NEW VINTAGE USA
DETROIT

70-81 FIREBIRD RETRO KIT

REV 09/24

This booklet describes the procedure for installing the bracket assembly for 70-81 Pontiac Firebird. The gauges can be mounted in any position you desire. Wire the gauges using the supplied (separate) instruction booklet for that specific gauge style.

RETAIN ALL REMOVED HARDWARE FOR USE IN THE REINSTALLATION PROCESS.

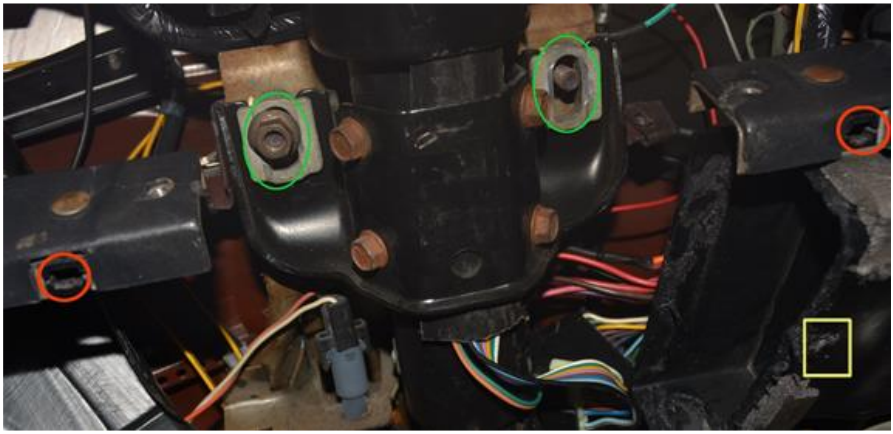
Lowering the steering column will make this job much easier! Begin by removing the two screws beneath the cover panel. The factory used ¼ turn fasteners.

Arrow indicates the location of the AC duct mounting screw which will need to be removed to lower the column.

Remove the screw for the air duct (yellow) and drop the duct.

RED screws (long) hold the dash panel in place, remove them.

Finally, remove the green bolts to drop the column.



Remove the 3 upper screws . Twist counter-clockwise on the cigar lighter bezel to unscrew.

The panel can now be tipped out from the top and removed

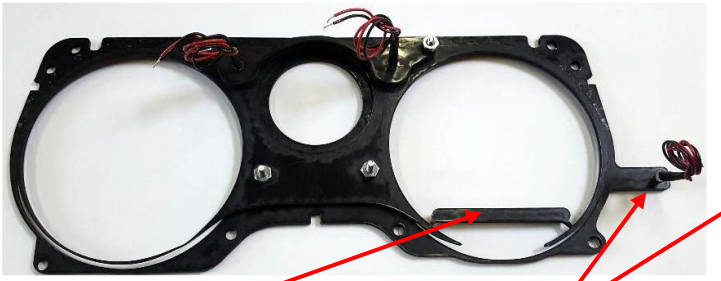
Remove the 6 screws that hold in the 2 piece gauge clusters. Pull out the gauges, remove the wiring plugs, speedometer cable, etc.

Installation is the reverse of removal. Use the standard hardware that was removed to re-install the panel.

The gauges can be installed in any position you like to suit your taste.

Wire according to the separate gauge manual.

All of the LED lights are 12v. Red is power, black is ground. (Rear view)



This part snaps out, used for assembly and shipping only

This LED is for lighting the display on the stock panel. Wire to your parking lamps not the dimmer switch. Replaces the stock light “prism”

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INTRODUCTION

Thank you for choosing NVU for your build. NVU style features and function will make your ride's dash look and act the part you always wanted it to. NVU instruments are designed, coded, built and programmed right here in the Motor City, Detroit , MI USA and feature a 5- year warranty. Please take the time to read through this booklet and feel free to contact us with any questions you have before, during and after installation.

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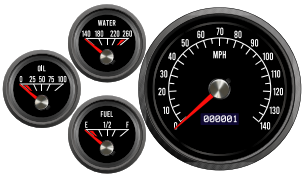
6 GAUGE KIT PROGRAMMABLE SPEEDO AND TACHOMETER WITH OLED SCREENS

MASTER GAUGE WIRING

All programmable speedometers and tachometers with an OLED screen of any size are master gauges that can drive minor functions. The minor gauges are driven directly by the master and no additional connections are required. Wire as shown below and plug the minor gauges into their appropriate plug (B,C,D) on the back of the master gauge.



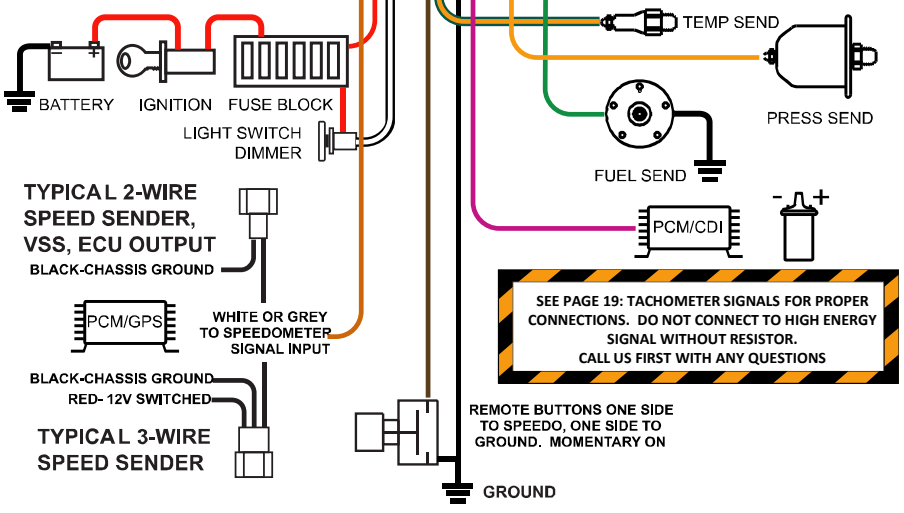
12-PIN AMP PLUG
PLUG #174045-2
PIN #173681-1

SPEEDOMETER TEMP/FUEL/OIL

PIN	COLOR	FUNCTION
1	RED	12V+ SWITCHED 1A
2	GR/YEL	TEMP SENDER
3	ORANGE	SPEED SIGNAL
4	YELLOW	OIL PRESS
5	TAN	HI BEAM 12V+
6	WHITE	LIGHTING
7	BLACK	GROUND
8	VIOLET	NOT USED
9	GREY	RED WARN 12v+
10	BLUE	CHK ENG 12V+
11	GREEN	FUEL
12	BR.WHT	PROG BUTTON

TACHOMETER WITHOUT OLED SCREEN

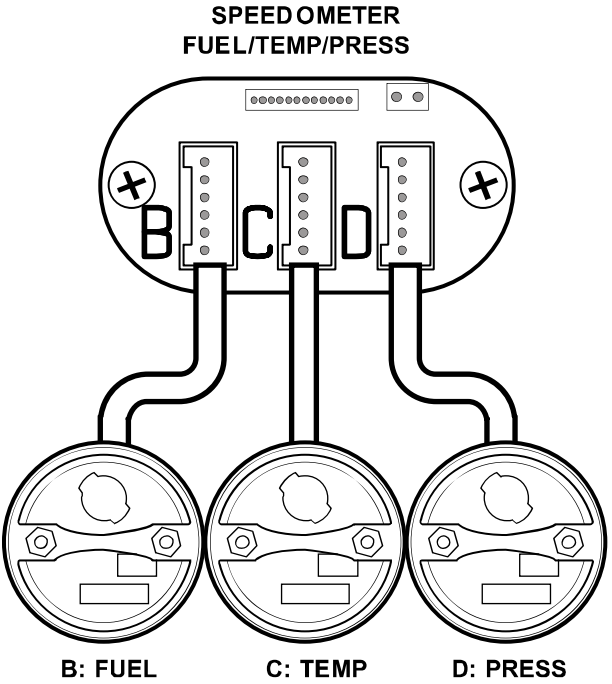
PIN	COLOR	FUNCTION
1	RED	12V+ SWITCHED 1A
2	GR/YEL	NOT USED
3	ORANGE	NOT USED
4	YELLOW	NOT USED
5	TAN	NOT USED
6	WHITE	LIGHTING
7	BLACK	GROUND
8	VIOLET	TACH SIGNAL
9	GREY	NOT USED
10	BLUE	NOT USED
11	GREEN	NOT USED
12	BR/WHT	NOT USED



MINOR GAUGE WIRING 6 GAUGE KIT

All programmable speedometers and tachometers with an OLED screen of any size are master gauges that can drive minor functions. The minor gauges are driven directly by the master and no additional connections are required. Wire as shown below and plug the minor gauges into their appropriate plug (B,C,D) on the back of the master gauge.

Follow the diagram below to properly plug the minor gauges into the master units.



The B, C and D pins are used to connect the 2-1/16" gauges through the master gauge. All functions and lighting are done through this plug. Refer to the wiring diagram for each kit for proper wiring. Below is each plug's function and its corresponding input wire color. Pins C and D are the same on the speedo and tach.

SPEEDOMETER:
B: PROGRAMMABLE FUEL (GREEN WIRE) Connects to your fuel sender. The input is programmable, please see the fuel gauge DIP switch settings later on page 34
C: WATER TEMPERATURE (YELLOW/GREEN WIRE) Connects to the NVU temperature sender.
D: OIL PRESSURE (YELLOW WIRE) connects to the oil pressure sender.
VOLTS is internal to the gauge and no wire is required. VOLTS can be displayed on the OLED screen if desired

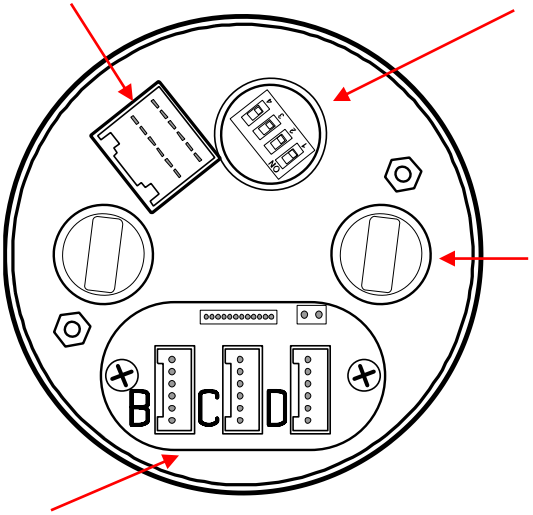
TACHOMETER:
The tachometer is stand alone and no additional gauges are driven from this..

THE BACK OF YOUR GAUGE PROGRAMMABLE WITH OLED SCREEN AND PORTS

All programmable speedometers and tachometers with an OLED screen of any size are master gauges that can drive minor functions. The minor gauges are driven directly by the master and no additional connections are required.

AMP PLUG SOCKET :

USE the NVU universal AMP plug and wire as shown in the proper diagram. NVU uses the same plug for all gauges so some wires may not be used in your application.



DIP SWITCHES:

Used to adjust fuel range on speedometers. See fuel gauge chart later in this booklet. Remove the black plastic cover to access this if needed. See DIP switch settings later in this booklet

LIGHT SOCKETS:

The sockets hold NVU bright white LED 194 bulbs. They are replaceable if needed. If you need to replace a bulb, the LEDs are polarity sensitive and have to be installed properly to operate. If you find the bulb will not light, turn it 180 degrees and reinstall. LEDS are not dimmable using a standard dimmer. Wire into your parking lamp circuit and use an LED dimmer if required

DRIVER SOCKETS:

This applies to 5 and 6 gauge kits with NVU PNP technology. 2, 3 and 4 gauge kits will not use the driver features. Refer to each wiring diagram. Plug the appropriate gauge into the socket and it will function through the master driver unit.

The B, C and D pins are used to connect the 2-1/16" gauges through the master gauge. All functions and lighting are done through this plug. Refer to the wiring diagram for each kit for proper wiring. Below is each plug's function and its corresponding input wire color. Pins C and D are the same on the speedo and tach.

SPEEDOMETER:

B: PROGRAMMABLE FUEL (GREEN WIRE) Connects to your fuel sender. The input is programmable, please see the fuel gauge DIP switch settings on page 34

C: WATER TEMPERATURE (YELLOW/GREEN WIRE) Connects to the NVU temperature sender.

D: OIL PRESSURE (YELLOW WIRE) Connects to NVU pressure sender .

TACHOMETER:

B: VOLTS No input wire required, internal to gauge

C: WATER TEMPERATURE (YELLOW/GREEN WIRE) Connects to the NVU temperature sender.

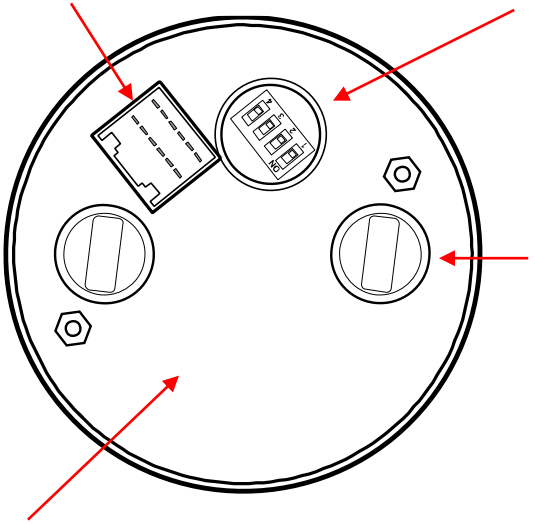
D: OIL PRESSURE (YELLOW WIRE) Connects to NVU pressure sender .

THE BACK OF YOUR GAUGE PROGRAMMABLE WITH OLED SCREEN WITHOUT PORTS

All programmable speedometers and tachometers with an OLED screen of any size are WITHOUT PORTS ON THE BACK Are the same units as with ports except the plugs are not used on this particular model. This is usually in a 2 gauges kit or a standalone order where driven instruments are not used. The programming, setup and features are the same on all models of NVU instruments with an OLED screen.

AMP PLUG SOCKET :

USE the NVU universal AMP plug and wire as shown in the proper diagram. NVU uses the same plug for all gauges so some wires may not be used in your application.



DIP SWITCHES:

Used to adjust fuel range on speedometers with ports, quad gauges, dual gauges and 3-1 gauges. Please use the driven unit with the fuel function to set the switches. See DIP switch settings on page 34.

LIGHT SOCKETS:

The sockets hold NVU bright white LED 194 bulbs. They are replaceable if needed. If you need to replace a bulb, the LEDs are polarity sensitive and have to be installed properly to operate. If you find the bulb will not light, turn it 180 degrees and reinstall. LEDS are not dimmable using a standard dimmer. Wire into your parking lamp circuit and use an LED dimmer if required

NO DRIVER PORTS:

Standalone gauges (speedometers, tachometers, quad gauges and 3-1 sets do not have driver ports. The ports mentioned previously are used on kits with remote 2-1/16" gauges. All features are shared between both models.

STANDALONE GAUGES NOT IN KITS:

If installing a gauge normally in a kit (quad gauge, etc) wire as shown in the diagram, ignoring the other gauge(s) in the kit. All standalone instruments operate on their own independently from one another.

NVU PHOENIX PLATFORM PLUG-AND-PLAY FEATURES

NVU Plug and play instruments are available in kits that have externally driven 2-1/16" gauges. The speedometer and tachometer are the master (driver) gauges and use data ports on the back to run the minor gauges. This simplifies installation and wiring dramatically not only saving time installing, but also prevents the need for troubleshooting loose connections, mis-wiring, etc. This system is analog driven and requires no additional boxes, driver or data inputs to operate.

Features from the standard Phoenix platform instruments are carried over to make installation and use easier with more features than ever. Plug and play system features:

Minor gauge "Plug and Play" – plug it in the master gauge- no more individual wires!

Phoenix features in addition to PNP :

Speedometer:

Odometer
Trip Odometer
Service mileage
Performance timers with 0-60, 1/8 and 1/4 mile functions
User settable (one time only in the 1st 100 miles) odometer mileage
Voltmeter display
One auxiliary input
Peak speed
MPH/Km/h toggle
Overspeed warning
Easy set-up menus
Digital filtering
GPS ready
Deadfronted (invisible when off) turn signals and hi beam indicators

Tachometer:

Sequential shift alert
Hourmeter
Service hours
Up to 2 additional auxiliary inputs
Peak RPM
Digital filtering
1,2,4,6,8,10,12 cylinder settings (custom options/ranges available)
Signal sources include, GM PCM, Coil, CDI box or other pulsed output
Deadfronted (invisible when off) warning indicators

PHOENIX SPEEDOMETERS

NVU Phoenix platform speedometers offer features found in complete clusters, OE instrument systems and data loggers, all in a standalone unit. While all of the features listed in this manual are available, they are not all required to be used. You can use \your speedometer simply as a way to monitor your speed or as a performance meter, its up to you. Some of the advanced features of the ---
- Phoenix platform speedometers:
- OLED high resolution display
- Drive-a mile self calibration
- Integration with OE and aftermarket speed signal and PCM outputs
- GPS input compatible
- Overspeed warning display (AMP Plug and commercial models)
- MPH/KPH speed toggle
- Performance meter 0-60, 1/8 and ¼ mile times/speed capture

Connections:
Speedometers are offered in either a studded or AMP plug connection. All of the wires on the AMP plug may be used depending on the application, check further in the manual for more details.

Terms when using the booklet:

Scroll: Pressing and releasing of the remote button to move through menu options.

Short push: Briefly holding the remote button and releasing it

Long Push: Holding in the remote button for 1 sec. or until a menu display changes.

With all of the features packed into NVU Phoenix platform speedometers, we had to divide them up into different menus. Your speedometer 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 set-up during the installation process. (Items can be changed any time after if desired) and are separate to prevent inadvertently changing them during normal use.

During installation please contact NVU for questions/concerns, our qualified tech staff can help get you going.

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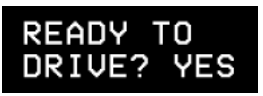
AUTOCAL (DRIVE A MILE SELF-CALIBRATION)
QUICK SET-UP

Check that your digital input filter is set to the proper input setting (see more later in manual if needed) all NVU speedometers are shipped with the input set on HIGH (suitable for most applications) with 16,000 PPM

Enter the setup menu by holding in the remote button and turning on the key (start vehicle)

Scroll to auto calibrate (3RD ITEM)

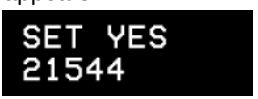
Hold button until screen displays ready to drive? YES



Hold in button until display shows counting 0

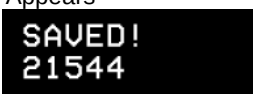
Drive exactly one mile(or KM), speed does not affect accuracy. You may or may not see action on the speedometer before or during calibration**. Display will start counting with the digits below increasing**. This is the speedometer counting the number of pulses it is receiving from the signal source. If the display does not count, check your signal source or input filter, the speedometer is not reading a signal

At the end of the mile (or KM) (vehicle can be moving or stationary) Hold the button in until SET YES appears



If **NO PULSES is displayed,** a signal was not read by the speedometer. Check your input filter selection and speed signal. See page 37 for signal troubleshooting. See page 11 for signal types. See page 9 for filter settings.

Hold in button until SAVED! Appears



The speedometer is now calibrated. Pressing the button will take you through the rest of the setup menu features. To resume normal operation turn off the key (vehicle) and restart.

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”

SPEEDOMETER OPERATION MENUS

With all of the features packed into NVU Phoenix platform Speedometers, we have divided them into different menus. Your speedometer 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.

MAIN ODOMETER: Displays total distance travelled in miles or kilometers depending on the model. This display does not show tenths.

TRIP METER: Displays current trip distance
Press and hold the button and the odometer will reset to 0. This display will show tenths and will not have any zeros in front of the distance travelled.

Service – This is used to see when your next service interval is due (Oil Change, Tire Rotation…) The interval is set in the SETUP MENU in the next section. This screen is to display the interval remaining.

When the service interval has been reached, the SERVICE REQUIRED warning will display at vehicle startup. The interval can be reset in the SETUP menu.

MPH : This will display your current Miles per Hour you are traveling

KPH: This will display the current Kilometers per Hour you are traveling

Peak SPEED: This will display the highest speed achieved since last reset Press and hold the button and the odometer will reset to 0.

Performance Timers- (where applicable) Displays 1/4 and 1/8 mile time and trap speed as well as 0-60 time. Enter the performance mode you wish to measure, Hold the button until the dialog to start is displayed, enter yes to start or no to reset. Start driving. (Professional driver only on a closed course) Note: this feature is available on select models only, check product features documentation

SETUP MENU

The setup menu contains menus used for functions not used during normal operation. These features are in this sub-menu to avoid inadvertently changing them during normal operation.

While the vehicle is off press and hold the button. Turn the vehicle on. The odometer will display “SETUP MENU” Short pushes on the button will scroll through these, long hold of the button will select the item. . To exit the SETUP menu turn off the vehicle and restart. You may operate the speedometer in setup mode if required the speedometer will operate to make fine tuning easier.

SERVICE RESET (Push and hold button to enter) This is used to reset service interval if you have saved any (Oil Changes, Tire Rotations, Tune Ups…) You can Set service intervals later in this menu (Service Set section).

Short push to scroll, long push to select

MANUAL CALIBRATE: (Push and hold button to enter) Manual calibration of the speedometer is used to manually enter the pulse setting. You must know the pulse setting of the speed signal to use this feature. Common uses are on OE (pre-configured) senders, GM PCMs GPS senders. Note: using this method will usually get you close enough and fine tuning or auto calibration may be required. Although many speed senders are standard output, various gear ratios and tire sizes will change the pulse settings depending on the vehicle build. The speedometer will accept between 2,000-250,000 PPM. See next page for a chart with common pulse settings.

To enter the manual calibration mode, hold the button until the current pulse setting is shown. NVU ships all speedometer with a 16,000 PPM setting. If the number shown is not 16,000 the speedometer has already been auto-calibrated by the end user. If the pulse count shows zero, the previous autocal attempts resulted in not receiving a speed signal, check you sender and input filter.

Continued, next page:

MANUAL CALIBRATE, CONTINUED:
The current pulses will be shown, with the first number highlighted. To change that number short push scrolling will increase the digit. Stop on the number required and hold the button to select the next number and follow the same sequence until all numbers are correct and your are on the last digit to the right

The final dialog box will display asking to set. Select Y to accept, N to cancel. Hold the button on Y and the setting will be saved. The speedometer is now manually calibrated.

AUTO CALIBRATE
This feature allows the speedometer to automatically calibrate the speedometer by driving a measured mile (or kilometer). See quick setup earlier in this manual for instructions.

INPUT FILTER:
The digital filter in the speedometer is used to properly read the signal from virtually any pulsed source. Enter the filter by holding the button. Scroll to the filter selection desired, refer to the chart below. Select L, M or H (Low, Medium, High). Hold the button to select FILTER, set yes or no, hold to select, saved! Will display to indicate a successful session. You can change this at any time to adjust as needed or to experiment for the best results for your application.

SOURCE	TYPICAL PPM	SIGNAL TYPE	INPUT FILTER SET
GM PCM (ALL)	4,000	5-12V HALL EFFECT	5V=M, 12V=H
AFTERMARKET 3 WIRE	16,000	12V HALL EFFECT	H
AFTERMARKET 2 WIRE	8,000 OR 16,000	AC SINEWAVE	L
OE 2 WIRE (GM)	40,000	AC SINEWAVE	L
NV4500	108,000	AC SINEWAVE	L
TREMEC	16,000 OR 40,000	LOW AC SINEWAVE	L
GPS SENDER	8,000 OR 16,000	VARIES	5V=M, 12V=H

OVERSPEED Available on AMP-Plug and commercial Units only. The overspeed warning will display and flash an overspeed warning on the OLED display

To set the overspeed enter the setup menu and scroll to overspeed. Hold in the button to enter the menu. The current setting will be displayed:

To change the overspeed setting, scroll to YES, then hold the button, the current warning level will be shown with the first digit highlighted. To change the digit, tap the button to increase the number. To move to the next number, hold the button until the next is highlighted. Proceed with the same procedure until all 3 digits are changed. On the last number hold until the display shows the speed and set? YES. The saved speed will be shown. If there is an error you can select NO or turn off the gauge and no changes will be made. To have the warning be inoperable, set the warning level to zero.

SET ODOMETER:

The set odometer function is a one-time setting that the end user can change during the first 100 miles of operation. The user can set the mileage to the existing vehicle mileage to maintain a proper vehicle record. Once the mileage passed 100 miles, the feature will no longer be available. To enter the set odometer menu, scroll to set odometer and hold in the button. You will see one time set ? yes. Hold in the button.

000000 will be shown with the first digit highlighted. To change the digit, tap the button to increase the number. To move to the next number, hold the button until the next is highlighted. Proceed with the same procedure until all digits are changed. On the last number hold until the display shows the mileage set YES? Hold in the button and SAVED! Will appear. Turn off and restart the vehicle, mileage is now set.

SPEED SIGNALS AND TYPES OF SPEED SENDERS

Hall Effect speedometer signal sender and sensor (3-wire) Screw on and integrated

Hall effect senders are named as such for the type of signal they produce, a hall effect signal. This sender requires power and ground to operate. The benefeit of this sender is it can be accurate at very low speeds as it has a power source. It is generally identified by having 3 connections: Power, ground (sometimes through the body and the signal output).

AC sinewave speed sender (2 wire) screw on and integrated

This type of sender, while more widely used in the 90s and early 2000's is simple and reliable. It generates its own power and sends an AC sinewave signal to the speedometer by teeth spinning past a coil with 2 wires. The sender requires one wire to be grounded and the other is the signal. The wires can be reversed and the same result will work just fine due to the fact that the sender waveform is a simple sinewave. The downside is that due to the sender generating its own power by the speed of the reluctor wheel (teeth) it can often lead to a weak signal at low speeds. this is often seen when a speedometer will not operate until a certain speed, say 25-30 MPH. NVU electronic programmable speedometers have built-in sensitivity settings that can be changed to suit your signal strength. ONLY NVU speedometers have this capability removing the need for converters, boxes or additional equipment. One other disadvantage to this type of sender is the signal cannot be split to send pluses to multiple devices such as speedometer and cruise control.

PCM, ECU, Computer speed signal

Sounds complicated but this actually makes things easier. The speed signal is already being picked up from the source ans being sent to the PCM (Powertrain Control Module). The PCM then uses it as it needs and outputs a signal. The most commonly used for builds are PCMs for GM engines. Regardless if its an LS, LT, diesel 4, 6, or 8 cylinder GM PCMs always have 2 outputs (unless flashed by an aftermarket company):

1. The speed signal is a 4,000 PPM output. You will still have to do your drive a mile as the vehicles may have had different gears/tire sizes, but 4000 will get you close.
2. Not related to speed; GM PCMs regardless of engine size or type output a 4 cylinder open collector tachometer signal. This means you need to use a 10-K ohm pull-up resistor and set your tachometer to 4 cylinder.

GM Style screw-on speed sender

Ford Style screw-on speed sender

Integrated speed sender

Typical speed sender location

PCMs computers, ECM

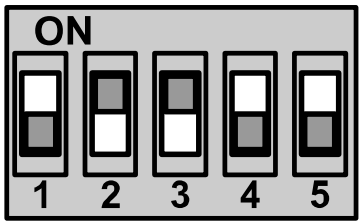
PROGRAMMABLE TACHOMETERS WITHOUT OLED SCREEN

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.

SWITCH #5 is covered on the next page. It is used for standards vs. pull-up signals. It is shipped in the standard ignition (protected) position (OFF)



#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

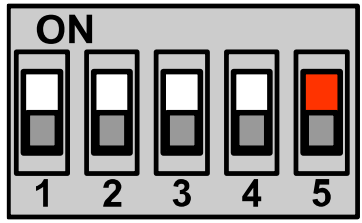
Tachometers are shipped with the signal filter off (DIP-Switch #4 in the OFF position). This will be appropriate for most applications that use a 12V square wave or coil signal. To use on a lower power signal, with the power off, place switch #4 in the "ON" position.

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

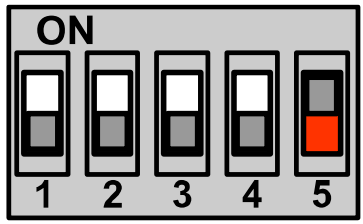
TACHOMETER SIGNALS AND SET UP
5-DIP-SWITCH TACHOMETERS ONLY

The first 4 DIP-switches have no effect on the tachometer, #5 controls the input protection, please see below to prevent damage. Switch position shown in red for clarity.

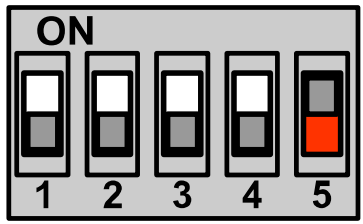
LS PCM CONNECTION: Switch #5 ON (UP). This enables the internal pull-up resistor. Set to 4 cylinder



MSD BOX, CDI BOX ,ALL AFTERMARKET EFI SYETEMS. Switch #5 OFF (DOWN). This is the protected high-energy circuit.
Pull tach signal from the TACH OUTPUT on the box or ECU.
DO NOT CONNECT TO THE COIL OR DAMAGE WILL RESULT.



HEI, STANDARD IGNITION, POINTS, STANDARD COIL. Switch #5 OFF (DOWN). This is the protected high-energy circuit.
Connect to the negative side of the coil. If you are running any sort of aftermarket ignition box, DO NOT CONNECT TO THE COIL OR DAMAGE WILL RESILT.



Points systems, Pertronix or unbranded systems may require additional input protection using a 1k resistor inline.

If you are unsure of which connection and input to use, please contact us and we are more than happy to help!

ANALOG MINOR GAUGE SENDERS AND SIGNALS

Senders are the part of the gauge system that send a signal to the gauge to be read, and then displayed on the dial face. There are 4 types of senders, resistance bases pressure, temperature and level (fuel), voltage input pressure transducers, and pulsed speed inputs.

TEMPERATURE SENDERS Signal type is resistance to ground. Resistance DECREASES as temperature rises. All NVU Phoenix temperature gauges use a High-Match temperature sender. The sender will read between 450-500 ohms at room temperature. Both low and high read gauges use the same sender.

PRESSURE SENDERS are resistance to ground signal. All NVU pressure senders are 240-33 ohm, 0-100 PSI regardless of the pressure range.

PRESSURE TRANSDUCERS Send a voltage signal to the gauge to be read and are not senders.. Typically a linear .5V-4.5V signal can be read by any transducer gauge. There are typically 3 wires to the transducer, signal, ground and 5V power (from the gauge or module). There are some 12V transducers on the market. These are powered by 12V but still send out a .5-4.5 V range. The 12V style should be powered by vehicle voltage. 5V transducers require 5V power (from the gauge itself) and connecting to 12V will damage the unit

FUEL LEVEL SENDERS are also resistance to ground. A float arm rotates on a rheostat in the fuel tank and changes the resistance as the float arm moves. This is also available in a tube type sender. The ranges can be various depending on the OE manufacturer. You ALWAYS need to match the fuel gauge to the sender. NVU offers a universal fit 240-33 ohm and 0-90 ohm unit for aftermarket applications. The senders are universal and mount from the top of the tank and have a universal 5-hole flange. These are not intended to replace the stock sender for the tank which was specially manufactured for that tank size/shape/orientation. Use a stock sender if at all possible to make things easier on yourself. Please see DIP switch settings in this booklet (PAGE 34) for a full listing of stock ranges.

AUXILLARY INPUTS

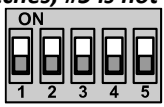
Due to the configuration of this kit, there are not any auxiliary inputs available.

DIP SWITCHES

DIP switches are used on the back of some of the gauges to set ranges for your application. This can be changes at any time but in general They are set at the factory or on-site during installation and are left in that position for the life of the vehicle.

When setting DIP switches, ON should be in the up position.

NOTE: If your gauge has 5 DIP switches, #5 is not used and has no effect on the fuel range.



FUEL GAUGE:

All fuel gauges are programmable by the DIP switches on the driver gauge or the 2-1/16" gauge itself. All fuel gauges and ranges are identical on all instruments. Set the switches as shown in the chart below for your application.

SENDER TYPE MAKE/YEAR	RANGE E-F Ω	1	2	3	4
EARLY GM/FORD PRE-65	0-30	OFF	OFF	ON	OFF
GM 65-89	0-90	OFF	ON	OFF	OFF
GM 90S-UP	40-250	OFF	ON	ON	OFF
FORD/AMC/MOPAR 65-86	73-10	OFF	OFF	OFF	ON
FORD 87-UP	20-145	ON	ON	OFF	OFF
UNIVERSAL/SW	240-33	ON	OFF	OFF	OFF
CUSTOM/EARLY FORD	168-15	ON	OFF	ON	OFF
MOPAR 86-96	110-10	ON	ON	ON	OFF
MOPAR 97-UP	220-20	ON	ON	OFF	ON

Thank you for choosing New Vintage USA products. We strive to provide the finest quality and design components available on the market. If you need technical assistance, please call 248.850.5482 or email service@newvintageusa.com.

New Vintage USA 5-Year Warranty:
New Vintage USA warrants all merchandise against defects in workmanship and materials for 60 months. After the 60 month period, a pro-rated service fee of no more than 50% production costs may be applied. This warranty applies to all instrumentation products, excluding senders. The warranty does not apply to a product used in a manner for which it was not designed, of if it has been altered in any way.; New Vintage USA LLC is not responsible for any damage or costs associated with any product that has been purchased. This is a limited warranty as identified in the Magnunson-Moss Warranty Act of 1975.

Warranty Service
Service can be obtained during the normal warranty period by contacting New Vintage and obtaining a Return Authorization Number (RZA#). New Vintage will repair or replace any item found to be defective and return ship to no cost via ground or post office services. Other shipping/international services will be applied at additional cost. Buyer is responsible for shipping to New Vintage for warranty repair. Return shipping will be the responsibility of the customer if the product is found to be damaged or out of warranty. An RZA number must be obtained and proper return/warranty form accompanied with the product.

Missing items/Returns
Missing items/returns must be processed within 15 days of end user receiving the product. All returned must be shipped back to the place of purchase. Any return shipping costs to New Vintage are the responsibility of the purchaser. An RZA number must be obtained and proper return/warranty form accompanied with the product. A restocking fee not to exceed 10% may be applied to items that must be repackaged. Any item returned in a non-usable condition will be returned or charged to the customer.
Missing items must be reported within 15 days of receiving the product. Items found to be missing will be shipped via ground or postal service at no charge.
Expedited/international shipping options are available at an additional charge. It is the policy of New Vintage to quickly replace any items that may be missing in a timely manner but not to overnight or expedite shipping in any way at no cost.

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