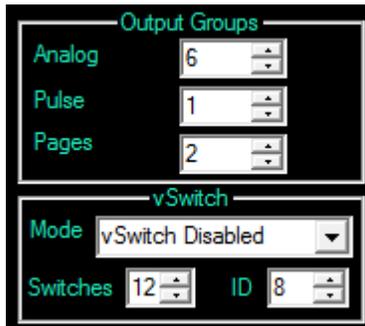
Log Rate – When performing data logging on USB2, the sample rate can be set to record every data message or skip the desired number of messages. For example, setting log rate to 10 will skip ten messages and record only the 11th. In this fashion the log file size can be significantly reduced if not desiring to record data every second. Setting to 0 will record all messages.

Append – If enabled (checked) will append data to existing log file for each record session. If disabled (unchecked) will create a new log file with each record session. Log file names are encoded with current date and time to uniquely identify them.

Power Up – If enabled (checked) will automatically start a data logging session on Power Up or reset of the Remote Sensor unit. If disabled (unchecked) Data logging will only be started by command.

Buffer – If enabled (checked) performs buffered writes to USB Memory device. Buffered writes can speed up access to devices which might otherwise skip messages if fragmented or slow. However, buffered writes can truncate recording if device loses power or is reset. If disabled (unchecked) each record is written by opening and closing log file. This can decrease overall performance.

INPUTS Section



Used to configure the number and types on data inputs for vGauge/SeaGauge-Remote and vGauge/SeaGauge Display heads

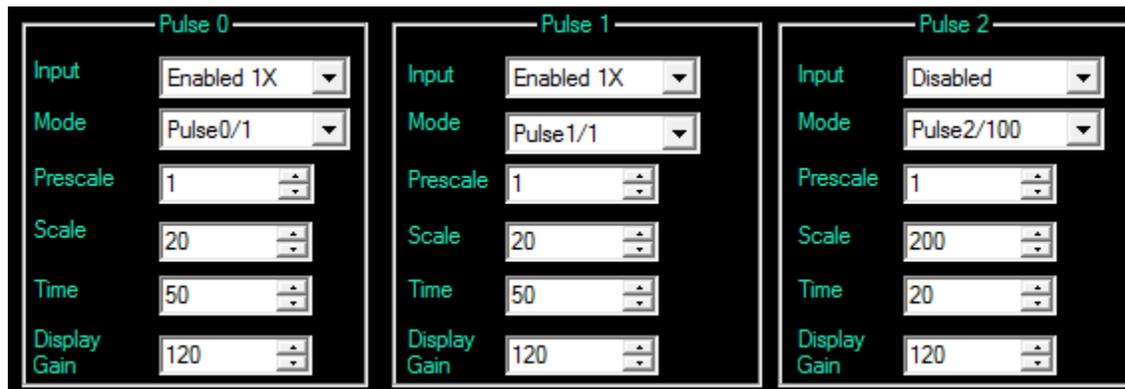
ANALOG – vGauge/SeaGauge-Remote units can accept up to 12 analog inputs while some vGauge/SeaGauge display heads can accept up to 4 analog inputs. Most display heads can not accept any analog inputs. Set to 12 for default.

NMEA – All vGauge/SeaGauge units accept some NMEA 0183 types of inputs such as \$IIXDR and GPS sentences on separate channels. This setting is used to assign selected NMEA inputs to unused channels on vGauge/SeaGauge-Remote units. Normally, vGauge/SeaGauge-Remote units have 12 analog inputs and 2 Pulse inputs thus leaving 2 spare channels for NMEA inputs. It is possible to decrease the analog input channels to 8 and increase the NMEA inputs to 6 by adjusting these parameters. **THIS OPTION HAS NO EFFECT ON vGauge/SeaGauge DISPLAY HEADS.**

PAGES – Gauge configurations are contained in a set of up to 8 customized pages which can be sequenced using front panel buttons or touch screens. This parameter controls the number of pages before cycling back to the first page. This setting should be the same for both vGauge/SeaGauge-Remote units and attached vGauge/SeaGauge Display Heads.

SWITCHES – This parameter controls the number of vSwitch pushbuttons displayed on the main screen. A vSwitch module must be installed in the vGauge/SeaGauge-Remote unit for any remote switching functions to become active. Any changes will not take effect until the next time the vDash program is started.

PULSE Section



Each vGauge/SeaGauge unit has one to three pulse inputs normally used for RPM or MPH functions. The calculated display value is based on the number of pulses received within a 0.5 second interval multiplied by the **PULSE SCALE** factor. The Pulse **TIME** Constant is used to control averaging pulses; larger value performs more averaging and can slow down s. If not using a Pulse Input, set the **INPUT** to disabled. Pulse inputs enabled with 2X to 8X multiplier increase the collection time interval from 0.5 seconds up 4 seconds thus increasing the resolution for slower pulse inputs.

Pulse 2 is a special case for vGauge/SeaGauge display heads as it provides the base timing for display updates

INPUT – Enables and sets the sample interval for determining pulse rate. The default value of 1X calculates pulse rate within a one second interval. The more pulses received, the better the accuracy. However at very low RPM's the number of pulses received in 1 second may be too low to achieve good resolution. This can be improved by increasing the interval (up to 4 seconds) at the expense of slowing the responsiveness to dynamic conditions. Changes in Interval Sampling will require similar adjustment in scale factor to maintain correct Tachometer readings.

Used to enable Pulse input and determines the amount of time used to calculate pulse rates.

Disabled – Turns off pulse calculations and can improve performance if not needed.

Enabled 1X – performs pulse rate calculations and base update rate of 1 second.

Enabled 2X – performs pulse rate calculations and base update rate of 2 seconds. Improves slower pulse rate accuracy with increased latency.

Enabled 4X – performs pulse rate calculations and base update rate of 4 seconds. Improves slower pulse rate accuracy with increased latency.

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TimeBase2 – Resets unit time base from default of 1 second to 0.5 (1/2) second. Allows faster display updates and data logging if using fewer inputs. CAN CAUSE UNIT INSTABILITY IF TOO MANY INPUTS ARE ENABLED. **USE WITH CAUTION.**

TimeBase3 – Resets unit time base from default of 1 second to 0.33 (1/3) second. Allows faster display updates and data logging if using fewer inputs. CAN CAUSE UNIT INSTABILITY IF TOO MANY INPUTS ARE ENABLED. **USE WITH CAUTION.**

TimeBase4 – Resets unit time base from default of 1 second to 0.25 (1/4) second. Allows faster display updates and data logging if using fewer inputs. CAN CAUSE UNIT INSTABILITY IF TOO MANY INPUTS ARE ENABLED. **USE WITH CAUTION.**

MODE – Sets how the pulse inputs are calculated

Pulse0/1 – Default setting where pulse input is only multiplied by Scale value. This is the most common mode for simple tachometers.

Pulse0/10 – Pulse input is multiplied by Scale factor and divided by 10. Useful for higher pulse rate sources such as speedo.

Pulse0/100 – Pulse input is multiplied by Scale factor and divided by 100. Useful for very high pulse rates such as fuel flow sensor units.

P0-P2/1 – Pulse 2 input is subtracted from Pulse 0 input and then multiplied by Scale factor. Useful for engine synchronizer functions where the difference between two tachometers is desired.

P0-P2/10 – Difference of P0 and P2 is multiplied by Scale factor and divided by 10. Useful for higher pulse rate sources such as speedo.

P0-P2/100 – Difference of P0 and P2 is multiplied by Scale factor and divided by 100. Useful for very high pulse rates such as diesel fuel flow where dual sensors are required to determine fuel rate.

P0 Totalizer – Counts the total number of pulses until manually reset – Used for totalizer functions such as odometers and fuel usage. The count is multiplied by Scale factor

P0-P1 Totalizer – Subtracts P1 pulse count from P0 and accumulates the total. Used for fuel usage on diesel engines where separate fuel return lines to supply tank are implemented.

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(P1-P0) SYNC - Special mode where the P2 Gauge displays the difference Pulse 0 and Pulse 1. This option is used to display an engine synchronizer along with dual tachometers.

PRESCALE - is used to divide incoming pulses before measurement. This is very useful on inductive pickups which count gear teeth on flywheels and can be 100 – 200 times the actual value. Use this setting to divide incoming pulses from 1 to 256.

SCALE - is used to multiply the measured pulse rate by a constant values to generate the correct display value.

For example – an 8 cylinder engine generates 4 sparks (pulses per revolution). One revolution per minute (1 RPM) = 4/60 pulses per second. Therefore, to display the calibrated RPM for an 8 cylinder engine = Pulse Rate X (60/4) = Scale of 15.

A six cylinder engine generates fewer pulses per second (3) and therefore requires a larger SCALE value (20) to give the correct RPM

TIME - is used average pulse calculations to decrease noise. Larger TIME values perform more averaging but also increase latency. Normal values are 50-75.

DISPLAY GAIN scales the graphic indicators to a desired range without changing the actual digital readout. Tachometers can have display range from 3000 to over 10000 while speedometers may only go up to 100. To accommodate this wide range of display options, use the DISPLAY setting to scale the dial range. A higher value will max the display indicator sooner than a smaller value. Start with a setting of 1 and increase if the dial indicator does not travel full range.

OUTPUT Groups Section



Sets the number of channels output in a single update interval.

ANALOG - The default (12) will output all twelve analog channels at one interval (1 second) However updates can be split up into separate groups by decreasing the group number. For example, changing the analog group to 6 will output six channels (0-5) in one interval and the next six (6-11) in the following interval. Analog Group value of 2 would output channels 0-1, followed by 2-3, and 4-5, and so on. This mode is useful slow down the output rate so other equipment (NMEA 2000/0183 device can keep up) Normal mode is set to 12 so all possible channels are output in a single interval.

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PULSE - Value is independent of the Analog Group value and applies only to the three pulse inputs. The default value of four (4) output all three Pulse vales in one update interval. A value of one (1) outputs a single channel at a time. Used to slow down output rate so attached devices can keep up. Default value is 4, all pulse inputs are output in a single interval.

PAGES - The number of display pages enabled. Value ranges from 1 to 8. When the last page is displayed, the next page cycles back to the first page.

vSwitch Section



The vSwitch section controls the Switch or Indicator Module attached to the Auxiliary port on the Remote Sensor Unit. The number of Switches or indicators is set from 0-12. The value controls the number of switches or indicators displayed in vDash or Remote display heads.

MODE:

Disabled – Both Switch and Indicator Display are disabled

Indicator Mode – Enables the display of Indicator Status in the Tool Pallet of the vDash main screen or the vSwitch Page of a color display head. Indicator inputs are voltage levels from 0 – 12 V with voltages greater then 1V causing a ON status and less then 1V a OFF status. Labels for Indicators are assigned using the vSwitch Labels page in the Preferences Dialog. Indicator mode and vSwitch Mode can not be enabled at the same time.

Indicator Bar – Is a special Indicator Status mode that displays a separate bar at the bottom of each page on the vDash window or Display Head. The bar contains up to two rows of six indicators depending on the number enabled. The position of the bar is fixed at the bottom of each page and can only be repositioned by modification of the Theme definition file.

vSwitch Remote (serial) – Enables vSwitch commands to be passed through the selected serial port to provide switch state status. This mode allows a color display head or vDash to send switch on/off commands via one Port and pass through to the other Port to control a separate vSwitch unit. This mode is useful when controlling a separate switch unit via NMEA 2000 interface but can also be used for NMEA 0183 as well. Switch Status from the separate remote switch unit is passed back to the vDash or Display head to provide positive status information.

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vSwitch Direct – Specifies control of a directly connected vSwich Module via the Auxiliary port. Switch command and status is passed directly to the Aux port to control relays.

vSwitch ID – Sets a unique ID number for Switch/Indicator module. Important when used with NMEA 2000 interfaces to allow control of specified units since all devices are connected via a common interface. The Switch Control/Status commands must have matching ID numbers in order to be recognized.

ALARMS Section



Alarm functions can be globally enabled or disabled by setting the **ALARMS** radio buttons. If driving a pizo alarm directly then choose **ACTIVE HIGH**. Other wise if driving a high current alarm through a relay choose **ACTIVE LOW**.

ENABLE – Enables common alarm output on Remote Sensor Interface unit. Active when any alarm condition is set

DISABLE – Disables common alarm output

ACTIVE HIGH – Sets Common Alarm output to high voltage (+5V) when any alarm condition is set and 0V when not set

ACTIVE LOW – Sets Common Alarm output to low voltage (0V) when any alarm condition is set and high voltage (+5V) when not set

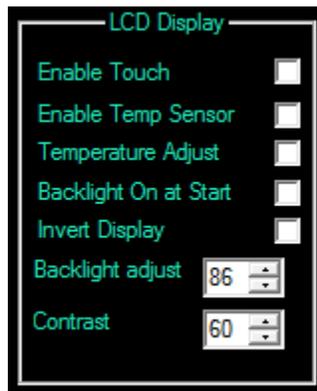
vDash Alarm – Enables a audio alarm from the vDash when ever any alarm condition is set. The computer audio output must be enabled.

Update Rate Section



Sets the update interval from 1 second (1X) or 0.5 sec (2X). The default value is 1X. Changing the value to a faster interval (2X) may result in data loss if attached devices can not keep up. If changing to faster interval, the tachometer calibrations will need to be adjusted due to the shorter sample interval.

LCD Display Section



vDash can be operated via a Touch Screen enabled PC. To accommodate some of the special requirements when using touch interface on smaller PC screens, several additional options are available. One of the common problems encountered with smaller touch screens is the need for much larger ICONs and Full Screen Display.

ENABLE TOUCH – Enables Touch Screen operation when available. If the vDash PC has a touch screen interface, several vDash operations can be performed via touch commands similar to SeaGauge color display heads.

ENABLE TEMP SENSOR Some LCD Displays have a built-in temperature sensor for performing automatic contrast adjustment.

TEMPERATURE ADJUST will automatically alter LCD screen contrast on select models based on a user customizable calibration table. If disabled, LCD screen contrast can be performed using standard calibration.

BACKLIGHT ON START is used on selected models to enable LCD backlight on power up if desired.

INVERT DISPLAY Select LCD displays can show reverse screens (Black background) useful for night viewing.

BACKLIGHT ADJUST sets the brightness of the backlight on some monochrome LCD screens. Lower values are dimmer while higher values are brighter. Range is 0 to 100.

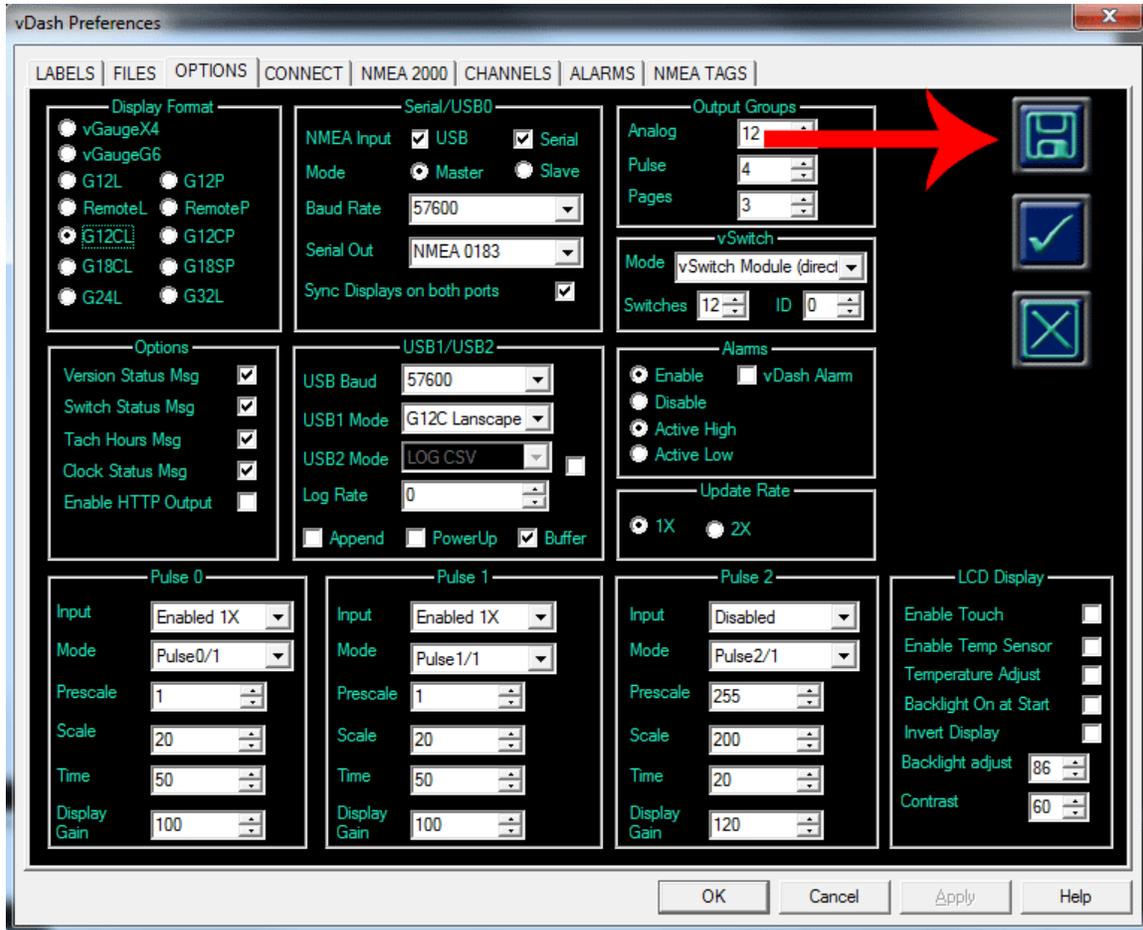
CONTRAST allows the contrast on monochrome LCD screens to be increased or decreased for best viewing. Increasing this value will lighten the screen while decrease will darken the screen. Range is 0 to 100

Save Options

All option parameters are saved to a user specified file for later loading to SeaGauge or vGauge/SeaGauge unit. Any changes to the OPTIONS dialog must be **SAVED** before

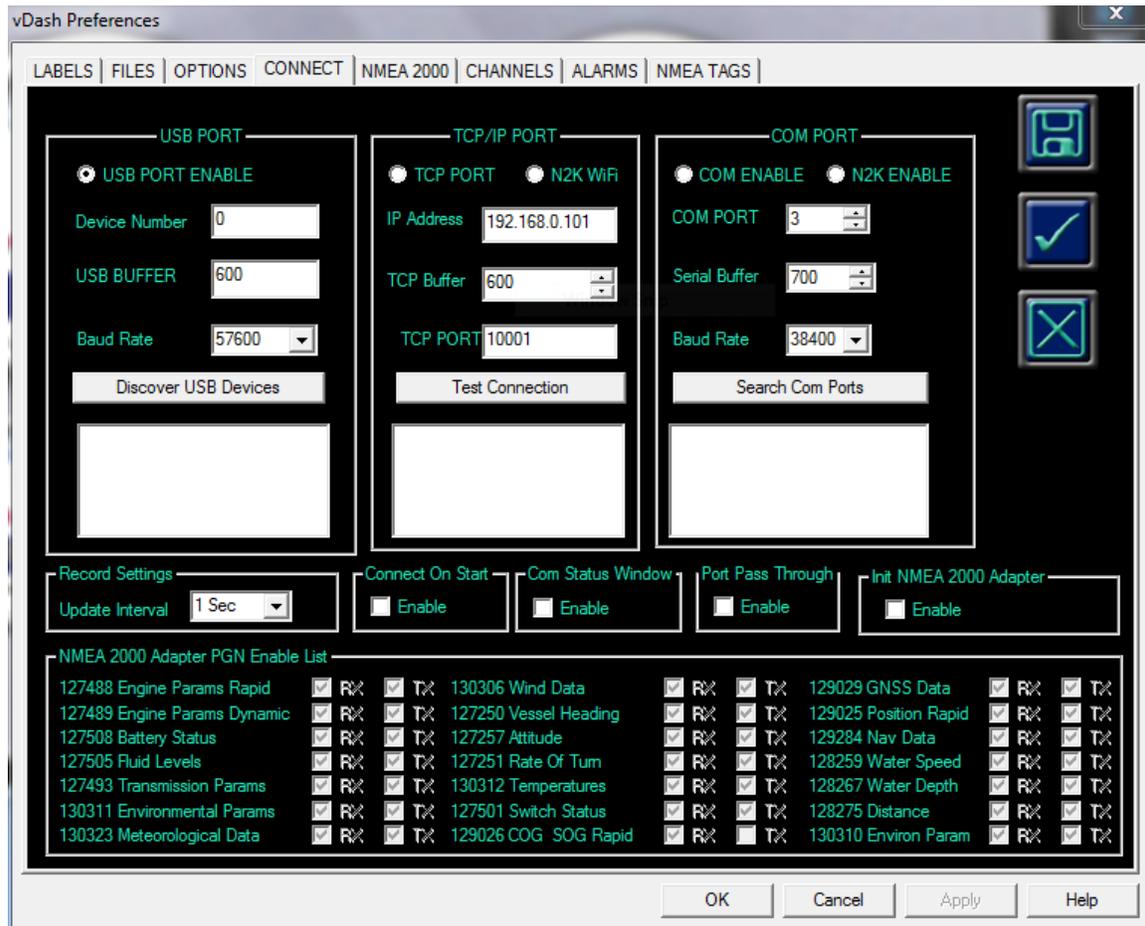


exiting the dialog or they will be lost. Use the **SAVE** button to change file location or rename a file.



Connect Configuration Screen

vDash can connect to vGauge/SeaGauge-Remote sensor units and vGauge/SeaGauge Display heads using Serial (RS232), USB, Ethernet, WI-FI, or Bluetooth interfaces.



The Most common method of connection is a Serial or Virtual Serial port. Most USB adapters and Bluetooth adapters use a Virtual Serial Port device driver to interface with PC software. After the device is installed, it will create a new COM Port number in the system device manager which can be used by vDash to perform data transfer. Most problems occur when using improper COM Port Numbers or Baud Rates (communication speed)

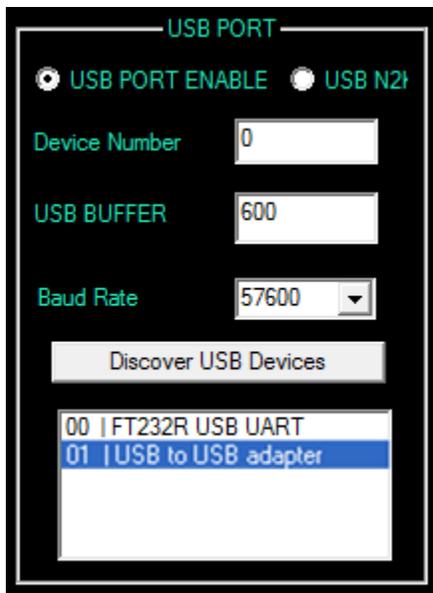
USB PORT Section

Use this connection method if connecting by a USB to SERIAL or USB to USB adapter supplied only by Chetco Digital Instruments. Not all USB adapters are the same and those supplied by other vendors may not work with this option.

A USB to SERIAL adapter (part #VGUSBS002) will be required to connect a Serial Port on a vGauge/SeaGauge-Remote unit or vGauge/SeaGauge Display Head. The adapter is supplied with 2 cables. One cable has a 6-Pin connector used for vGauge/SeaGauge-Remote Serial Port and the other cable has a 8-pin connector for the vGauge/SeaGauge Display Head.

A USB to USB (part #VGUSB001) adapter will be required to connect a Master USB port (USB1) on a vGauge/SeaGauge-Remote unit to a PC USB port. The adapter has 2 type A male USB ends with an interface module in the middle

vGauge/SeaGauge Display Heads supplied with a direct USB cable do not require an adapter and can be plugged directly into Host PC USB ports:



Once the adapters are plugged into the Host PC and device drivers loaded, this option panel can be used to configure settings and verify operation.

DISCOVER USB DEVICES – Press this button to search Host PC for properly attached USB devices which are compatible with vDash protocols.

Once the search is complete, a list of supported devices will be displayed. In most cases, only one device will be shown. In the case of multiple devices, click on the appropriate item.

DEVICE NUMBER – Should be 0 for a single device otherwise will reflect the device number of the selected interface

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USB BUFFER – Can be adjusted down to decrease latency but should default to 600 for best performance.

BAUD RATE – Set to match rate programmed into vGauge/SeaGauge Unit – Default is 57600.

TCP PORT Section

The screenshot shows a configuration window titled "TCP/IP PORT". At the top, there are three radio buttons: "TCP" (which is selected), "UDF", and "N2K". Below these are three input fields: "IP Address" containing "192.168.0.101", "TCP Buffer" containing "600" with a spinner control, and "TCP PORT" containing "10001". A "Test Connection" button is positioned below the input fields. At the bottom of the window is a large empty rectangular area.

Use this option if connecting via Ethernet or WI-FI interface utilizing TCP/IP protocols. A Ethernet adapter (part #VGENETC001) or WI-FI adapter (part #VGENETW001) will need to be attached to vGauge/SeaGauge-Remote unit and configured with proper IP address as covered in the adapter installation manual. Once configured, communication with a vGauge/SeaGauge-Remote sensor unit is possible over most Internet connections.

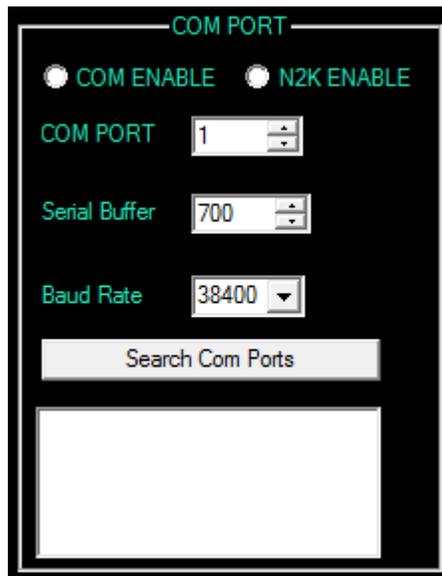
TEST TCP/IP CONNECTION – Performs a communication test using the supplied IP address and TCP port number.

IP ADDRESS – Enter IP address obtained from adapter setup and configuration. This is usually a DHCP assigned local address and can often change when new devices are added.

TCP BUFFER – Can be adjusted down to decrease latency but should remain at 600 for best performance

TCP PORT – the number obtained during adapter installation. It is user controlled for firewall security. Default value is 10001

SERIAL PORT Section



Use this option for connecting via physical serial (COM) ports and non-standard devices such as Bluetooth and third-party USB to Serial adapters which use Virtual COM Port (VCP) drivers.

SEARCH COM PORT – Searches for available COM ports. If any are found, Double-Click on item to perform test and automatically enter COM port number

COM PORT – Select the COM port number obtained from the system device manger for the selected device. Physical COM port numbers do not change but VCP numbers can change each time a device is plugged in. Some devices such as Bluetooth, have several VCP numbers so choose the correct number for serial input.

SERIAL BUFFER – Can be adjusted down to decrease latency but should be set to 600 for best performance

BAUD RATE – Select the appropriate Baud rate to match the attached vGauge/SeaGauge unit. Most VCP drivers will automatically adjust to the chosen rate. The common rate is 57600

To perform a firmware update – you must connect to the unit with the COM Port method. Firmware updates can not be performed via TCP or USB connections.

Record Settings Section

The capture rate for data logging is specified with the Update Interval Drop-Down menu.

vDash will wait the specified amount (1 second to 5 minutes) before writing a new buffer of sensor data to the Log file. When set to “Fastest”, vDash will capture data as fast as it arrives without waiting.

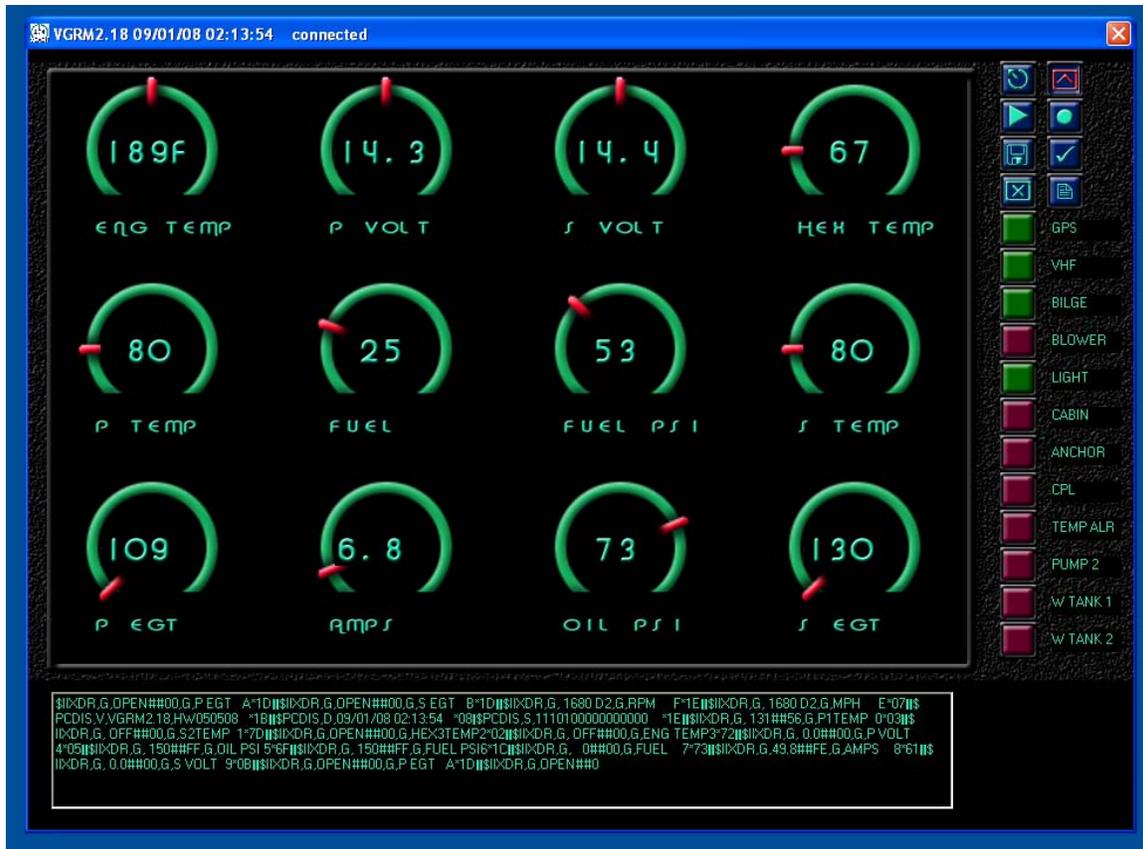
Log file playback is also controlled by the Update Interval setting.

Connect On Start Section

vDash can be set to automatically connect on start-up by enabling (check) the CONNECT ON START option. This allows vDash to automatically start when the computer is powered-up. When using the CONNECT ON START OPTION, be sure to first configure and test the CONNECT options before enabling.

COM Status Window Section

A status window can be enabled to show RAW data arriving from a connected vGauge/SeaGauge-Remote unit in the main display window. This can be useful in diagnosing any communication problems with the unit. It should remain disabled (unchecked) when not needed for best performance.



Port Pass Through Section

Serial ports on the Remote Sensor unit can be configured to pass through data in bi-direction by enabling (check) the Port Pass Through option. This mode is useful to allow update of directly connected Chetco Digital Instruments color displays or NMEA 2000 adapters.



When serial ports are set to pass through mode, all data from one port is bi-directionally passed to the other. In this mode, a connected color display can be accessed by PC applications using the Remote Sensor unit as a bridge between PC and display.

Port Pass Through is a temporary mode. Once enabled, it is only active for one connect session and reverts back to normal operation after restart (repower).

To activate Port Pass Through, enable the option and SAVE the setting using the disk icon in the upper right of the dialog. Next, use the CONNECT button in the tool pallet to start

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PASS THROUGH mode. From this point, the Remote Sensor unit will bridge the two ports and no other operations will be performed until the unit is reset. Once reset, the Remote Sensor unit will revert back to normal operation.

When using Port Pass Through, the PC application will communicate through the virtual COM port number assigned when vDash is normally connected to the Remote Sensor unit.

If connected to the Remote Sensor unit via USB slave port, use the virtual COM port number assigned by the Device Manager.

Enable NMEA 2000

vDash supports accepting NMEA 2000 data by using an adapter on the selected USB/TCP/COM port. The N2K adapter (supplied by Chetco Digital Instruments) converts NMEA 2000 data to a proprietary protocol that can be transported over RS232 serial ports to a Windows based PC (Windows XP, Vista, and 7) vDash can then connect to the adapter and display the selected NMEA 2000 data using user defined graphic layouts.

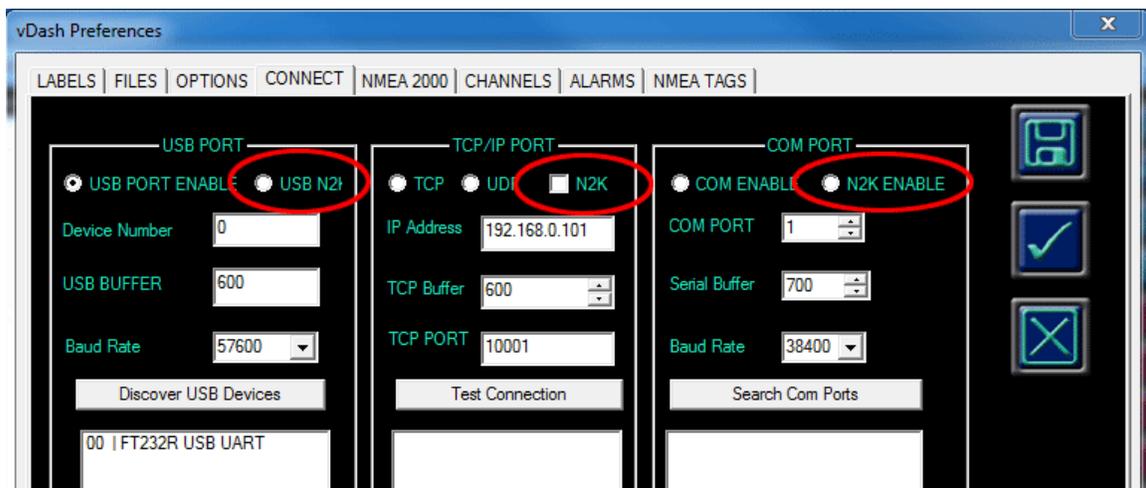
There are several types of NMEA 2000 adapters available to match the type PC port being used.

USB – NMEA 2000 to USB connection

TCP – NMEA 2000 to Ethernet or NMEA 2000 to WiFi

SERIAL – NMEA 2000 to RS232 serial data.

After connecting the appropriate adapter to the PC port, enable the N2K option for the port type.



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The N2K ENABLE option only applies to vDash and is independent of the Remote Sensor unit. N2K ENABLE simply instructs the vDash that a compatible adapter is present on the selected port.

The N2K ENABLE option will only be valid if input channels are assigned to input parameters using the NMEA 2000 Options page.

NMEA 2000 ADAPTER PGN ENABLE LIST

vDash can process NMEA 2000 data by using a compatible serial adapter supplied by (Chetco Digital Instruments). Since the NMEA 2000 bus can handle hundreds of different PGN messages from thousands of devices, it is possible to quickly load each node with more traffic than necessary. To reduce loading, the adapter can be configured to listen for select PGN messages and ignore all other not selected.

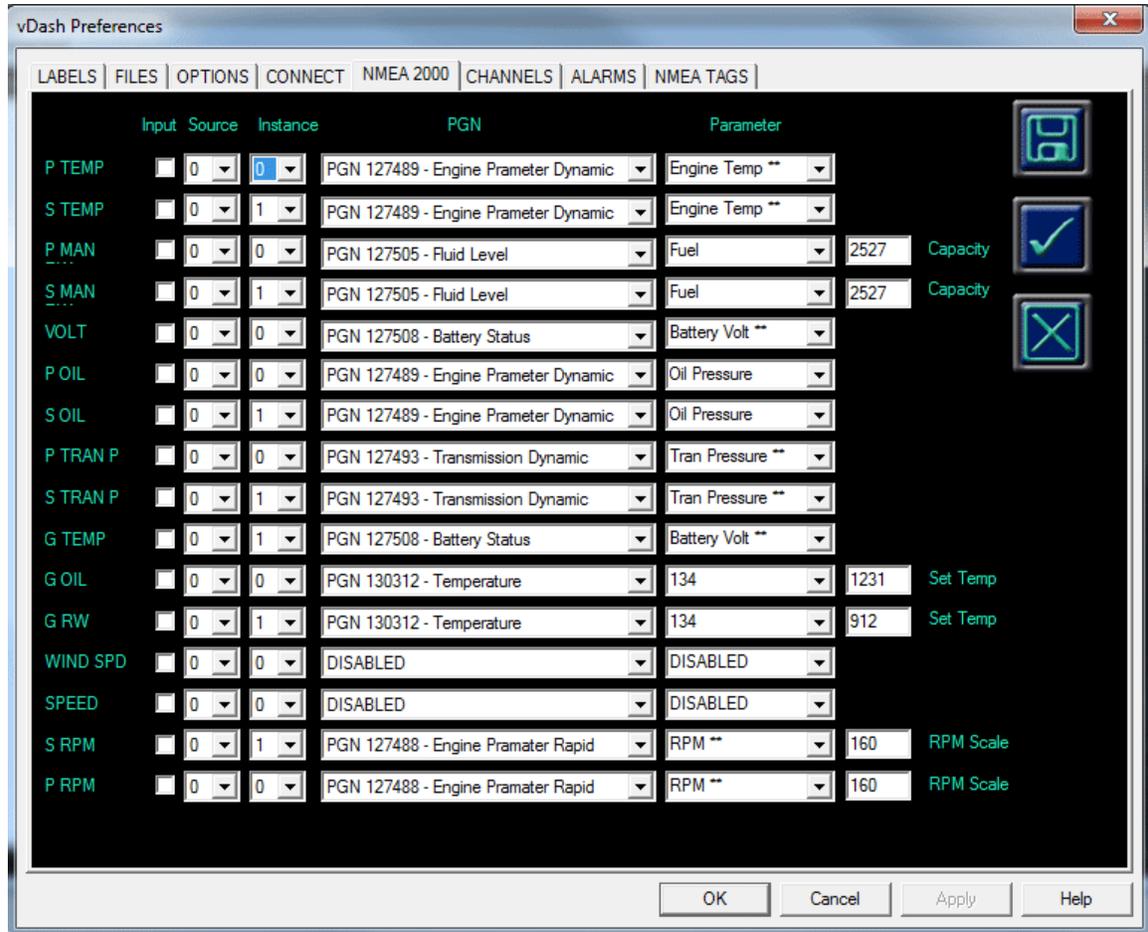
The NMEA 2000 Adapter PGN Enable list option allows quick selection of which messages to process. A enable box (check box) is available for each PGN for receive (RX) and transmit (TX). By enabling the option (check) the selected parameter will be processed by the adapter. Disabling the parameter (uncheck) will inform the adapter to ignore the PGN and not pass it through for further processing.



After setting the PGN Enable List, SAVE the changes by using the disk icon in the upper right of the dialog box. The next time a connection is made to the N2K adapter, the new list values will be set and retained.

The PGN Enable List options only apply to a directly attached N2K adapter. They will not have any effect on N2K interfaces built-in to the Remote Sensor Units.

NMEA 2000 Configuration Screen



Each of the 16 channels in a Remote Sensor unit can be assigned to a NMEA 2000 Input or Output PGN parameter.

NMEA 2000 PGN numbers describe a class of sensor data with individual fields specifying unique sensor data.

For example PGN 127508 describes Battery Status information and individual fields within this PGN define battery voltage, current and temperature along with an instance field for identifying individual batteries within a bank.



Remote Sensor units can be configured to either **source (output)** NMEA 2000 sensor data or **accept (input)** NMEA 2000 sensor data for each individual channel.

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There are over 15 different PGNs supported with up to 12 parameters per PGN and over 10 instances.

Assignment of a Sensor channel to desired NMEA 2000 parameters is accomplished using a series of drop-down menus for each channel.

INPUT - Determines if the channel is a NMEA 2000 output (unchecked) or input (checked).

If it is an output, the sensor data is mapped to a sensor lookup table which contains the appropriate calibration for output over the NMEA 2000 bus to other equipment such as chart-plotters and GPS units. From there, gauge data can be displayed via the target device formatting capabilities. For example, a GPS device with Engine Gauge Display option can accept dual engine parameters such as tachometers, temps, oil pressure, fuel levels, and battery voltage from the Remote Sensor unit over the NMEA 2000 bus.

Remote Sensor units form a instrumentation Hub where various analog sensor data are attached to the 16 channels and all are formatted into a single NMEA 2000 port for distribution to multiple displays.

If the selected channel is assigned as a NMEA 2000 input, the desired parameter is decoded and output via available Serial ports as NMEA 0183 data or as Color Display protocol. In this fashion, Remote Sensor units can drive both the NMEA 2000 bus and Chetco Digital Instruments Color Display Heads from the same sensor data.

A further advantage of selecting a channel as NMEA 2000 input is the ability for vDash to be used as a stand-alone Graphic Gauge Display program for selected NMEA 2000 data. All that is required is a compatible NMEA 2000 serial or USB adapter .

INSTANCE - Assigns a unique identifier to the NMEA 2000 parameter so it be properly handled. For example PGN 127489 (Engine data) can be use instance 0 for Port engine and instance 1 for Starboard engine. In this way a display device and place the port engine data on the left and starboard engine on the right side of the display.

PGN - The PGN drop-down list selects the desired PGN number to either output for the selected channel or decode (input). The same PGN number can be assigned to given channel but care must be taken to not also assign the same instance and parameter.

A PGN value set to “DISABLED” will not output the selected sensor data on the NMEA 2000 bus.

The Parameter drop-down list will dynamically change dependent on the PGN number chosen. The list of parameters is dependent on the PGN. When choosing a PGN, at least one default parameter must also be assigned to a channel. The default

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parameter is followed by the “**” symbol. For example, if choosing PGN 127489 (Engine Data), the at least the Engine Temp parameter must be assigned to a channel before any other parameter can be selected.

Following the PGN parameter list is an optional data field for various calibration settings. This field will be visible only if the PGN supports it. For example, PGN 127505 (fluid level) will show data field to enter tank capability in milliliters.

Once all the NMEA 2000 parameters are assigned to the Remote Sensor channels, Save the changes by selecting the disk Icon in the upper right-hand corner. This will copy the new settings to the specified OPTIONS file.

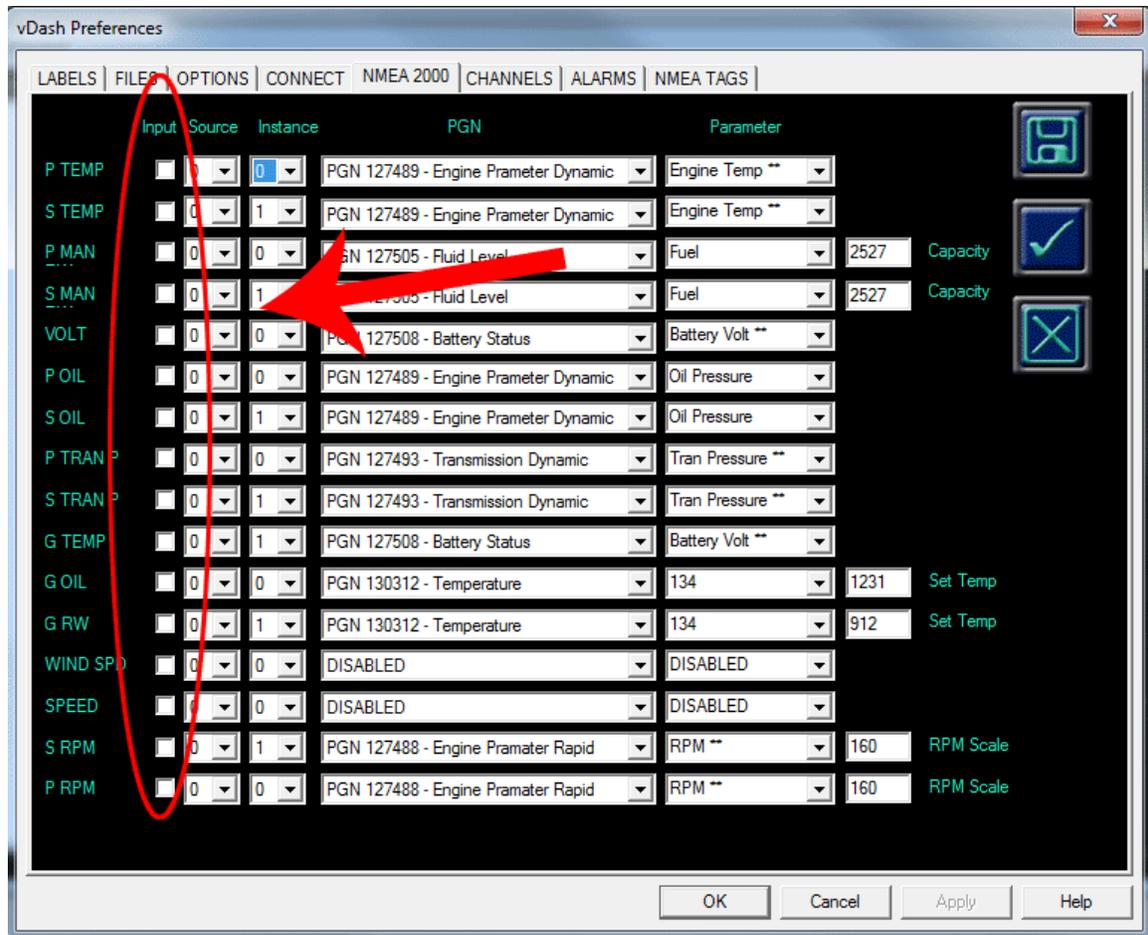
NO CHANGES WILL BE MADE TO THE REMOTE SENSOR UNIT UNTILL THE OPTIONS FILE IS WRITTEN (FLASHED)

vDash as stand-alone NMEA 2000 viewer

vDash can be used to view select NMEA 2000 data directly from an attached bus using a compatible Chetco Digital Instruments or Actisence adapter. The adapter converts NMEA 2000 data to a custom Serial or USB protocol which can be processed by the application.

Use the NMEA 2000 Options page in vDash to select INPUT of the desired parameters. The display labels can be entered on the LABELS Options page to match the desired parameters.

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Use the PGN number and PARAMETER drop-down list to assign the desired parameters to selected channels.

Once the parameters are selected and saved, use the CONNECT preferences page to select the N2K ENABLE options in the COM port section. Select the correct COM port numbers the adapter is connected too. For most adapters the Baud rate will be 57600. However, other baud rate selections may be necessary.



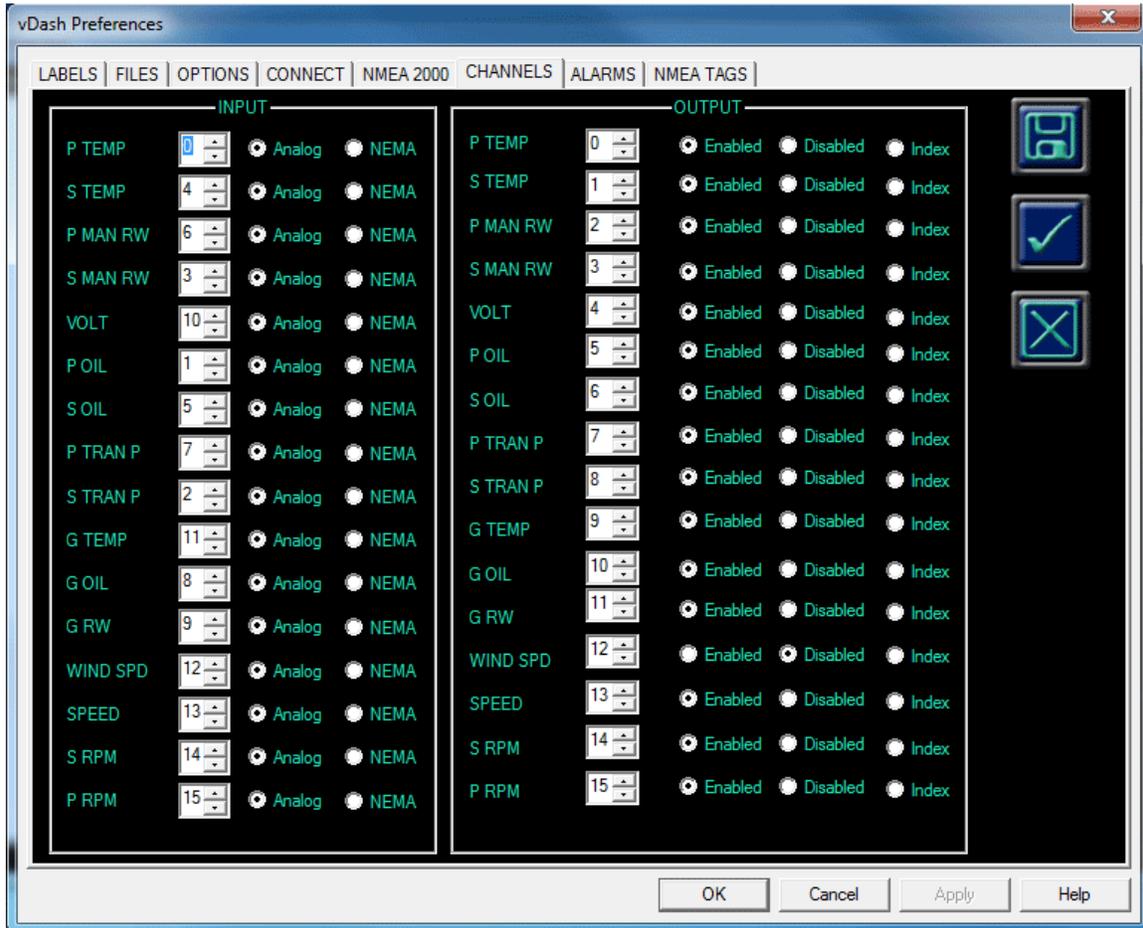
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If using an adapter via USB interface, be sure to get the virtual COM port number assigned to the device. **DO NOT USE THE USB SECTION TO CONNECT.** This option will only work via direct serial port or virtual COM port

Use the connect button in the Tools palette to open the port and start viewing of NMEA 2000 data. The vDash title bar will show the status of the active connection with a Receive Loading value expressed in percent of full capacity. Look for values greater than 0 to indicate active connection. Values will range from a few percent to full load. To optimize performance, program the NMEA 2000 adapter to only pass the desired PGN numbers that match the assignments for each channel.

Channels Configuration Screen

vDash can configure the input and output channel assignments for SeaGauge™ or vGauge/SeaGauge™ units by generating a channels file for loading into attached units..



INPUT Section

CHANNEL - Input Channels can be assigned to each on the 16 analog inputs. These assignments map the sensor input pins to display label position and calibration tables. It is not normally required to make any changes to the input channel assignments due to factory adjustment for selected senders. For example a sensor input designed for voltage will not work with a sensor input designed to measure temperature. However like temperature inputs can be exchanged if required. Consult with factory before making any changes to Input Channel assignments.

ANALOG – Inputs for vGauge/SeaGauge-Remote sensor units are mainly analog voltages while vGauge/SeaGauge Display Heads accept mostly NMEA 1083 inputs. Proper operation of these units requires the appropriate input type. Some vGauge/SeaGauge

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Display heads can accept up to 4 analog inputs on channels 8-12. Select ANALOG if applying a sensor signal to an appropriately designated input. **Default is all Analog for vGauge/SeaGauge-Remote**

NMEA – Inputs for vGauge/SeaGauge Display Heads accept mostly NMEA 1083 inputs while vGauge/SeaGauge-Remote sensor units are mainly analog voltages. Proper operation of these units requires the appropriate input type. Some vGauge/SeaGauge Display heads can accept up to 4 analog inputs on channels 8-12. Select NMEA if supplying a digital input via serial or USB connection. **Default is all NMEA for vGauge/SeaGauge Display Heads**

OUTPUT Section

Output Channel assignments affect the order in which data is sent from the unit's serial port. Normally the first Sensor label is assigned channel index 0 and the next channel index 1 and so on. However in some cases it may be desired to change the order – for example to make a pulse input (RPM) the first item in the output string. Changing the channel index, changes the output order. Take care not to assign two outputs the same channel index.

CHANNEL – Identifies the channel number in the NMEA 0183 \$IIXDR sentence for each sensor output.

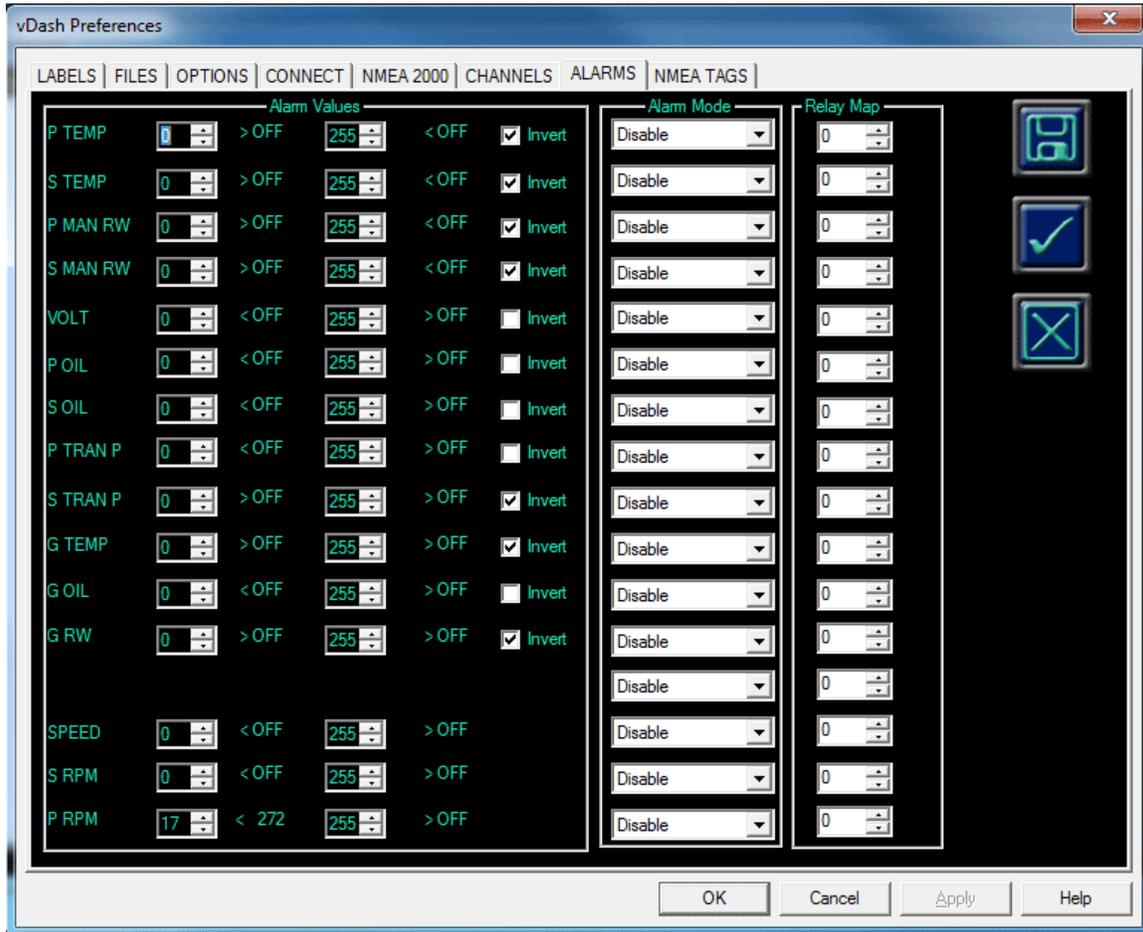
ENABLE – Enables the output of the selected sensor data over Serial or USB port

DISABLE – Inhibits output of selected sensor data over Serial or USB port. Can be used to increase system performance by eliminating output of unwanted data.

INDEX – Outputs only the RAW sensor voltage index (0 – 255) and not the calibrated value from the sensor lookup table. Can be useful for determination of calibration values.

ALARMS Configuration Screen

vDash can configure High and Low alarms for each of the 16 analog inputs by creating an ALARMS file for later loading into an attached unit.



The ALARMS dialog allows adjustment of individual High and Low alarms for each sensor input. The alarms are based on the analog converter index value (0-255) being greater then or less then a preset threshold. MIN alarms are based on index values LESS then specified. MAX alarms are based on index values GREATER then specified.

ALARM VALUES Section

To make setting alarms easier, the ALARMS dialog will display the lookup value from the vDash calibration table assigned to the selected sensor input. As the ALARM index number is changed, the associated Calibration table lookup value is displayed to the right.

Setting an alarm index to 0 or 255 will deactivate the alarm for the compare condition and will be indicated by the “OFF” label

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The lookup vales come from the calibration table loaded into the vDASH application and not an attached SeaGauge™ or vGauge/SeaGauge™ unit. Care must be taken to assure unit calibration tables are synchronized with vDASH tables.

Some calibration tables – such as temperature – store lookup values in reverse order (High to Low). For these types of calibration tables the INVERT check mark must be selected to indicate the proper MIN/MAX alarm state.

Alarms for pulse inputs are based on graphic display values and not actual digital readout. Graphic Display values range from 0 to 255 and are scaled using the DISPLAY RANGE parameter in the OPTIONS dialog

Alarm settings for vGauge/SeaGaugeG12C and G18C units are obtained from the attached vGauge/SeaGauge-Remote unit while other display heads needs to have separate alarm tables loaded.

ALARM MODE Section

Each individual sensor alarm can trigger a user specified event separate from all other sensor alarms

DISABLED – Disable any individual alarm indication regardless of alarm values settings.

FLASH – Causes the sensor data to flash if being shown on a display

BEEP – Causes an alarm sound on a attached vGauge/SeaGaugeG12C or 18C display head

RELAY ON – causes a selected relay to turn on if using a vSwitch module

RELAY OFF – causes a selected relay to turn off if using a vSwitch module.

RELAY MAP Section

Each individual sensor can trigger a specified Relay when using a vSwitch module. Relay indexes range from 0 to 11. This feature is useful in deactivating equipment if a specified alarm condition occurs. If triggering a relay on an alarm event – be careful to choose a relay not being used for another function.

SAVE ALARMS Section

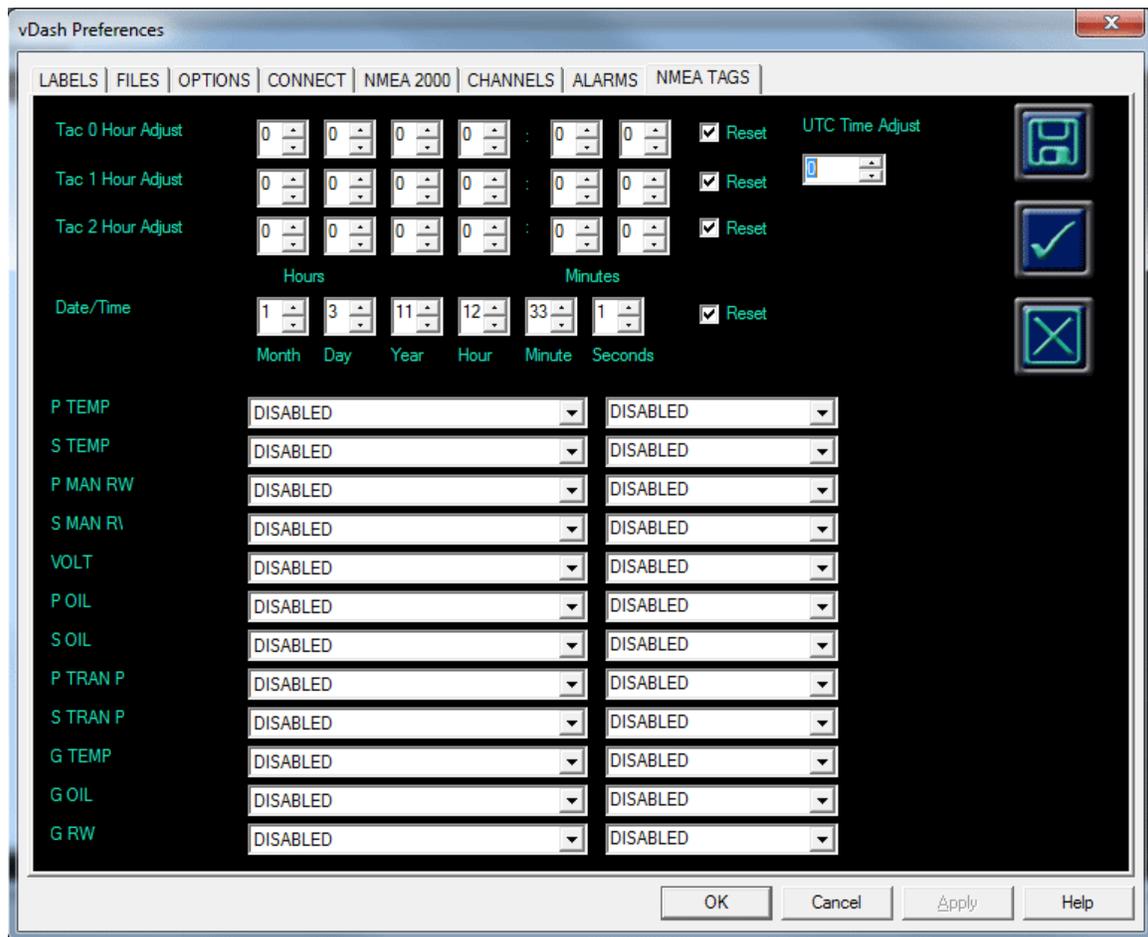
All alarm parameters are stored in the OPTIONS file. Selecting SAVE will update the specified file

Changes made in the ALARMS dialog do not take effect until the new OPTIONS file has been loaded into a attached unit using the FLASH programming procedure.

NMEA Tags Configuration Screen

SeaGauge™ and vGauge/SeaGauge™ units can display data from GPS and Sonar equipment by parsing incoming NMEA data streams through built-in serial ports. The NEMA Configuration dialog allows for selection of which NMEA tags to listen for and which data fields to extract for display.

The dialog also allows for adjustment of the Date/Time functions and tachometer hour meters.



Each of the 5 possible NMEA inputs can listen for 16 possible NMEA tags selected from a drop-down menu to the right of each label. Individual data fields are comma separated in each NMEA sentence. The index value on the right (0-15) is used to determine the number of commas to skip before selecting the data field.

For example, the following is a typical NMEA sentence for GPS position.

```
$GPRMC,233232,A,4204.6424,N,12411.5660,W,14.6,191.4,120905,16.6,E,A*3F
```

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The first data field follows the first comma “233232” and represents the UTC time information. To display UTC time, set the tag drop-down to “\$GPRMC” and the index to “1”. To display GPS Speed (14.6), set the tag to “\$GPRMC” and the index to “7”.

The following table shows the NMEA tags and some common data field index. Consult your NMEA equipment manuals for complete list of NMEA data index values.

| NMEA TAG | INDEX | Function |
|-----------|-------|---|
| \$IIXDR,G | 2,4 | Instrumentation Data |
| \$GPGGA | 1 | UTC TIME, Position, Sat info |
| \$GPVTG | 1,5 | Track and ground speed |
| \$SDDBT | 1 | depth below transducer |
| \$SDMTW | 1 | water temperature |
| \$GPRMC | 1,7,8 | Time, Position, ground speed, true heading |
| \$GPRMB | 10,11 | Destination WP position, Bearing to WP, Closing speed to WP, Distance to WP |
| \$YXMTW | | water temperature |
| \$VWVHW | | Speed and heading |
| \$VWVLW | | Water traveled distance |
| \$SDDPT | | depth below transducer |
| \$GPGLL | | Basic position |
| \$SDVHW | | Sonar Water Speed and heading |
| \$SDVLW | | Sonar Water traveled distance |
| \$GPVHW | | GPS Water Speed and heading |
| \$GPRMC | 1 | Used for adjusted UTC time to local time |

The last value in the NMEA Tag drop-down list is reserved for a special case of the GPS UTC time value that adds an adjustment for local time. The display local time, select the last NMEA tag and set eh **UTC ADJUST** value to the local time offset from UTC time. The UTC time adjust is a value from 0 to 23 that is added to the UTC time value.

vGauge/SeaGauge units that feature 12 analog inputs have only one NMEA tag available without disabling some of the analog inputs. For these configurations, the extra tags will be disabled unless overridden by enabling them in this dialog. If enabled, the selected tag will overwrite the analog data in the output stream.

The HOUR TAC ADJUST field is used to set the starting value for the built-in Hour tachometer functions. The Hour Tachometer measures the total time (Hours and Minutes) pulses are active up to 9999 hours. If there are no active pulses on the select input, the running time will not increment. Use this field to reset the Hour Tachometers to desired settings.

Selecting RESET for any of the Hour Meter or Date/Time settings marks that function for update the next time the DISPLAY FILES table is programmed into the target unit. Be sure to uncheck this option and save configuration after the update is performed.

CHANGES WILL NOT BE MADE TO THESE SETTINGS UNTIL THE DISPLAY FILES IS REPROGRAMMED TO THE TARGET UNIT

All values in the NMEA Configuration dialog are written to the selected Display Labels file and the Page Descriptions file and are not saved until those files are updated using the



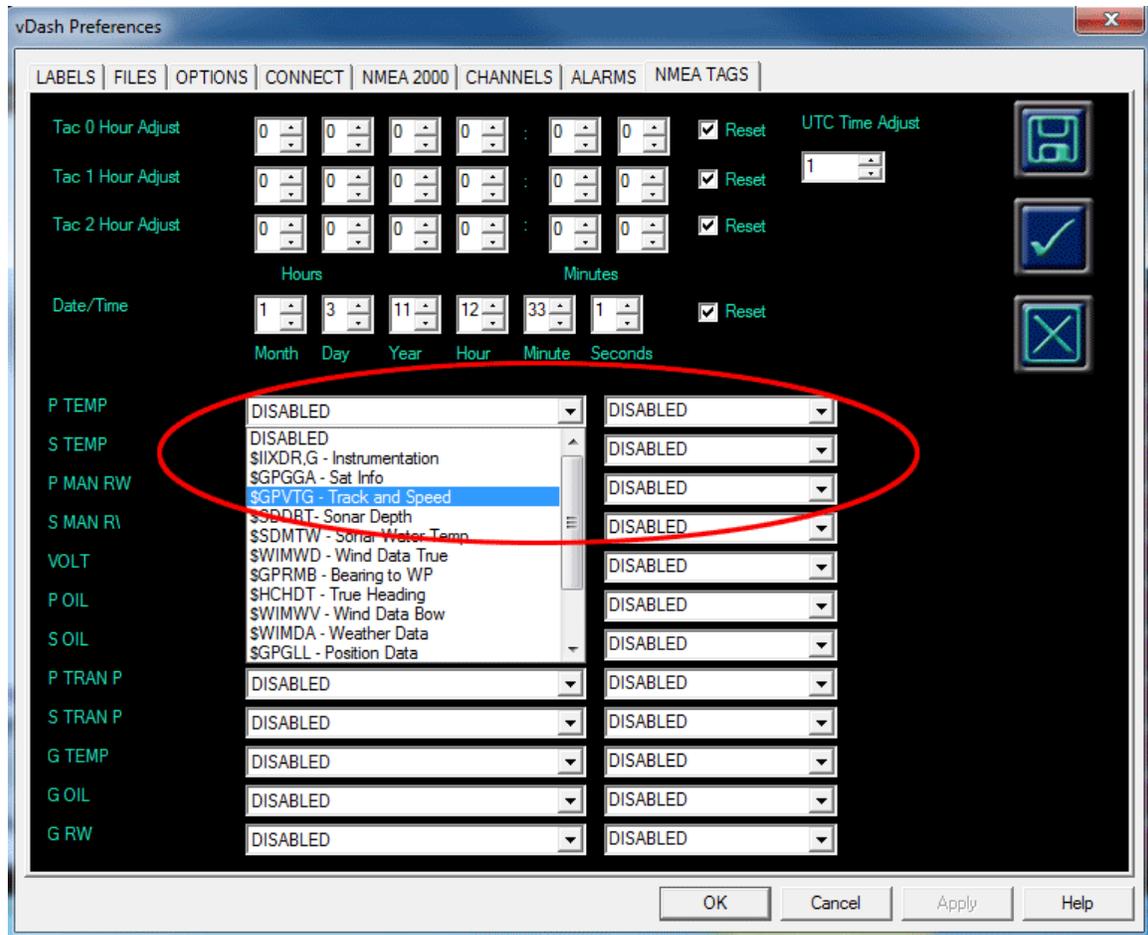
Save Current Settings button in the tool palette.

NMEA 0183 OPTIONS (NMEA TAGS SECTION)

The first 12 Remote Sensor unit channels can be assigned to display NMEA 0183 data coming into one of the two serial ports. NMEA 0183 is a RS232 Serial data protocol for point to point communication of select devices including GPS, Weather Station, Navigation, and Sonar devices. NMEA 0183 will only work with COM port inputs from 4800 to 11520 Baud rates. Typical setup is 8 data bits, 1 stop bit and no parity.

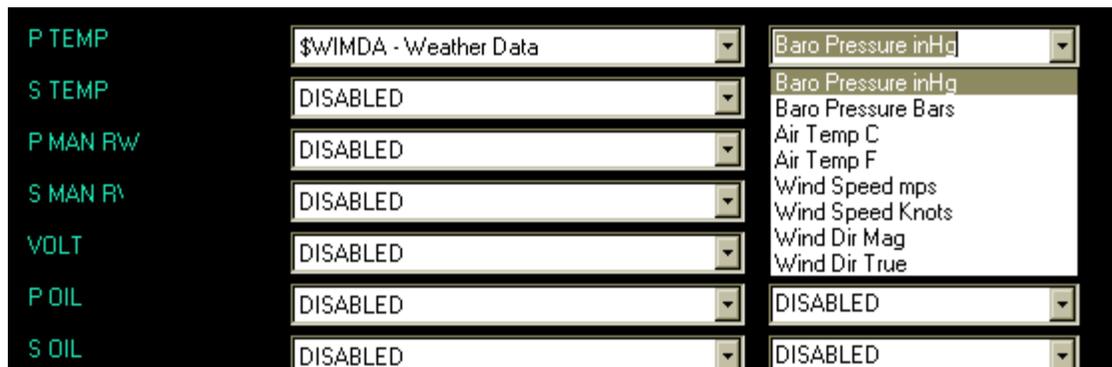
Use the NMEA TAGS page to assign NMEA 0183 parameters to select Remote Sensor unit channels. Each channel label will appear to the left with the NMEA 0183 tag and parameter following to the right on the same row.

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When the NMEA Tag is set to DISABLED, the Remote Sensor unit will use the data from the analog input and calibrate with loaded calibration tables for display. Otherwise, if any selection other than DISABLED is chosen, that channel will decode the selected NMEA 0183 data sentence and extract the selected parameter for display.

The NMEA 0183 parameter list will change depending on the NMEA TAG chosen. For example, if selecting Weather data (\$WIMDA) only parameters such as Barometric Pressure and Wind speed will be available. Each NMEA TAG will have its own list of possible parameters.



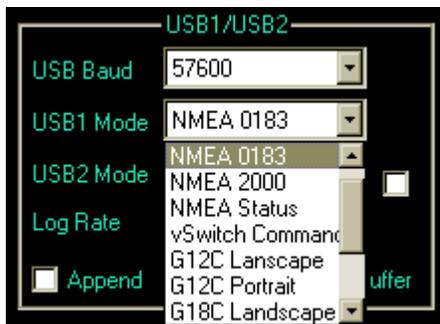
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Using the drop-down lists, select the desired data to be assigned to each channel. It is not necessary to assign all channels. Any channel unassigned (DISABLED) will revert to using analog inputs for display.

Once NMEA 0183 parameters are assigned to input channels using the drop-down lists, Save the changes to the Pages File using the Disk Icon in the upper right of the page.

NO CHANGES WILL BE MADE UNTIL THE PAGES FILE IS COPIED (FLASHED) TO THE REMOTE SENSOR UNIT.

When selecting NMEA 0183 inputs, one of the two serial ports must be set to NMEA 0183 mode in the OPTIONS PAGE. It does not matter which serial is used as long as it is connected to a transmitting device.



Serial port output data based on the protocol selected in the OPTINS PAGE. Serial ports can be set to NMEA 0183 (plain text), Color Display (G12C G18S, G24C...) NMEA 2000, or vSwitch modes. For example, Serial Port 0 can be set to color display G12C and Serial Port 1 to NMEA 0183. If a channel is assigned a NMEA 0183 input parameter, it will appear on both the color display (G12C, G18S, G24C, G32) and 0183 modes but not on NMEA 2000 or vSwitch modes. This allows any Chetco Digital Instruments Color Display to show selected NMEA 0183 data in graphic and text formats.

All selected NMEA 0183 parameters are extracted and formatted to fit within the standard Chetco Digital Instruments \$IIXDR format which uses 4 characters for the data field and one byte Hexidecimal value for Graphic display index.

For example, in a NMEA 0183 Wind Data Sentence

```
$WIMWD,135.9,T,141.6,M,0.4,N,0.2,M*50
```

The first field represents the Wind direction. If this parameter is assigned to a Remote Sensor unit input channel 0, the parameter will be extracted and formatted into either a \$IIXDR sentence:

```
$IIXDR,G,135##43,G,WIND D 0*67
```

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Or a G12C Color display sentence (large dial)

M2 "080 120" 23 " 135" "WIND D "

Depending on the protocol selected for the target serial ports.

The \$IIXDR NMEA 1083 output is the standard protocol used by vDash for realtime display of sensor data in graphic format.

Touch Menu Window

Record/Playback – Enables Logging data to specified file or Playback from previously recorded file.

Connect – Connects to target Remote Sensor Interface unit using current connection settings

Flash – Brings up Flash Files menu to load new settings to attached unit

Preferences – Enable the Preferences Dialog

Switch – Enables a separate floating window with large Switch/Status buttons

Full Screen – Repositions vDash Display window to fit current display. When enabled, the tool pallet will be hidden with most of the features available in the floating Touch Window. Useful on smaller displays.

Next Page – Changes current display page to next configured screen.

Exit – Closes the vDash Program.

Touch of the Upper Right Corner of the vDash screen will reset the current display screen to the first screen.

Touch of the Lower Right Corner of the vDash screen will activate the next display page.

Touch of the Upper Right Corner of the vDash screen will activate the floating Switch Button Window.

MENU MODE

Touch of lower left corner of vDash Window will display a floating Touch Menu with large ICON versions of the tool pallet buttons. The Touch Window can be repositioned by dragging the Title Bar of the window.

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We back your investment in quality products with quick, expert service and genuine replacement parts. If you're in the United States and you have questions, please contact the Factory Customer Service Department using our number listed below. You must send the unit to the factory for warranty service or repair. Please call the factory before sending the unit. You will be asked for your unit's serial number (shown above). Use the following number:

541-661-2051

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Your unit is covered by a full 90 day warranty. (See inside for complete warranty details.) If your unit fails and the failure is not covered by the original warranty, Chetco Digital Instruments has a flat-rate repair policy that covers your unit and accessories packed with the unit at the factory. There is a 30-day warranty on all non-warranty repairs from the factory, which is similar to the original warranty, but is for 30 days rather than 90 days. For further details, please call us at the above number.

Remember, non-warranty repairs are subject to Chetco Digital Instruments published flat rate charges and 30-day warranty.

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