



UNIVERSAL GAUGE

P/N 553-100 BLACK UNIVERSAL GAUGE

P/N 553-101 CHROME UNIVERSAL GAUGE

These are 2–1/16” diameter gauges designed specifically for use with the Avenger, HP and Dominator EFI systems. They feature a blue numeric LED display as well as a 40 segment multi–color LED bar around the outside of the gauge. They can show any parameter the EFI system monitors such as battery voltage, coolant temperature, oil pressure, fuel pressure, nitrous pressure, RPM, or air/fuel ratio. They require power and ground, but are wired to a single wire output from the ECU for simple wiring. The gauge can be connected to the vehicle headlight switch to allow dimming for better night time viewing. Each gauge can easily be individually programmed for a specific function and operation, eliminating the need for other gauges and expensive dedicated sending units. A “decal sheet” is provided with the most common inputs used, so the gauges can be correctly labeled. The colors of the perimeter segments are fixed, but the numeric values that correspond to the ends of each color segment can be defined.

WIRING THE GAUGE:

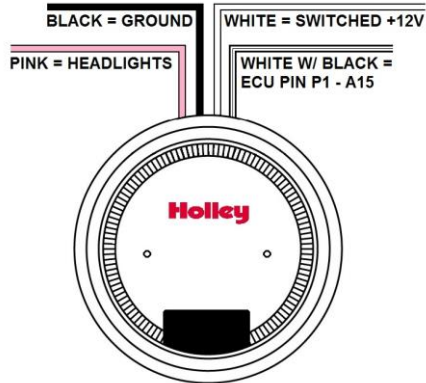


Figure 1

BASIC STEPS:

There are 11 parameters that you will need to configure your gauge.

- ECU parameter that the gauge will display
- Brightness of the gauge when the headlights are off
- Brightness of the gauge when the headlights are on
- Visual style of the perimeter bar graph
- Minimum and maximum values that you expect to see
- Numeric values associated with the five breakpoints of the perimeter bar graph

This setup process follows a certain order and the gauge will display certain cues to let you know which parameter you are adjusting along the way. There are only two buttons that are used to communicate with the gauge. The gauge displays only a few digits and a bar graph that communicates with you. Because of this, you need to be familiar with the sequence and protocol before you start. Without familiarity, the configuration process will seem complex, but after doing it a couple of times, you realize it will become easier and will be second nature.

“THREE GROUPS OF THREE” NUMBER ENCODING:

Since there are only three digits visible on the numeric display, you have to learn “Holley gauge speak” to specify some of the numbers that are not simple integers. There is a common pattern for entry laid out in three groups of three digits. The first digit of the first group indicates positive (P) or negative (-). The second digit is the ten-thousands place of the number you are entering and the third digit is the thousands place. The first group of three digits always starts with a “P” or a “-.” A point of confusion is that the “P” will disappear when you progress beyond it whereas the “-“ will not. The next three

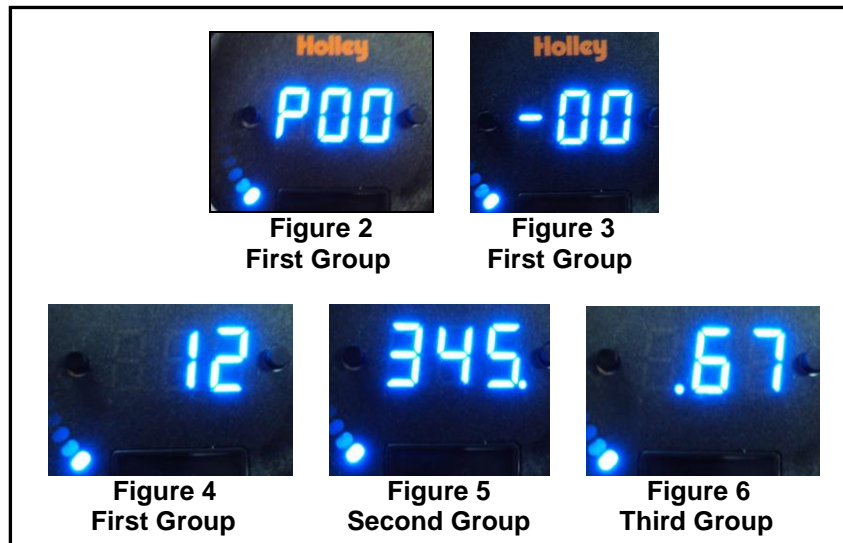
digits (second group) are the hundreds, tens, and ones digits of the number you are entering. You will see that the second group of three digits always ends with a decimal point. The last three digits (third group) are the tenths, and hundredths digits of the number you are entering. You will see that the last group of three digits always begins with a decimal point. Remember, you always have to specify leading and trailing digits, you don't move the decimal, and zero is a valid entry for any digit. For example:

If you want to enter the number 15, you would enter these three groups:
P00 015. .00

If you want to enter the number 31415.93, you would enter these three groups:
P31 415. .93

If you want to enter the number -3.14, you would enter these three groups:
-00 003. .14

Figure 2 shows a positive “sign” and **Figure 3** shows a negative sign.
Figure 4 shows the first group with two digits (ten-thousands and thousands).
Figure 5 shows the next 3 digits (hundreds, tens, and ones).
Figure 6 shows the digits after the decimal point.
Figures 4 – 6 show a setting of 12,345.67.



BUTTON USE:

The digit that is flashing is the “current” digit in focus that you can modify. The left button moves to the next digit or to the next parameter to adjust. There is no back or undo button. If you accidentally go too far or progress with an incorrect setting, you have to finish the process with the known error and then start over.

The right button increments the current value. If you are already above the number you want- keep going. A 9 rolls over to a 0.

GAUGE CONFIGURATION SEQUENCE:

Push and hold both buttons on the gauge. After a few seconds, “Pro” will momentarily appear on the gauge to indicate that it is in programming mode.

SETTING 1 – Immediately after the gauge indicates it is in programming mode, it expects you to enter the code of the ECU variable that you want displayed on the gauge. All of the codes for the available variables are listed in Table 1 at the end of this document. The gauge will display three digits which indicate the code. The leftmost digit will be flashing to indicate focus. This digit will change value if you hit the right button. Find the variable that you want the gauge to display in Table 1 and enter the corresponding three digit code.

For example, assume you want the gauge to read oil pressure. Table 1 indicates that you need to enter in 021. Hit the right button until the leftmost digit is flashing 0. Hit the left button to progress to the middle digit. Hit the right button until the leftmost digit is flashing 2. Hit the left button to progress to the rightmost digit, and then hit the right button until the leftmost digit is flashing 1.

Click the left button to move on to the next setting.

SETTING 2 – This setting is used for the intensity of the LED lights on the gauge with headlights OFF (0 = dim and 9 = bright). The left digit shows you that you are on setting 2 and the right digit shows you chose level 7 for brightness (**Figure 7**). Again, use the right button to adjust and the left button to move on.

SETTING 3 – This setting is used for the intensity of the LED lights on the gauge with the headlights ON (0 = dim and 9 = bright). The left digit shows that you are on setting 3 and the right digit shows the level of brightness is 3 (**Figure 8**).



Figure 7



Figure 8

SETTING 4 – This setting is used to select the style of the perimeter LED Bar Graph (BLUE – GREEN – YELLOW – RED). The left digit shows that you are adjusting setting 4 and the right digit shows code for the style.

You can choose from 8 options –

- 0 = Dot mode
- 1 = Standard Bar
- 2 = Split Bar Type #1 (would be used for a Boost/Vacuum display)
- 3 = Split Bar Type #2
- 4 = Split Bar Type #3
- 5 = Reverse Bar
- 6 = Wide Dot
- 7 = Bar/Junction Mode #1
- 8 = Bar/Junction Mode #2

Figure 9 shows that this is the 4th setting and Dot Mode was chosen.



Figure 9

SETTING 5 – This setting is used to specify minimum expected value of the ECU variable you are displaying on the gauge. The gauge uses this to configure the numeric display based on what it can accommodate so that the decimal point will not shift during operation. It also establishes if room needs to be reserved for a negative sign during normal gauge operation. During the programming sequence, the blue perimeter bar segment to the left (**Figure 10**) will be illuminated to indicate you are adjusting this setting. To specify this minimum value, you must use the “three groups of three” encoding on page 2 & 3.

SETTING 6 – This setting is used to specify maximum expected value of the ECU variable you are displaying on the gauge. During the programming sequence the red perimeter bar segment to the right (**Figure 11**) will be illuminated to indicate you are adjusting this setting. To specify this maximum value, you must use the “three groups of three” encoding on page 2 & 3.



Figure 10



Figure 11

SETTING 7 – This setting is used to specify the numeric value when the perimeter gauge is at the beginning of the blue segment (the most counterclockwise point). During the programming sequence, this point will illuminate to indicate you are adjusting this segment (**Figure 12**). This and all subsequent perimeter gauge breakpoints must use the “three groups of three” encoding method and be between the previously defined minimum and maximum values of settings 5 and 6.

SETTING 8 – This setting is used to specify the numeric value when the perimeter gauge is at the beginning of the green segment immediately after the blue segment. During the programming sequence this point will illuminate to indicate you are adjusting this segment (**Figure 13**).

SETTING 9 – This setting is used to specify the numeric value when the perimeter gauge is at the beginning of the yellow segment immediately after the green segment. During the programming sequence this point will illuminate to indicate you are adjusting this segment (**Figure 14**).

SETTING 10 – This setting is used to specify the numeric value when the perimeter gauge is at the beginning of the red segment immediately after the yellow segment. During the programming sequence this point will illuminate to indicate you are adjusting this segment (**Figure 15**).

SETTING 11 – This setting is used to specify the numeric value when the perimeter gauge is at the end of the red segment (the most clockwise point). During the programming sequence this point will illuminate to indicate you are adjusting this segment (**Figure 16**).

Figures 12-16 illustrate an example of setting up the perimeter gauge to linearly respond to a range of 0-100.



Figure 12



Figure 13

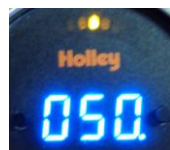


Figure 14



Figure 15



Figure 16



Figure 17

After entering the last setting, the gauge should read “End.” If for some reason the gauge is not functioning properly or invalid parameters were specified during the programming sequence, the gauge will read “ERR” or “bad.”

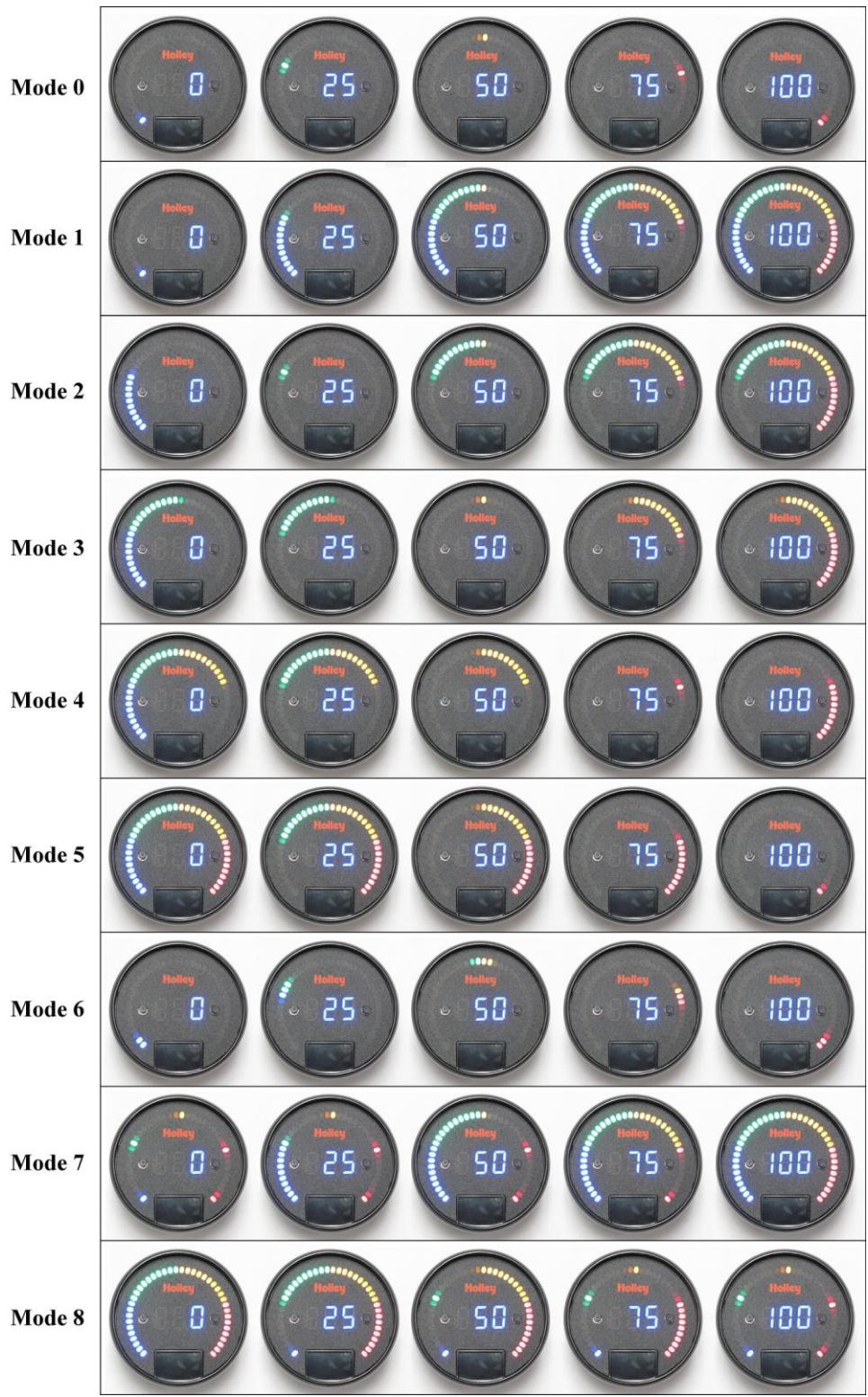


Figure 18

Table 1
Setting Numbers (are shown in gray) and Descriptions (are shown in white)

000	Engine Speed (RPM)	056	Input #10	094	Input #48
001	AFR Left (Air/Fuel Ratio Left)	057	Input #11	095	Input #49
002	AFR Right (Air/Fuel Ratio Right)	058	Input #12	096	Input #50
003	AFR Average (Air/Fuel Ratio Average)	059	Input #13	097	Output #1
004	Fuel Economy	060	Input #14	098	Output #2
005	Fuel Flow	061	Input #15	099	Output #3
008	Ignition Timing	062	Input #16	100	Output #4
009	Knock Retard	063	Input #17	101	Output #5
012	IAC Position	064	Input #18	102	Output #6
015	MAP (Manifold Air Pressure)	065	Input #19	103	Output #7
016	TPS (Throttle Position Sensor)	066	Input #20	104	Output #8
017	MAT (Manifold Air Temperature)	067	Input #21	105	Output #9
018	CTS (Coolant Temperature Sensor)	068	Input #22	106	Output #10
019	BARO (Barometric Pressure)	069	Input #23	107	Output #11
020	Battery Voltage	070	Input #24	108	Output #12
021	Oil Pressure	071	Input #25	109	Output #13
022	Fuel Pressure	072	Input #26	110	Output #14
023	Pedal Position	073	Input #27	111	Output #15
026	Boost MAP (Boost Pressure – kPa)	074	Input #28	112	Output #16
027	Boost PSI (Boost Pressure – PSI)	075	Input #29	113	Output #17
029	Injection Value (Water Methanol Injection Value)	076	Input #30	114	Output #18
032	Nitrous Stage 1 Percent	077	Input #31	115	Output #19
033	Nitrous Stage 2 Percent	078	Input #32	116	Output #20
034	Nitrous Stage 3 Percent	079	Input #33	117	Output #21
035	Nitrous Stage 4 Percent	080	Input #34	118	Output #22
038	Gear (Transmission Gear)	081	Input #35	119	Output #23
039	Vehicle Speed	082	Input #36	120	Output #24
040	Line Temp (Transmission Temperature)	083	Input #37	121	Output #25
043	TB Position (Drive-By-Wire Thr. Body 1 Position)	084	Input #38	122	Output #26
044	TB2 Position (Drive-By-Wire Thr. Body 2 Position)	085	Input #39	123	Output #27
047	Input #1	086	Input #40	124	Output #28
048	Input #2	087	Input #41	125	Output #29
049	Input #3	088	Input #42	126	Output #30
050	Input #4	089	Input #43	127	Output #31
051	Input #5	090	Input #44	128	Output #32
052	Input #6	091	Input #45	129	Output #33
053	Input #7	092	Input #46	130	Output #34
054	Input #8	093	Input #47	131	Output #35
055	Input #9			132	Output #36

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