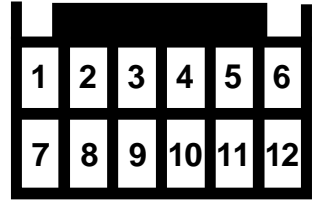
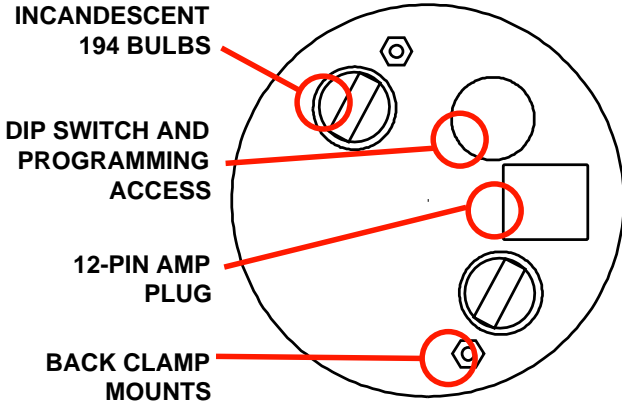


PROGRAMMABLE TACHOMETER WIRING

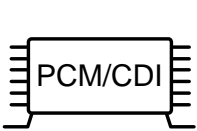
Standalone tachometers with AMP plugs are incandescent perimeter, backlit or LED backlit. Incandescent bulbs will be in the access holes installed into the circuit board. DIP-switch settings are not required on tachometers. 3-3/8" and 4-3/8" are the same configuration. Programming/button wiring is different for tachometers with and without OLED display screen.



**12-PIN AMP PLUG
PLUG #174045-2
PIN #173681-1**

PIN	COLOR	FUNCTION
1	RED	12V+ SWITCHED 1A
2	GR/YEL	NOT USED
3	ORANGE	NOT USED
4	YELLOW	NOT USED
5	TAN	NOT USED
6	WHITE	LIGHTING
7	BLACK	GROUND
8	VIOLET	TACH SIGNAL
9	GREY	NOT USED
10	BLUE	NOT USED
11	GREEN	NOT USED
12	BROWN*	REMOTE BUTTON*

* NOT USED ON TACHOMETER
WITHOUT OLED DISPLAY

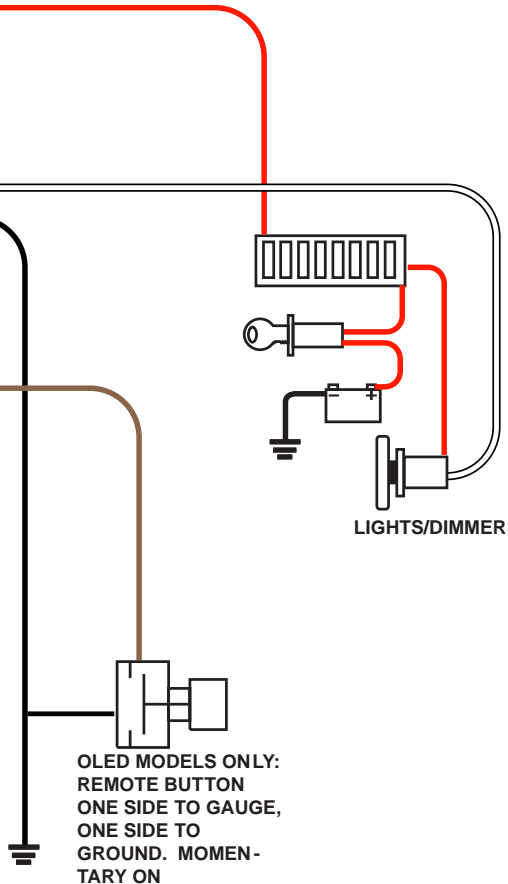


PCM/CDI MAY
REQUIRE PULL UP
RESISTOR (SEE
LATER IN THIS
BOOK)



IGNITION COIL,
CONNECT TO
NEGATIVE SIDE OF
THE COIL

GROUND



INSTALLATION BASICS:

- Use a minimum of 20 gauge insulated, stranded wire, all connections should be connected with a crimp connection or solder and heat shrink.
 - Keep speed signal wire(s) away from potential “noise” sources like ignition wires, tach signal wires, fan motors, pumps etc.
 - Studded speedometers use #8 studs, use applicable eye terminals for wiring.
 - Use a maximum of 5A fuse for the entire cluster, this is usually already in your fuse block
- Commonize wiring, ground, power and lights can be common on all gauges and “daisy chained”

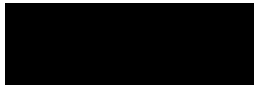
OLED DISPLAY TACHOMETERS WITH ANALOG POINTERS

With all of the features packed into NVU Phoenix platform tachometers, we have divided them into different menus. Your tach has a main “RUN” Menu, and a “SETUP” menu. The RUN menu utilizes the features used during normal operation. The SETUP menu stores all of the items that are setup during the installation process. Items can be changed any time after, if desired, and are separate to prevent inadvertently changing them during normal use.

RUN Menu Functions

Features can be accessed in the run menu during normal operation with the key on. To scroll to the various displays in the OLED screen, use a short push or tap of the remote button.

BLANK SCREEN: We have included a blank screen option to give the user an opportunity to not display any information.



HOURMETER: Displays the total hours the vehicle has been running. This is not resettable. This function is useful to track servicing the vehicle especially when idling for long periods is common such as in commercial, fleet and emergency vehicles, or when a speedometer or odometer is not used in the vehicle.

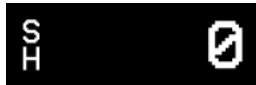


RUN MENU-CONTINUED

SERVICE HOURS: User resettable hourmeter to track engine use similar to a trip odometer. It is identified by the SH on the left side of the screen



This can be reset just like a trip odometer, while in this screen hold down the set button until zero is displayed. The hours will count up from there. This can be reset at any time and can also be used for tracking time to a destination as well as servicing the vehicle.



PEAK RPM is displayed on the following screen. This will store and allow the user to view the peak RPM achieved since the last reset.



This can be reset any time by holding in the programming button until all zeros are displayed. This may be reset at any time and the last peak RPM will be stored until reset.



BOOT or SETUP MENU. This area of the tachometer is used during set-up and any of the settings can be changed at any time. The items in the setup menu are “hidden” in this sub-menu to avoid inadvertently changing settings during normal use. To enter the setup menu, hold in the button while turning on the key (you do not have to start the vehicle if you do not want to). The setup menu screen will be displayed. To exit the setup menu, turn the key off, and restart normally.



BOOT MENU, CONTINUED

SET CYLINDERS Allows the user to set the tachometer to accommodate different number of cylinders for their vehicle. See notes on connecting to GM PCMs for later in this manual if required. Tachometers ship from the factory pre-set for 8 cylinders, all set up for 4 stroke engines. Custom ranges and inputs are available for diesel and 2-stroke engines.

SET CYLINDERS

To set the number of cylinders, hold in the button until the current setting is displayed. Scroll to the desired setting and hold until the confirmation message is visible. Select yes or no, and hold in the button until the setting is saved.



INPUT FILTER. Generally this setting does not require an adjustment. You may change the settings if you are having difficulty with noise in your signal or sharp spikes. To enter the filter mode, hold in the button until the settings are shown. There are 3 options low "L" medium "M" and high "H". You can experiment to see if the filters aid your signal. The changes can be made with the vehicle running so you can see the difference in settings.

To change the setting, scroll to L, M or H and hold in the button. Once you are at the desired setting, hold in the button until the confirmation message is displayed, and select Yes or NO, hold in the button to select. SAVED! will confirm the setting has been changed and now the filter is set.



SHIFT ALERT. The shift alert is built-into the OLED display and will give the driver a warning of when to shift based on RPM. The alert is a 3 stage display, warning 1,000 and 500 RPM before the shift point, and the actual shift point. This can be used to pre-set shift points for optimal horsepower, mileage or to prevent over-revving the engine, it is up to the driver to decide how they would like it to be set up. The shift alert can also be disabled by setting to zero RPM.

BOOT MENU, CONTINUED

SHIFT ALERT, CONTINUED. To enter the shift alert menu, hold in the button while at the screen.

The current shift point will be displayed (0000 for no shift alert). Tap the button to change the first digit which will be highlighted. Each tap will advance the digit by one number.

Hold the button in to advance to the next digit and follow the same sequence until you have the desired setting.

At the last digit, once satisfied, hold in the button to enter the verification menu. Select YES or NO and hold in the button. Once saved, the display will show the current shift setting and SAVED!



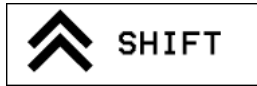
HOW THE SHIFT ALERT DISPLAYS INFORMATION: This is active all of the time when in any menu window during normal operation. For the setting above, 5,500 RPM, the display will indicate the engine is 1,000 RPM before the shift point with a single arrow on the screen:



500 RPM before the shift point 2 arrows will be displayed:



At the desired, set shift point, the screen will invert creating a highly visible sign that the engine is at the RPM designated to shift, the word SHIFT will display:



The arrows will operate in the inverse as RPM decreases. The shift point setting can be changed at any time desired, or disabled by setting the shift alert to all zeros (0000).

PROGRAM VERSION. This displays the current software version installed in the unit.

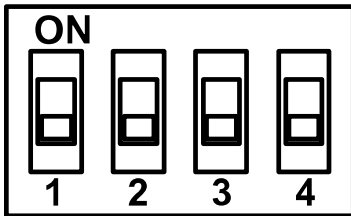


PROGRAMMABLE TACHOMETERS WITHOUT OLED SCREEN

Programmable tachometers feature easy to set up operation and are ready to run on 4-cycle engines. With 1 (COP Coil On Plug), 4, 6 and 8 cylinder settings. Your tachometer can be pre-set to any pulse configuration (contact the factory for more details). Signals typically are from the negative side of the coil, CDI box or PCM (computer). You may require a pull-up resistor on GM PCMs, see later in this book. All tachometers are shipped from the factory set at 8 cylinder selection and signal filter off (most applications)

CYLINDER SELECTION

Power down the unit, settings will not take effect until the power is cycled off. Remove the black cover on the back of the unit. The first 3 DIP switches are for setting the number of cylinders, the last one adjust the filtering (next segment). Follow the chart and select the proper settings for your application. 1 cylinder is used for COP (Coil On Plug) ignitions where a separate tachometer signal is not available. Use a small pointer object to change the switch settings if required. Check that the switch is fully engaged in the "ON" or "OFF" position. If cylinder setting is not available for your application, contact the factory and your setting can be custom programmed for a nominal charge.



#4 SWITCH FOR FILTER SETTING (BELOW)

	SWITCH		
CYL	1	2	3
1	ON	ON	ON
2	ON	ON	OFF
4	ON	OFF	ON
6	ON	OFF	OFF
8	OFF	ON	ON
10	OFF	ON	OFF
12	OFF	OFF	ON

FILTER SETTINGS

Tachometers are shipped with the signal filter off (DIP-Switch #4 in the OFF position). This will be appropriate for most applications that use a 12V square wave or coil signal. To use on a lower power signal, with the power off, place switch #4 in the "ON" position.

For additional filtering options, contact the factory we can bypass the internal filter or adjust to suit your custom input.