



## Installation and Operations Manual MURPHY®

Please read the following information before installing. A visual inspection of this product for damage during shipping is recommended before mounting. It is your responsibility to have a qualified person install this unit.

### GENERAL INFORMATION

## WARNING

#### BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT

- ✓ Disconnect all electrical power to the machine.
- ✓ Make sure the machine cannot operate during installation.
- ✓ Follow all safety warnings of the machine manufacturer.
- ✓ Read and follow all installation instructions.

### Description

The PowerView is a powerful new display in a line of components manufactured by FWMurphy as part of its J1939 MurphyLink™ † Family. The J1939 MurphyLink™ Family of products have been developed to meet the needs for instrumentation and control on electronically controlled engines communicating using the SAE J1939 Controller Area Network (CAN).

The PowerView System is comprised of the PowerView and the Mlink™ PowerView Gages. The PowerView is a multifunction tool that enables equipment operators to view many different engine or transmission parameters and service codes. The system provides a window into modern electronic engines and transmissions. The PowerView includes a graphical backlit LCD screen. It has excellent contrast and viewing from all angles. Back lighting can be controlled via menu or external dimmer potentiometer. The display can show either a single parameter or a quadrant display showing four parameters simultaneously. Diagnostic capabilities include fault codes with text translation for the most common fault conditions.

The PowerView has four buttons using self-calibrating charge transfer activation technology, which eliminates the concern for pushbutton wear and failure. In addition, operators can navigate the display with ease.

The enhanced alarm indication has ultra bright alarm and shutdown LEDs (amber & red). It has a wide operating temperature range of -40 to +85° C (-40 to 185° F), display viewing -40 to +75° C (-40 to 167° F), and increased environmental sealing to +/- 5 PSI (± 34kPa). It also features Deutsch DT style connectors molded into the case and fits quickly and easily into existing 2-1/16 in. (52 mm) gage opening with little effort.

Other components in the system are microprocessor-based Mlink™ PowerView Gages for displaying critical engine data broadcast by an electronic engine or transmission's Engine Control Unit (ECU): engine RPM, oil pressure, coolant temperature, system voltage, etc. and a combination audible alarm and relay unit for warning and shutdown annunciation. Up to 32 components may be linked to the PowerView using a simple daisy chain wire connection scheme using RS485. The PowerView and all connected components can be powered by 12- or 24-volt systems.

### Warranty

A limited warranty on materials and workmanship is given with this FWMurphy product. A copy of the warranty may be viewed or printed by going to [www.fwmurphy.com/warranty.html](http://www.fwmurphy.com/warranty.html)

† MurphyLink™ is a registered trademark of FWMurphy. All other trademarks and service marks used in this document are the property of their respective owners.

### Display Parameters

The following are some of the engine and transmission parameters displayed by the PowerView in English or Metric units as well as in Spanish, French, or German (when applicable, consult engine or transmission manufacturer for SAE J1939 supported parameters):

- ◆ Engine RPM
- ◆ Engine Hours
- ◆ Machine Hours
- ◆ System Voltage
- ◆ % Engine Load at the current RPM
- ◆ Coolant Temperature
- ◆ Oil Pressure
- ◆ Fuel Economy
- ◆ Throttle Position
- ◆ Engine Manifold Air Temperature
- ◆ Current Fuel Consumption
- ◆ Transmission Oil Pressure
- ◆ Transmission Oil Temperature
- ◆ Transmission Gear Position
- ◆ Active Service Codes
- ◆ Stored Service Codes (when supported)
- ◆ Set Units for display (English or Metric)
- ◆ Engine Configuration Parameters

### Specifications

**Display:** 1.3 x 2.6 in. (33 x 66 mm), 64 x 128 pixels.

**Operating Voltage:** 8 VDC minimum to 32 VDC max.

**Reversed Polarity:** Withstands reversed battery terminal polarity indefinitely within operating temperatures.

**Operating Temperature:** -40 to +85° C (-40 to 185° F).

**Display Viewing Temperature:** -40 to +75° C (-40 to 167° F).

**Storage Temperature:** -40 to +85° C (-40 to 185° F).

**Environmental Sealing:** IP68, +/- 5 PSI (+/- 34.4 kPa).

**Power Supply Operating Current:** (@ 14 VDC)=  
52 mA minimum; 268 mA maximum (LCD heater on).

**CAN BUS:** SAE J1939 Compliant.

**Case:** Polycarbonate / Polyester.

**Clamp:** Polyester (PBT).

**Connectors:** 6-Pin Deutsch DTO6 Series.

**Maximum Panel Thickness:** 3/8 in. (9.6 mm).

**Mounting Hole:** 2.062 inch (52 mm) in diameter.

**Auxiliary Communications: Either:**

*Gages: One (1) RS485 port, MODBUS RTU master.*

*MODBUS: One (1) RS485 port, MODBUS RTU slave, selectable baud rate; 9600; 19.2K; 38.4K.*

**Potentiometer (External Dimmer) Input:** 1K ohm, 1/4 W

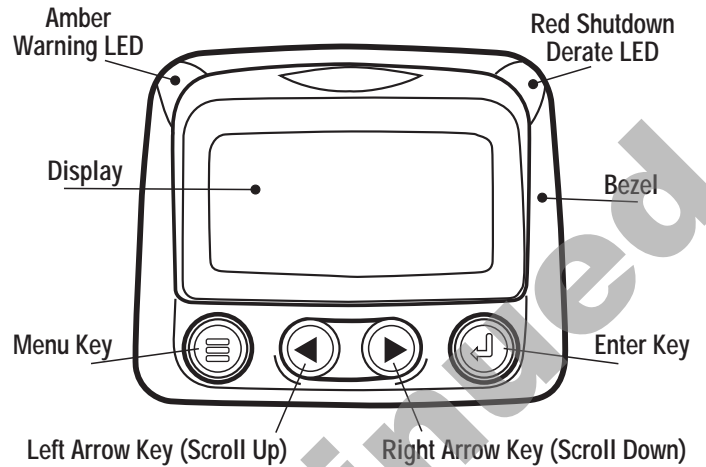
**Shipping Weights (all models):** 1/2 lb. (225 g.)

**Shipping Dimensions (all models):** 6 x 6 x 6 in. (152 x 152 x 152 mm).

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**Faceplate Features**



**Keypad Functions**

The keypad on the PowerView is a capacitive touch sensing system. There are no mechanical switches to wear or stick, and the technology has been time proven in many applications. It operates in extreme temperatures, with gloves, through ice, snow, mud, grease, etc., and it allows complete sealing of the front of the PowerView. The 'key is touched' feedback is provided by flashing the screen. The keys on the keypad perform the following functions:



- *Menu Key* - The Menu Key is touched to either enter or exit the menu screens.



- *Left Arrow* - The Left Arrow Key is touched to scroll through the screen either moving the parameter selection toward the left or upward.

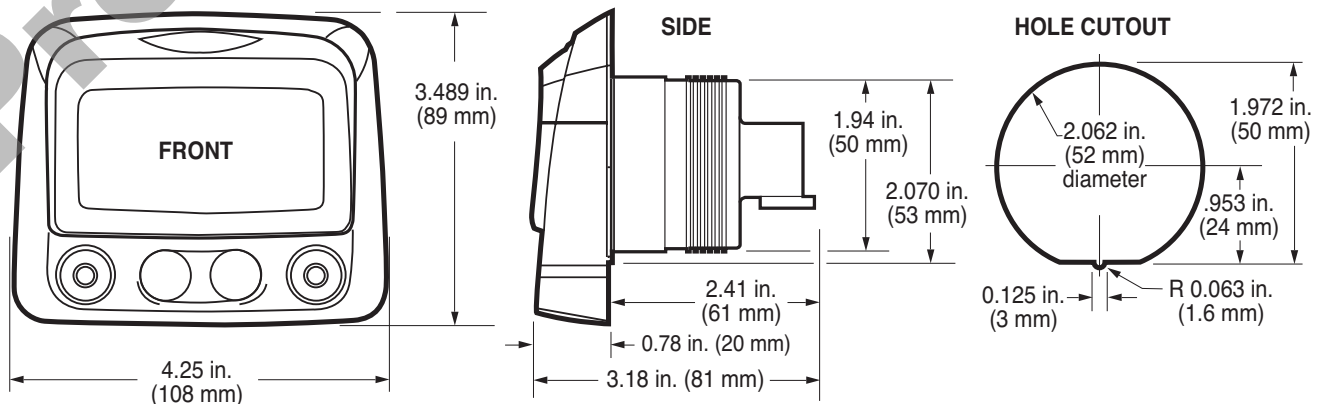


- *Right Arrow* - The Right Arrow Key is touched to scroll through the screen either moving the parameter selection toward the right or downward.



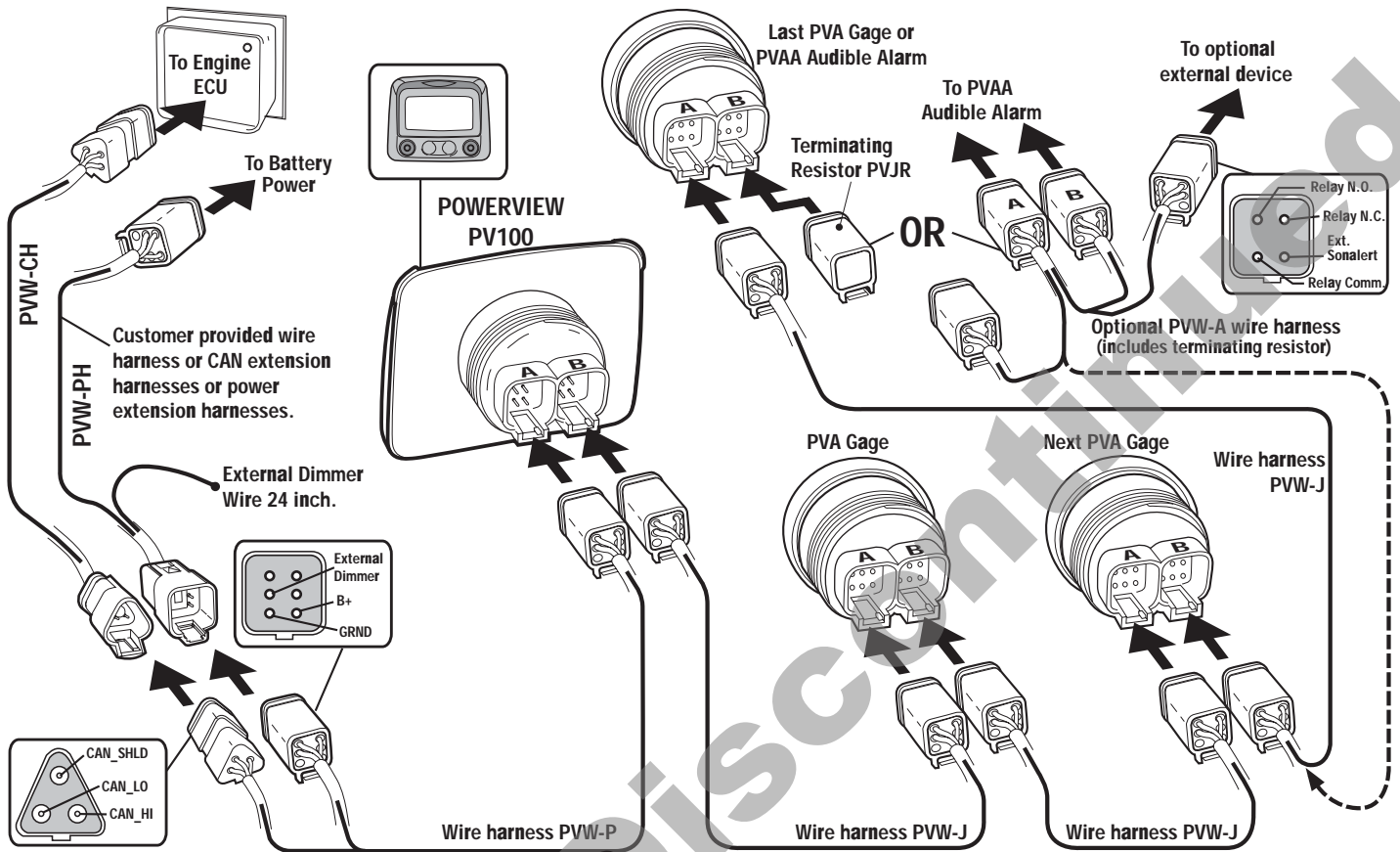
- *Enter Key* - The Enter Key (also known as Enter Button) is touched to select the parameter that is highlighted on the screen.

**Typical Mounting Dimensions**



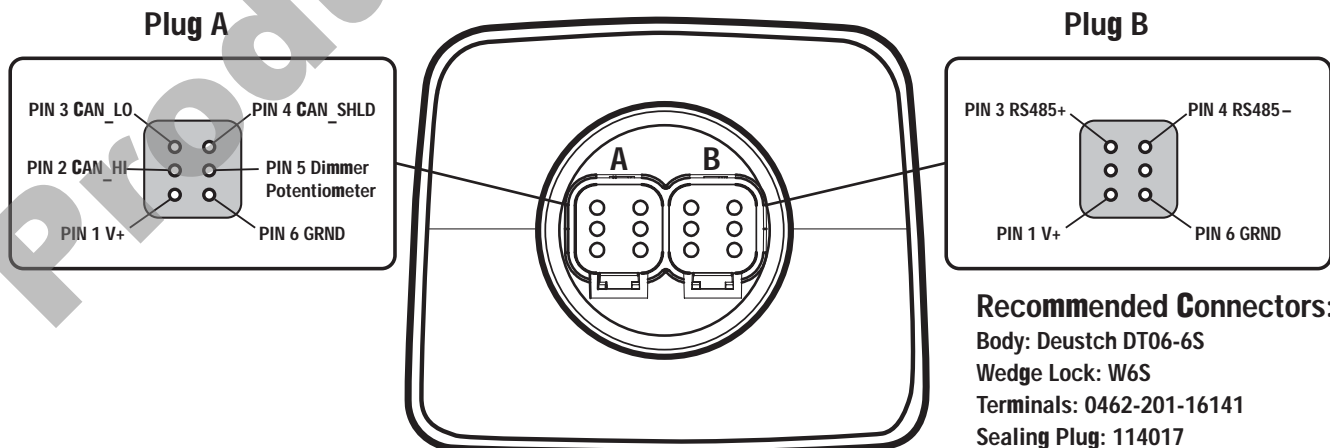
# MECHANICAL INSTALLATION

## Typical Quick-Connect Diagram



# ELECTRICAL INSTALLATION

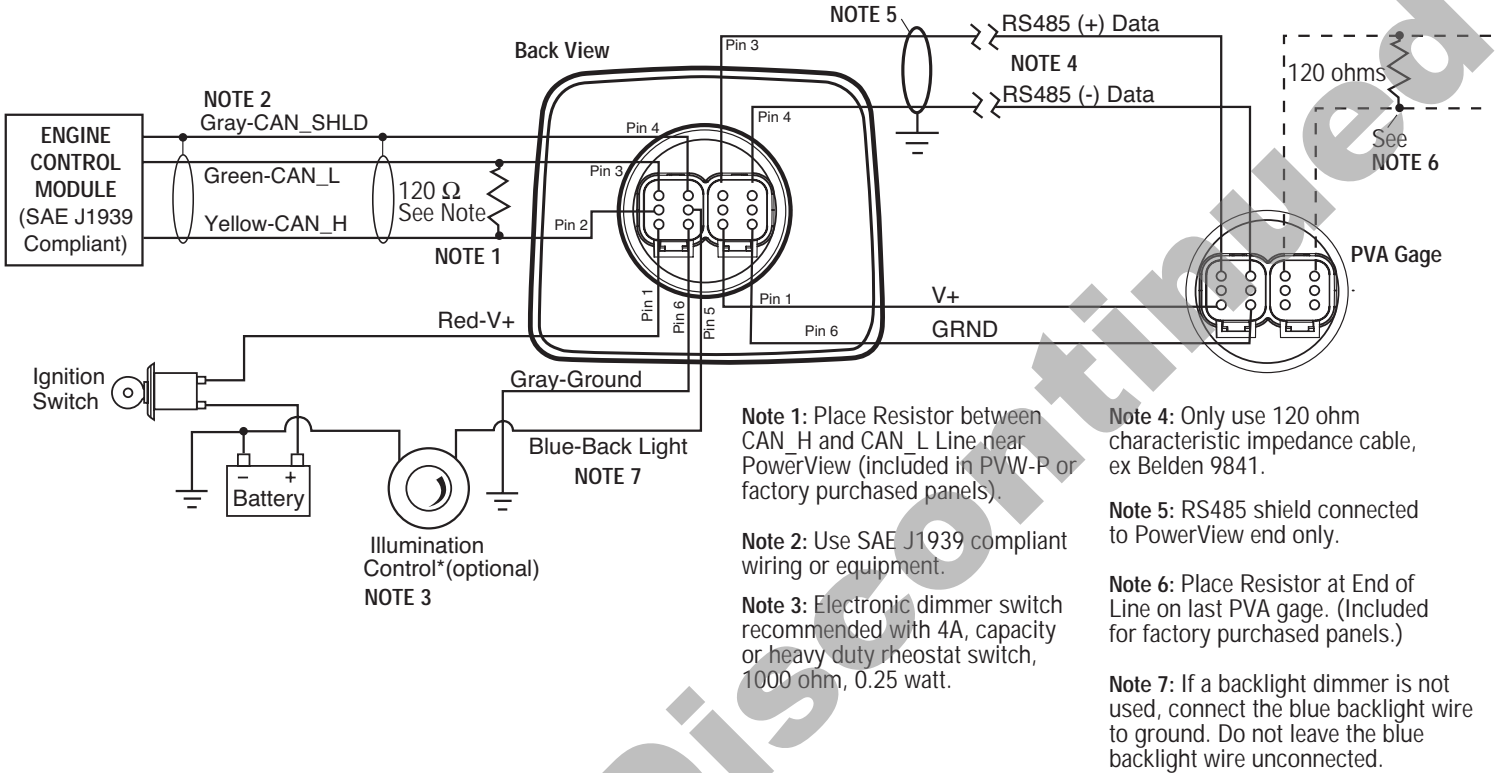
## PowerView Unit Back View Deutsch DT06-6S Style Connections



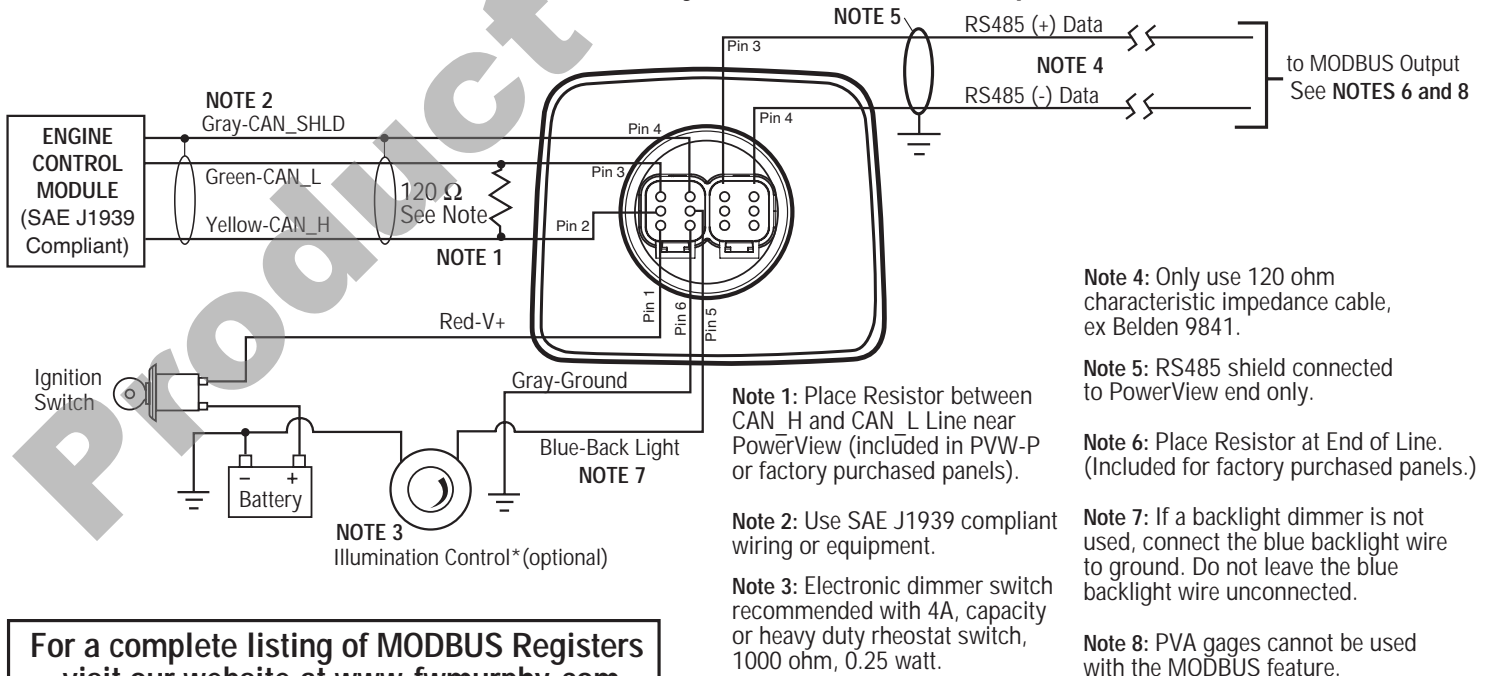
## TYPICAL WIRING DIAGRAMS

**IMPORTANT:** To eliminate external interference: RS485(+) and RS485(-) should be twisted pair cable or twist wires together, one twist per inch minimum. CAN\_L, CAN\_H and CAN Shield should be approved J1939 CAN bus cable (CAN wire for example: RADOX plug and play cable, from Champlain cable). (RS485 wire for example: BELDEN 9841 or 3105A).

### PowerView Deutsch DT06-6S Style Unit to PVA Gage



### PowerView Deutsch DT06-6S Style Unit to MODBUS Output

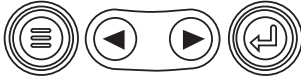


For a complete listing of MODBUS Registers visit our website at [www.fwmurphy.com](http://www.fwmurphy.com)

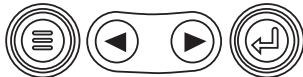
# POWerview OPERATION

## PowerView Menus (First Time Start Up)

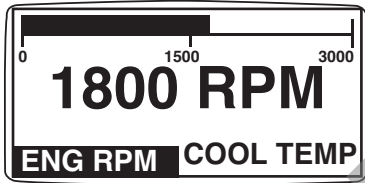
1. When power is first applied to the PowerView, the "Logo" is displayed.



2. The "Wait to Start" message will be displayed for engines with a pre-startup sequence. Once the "Wait to Start" message is no longer displayed the operator may start the engine. Note: Displays only when SAE J1939 message is supported by engine manufacturer.

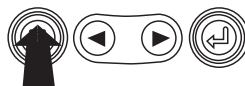
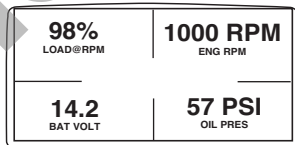
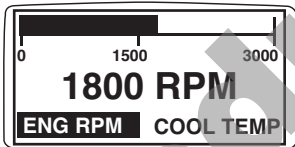


3. Once the engine has started the single engine parameter is displayed.

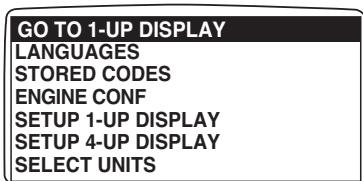


## Main Menu Navigation

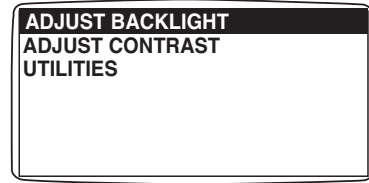
1. Starting at the single or four engine parameter display, touch "Menu".



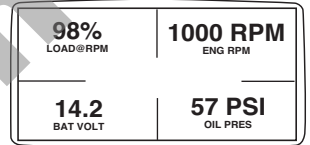
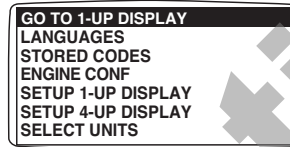
2. The first seven items of the "Main Menu" will be displayed. Touching the "Arrow Buttons" will scroll through the menu selection.



3. Touching the right arrow button will scroll down to reveal the last items of "Main Menu" screen highlighting the next item down.

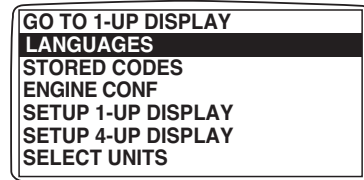


4. Touch the "Arrows" to scroll to the desired menu item or touch "Menu" to exit the Main menu and return to the engine parameter display.

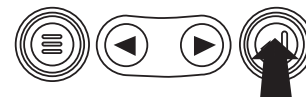
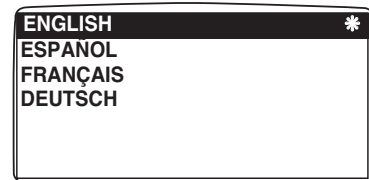


## Selecting a Language

1. Starting at the main menu display use the "Arrows" to scroll to the "Language" menu and once highlighted touch the "Enter" button.



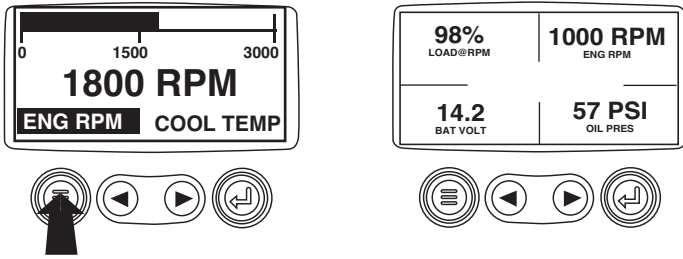
2. The language choices will be displayed. Use the "Arrow" buttons to scroll through the selections and touch "Enter" to make a selection.



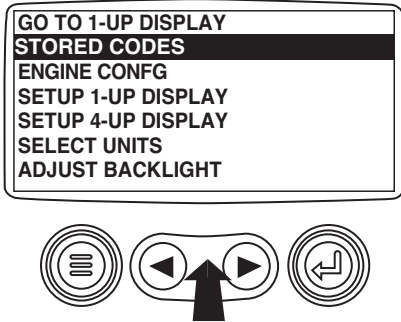
3. Now that you have selected the language, touch the "Menu" button to return to the main menu display.

### Stored Fault Codes

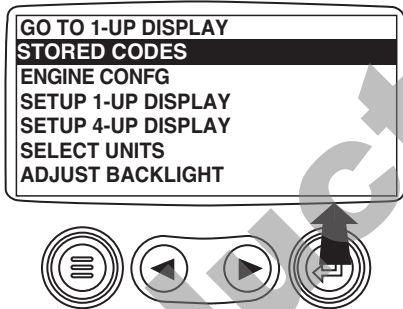
1. Starting at the single or the four engine parameter display touch the "Menu button".



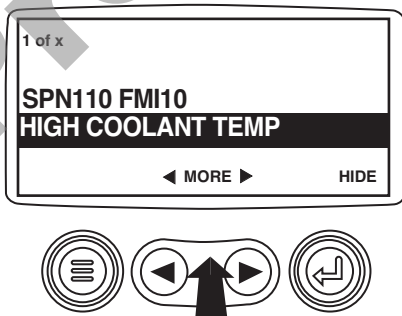
2. The main menu will pop up on the display. Use the "Arrow Buttons" to scroll through the menu until the Stored Fault Codes is highlighted.



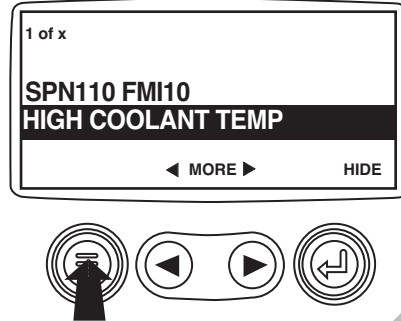
3. Once the "Stored Fault Codes" menu item has been highlighted touch the "Enter Button" to view the "Stored Fault Codes" (when applicable, consult engine or transmission manufacturer for SAE J1939 supported parameters).



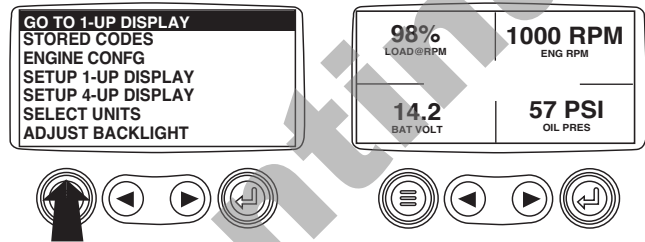
4. If the word "MORE" appears above the "Arrow Buttons" there are more stored fault codes that may be viewed. Use the "Arrow Buttons" to scroll to the next Stored Diagnostic Code.



5. Touch the "Menu Button" to return to the main menu.

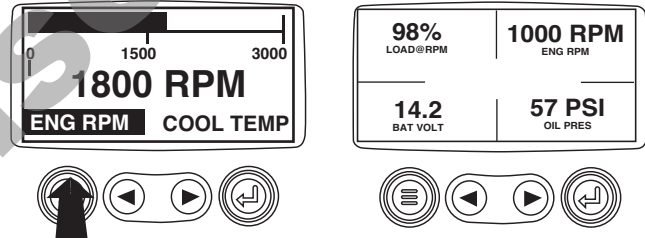


6. Touch the "Menu Button" to exit the Main menu and return to the engine parameter display.

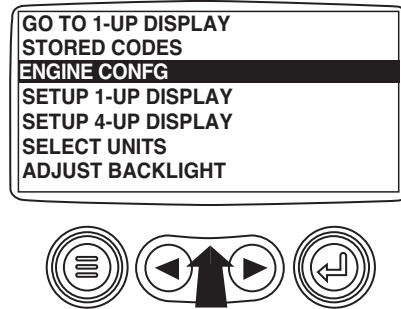


### Engine Configuration Data

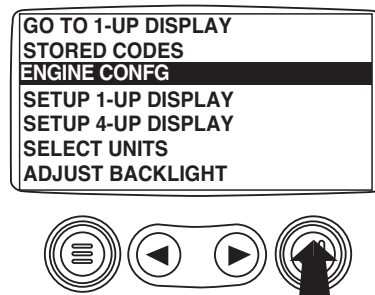
1. Starting at the single or four engine parameter display touch the "Menu Button".



2. The main menu will pop up on the display. Use the "Arrow Buttons" to scroll through the menu until the "Engine Configuration" is highlighted.



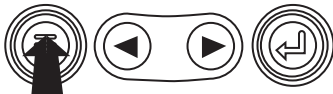
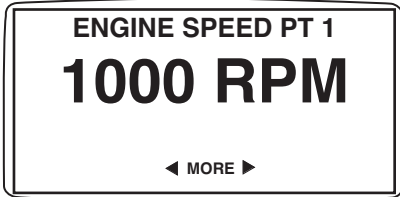
3. Once the "Engine Configuration" menu item has been highlighted touch the "Enter Button" to view the engine configuration data.



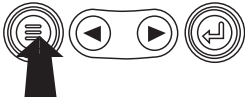
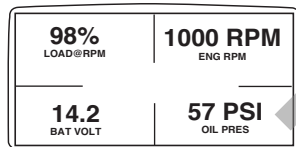
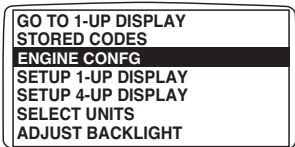
4. Use the "Arrow Buttons" to scroll through the engine configuration data.



5. Touch the "Menu Button" to return to the main menu.



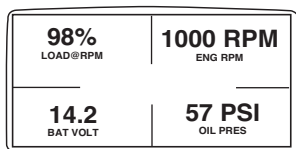
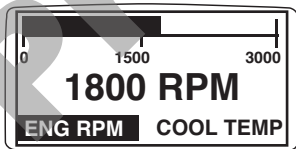
6. Touch the "Menu Button" to exit the Main menu and return to the engine parameter display.



## Faults and Warnings

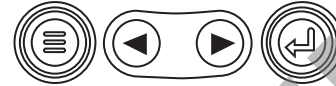
### Auxiliary Gage Fault

1. During normal operation the single or four parameter screen will be displayed.

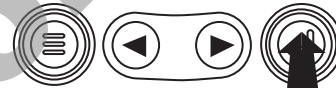


2. The PVA Series of auxiliary gages can be attached to the PowerView. These auxiliary gages communicate with the Modbus master PowerView via a daisy-chained RS-485 port. If at any time during system initialization

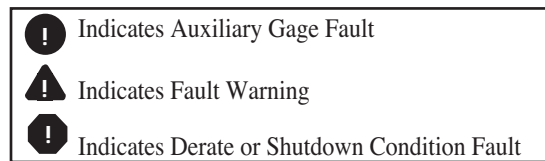
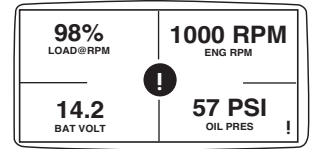
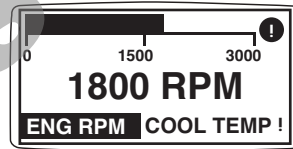
or normal operation an auxiliary gage should fail, the single or four parameter screen will be replaced with the "MLink Gage Fault" message.



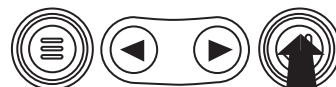
3. To acknowledge and "Hide" the fault and return to the single or four parameter display, touch the "Enter Button".



4. The display will return to the single or four parameter screen.

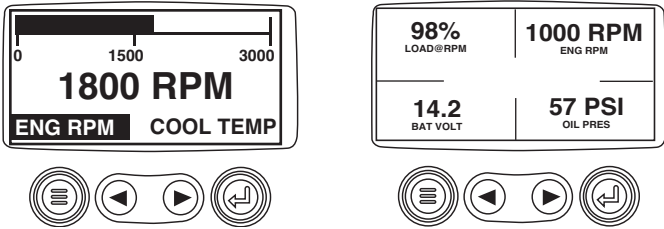


5. Touching the "Enter Button" will redisplay the hidden fault. Touching the "Enter Button" once again will hide the fault and return the screen to the single or four parameter display. NOTE: The fault can only be cleared by correcting the cause of the fault condition.

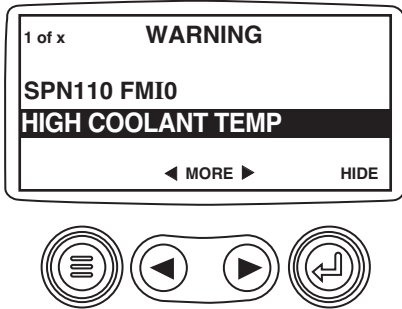


### Active Fault Codes

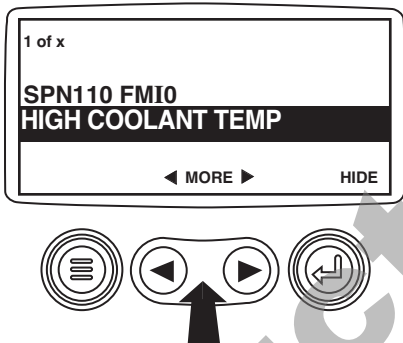
1. During normal operation the single or four parameter screen will be displayed.



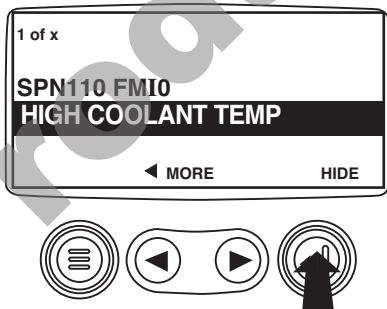
2. When the PowerView receives a fault code from an engine control unit the single or four parameter screen will be replaced with the "Active Fault Codes" message.



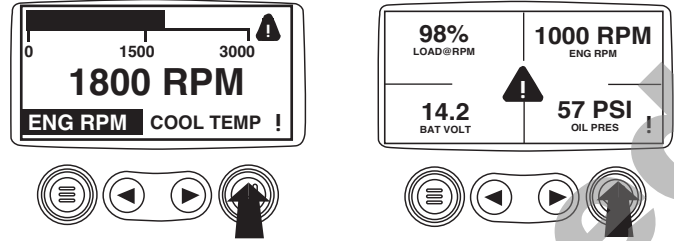
3. If the word "MORE" appears above the "Arrow Buttons" there are more active fault codes that may be viewed. Use the "Arrow Buttons" to scroll to the next "Active Fault Code"



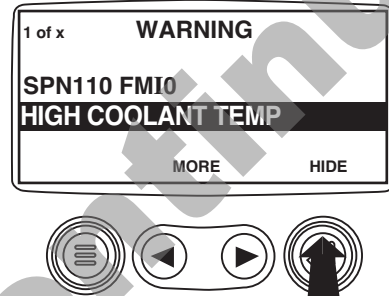
4. To acknowledge and "Hide" the fault and return to the single or four parameter display touch the "Enter Button".



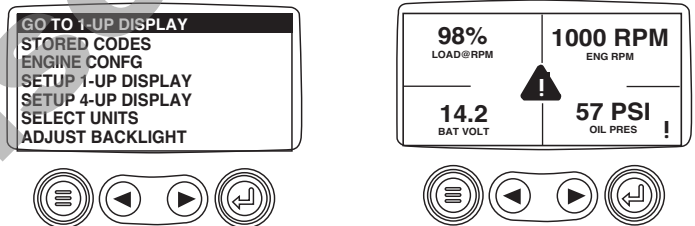
5. The display will return to the single or four parameter display, but the display will contain the "Active Fault" warning icon. Touching the "Enter Button" will redisplay the hidden fault.



6. Touching the "Enter Button" once again will hide the fault and return the screen to the single or four parameter display.

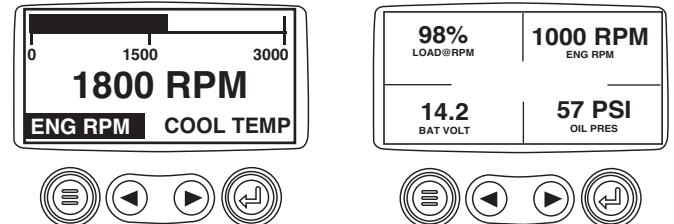


7. The Single or Four parameter screen will display the fault icon until the fault condition is corrected. NOTE: Ignoring active fault codes could result in severe engine damage.

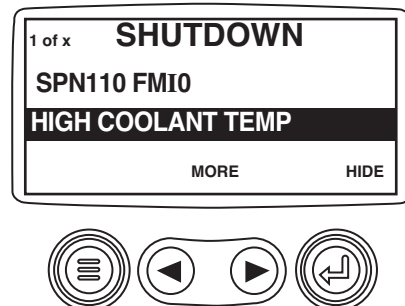


### Shutdown Codes

1. During normal operation the single or four parameter screen will be displayed.

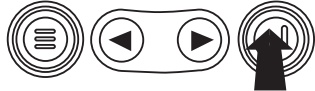
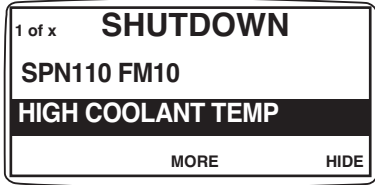


2. When the PowerView receives a severe fault code from an engine control unit the single or four parameter screen will be replaced with the "Shutdown!" message.



## POWerview OPERATION *continued*

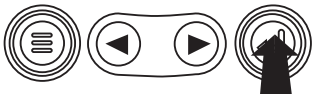
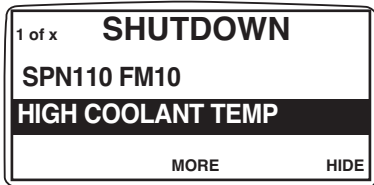
3. To acknowledge and "Hide" the fault and return to the single or four parameter display touch the "Enter Button".



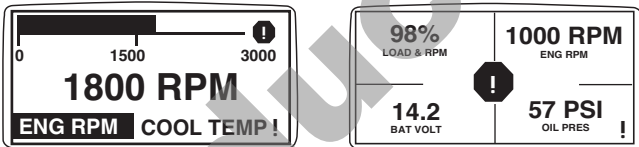
4. The display will return to the single or four parameter display, but the display will contain the "Shut Down" icon. Touching the "Enter Button" will redisplay the hidden fault.



5. Touching the "Enter Button" once again will hide the fault and return the screen to the single or four parameter display.

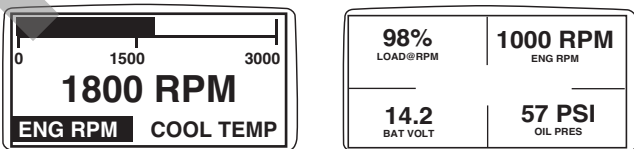


6. The Single or Four parameter screen will display the fault icon until the fault condition is corrected. NOTE: Ignoring active fault codes could result in severe engine damage.

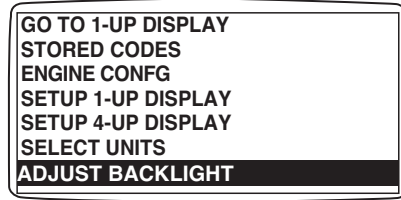


### Back Light Adjustment

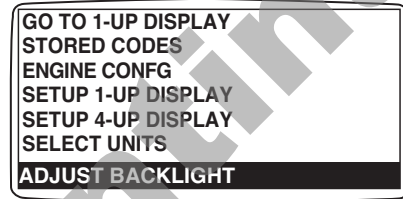
1. Starting at the single or four engine parameter display touch the "Menu Button".



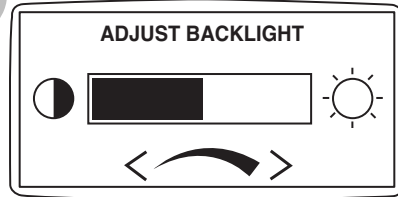
2. The main menu will pop up on the display. Use the "Arrow Buttons" to scroll through the menu until the "Adjust Backlight" is highlighted.



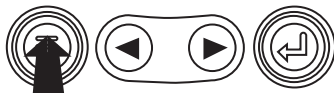
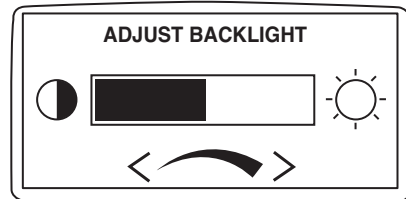
3. Once the "Adjust Backlight" menu item has been highlighted touch the "Enter Button" to activate the "Adjust Backlight" function.



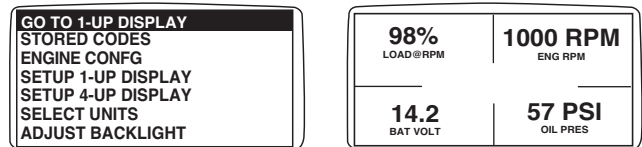
4. Use the "Arrow Buttons" to select the desired backlight intensity.



5. Touch the "Menu Button" to return to the main menu.

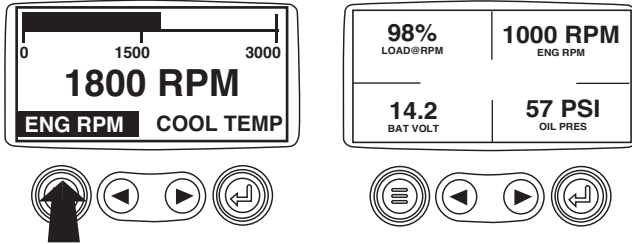


6. Touch the "Menu Button" to exit the Main menu and return to the engine parameter display.

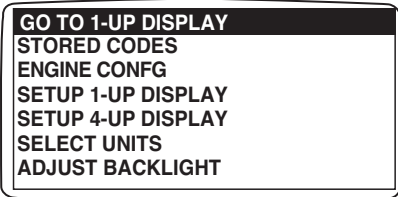


### Contrast Adjustment

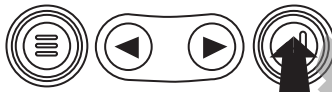
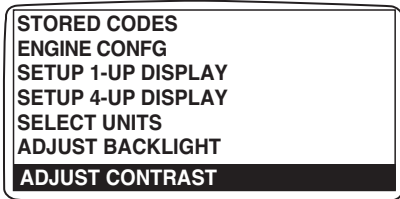
1. Starting at the single or four engine parameter display, touch the "Menu Button".



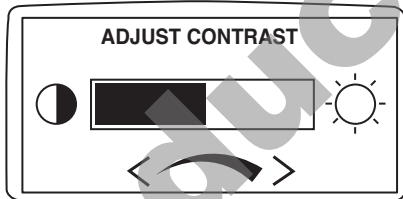
2. The main menu will pop up on the display. Use the "Arrow Buttons" to scroll through the menu until "Adjust Contrast" is highlighted.



3. Once the "Adjust Contrast" menu item has been highlighted touch the "Enter Button" to activate the "Adjust Contrast" function.



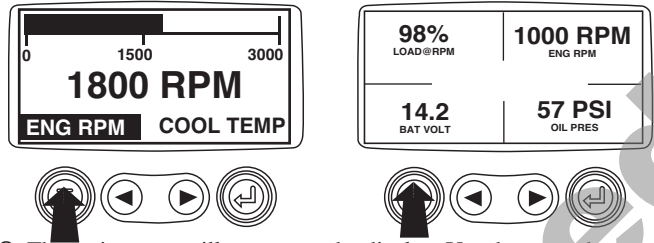
4. Use the "Arrow Buttons" to select the desired contrast intensity.



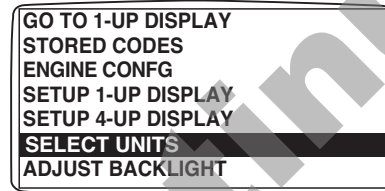
5. Touching the "Menu Button" will take you back through the menus.

### Select Units

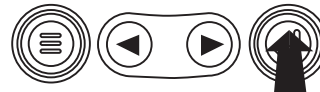
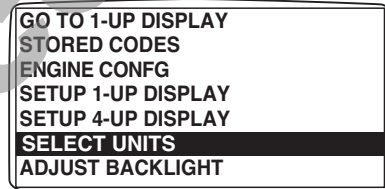
1. Starting at the single or four engine parameter display touch the "Menu Button".



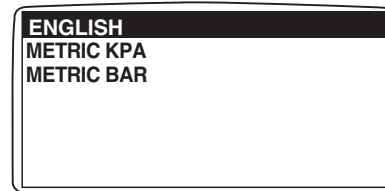
2. The main menu will pop up on the display. Use the arrow buttons to scroll through the menu until the "Select Units" is highlighted.



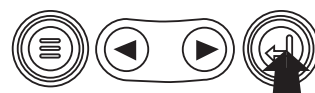
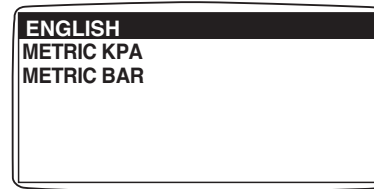
3. Once the "Select Units" menu item has been highlighted touch the "Enter Button" to access the "Select Units" function.



4. Use the arrows to highlight the desired units. "English" for Imperial units i.e. PSI, °F or Metric kPa, Metric Bar for IS units i.e. kPa, Bar, °C.



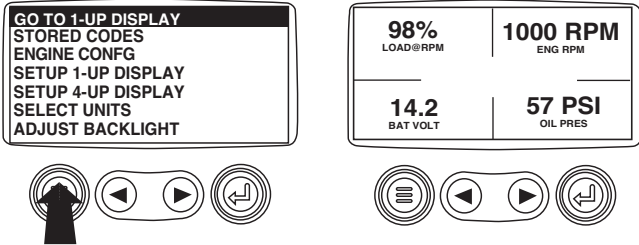
5. Touch the "Enter Button" to select the highlighted units.



6. Touch the "Menu Button" to return to the "Main Menu".

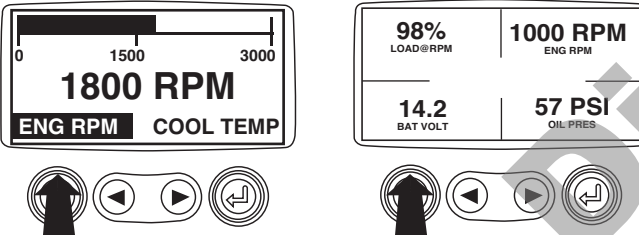


7. Touch the "Menu Button" to exit the Main menu and return to the engine parameter display.

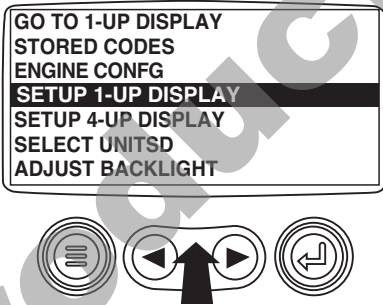


**Setup 1-Up Display**

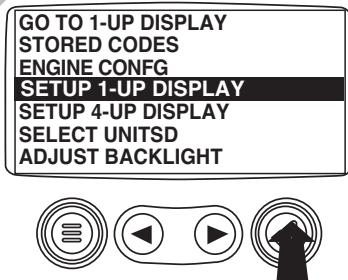
1. Starting at the single engine parameter display, touch the "Menu Button".



2. The main menu will pop up on the display. Use the "Arrow Buttons" to scroll through the menu until the "Setup 1-up Display" is highlighted.



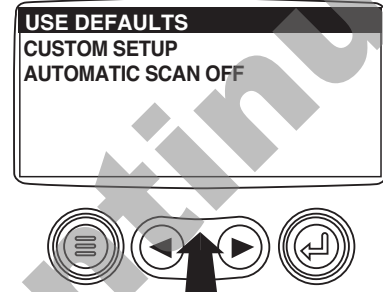
3. Once the "Setup 1-up Display" menu item has been highlighted touch the "Enter Button" to access the "Setup 1-up Display" function.



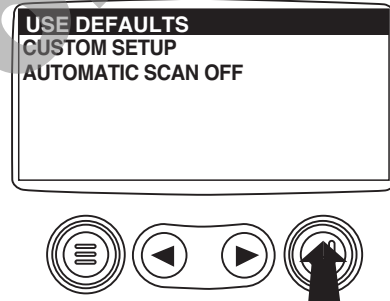
4. Three options are available for modification of the 1-Up display.

- a). Use Defaults – This option contains a set of engine parameters: Engine Hours, Engine RPM, System Voltage, Battery Voltage, % Engine Load at Current RPM, Coolant Temperature, Oil Pressure.
- b). Custom Setup – This option allows for the modification of what parameter, the number of parameters, and the order in which the parameters are being displayed.
- c). Automatic Scan – Selecting the scan function will cause the 1-Up Display to scroll through the selected set of parameters one at a time, momentarily pausing at each.

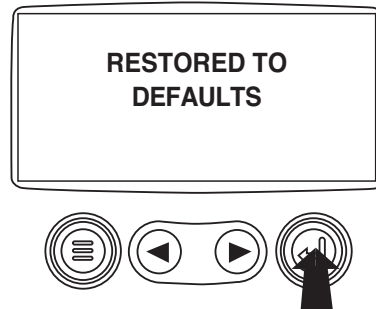
5. Use Defaults - To select "Use Defaults" use the arrow buttons to scroll to and highlight "Use Defaults" in the menu display.



6. Touch the "Enter Button" to activate the "Use Defaults" function.

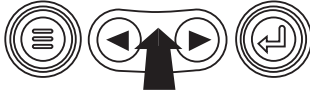
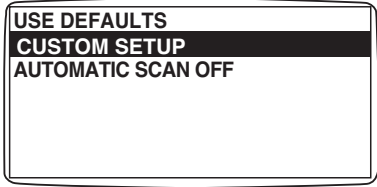


7. A message indicating the "Single Engine" parameter display parameters are reset to the factory defaults will be displayed, then the display will return to the "Custom Setup" menu.

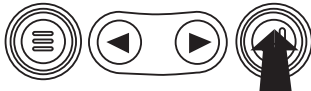
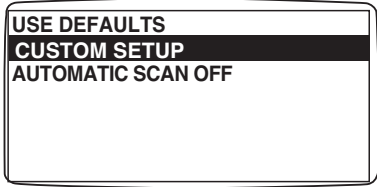


**POWerview OPERATION *continued***

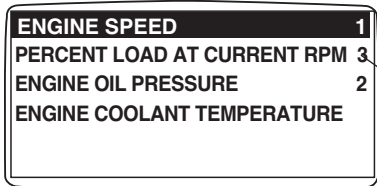
8. Custom Setup - To perform a custom setup of the 1-Up Display, use the arrow buttons to scroll to and highlight "Custom Setup" on the display.



9. Touching the "Enter Button" will display a list of engine parameters.



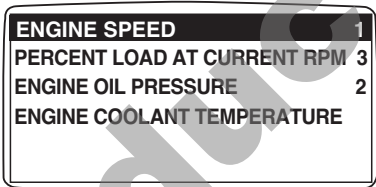
10. Use the "Arrow Buttons" to scroll to and highlight a selected parameter (parameter with a # symbol to right of it).



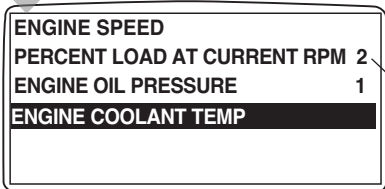
This number indicates the order of display for the parameters and that the parameter is selected for display.



11. Touch the "Enter Button" to deselect the selected parameter removing it from the list of parameters being displayed on the 1-up display.



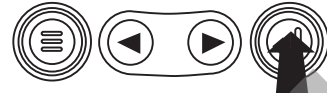
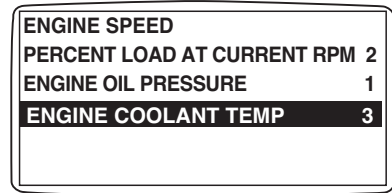
12. Use the "Arrow Buttons" to scroll and highlight the desired parameter that has not been selected for display.



Note that the numbers now indicate the new order of display for the parameters.

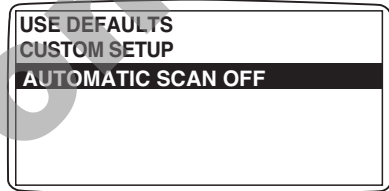


13. Touch the "Enter button" to select the highlighted parameter for inclusion in the Single Engine Parameter Display.

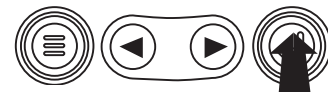
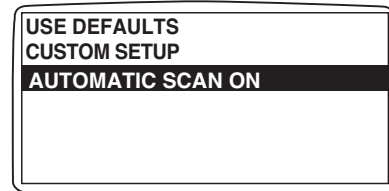


14. Continue to scroll and select additional parameters for the custom 1-Up Display. Touch the "Menu button" at any time to return to the "Custom Setup" menu.

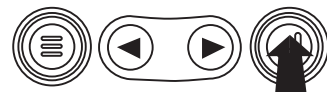
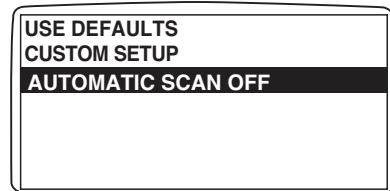
15. Automatic Scan - Selecting the scan function will cause the 1-Up Display to scroll through the selected set of parameters one at a time. Use the "Arrow Buttons" to scroll to the "Automatic Scan" function.



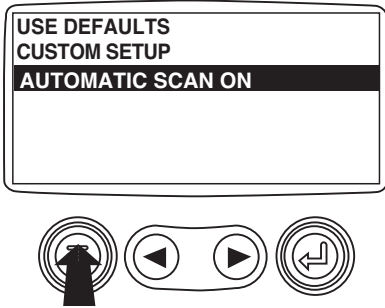
16. Touching the "Enter Button" toggles the "Automatic Scan" function on.



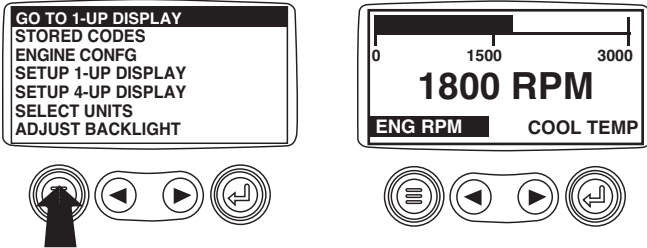
17. Touching the "Enter Button" again toggles the "Automatic Scan" function off.



18. Once the "Use Defaults", "Custom Setup" and "Automatic Scan" functions have been set touch the "Menu Button" to return to the main menu.

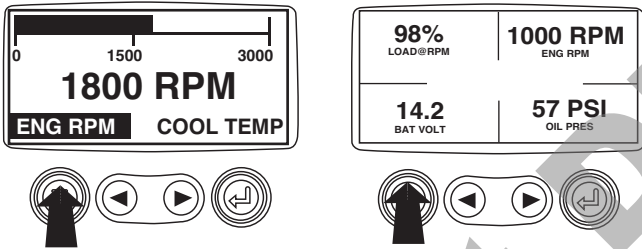


19. Touch the "Menu Button" to exit the Main menu and return to the engine parameter display.

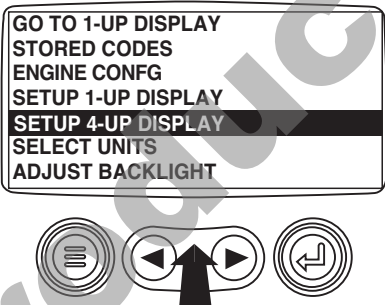


### Setup 4-Up Display

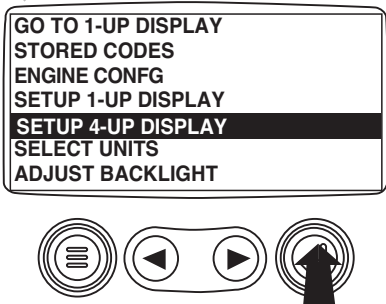
1. From the single or four engine parameter display touch the "Menu Button".



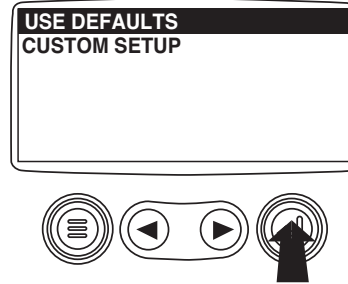
2. The main menu will pop up on the display. Use the "Arrow Buttons" to scroll through the menu until the "Setup 4-Up Display" is highlighted.



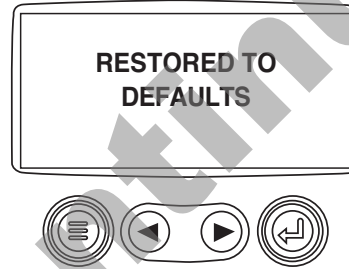
3. Once the "Setup 4-Up Display" menu item has been highlighted touch the "Enter Button" to activate the "Setup 4-Up Display" menu.



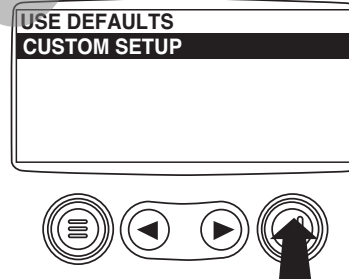
4. Touch the "Enter Button" to activate the "Use Defaults" function. This action will reset the unit to the factory default.



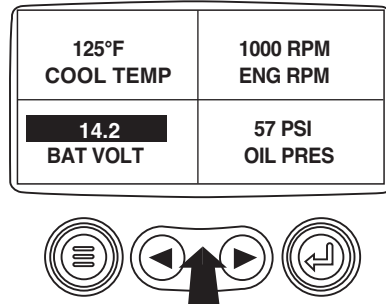
5. The "Use Defaults" screen will be displayed during the resetting period then will automatically return to the "Setup 4-Up Display" menu.



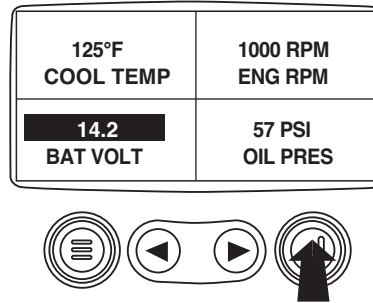
6. Select the "4-Up Custom Setup" from the "4-Up Setup" menu.



7. The quadrant with the backlit parameter value is the current selected parameter. Use the "Arrow Buttons" to highlight the parameter value in the quadrant you wish to place a new parameter.



8. Touch the "Enter Button" and a list of parameters will appear.

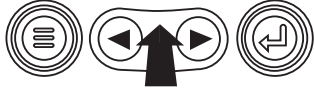


## POWerview OPERATION *continued*

9. The parameter that is highlighted is the selected parameter for the screen. Use the "Arrow Buttons" to highlight the new parameter to be placed in the quadrant selected in the previous screen.

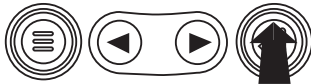
|                               |          |
|-------------------------------|----------|
| ENGINE SPEED                  | 3        |
| ENGINE HOURS                  |          |
| ENGINE COOLANT TEMPERATURE    | 1        |
| BATTERY POTENTIAL             |          |
| <b>ENGINE OIL TEMPERATURE</b> | <b>2</b> |
| ENGINE OIL PRESSURE           | 4        |

The number to the right of the parameter indicates the quadrant in which it is displayed.  
 1. = Upper Left Quadrant  
 2. = Lower Left Quadrant  
 3. = Upper Right Quadrant  
 4. = Lower Right Quadrant



10. Touch the "Enter Button" to change the selected parameter in the quadrant to the new parameter.

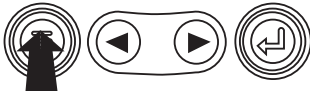
|                               |   |
|-------------------------------|---|
| ENGINE SPEED                  | 3 |
| ENGINE HOURS                  |   |
| ENGINE COOLANT TEMPERATURE    | 1 |
| BATTERY POTENTIAL             | 2 |
| <b>ENGINE OIL TEMPERATURE</b> |   |
| ENGINE OIL PRESSURE           | 4 |



11. Use the "Menu Button" to return to the "4-UP Custom Setup" screen.

|                               |          |
|-------------------------------|----------|
| ENGINE SPEED                  | 3        |
| ENGINE HOURS                  |          |
| ENGINE COOLANT TEMPERATURE    | 1        |
| BATTERY POTENTIAL             |          |
| <b>ENGINE OIL TEMPERATURE</b> | <b>2</b> |
| ENGINE OIL PRESSURE           | 4        |

Note the number to the right of the selected parameter indicating that the parameter is now assigned to that display location.



12. The parameter in the selected quadrant has changed to the parameter selected in the previous screen.

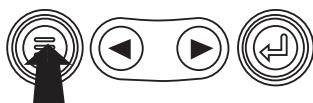
|                    |                            |
|--------------------|----------------------------|
| 125°F<br>COOL TEMP | <b>1000 RPM</b><br>ENG RPM |
| 143°F<br>OIL TEMP  | 57 PSI<br>OIL PRES         |



13. Repeat the parameter selection process until all spaces are filled.

14. Touch the "Menu Button" to return to the main menu.

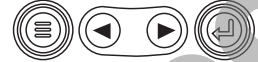
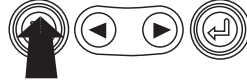
|                    |                            |
|--------------------|----------------------------|
| 125°F<br>COOL TEMP | <b>1000 RPM</b><br>ENG RPM |
| 143°F<br>OIL TEMP  | 57 PSI<br>OIL PRES         |



15. Touch the "Menu Button" to exit the Main menu and return to the engine parameter display.

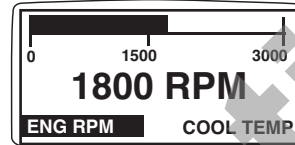
|                           |
|---------------------------|
| GO TO 1-UP DISPLAY        |
| STORED CODES              |
| ENGINE CONFG              |
| SETUP 1-UP DISPLAY        |
| <b>SETUP 4-UP DISPLAY</b> |
| SELECT UNITS              |
| ADJUST BACKLIGHT          |

|                   |                     |
|-------------------|---------------------|
| 125%<br>COOL TEMP | 1000 RPM<br>ENG RPM |
| 143°F<br>OIL TEMP | 57 PSI<br>OIL PRES  |

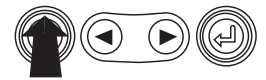


### Utilities (Information and troubleshooting)

1. Starting at the single or four engine parameter display, touch the "Menu button"



|                   |                     |
|-------------------|---------------------|
| 125%<br>COOL TEMP | 1000 RPM<br>ENG RPM |
| 143°F<br>OIL TEMP | 57 PSI<br>OIL PRES  |



2. The main menu will be displayed. Use the "Arrow buttons" to scroll through the menu until the "Utilities" is highlighted.

|                    |
|--------------------|
| STORED CODES       |
| ENGINE CONFG       |
| SETUP 1-UP DISPLAY |
| SETUP 4-UP DISPLAY |
| SELECT UNITS       |
| ADJUST BACKLIGHT   |
| <b>UTILITIES</b>   |



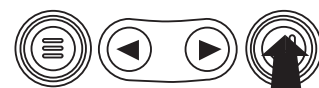
3. Once the "Utilities" menu item has been highlighted, touch the "Enter Button" to activate the "Utilities" functions.

|                    |
|--------------------|
| STORED CODES       |
| ENGINE CONFG       |
| SETUP 1-UP DISPLAY |
| SETUP 4-UP DISPLAY |
| SELECT UNITS       |
| ADJUST BACKLIGHT   |
| <b>UTILITIES</b>   |

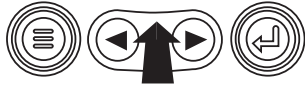
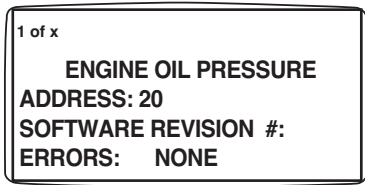


4. Touch "Select" to enter the "Gage Data" display. When "Gage Data" is selected the PowerView will communicate with the analog gages at a fixed rate of 38.4 k Baud, 8 data bits, no parity check, 1 stop bits, half duplex.

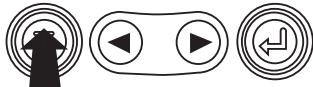
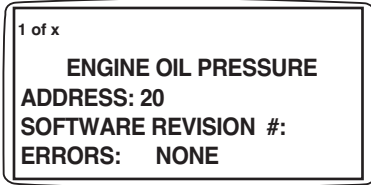
|                  |
|------------------|
| <b>GAGE DATA</b> |
| REMOVE ALL GAGES |
| SOFTWARE VERSION |
| MODBUS SETUP     |
| FAULT CONVERSION |
| DEMO MODE ON     |



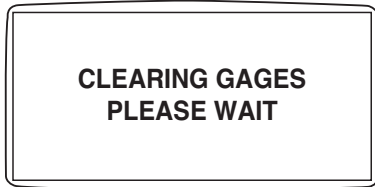
5. Use the “Arrow buttons” to scroll through the items or touch “Menu” to return to the “Utilities” menu.



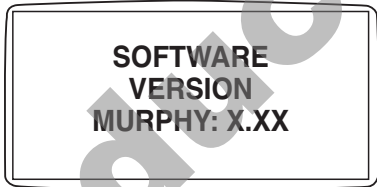
6. Touch “Menu Button” to return to the “Utilities” menu.



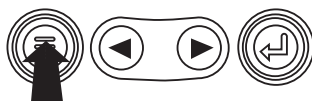
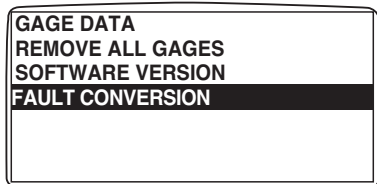
7. Use the “Arrows” to highlight “Remove All Gages”. Touch “Select” to clear gage data from memory. It takes a moment to clear all gages.



8. When the gage data has cleared, the display automatically returns to the “Utilities” menu. Scroll to “Software Version”. Touch “Select” to view the software version currently in the PowerView.



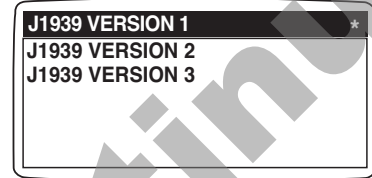
9. Touch “Menu” to return to “Utilities”. Highlight “Fault Conversion” using the “Arrows”. Touch “Select” to enter the Fault conversion menu.



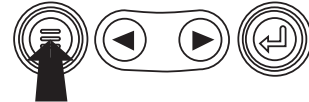
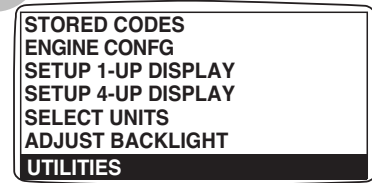
10. Use the “Arrows” to scroll to and highlight the desired version then touch “Select”. An asterisk denotes which version is currently selected.

NOTE: There are four (4) different methods for converting fault codes. The PowerView always looks for J1939 Version 4 and can be set to read the code as one of three (3) other J1939 versions if Version 4 is not being used. Most engine ECU’s use Version 4, therefore in most cases adjustment of this menu option will not be required.

Upon receiving an unrecognizable fault, change to a different J1939 Version. If the fault SPN does not change when the version is changed, the ECU generating the fault is using Fault Conversion method 4. If the SPN number does change but is still unrecognizable, try changing to another J1939 Version not yet used and continue to check the SPN number.

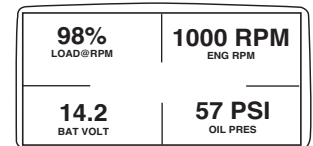
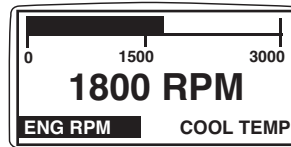


11. Touch the “Menu” button to return to “Utilities” menu. Touch the “Menu” button again to return to the “Main” menu.

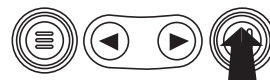
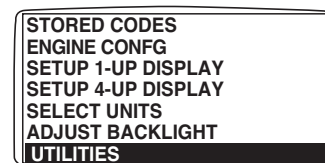


### MODBUS Setup

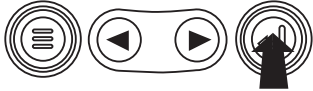
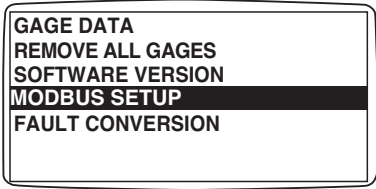
1. Starting at the single or four engine parameter display, touch the “Menu” button:



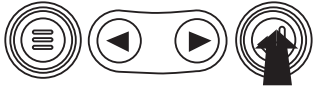
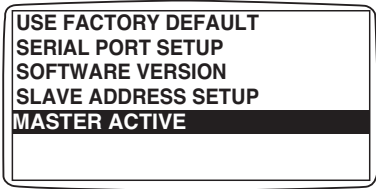
2. The main menu will be displayed. Use the “Arrow buttons” to scroll through the menu until the “Utilities” is highlighted, then touch “Enter”.



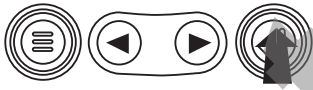
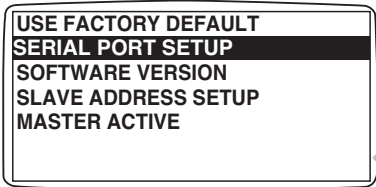
3. Once in the “Utilities” menu use the “Arrows” to scroll through the menu until the “Modbus Setup” menu is highlighted, then touch “Enter”.



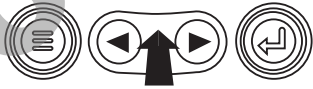
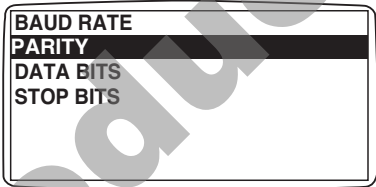
4. Use the “Arrows” to scroll down to and highlight either the “Slave Active or Master Active” modes. Touch the “Enter” button to toggle between master and slave.



5. Use the “Arrows” to scroll to the “Serial Port” menu to highlight it, then touch “Enter”.



6. Use the “Arrow” button to scroll to each selection to configure the MODBUS values for your application.



7. When finished, touch “Menu” to return to the previous screen.

# SAE J1939 MurphyLink System Implementation of J1939 Parameters

Source: SAEJ1939-71 Surface Vehicle Recommended Practice

| Description                           | PGN                     | Parameter  | Display Value   |
|---------------------------------------|-------------------------|--|---|
| Elec Eng Cont #2 - EEC2               | 61443                   | Accelerator Pedal Position<br>Percent Load at Current RPM  | THROTTLE<br>LOAD@RPM                                      |
| Elec Eng Cont #1 - EEC1               | 61444                   | Actual engine % torque<br>Engine Speed   | ENG TORQ<br>ENG RPM                                       |
| Engine hours, Revolutions             | 65253                   | Total Engine Hours   | ENG HRS   |
| Fuel Consumption                      | 65257                   | Trip Fuel<br>Total Fuel Used   | TRIP FUEL<br>FUEL USED                                    |
| Engine Temperature                    | 65262                   | Engine Coolant Temp<br>Fuel Temperature<br>Engine Oil Temperature<br>Engine Intercooler Temperature    | COOL TEMP<br>FUEL TEMP<br>OIL TEMP<br>INTC TEMP           |
| Engine Fluid Level/Pressure           | 65263                   | Fuel Delivery Pressure<br>Engine Oil Level<br>Engine Oil Pressure<br>Coolant Pressure<br>Coolant Level | FUEL PRES<br>OIL LVL<br>OIL PRES<br>COOL PRES<br>COOL LVL |
| Fuel Economy                          | 65266                   | Fuel Rate<br>Instantaneous Fuel Economy<br>Average Fuel Economy  | FUEL RATE<br>FUEL ECON<br>AVG ECON                        |
| Ambient Conditions                    | 65269                   | Barometric Pressure<br>Air Inlet Temperature   | BARO PRES<br>AIR IN TP                                    |
| Inlet/Exhaust Conditions              | 65270                   | Boost Pressure<br>Intake Manifold Temp<br>Air Filter Differential Pressure<br>Exhaust Gas Temperature  | BST PRES<br>MANI TEMP<br>AIR DIF PR<br>EXH TEMP           |
| Engine Fluid Level/Pressure #2        | 65243                   | Injector Metering Rail 1 Pres<br>Injector Metering Rail 2 Pres   | INJ PRES1<br>INJ PRES2                                    |
| Fan Drive-FD                          | 65213                   | Estimated Percent Fan Speed  | FAN SPD   |
| Diagnostic Messages                   | 65226<br>65227<br>65228 | DM1 - Active Diagnostic<br>DM2 - Previously Act Diag Codes<br>DM3 - Diagnostic Clear                   | SRUCODE<br>STORCODE                                       |
| Machine Hours (PowerView Calculated)  | N/A                     | Machine Hours  | MACH HRS  |
| Engine Conf.                          | 65251                   | Engine Configuration   | ENG CONF  |
| Hydraulic Pressure Governor Info-HPG  | 61448                   | Hydraulic Oil Pressure   | HYD PRES  |
| Electronic Transmission Controller #1 | 61442                   | Output Shaft Speed   | OUT SFT SP  |
| Electronic Transmission Controller #1 | 61442                   | Input Shaft Speed  | IN SFT SPD  |
| Electronic Transmission Controller #1 | 61442                   | Torque Converter Lockup Engaged  | TORQ LOCK   |
| Electronic Transmission Controller #2 | 61445<br>61445          | Selected Gear<br>Current Gear  | SLECT GEAR<br>CURNT GEAR                                  |
| Transmission Fluids                   | 65272                   | Transmission Oil Pressure<br>Transmission Oil Temperature  | TRAN PRES<br>TRAN TEMP                                    |
| Transmission Control 1-TC1            | 256                     | Requested Gear   | REQ GEAR  |
| Auxiliary Pressures & Temperatures    | 65164                   | Auxiliary Temperature<br>Auxiliary Pressure  | AUX TEMP<br>AUX PRES                                      |
| Auxiliary Input/Output Status         | 65241                   | Auxiliary I/O #1   | AUX IO 1  |
| Cruise Control /Vehicle Speed         | 65265                   | Wheel Based Vehicle Speed  | VEH SPD   |
| Vehicle Electrical Power              | 65271                   | Alternator Voltage<br>Electrical Potential (Voltage)<br>Battery Pot. Voltage (Switched)                | ALT VOLT<br>SYS VOLT<br>BAT VOLT                          |
| Vehicle Distance                      | 65248                   | Trip Distance<br>Total Vehicle Distance  | TRIP DIST<br>VEH DIST                                     |
| Vehicle Fluids-VF                     | 65128                   | Hydraulic Oil Temperature  | HYD TEMP  |
| Dash Display-DD                       | 65276                   | Fuel Level   | FUEL LEVEL  |
| Rudder                                | 127245                  | Rudder Angle   | RUD ANG   |
| Speed                                 | 128259                  | Water Referenced   | H2O REF.SP  |
| Small Craft Status, Port Trim         | 130576                  | Port Trim Tab  | P TRIM TAB  |
| Small Craft Status, Starboard Trim    | 130576                  | Starboard Trim Tab   | S TRIM TAB  |
| Support Allison DTCs                  |                         | Retarded Temperature Above Normal (SPN=120, FMI=15)  | RETARDED OIL TEMPERATURE ABOVE NORMAL                     |
|                                       |                         | Transmission Oil Temperature Above Normal (SPN=177, FMI=15)  | TRANSMISSION OIL TEMPERATURE ABOVE NORMAL                 |
|                                       |                         | Unknown General Transmission Fault (SPN=2003, FMI=31)  | GENERAL TRANSMISSION FAULT UNKNOWN                        |

## GLOSSARY (Troubleshooting information)

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### CANBUS FAILURE

PowerView has not received any CAN messages for at least 30 seconds.

### NO DATA

PowerView has not received the particular message being displayed for at least 5 seconds.

### NOT SUPPORTED

PowerView has received a message from the ECU stating the displayed message is not supported.

### DATA ERROR

PowerView has received an error message from the ECU for the displayed message.

### EMPTY

No parameter selected for this 4-UP quadrant.

### WAIT TO START PREHEATING

This is a message from the engine indicating it is in a preheating cycle. Wait until this message clears before starting the engine.

### TIMEOUT ECU NOT RESPONDING

The ECU did not respond to the PowerView request.

### NO GAGE DATA

The PowerView has no record of connected gages to the RS485 bus.

### Display Not Visible

Press and hold the “Menu” button for approximately 3 seconds.



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