Digital Dash I/O Adapter Configuration

The I/O Adapter adds ten inputs/outputs to the 7” digital dash. These inputs and outputs can then be configured as gauges or switches, and data logged locally through the Digital Dash.

Please consult the digital dash user manual on how to connect the adapter to your digital dash.

Note: Data from I/O connected through this adapter is not broadcast to Holley EFI systems or ECU data logs, this data is only viewable through the Digital Dash gauge screens and locally recorded logs.

This adapter is available in the following kits:

P/N **558-432** – I/O Adapter only
P/N **558-433** – I/O Adapter with unterminated harness
P/N **558-434** – I/O Adapter with terminated harness for sensors

The adapter brings out connections to a waterproof 26 pin connector that is similar to the ones on the EFI units.

Software Update:

A USB memory stick has been provided to update your digital dash with the firmware that supports the I/O Adapter. This update will replace all your screens with the factory standalone default. To update, turn off the dash, plug in the USB stick, and power on. Do not remove power until after the update is complete.

Note: Please visit https://www.holley.com/support/resources/#Fuel_Injection for the latest digital dash firmware, the version found on the website may be newer than what is loaded onto the USB memory stick.

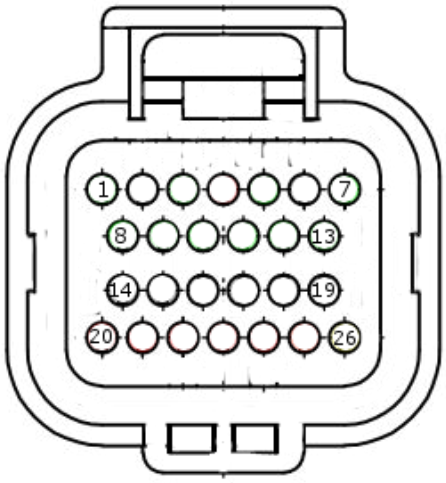
The I/O functions can be selected from the main menu, under ‘Dash Configuration’

For more information, please consult the digital dash user manual.

Connector Pin Functions:

The pins labelled +5V are current-limited and only to be used to provide a reference for 3 terminal sensors. The maximum combined current draw from the +5V pins are 70mA.

VIEW FROM REAR OF PLUG



PIN	- DESC	PIN	- DESC
1	IO1	14	GND
2	GND	15	GND
3	IO2	16	GND
4	+5V	17	GND
5	IO3	18	GND
6	GND	19	GND
7	IO4	20	+5V
8	IO5	21	+5V
9	IO6	22	+5V
10	IO7	23	+5V
11	IO8	24	+5V
12	IO9	25	RSVD
13	IO10	26	COIL (-)*

* **NOTE:** Coil (-) internally uses IO3. Do not connect anything to IO3 if coil (-) is used.

Supported Functions:

Type	IO1	IO2	IO3	IO4	IO5	IO6	IO7	IO8	IO9	IO10
SSR Out (2 Amp)	YES	YES								
Custom 5V Input	YES	YES			YES	YES	YES	YES [1]	YES [1]	YES [1]
Switch to GND input	YES	YES	YES	YES	YES	YES	YES			
Switch to +12V input	YES	YES	YES	YES	YES	YES	YES			
Engine RPM			YES	YES						
RPM/Speed Input			YES	YES						
Frequency			YES	YES						
100 PSI Oil Pressure							YES			
Holley CTS / Custom CTS							YES	YES	YES[2]	YES[2]
Holley MAT / Custom MAT							YES	YES	YES[2]	YES[2]
Custom Ohms								YES	YES	YES
Fuel sender input										YES[3]

[1] IO8 and IO9 have a built in 1k pullup, IO10 has a 120 ohm series resistance and 1k pullup. This may affect your readings for 5V input mode with low impedance sources.

[2] In Standalone mode, the first CTS and MAP sensors that appear in the list are used as the source for the 'CTS' and 'MAP' channels in the dash screens.

[3] Use Custom Ohms for fuel sender input.

Dash Configuration:

To configure I/O functions from the main menu, select the ‘Configuration’ button, then ‘Dash Configuration’

Name = *This will be displayed in your gauge channel selection*

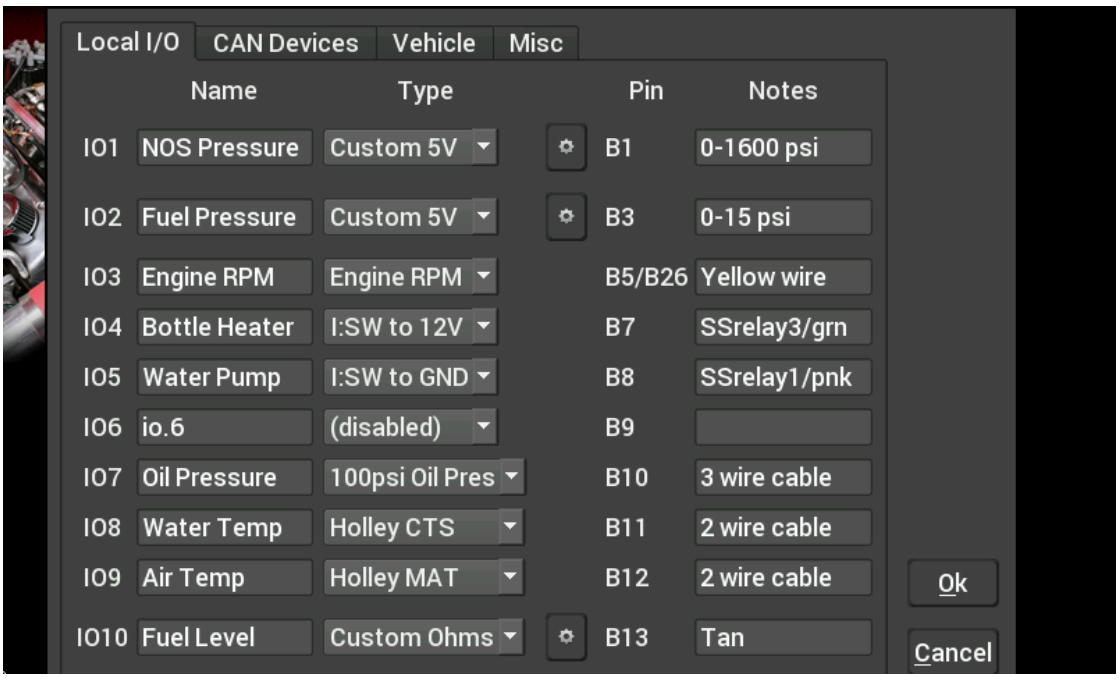
Type = *Type of sensor (RPM, MAT, CTS, Custom 5v, Custom Ohms, SW to 12v, SW to GND)*

- RPM can be from a Coil (-) connection at pin B26, or a points/tach output at pin B5
- Speed is calculated using the vehicle wheel diameter, rear end ratio and pulses/rev (in MPH)
- Frequency is displayed in Hertz (pules per second)
- Holley CTS is preconfigured for **P/N 534-10**
- Holley MAT is preconfigured for **P/N 534-20**
- 100 PSI Oil Pressure is preconfigured for **P/N 554-102**
- Custom 5v can be configured for any sensor that outputs a 0-5v signal. Holley sells a variety of 0-5v sensors for monitoring a wide range of data.
- Custom CTS is for custom thermistors
- Custom MAT is for custom thermistors
- Custom Ohms is used primarily on IO10 as a fuel level gauge.
- SSR Out is a 2 amp ground output suitable for use in triggering relays
- I:SW to GND is a ground switched input to the dash
- I:SW to 12v is a 12v switched input to the dash (example: turn signal indicators)

Pin = *Input pin assignment on the I/O adapter*

Notes = *User input notes field*

In this example, 9 of the 10 I/O channels are configured.

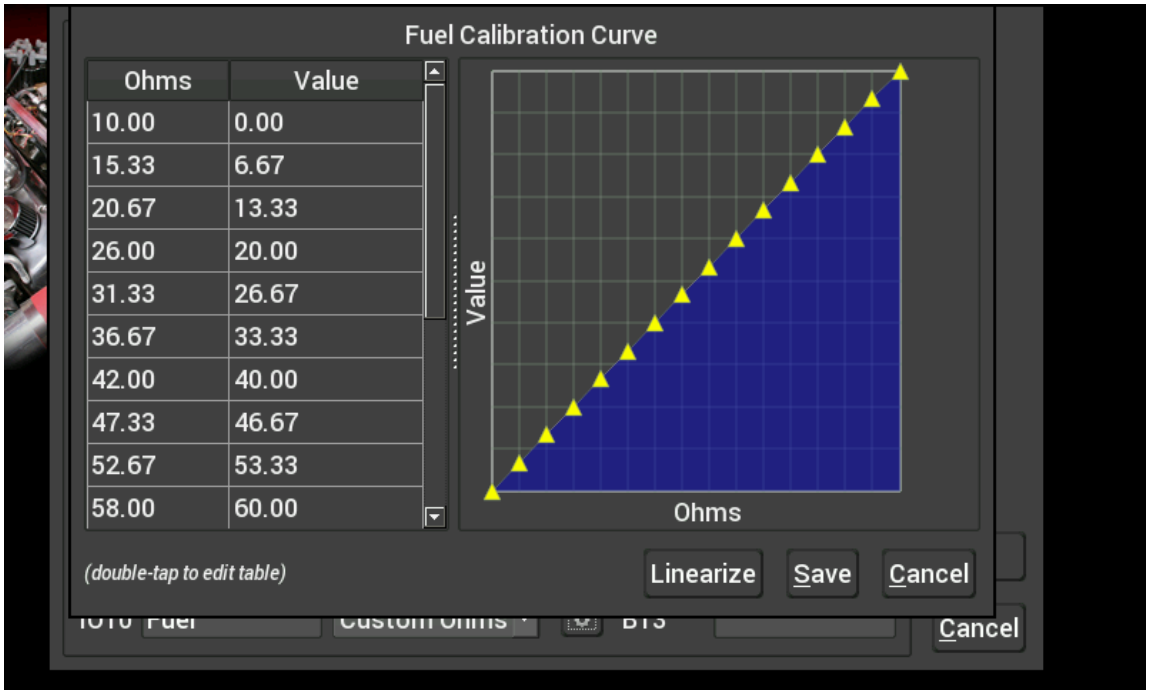


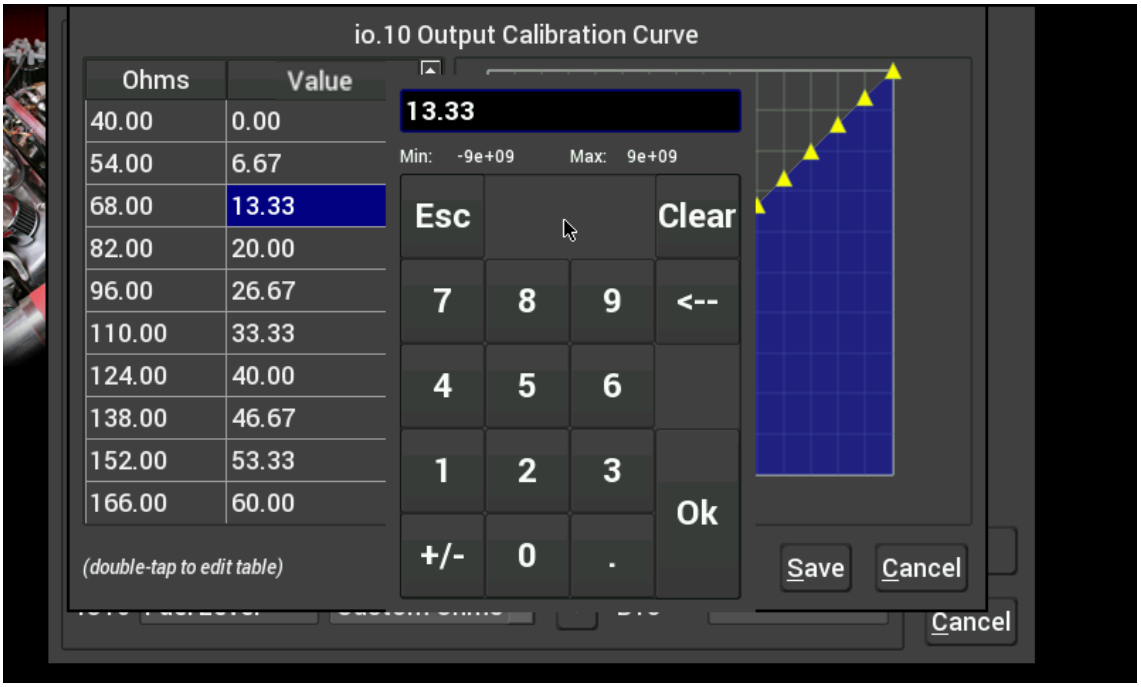
Custom Sensor Configuration:

Select the gear icon next to the sensor you wish to configure.

The dash has 16 custom value input boxes that need to be filled in. Double tap the Volts and Value boxes to input proper values for the sensor you are using.

Note: *Sensors purchased from Holley are included with calibration information*

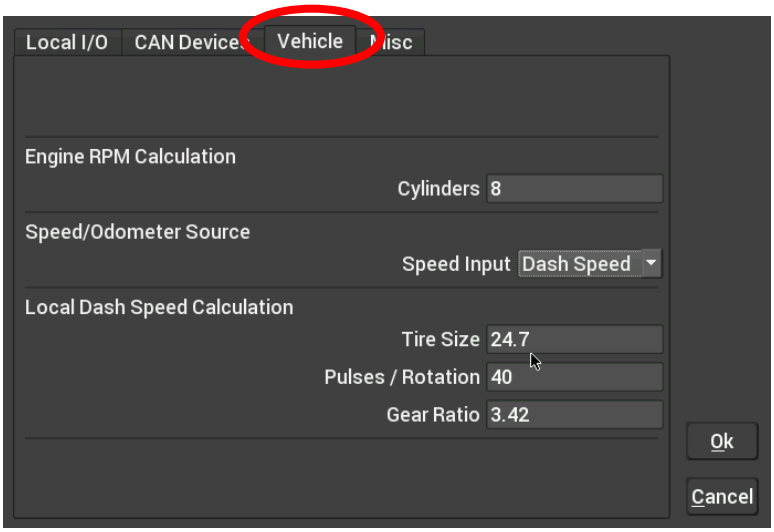




RPM Input:

The I/O Adapter contains circuitry to protect from fly-back voltage when connected to a Coil (-) input. If using a coil (-) input for an RPM signal, **pin B26 MUST be used or damage to the dash may occur.** Pin B5 is to be used with a tach output or similar signal. **The Black/White wire at pin 19 must be connected to a battery or chassis ground for the RPM and gauge signals to operate properly.**

The number of cylinders must be configured by selecting the 'Vehicle' tab found within the Dash Configuration menu.



Speed Input:

If you have connected a driveshaft speed sensor, choose 'I:Speed' as the type and enter the Tire size, pulses per rotation and rear end gear ratio in the 'Vehicle' tab to properly calculate the speed of the vehicle.

If you wish to use the odometer function, select Dash Speed under Speed/Odometer Source.

Gauge Configuration:

Each of the 10 I/O channels can be configured as a custom gauge on the dash. To do this:

1. Select 'Customize' from the main menu.
2. Tap on any blank part of the screen and choose Add ➔ Gauge
3. Select the value to monitor
    a. Note: the names you used in sensor configuration will be displayed in this box
4. Choose the gauge style
5. Once the gauge has been placed on the screen, tap it and select 'Customize'
6. Edit size, label, units, colors, etc.

SSR Out

These outputs can be controlled by placing a 'Switch' type on a screen layout.

Note: For more detailed instructions on how to customize gauges and screens, please refer to the instruction manual provided with the 553-106 Digital Dash.

Displaying SSR Out, I:SW to GND, and I:SW to 12v:

Because these are switched I/O (active or inactive) Holley recommends using the following gauge styles:

- Status LED
- Symbol

When configuring these as gauges, **0 = OFF** and **1 = ON**

Wire Installation:

If you purchased a kit with a harness, the mating connector is supplied. The pre-terminated wires can be installed using the following procedure:

1. The back of the connectors contain numbers showing the pin locations. The upper left (from the back) starts with position 1 and moves across. The final location (26) is on the bottom right. Note the location of the pin you wish to insert.

2. If a white cavity seal is in the hole you must first remove it with a pair of needle-nose pliers.

3. Ensure the white latch is in the unlocked (raised) position as shown. If it is flush with the connector body, unlock the connector using a flat blade screwdriver to push in the wide single white tab on the bottom of the connector.

4. Once the connector is unlocked, don't pull on other wires or you may partially pull them out.

5. Carefully insert a terminated wire from the back of the connector as shown, making sure it is fully inserted (look at the front of the connector for the end of the pin). Once all desired wires are inserted, push on the two white tabs on the top of the connector until they are flush with the connector body.

6. Insert white cavity seals in the unused locations to make the connector watertight.




Switch to Ground (SW to GND) Special Functions

The *switch to ground* inputs can be used to control some of the functions of the dash. These can be wired to buttons on a steering wheel or other easily accessible location.

To use, enter the desired keyword in the Name field as shown in the table. 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

The dash will provide a low current pullup source on each input designated as SW to GND.

Data Logging – Recording and Review:

The Digital Dash can data log to internal memory, or to the included USB memory stick. To do this, touch anywhere on a gauge screen and tap the “Record” button in the bottom left hand corner of the screen. If the USB memory stick is plugged into the dash, the log will be saved it in real-time, otherwise it will be saved to internal memory. To stop a data log, simply touch the screen again and tap “Stop” in the bottom left hand corner of the screen.

Note: When logging via the dash while connected to a Holley EFI system, the dash records all ECU channels, Dash I/O, Dash accelerometer data, and GPS data (if one is connected, P/N 554-140) at a rate of approximately 10-13 Hz in one log. The log recorded via the dash can then be reviewed with your Holley EFI software.

Note: The logging software contained on the USB memory stick included with your kit should only be used when using the dash in stand-alone mode (i.e., not connected to a Holley EFI system).

Appendix – I/O Configuration Types

IO1

- *SSR Out*
- *Custom 5v*
- *I: SW to GND*
- *I: SW to 12V*

IO2

- *SSR Out*
- *Custom 5v*
- *I: SW to GND*
- *I: SW to 12V*

IO3

- *Engine RPM*
- *I: RPM*
- *I: Speed*
- *I: Frequency*
- *I: SW to GND*
- *I: SW to 12V*

IO4

- *Engine RPM*
- *I: RPM*
- *I: Speed*
- *I: Frequency*
- *I: SW to GND*
- *I: SW to 12V*

IO5

- *Custom 5v*
- *I: SW to GND*
- *I: SW to 12V*

IO6

- *Custom 5v*
- *I: SW to GND*
- *I: SW to 12V*

IO7

- *100 PSI Oil Pressure*
- *Custom 5v*
- *I: SW to GND*
- *I: SW to 12V*

IO8

- *Holley CTS*
- *Holley MAT*
- *Custom CTS*
- *Custom MAT*
- *Custom 5v*
- *Custom Ohms*

IO9

- *Holley CTS*
- *Holley MAT*
- *Custom CTS*
- *Custom MAT*
- *Custom 5v*
- *Custom Ohms*

IO10

- *Holley CTS*
- *Holley MAT*
- *Custom CTS*
- *Custom MAT*
- *Custom 5v*
- *Custom Ohm*

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