



ELECTRONIC FUEL INJECTION

Pro Dash Wiring and Sensor Setup & 558-456 Instructions Guide



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ATTENTION!

THE USB FLASH DRIVE INCLUDED WITH YOUR PRO DASH CONTAINS A DETAILED USER MANUAL. ONE MAY ALSO BE FOUND ONLINE AT www.holley.com.

Introduction

This manual is designed to be an overview of wiring and sensor configuration setup for the Holley Pro Dash products. The information contained pertains to both “standalone” and “EFI” installations of the dash.

NOTE: The Pro Dash User Manual contains a significant amount more information than this manual, consult it for more detail and a comprehensive overview of the Pro Dash Products.

Harness Options

The following provides information on the following dash and harness options available:

553-111 & 553-112 – These Pro Dash products include a dash and are intended for EFI connected applications. The main harness included with them have the minimum amount of wiring necessary (power/ground and CAN) to connect to an ECU

553-116 & 553-117 – These Pro Dash products include a dash and are intended for “Standalone” applications where sensors are wired directly to the dash. These products include a semi-terminated harness with terminated connectors for basic engine functions and loose lead connections for additional sensors. These can however, be used for EFI connected applications, as well as the various connections the EFI system has already repurposed for other inputs. The “Standalone Pro Dash Quick Start” manual covers use of the pre-configured layouts in these dashes. This manual is used when adding additional sensors in addition to the terminated connections or reconfiguring sensor types for these products.

558-456 – This kit contains only supplemental wiring and does not include a Dash. It does NOT contain the main Dash 34 pin connector and CAN wiring. It is used when adding dash inputs and outputs to the 553-111 and 553-112 products. The 558-456 harness does not include any sensor connectors, the user must provide and terminate these themselves. The Dash TE 34 pin connector end is terminated with pins. Extra pins are provided in the kit for the dash connector if needed. This manual includes information when using the 558-456 wiring to add additional inputs and outputs to the dash.

558-456 Contents

The 558-456 wiring kit comes with loose wires and 2 and 3 conductor cable (jacketed but not shielded). The wire is 20 gauge TXL. There are TE Superseal pins crimped on every wire and cable. There are also extra pins that can be used (likely needed when using the jacketed cable for more than one sensor). The kit contents include the following. The installer can choose to match the color and functions given in the instructions for consistent installations.

Color	Length/Qty
Pink	10 Feet
Brown	10 Feet
Green	10 Feet
White	10 Feet
Purple	10 Feet
Grey	10 Feet
Dark Blue	10 Feet
Light Blue	10 Feet
Orange	10 Feet
White/Black	10 Feet
Grey	10 Feet
White/Blue	10 Feet
White/Red	10 Feet
Black	10 Feet
White/Violet	10 Feet
Light Green	10 Feet
Light Blue	10 Feet
2 Conductor Cable (Black/Blue)	20 Feet
3 Conductor Cable (Orange/Green/Black)	40 Feet
Superseal Pins	20
Superseal Plugs	20

Connections

All dash harnesses use the same TE Superseal 34 pin connector to connect to the back of the dash. Pin #1 is on the top left of the connector, looking at the back of the connector as it plugs into the dash.



Required Connections (this reviews required connections covered in other manuals)

The following are the **required** connections for all applications (“loose” refers to an individual wire that is not terminated into a connector):

Loose Black – Pin B1 - Connect to a “clean” ground source. Don’t ground to poor sources such as sheet metal, or a ground point that does not have solid connectivity back to the battery.

Loose White – Pin B25 - Connect to a “clean” switched power battery power source. This NEEDS to turn on and off for the dash to operate properly.

Loose Red – Pin B2 - Connect to a “clean” continuous battery power source. Continuous power is needed for a faster GPS lock and to keep the current date and time.

“Clean” = a connection that does not share the same connections as “dirty” sources such as coils, a starter, solenoids, fans, etc., that have a lot of electrical noise or solenoid fly-back voltage.

Dash Pinout

The following covers the possible functions of each pin for the dash. The “Name” is referenced within the dash configuration. The “Pin” refers to the pin number on the 34 pin TE connector. The “Wire Color” refers to the colors of the harness in the 553-116 and 553-117 kits. The 558-456 kit wiring includes these colored wire and it is up to the user if they follow them or not when the harness is populated.

Name	Pin	Wire Color	SSR Out (1.5 Amp)	Analog 5V Input	Switch to Ground Input	Switch to 12v Input	Digital In	RPM	Vehicle Speed	Frequency	Thermistor	Fuel Level
io.1	18	GREEN		X								
io.2	27	WHT/ORG		X								
io.3	19	WHT/BLK		X	X	X	X					
io.4	28	BLUE		X							X	
io.5	20	BLUE		X							X	
io.6	29	WHT/BRN		X							X	
io.7	21	GRAY		X							X	X
io.8	30	WHT/VIO		X	X	X	X					
io.9	22	WHT/BLU		X	X	X	X					
io.10	31	WHT/GRY		X	X	X	X					
io.11	23	GREEN		X	X	X	X	X	X	X		
io.12	32	WHT/YEL		X	X	X	X	X	X	X		
io.13	24	WHT/RED		X	X	X	X					
spd.1	33	LT GRN						X	X	X		
spd.2	34	LT BLUE						X	X	X		
ssr.1	3	PINK	X									
ssr.2	4	BROWN	X									
ssr.3	5	GREEN	X									
ssr.4	6	WHITE	X									
sw.1	15	LT BLUE			X							
sw.2	14	DK BLUE			X							
sw.3	13	GREY			X							
sw.4	12	PURPLE			X							
Ground	1	BLACK										
Battery 12v	2	RED										
Can 1 Hi	7	TAN										
Can 1 Lo	8	ORANGE										
Can 2 Lo	9											
Future	10											
Future	11											
Can 2 Hi	16											
5v Output	17	ORANGE										
12v Ignition	25	WHITE										
Sensor Ground	26	BLACK										

SSR Out – This is a ground switched output. It would be triggered by a virtual switch on the dash. The maximum current draw is 1.5 Amps. If a device pulls more than this, have the dash output trigger a relay. Note that SSR.1 output may give a ½ second pulse on power-up.

Analog 5V Input – An analog input reads a sensor that provides a 0-5 volt output. Common analog sensors are pressure transducers, throttle position sensors (TPS), linear measurement (shock) sensors, and many more. These sensors will have three connections them, 5 volt power supply, analog ground, and the sensor output. Pin B17 should be used to supply 5 volts to all sensors (splice). Pin B26 should be used for all sensor analog grounds (splice). Do not use any other ground for these sensors.

Switch to Ground Input - Ground switched input to the dash. The dash provides a small internal pull-up current.

Switch to 12v Input - 12v switched input to the dash. An example of this would be turn signal indicators. The dash provides a small internal pull-down current.

Digital In – This input does not contain a pull up/down resistor. The signal is on when voltage is great than 3.5V and off when voltage is less than 1.5V.

RPM - used to display engine speed on tachometer gauges. This MUST be connected to a 5v or 12v square wave, e.g. the tach output on a MSD 6AL ignition. It can NOT be connected directly to the coil or the dash will be damaged! If a dedicated Tach output, such as those found on the MSD ignition boxes “Tach out”, is not available, MSD part number 8918 should be purchased. This is attached directly to the coil and conditions the signal for the dash. This should work with MOST factory inductive coil ignitions

Vehicle Speed – Used to calculate vehicle speed or driveshaft RPM. Uses tire diameter, rear end ratio, and pulses/rev for calculation. See main manual for setup. Signal must be a 5-12 volt square wave (not VR).

Frequency – Displays input in Hertz (pulses per second)

Thermistor – Most thermistors are some type of temperature (engine, air, transmission, etc) sensor. The sensors consist of two wires, the input to the dash and a sensor ground. The sensor ground should be connected to pin B26.

Fuel Level – Fuel level measures the resistance through the fuel sending unit. IO#7 – Pin 21 should be used for this purpose. Make sure the ground side of the sending unit has a good ground connection with the dash itself.

Analog 5V/Thermistor Summary: Both of these use Pin B26 for a ground. All of the sensor grounds for all Analog and Thermistor sensors need to be spliced into this one input. Analog 5V should all have their 5V supplies spliced into pin B17.

The following diagram is another visualization of the back of the 34 pin connector, the functions of each pin and some notes below.

1	2	3	4	5	6	7	8	9
GND	12V	SSR1	SSR2	SSR3	SSR4	CAN1H	CAN1L	CAN2L
10	11	12	13	14	15	16	17	
CVBS1	CVBS2	SW4	SW3	SW2	SW1	CAN2H	5V_EXC	
18	19	20	21	22	23	24	25	
AIN_1	AIN_3	AIN_5	AIN_7	AIN_9	AIN_11	AIN_13	IGN	
26	27	28	29	30	31	32	33	34
GND	AIN_2	AIN_4	AIN_6	AIN_8	AIN_10	AIN_12	SPD1	SPD2

Notes:

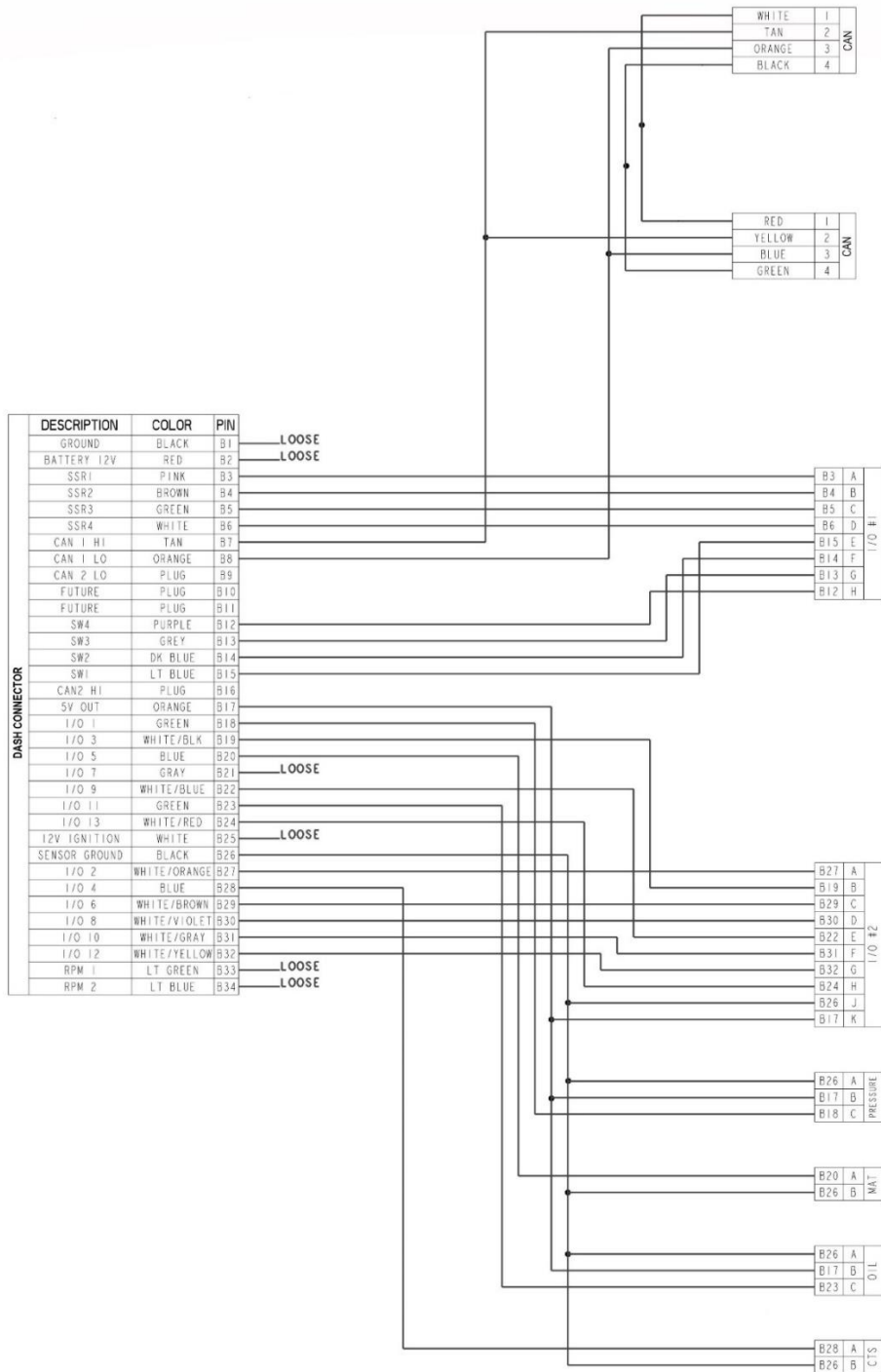
1. The 12V main power input (pin 2) also provides backup for the internal clock and GPS.
2. IGN (pin 25) needs to be connected to 12V to turn on the unit (low current input).
3. 5V_EXC is used to power sensors, 450mA max.
4. CVBS inputs are reserved for future use.

The unit will draw approximately 5 mA in standby to maintain its real time clock and GPS information for quicker acquisition.

Wiring Example

The following wiring example is taken from the semi-terminated harness that comes with the 553-116 and 553-117 dashes. It illustrates the following:

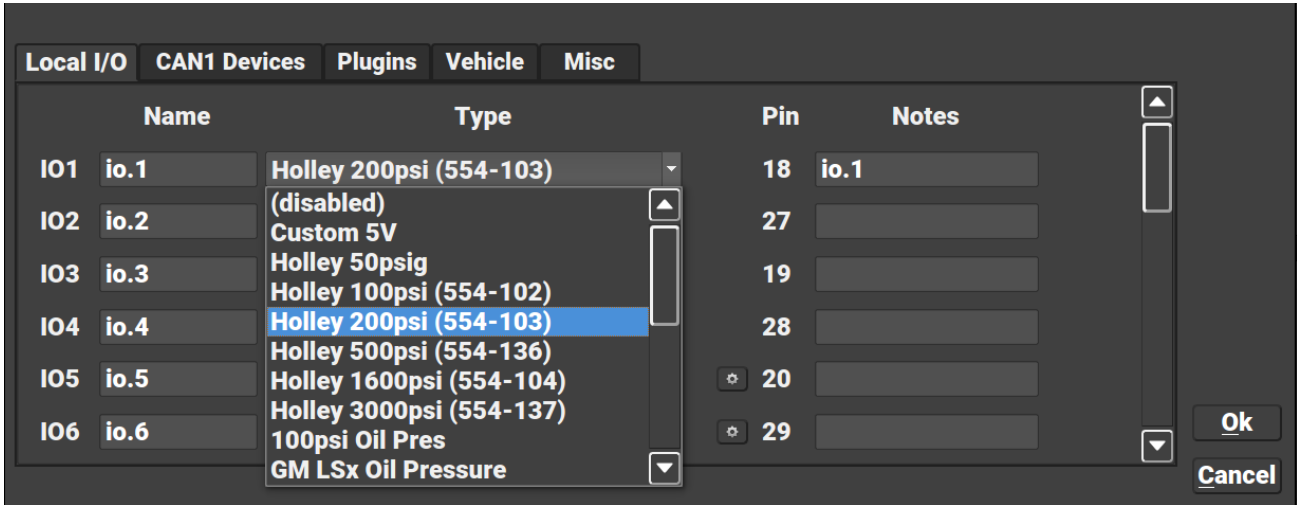
- How to tie the B17 5 volt sensor output together to multiple analog 5 volt sensors
- How to tie the B26 sensor ground output together to multiple analog 5 volt sensors and thermistor sensors
- I/O #1 and I/O #2 are used as bulkhead connectors. The use of any type of bulkhead connector can help sometimes help clean up a wiring install or make servicing easier.



Configuring Local Inputs and Outputs

All inputs and outputs wired into the dash must be configured via the dash for them to operate properly (as a gauge, switch, etc.). To do this select “Menu” off the main dash screen then the “Configuration” tab. Then select the “Local I/O tab”. Your screen should look like the image below.

The first column (IO#) is the name of an input or output referenced in drawing and instructions manuals. The second column “Name” is configurable by the user. This name will then show up to the user when creating a gauge in the list of gauge channels. The “Type” will be based off of what type of inputs or outputs that pin supports. There are many pre-configured options shown that can be purchased through Holley companies (many shown below). The user can also input the sensor scaling for any Analog 5V or Thermistor sensor they wish as well by choosing the “custom” options. For configuring custom inputs consult the Pro Dash Users Manual. The “Pin” refers to the pin number of the 34 pin dash connector.



A number of pre-defined sensors are available from the Type pull-down list. Holley part numbers are shown in parenthesis when applicable.

- | | |
|--|---|
| Holley 100psi (554-102) | Racepak Laser Height |
| Holley 200psi (554-103) | Holley 30amp Sensor (554-170) |
| Holley 500psi (554-136) | Holley 50amp Sensor (554-171) |
| Holley 1600psi (554-104) | Holley 200amp Sensor (554-171) |
| Holley 3000psi (554-137) | Holley 350amp Sensor (554-170) |
| 100psi Oil Pressure (554-102) (overrides oil pressure) | Holley 1bar (538-24) |
| GM LSx Oil Pressure (overrides oil pressure channel) | Holley 2bar (538-13) |
| GM LSx MAP (overrides MAP channel) | Holley 3bar (554-107) |
| GM LSx CTS (overrides CTS channel) | Holley 3.5bar SS (554-134) |
| Racepak 200C IR temperature | Holley 5bar SS (554-108) |
| | Holley CTS (534-10) (overrides CTS channel) |
| | Holley MAT (534-20) (overrides MAT channel) |

Some channels will override common channel names used on the dashboard screens. E.g., choosing “Engine RPM” overrides the main RPM channel.

Custom types give the flexibility of changing the scaling of the sensor using a graph. A gear icon will appear beside the sensor type to allow you to configure the sensor.

- Custom CTS (overrides CTS channel)
- Custom MAT (overrides MAT channel)
- Custom Ohms
- Custom 5V

Switch to Ground (SW to GND) Special Functions

The dash will provide a low current pull-up source on each input designated as SW to GND. The *switch to ground* inputs can control indicators and also be used for the following special functions:

- Scroll through screens
- Take a screenshot
- Start data logging (to the dash, or USB flash drive if inserted)

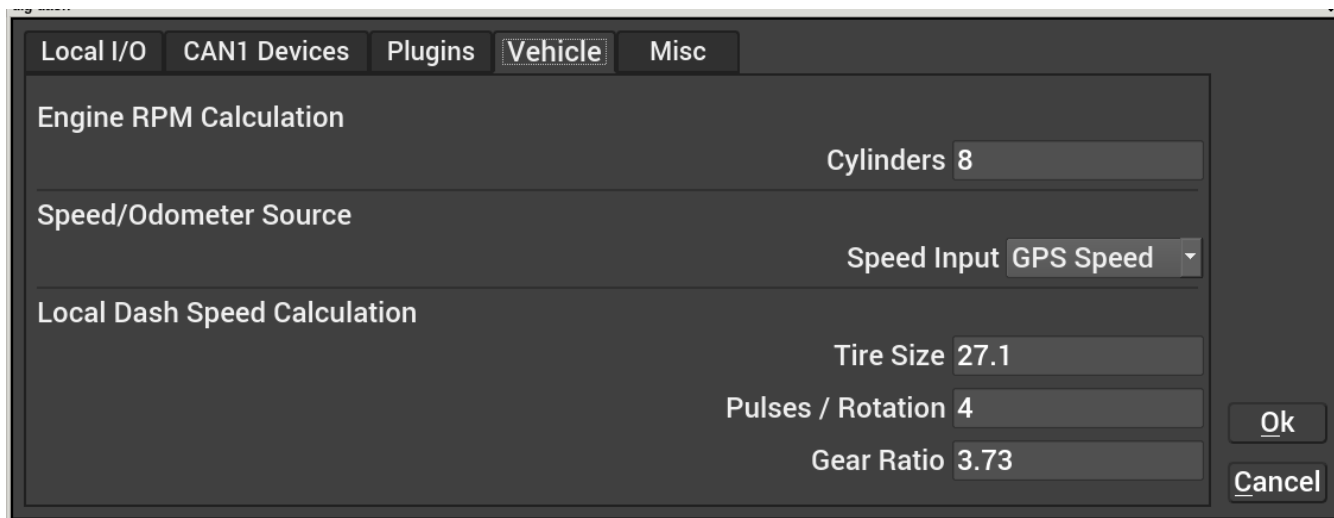
These can be wired to buttons on a steering wheel or other easily accessible location.

The screenshot function allows the image to be saved internally or to the USB flash drive. When using the screenshot function, you will be prompted to choose where the .png image will be saved, as well as the filename. To use, enter the desired keyword in the Name field (located in the local I/O tab) as shown in the table below. You must include the square brackets, case is not sensitive.

Keyword (Name field)	Function
[next]	Display the next screen layout
[prev]	Display the previous screen layout
[screenshot]	Capture current screen which can be saved internally or to the USB flash drive
[log]	Start recording a log file locally

Vehicle Tab

Contains settings that control the input channel that drives the internal odometer and local RPM and speed calculations. The speed/odometer source can be selected from EFI Transmission Speed, an EFI input, local dash speed input or from the internal GPS receiver.



The screenshot shows a software interface with a dark grey background and white text. At the top, there are five tabs: 'Local I/O', 'CAN1 Devices', 'Plugins', 'Vehicle', and 'Misc'. The 'Vehicle' tab is selected and highlighted. Below the tabs, there are three main sections:

- Engine RPM Calculation:** A single input field labeled 'Cylinders' with the value '8'.
- Speed/Odometer Source:** A dropdown menu labeled 'Speed Input' with 'GPS Speed' selected.
- Local Dash Speed Calculation:** Three input fields: 'Tire Size' with '27.1', 'Pulses / Rotation' with '4', and 'Gear Ratio' with '3.73'.

At the bottom right of the interface, there are two buttons: 'Ok' and 'Cancel'.

GPS Speed: Use this setting with the internal GPS. No additional setup is required.

Dash Speed: Use this setting when you want the speedometer and odometer to read from a speed sensor going directly to the dash on inputs SPD1, SPD2, IO11, or IO12. The corresponding channel needs to be set to the "Vehicle Speed" type. This is the only setting that requires you to fill out the Local Dash Speed Calculation area on the Holley Pro Dash. Note that only one of the dash input channels can be set to "Vehicle Speed". When this setting is chosen, a Driveshaft RPM channel will be available for gauges.

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