

## Installation Instructions

### Ultra-Shift Light With RPM Activated Window Switch

#### PRECAUTIONS:

- ❑ Read ALL instructions before installing instrument.
- ❑ Follow ALL safety precautions when working on vehicle-wear safety glasses!
- ❑ ALWAYS disconnect (-) negative battery cable before making electrical connections.

#### HELP?:

- ❑ If after reading these instructions you don't fully understand how to install your instrument(s), contact your local Stewart Warner distributor, or contact our Technical Support Team toll free at **1 866-797-7223 (SWP-RACE)**.
- ❑ Visit [www.SW-Performance.com](http://www.SW-Performance.com) for additional information.

#### GENERAL APPLICATION:

- ❑ 12-volt DC negative (-) ground electrical systems (11-20 VDC operating voltage range).
- ❑ The upper rpm limit of the shift light is variable, dependent upon the PPR setting. The upper RPM limit for the PPR settings are .5-2 PPR= 18,000 RPM, 2.5-4 PPR= 15,000 RPM, and 5-6 PPR= 13,000 RPM.
- ❑ Programmable RPM dependent switched output that will sink (ground) 1 amp maximum (short circuit protected).

#### SHIFT-LIGHT MOUNTING:

- ❑ The *Ultra-Shift Light* may be mounted on a roll cage, steering column, dash, or other locations of high visibility.
- ❑ To mount the *Ultra-Shift Light*, use the bracket and screws provided, or secure using a hose clamp.
- ❑ To mount on an existing tachometer, loosen the mounting strap and insert the base of the *Ultra-Shift Light* bracket under strap and retighten the mounting strap.

#### SHIFT-LIGHT WIRING (FIGURE 1):

1. Disconnect negative (-) battery cable.
2. Using 18-ga. wire, connect the (**BLACK**) wire to a clean (rust/paint-free) ground, preferably battery negative terminal.
3. Using 18-ga. wire, connect the (**RED**) wire to a switched +12V source, like the ignition wire.
4. Using 18-ga. wire, connect the (**GREEN**) wire the coil negative or the tachometer terminal of the ignition module.
5. Using 18-ga. wire, connect the (**WHITE**) wire to the relay coil negative. This wire will supply the ground (**1 amp maximum**) to energize the relay and activate the desired device.

**NOTE:** The (**WHITE**) wire provides an output (switched to ground) whenever the engine RPM is between the programmable **L** and **H** set points. This switch can be used to activate/deactivate any device within a specific RPM range.

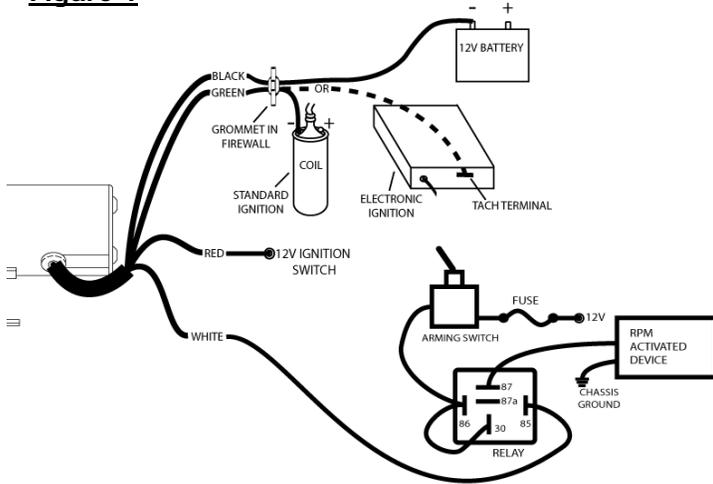
**WARNING:** Always use an, in-circuit "**Arming**" switch to disable any device controlled by the RPM window switch. In addition to the "**Arming**" switch, a wide-open-throttle switch **MUST** also be used to deactivate a nitrous oxide, or similar system, when the engine is no longer at wide-open-throttle.

6. Reconnect the negative (-) battery.

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Figure 1



### NEVER CONNECT GREEN WIRE TO THE COIL WHEN USING AN MSD OR SIMILAR HIGH OUTPUT CAPACITIVE DISCHARGE STYLE IGNITION SYSTEM

Damage to the shift light will occur—Connect GREEN wire to the tachometer terminal only.

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#### SET-UP MENU, OPTIONS, & DESCRIPTIONS:

The Set-up Menu sets the different options and calibrations to establish the overall operation of the Ultra-Shift Light™, and should be set up before the RPM window switch option is used.

- ❑ **5hP** – Sets shift point RPM.

**NOTE:** The upper rpm limit of the shift light is variable, and depends upon the PPR setting. The upper RPM limit for the PPR settings are .5-2 PPR= 18,000 RPM, 2.5-4 PPR= 15,000 RPM, and 5-6 PPR= 13,000 RPM.

- ❑ **d iSP** – Display options (**On**, **OFF**). This determines the information shown on the display.

- **On** - Current engine RPM is shown on the display.
- **OFF** - Nothing displayed. Recall information can still be viewed.

- ❑ **PPR** – Pulses/revolution of the tach signal (5, 1, 1.5, 2, 2.5, 3, 4, 5, 6).

**WARNING:** An improper PPR setting will cause the RPM display, shift light activation, and switch activation to be inaccurate.

- ❑ **L** – Set switched output activation RPM (Range: 500 to 1800).

- ❑ **H** – Set switched output deactivation RPM (Range: L setting to 1800).

#### SHIFT RPM SET-UP (Range 1000 to 18,000 RPM):

1. Enter programming mode by pressing both **SCROLL** & **SELECT** buttons at the same time, and then release both buttons.
2. Scroll to the **5hP** parameter using the **SCROLL** button, and then press the **SELECT** button.
3. The display will show the current shift point RPM (the default is 3000 RPM for a new shift light).
4. Hold down the **SCROLL** button to increment slowly. After holding down for one second, the value will increment quickly. Simply release the **SCROLL** button and press it again to go back to incrementing slowly. Press the **SCROLL** button repeatedly to increment one step (10 RPM) at a time. If the desired shift RPM is missed simply continue to hold the **SCROLL** button and the value will wrap around and start at 1000 RPM again.

**NOTE:** When scrolling above 9990 RPM, a decimal point will appear in the center of the display to indicate that the far right digit will not be displayed (refer to figure 2).

5. Once the desired shift RPM is displayed, press the **SELECT** button to return to the **MAIN MENU**.

6. To exit programming mode, do not press any buttons for 5 seconds. All changes will automatically store and the unit will return to normal operation.

**NOTE:** The upper rpm limit of the shift light is variable, and depends upon the PPR setting. The upper RPM limit for the PPR settings are 0.5-2 PPR= 18,000 RPM, 2.5-4 PPR= 15,000 RPM, and 5-6 PPR= 13,000 RPM.

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**PPR SET-UP (.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6 PPR):**

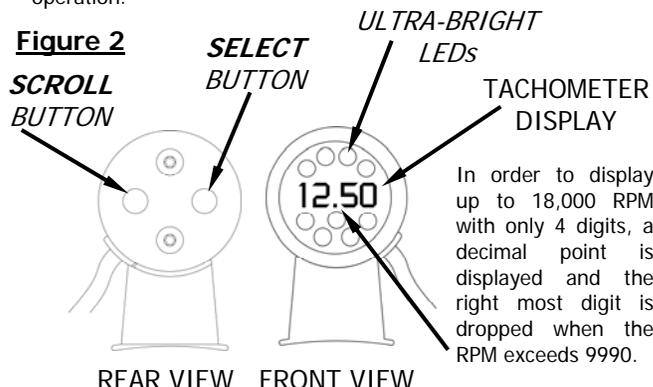
**WARNING:** An improper PPR setting will cause the RPM display, shift light activation, and switch activation to be inaccurate.

1. Enter programming mode by pressing both **SCROLL** & **SELECT** buttons at the same time, and then release both buttons.
2. Scroll to the **PPR** parameter using the **SCROLL** button, and then press the **SELECT** button.
3. The display will show the current setting (the default setting for a new unit is 4 PPR).
4. Press the **SCROLL** button to change the setting.
5. Once the desired setting is displayed, press the **SELECT** button to return to the **MAIN MENU**.
6. To exit programming mode, do not press any buttons for 5 seconds. All changes will automatically be stored and the unit will return to normal operation.

**TIP:** When connecting to an engine with a distributor, generally, the old rule, half the number of cylinders = PPR, still applies. When connecting to the signal wire to a coil pack that drives 2 cylinders, generally, the PPR = 1. When connecting to a "coil on plug" ignition or one coil for each cylinder, the best option is to look for a tach signal coming out of the ECU, but the .5 PPR setting may work when directly connected to any one of the coils. If this connection is erratic or does not function correctly, a tachometer adapter may be required. Call technical support a **1-866-797-7223** or visit [www.SW-Performance.com](http://www.SW-Performance.com) for more information.

**RPM DISPLAY ON/OFF:**

1. Enter programming mode by pressing both **SCROLL** & **SELECT** buttons at the same time, and then release both buttons.
2. Scroll to the **d iSP** parameter using the **SCROLL** button.
3. Select the **d iSP** parameter option using the **SELECT** button.
4. The display will show the current ( $\bar{0}n$ ,  $\bar{0}FF$ ) setting (the default setting is  $\bar{0}n$ ).
5. To change the setting press the **SCROLL** button to toggle between  $\bar{0}n$  &  $\bar{0}FF$ .
6. Once the desired setting is displayed, press the **SELECT** button to return to the **MAIN MENU**.
7. To exit programming mode, do not press any buttons for 5 seconds. All changes will automatically store and the unit will return to normal operation.



**RPM WINDOW SWITCH ACTIVATION RANGE SETUP:**

**TIP:** If both **H i** and **L O** values are set the same, the switched output is disabled and will not activate. The default settings for both **H i** and **L O** values are **3000**, so the switched output is disabled.

1. Enter programming mode by pressing both **SCROLL** & **SELECT** buttons at the same time, and then release both buttons.
2. Scroll to the **L O** parameter using the **SCROLL** button, and then press the **SELECT** button.
3. The display will show the current switch activation setting (the default is **3000** RPM for a new shift light).
4. Hold the **SCROLL** button to increment slowly. After one second, the values will increment quickly. Simply release the **SCROLL** button and press it again to go back to incrementing slowly, or press the **SCROLL** button repeatedly to increment one step (10 RPM) at a time. If the desired RPM is missed, simply continue to hold the **SCROLL** button and the value will wrap around and start at **500** RPM again.

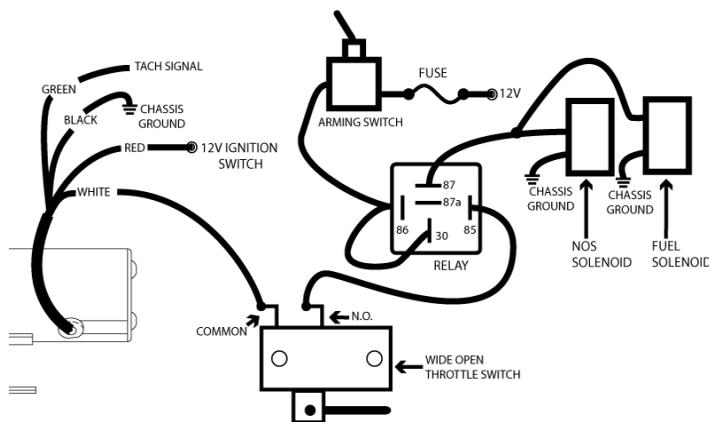
**NOTE:** When scrolling above **9990** RPM, a decimal point will appear in the center of the display to indicate that the far right digit will not be displayed (refer to figure 2).

5. Once the desired RPM is displayed, press the **SELECT** button to return to the **MAIN MENU**.
6. Scroll to the **H i** parameter using the **SCROLL** button, and then press the **SELECT** button.
7. Set the desired upper RPM threshold by following the above procedure.

- NOTE:** The lower RPM limit of the **H i** parameter is the **L O** set point.
8. Press the **SELECT** button to return to the **MAIN MENU**.
  9. To exit programming mode, do not press any buttons for 5 seconds. All changes will automatically store and the unit will return to normal operation.

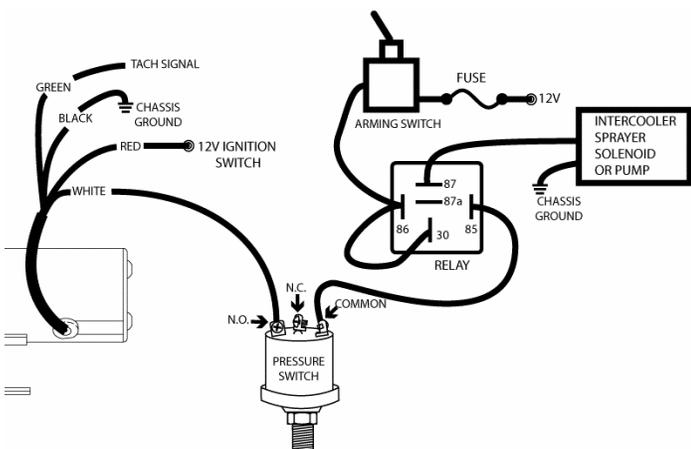
**NITROUS OXIDE SYSTEM CONTROL WIRING:**

- The switched output is very useful for controlling Nitrous Oxide activation/deactivation. Set the programmable **L O** value to the desired engine RPM where the device activates and the **H i** value to the desired RPM where the device to deactivate (usually just before the engine rev limiter triggers to prevent catastrophic engine damage).
- Wire the Nitrous Oxide System, as illustrated below, using the supplied relay and the **"Arming"** and **"Wide-Open-Throttle"** switch supplied with the Nitrous Oxide System.
- The **"Arming"** switch will deactivate the system so it can't be activated unexpectedly. The **"Wide-Open-Throttle"** switch will only allow activation when the throttle is wide open, so the system will shut down during shifts or deceleration, even if the engine RPM is still in the activation range.



**INTERCOOLER SPRAYER CONTROL WIRING:**

- The RPM switched output, when used in conjunction with a pressure switch is very efficient at controlling an intercooler CO2 or water sprayer system during high boost and high engine RPM when the efficiency of the intercooler falls off. This set-up works well to conserve the CO2 or water supply for when it's needed most.
- The pressure switch is used to activate the system only when the boost pressure is high.
- The RPM switch is used to control the RPM at which the system is activated so the system does not activate at low RPM when the intercooler can easily cool the lower airflow.



**CLEANING DIRECTIONS:**

- ☐ For proper cleaning of instrumentation/accessories, use a glass cleaner or mild detergent with a spray on and wipe method.

**WARRANTY INFORMATION:**

**TWO (2) YEAR LIMITED WARRANTY.** SWP products are warranted against defects in workmanship and materials for a period of two (2) years from the date of purchase. Proof-of-purchase is required; otherwise, the warranty period shall default to two (2) years from date-of-manufacture (as indicated by the date code on the product). See detailed Warranty Policy for other Terms & Conditions.

STEWART WARNER PERFORMANCE

1-866-SWP-RACE (797-7223)

[www.SW-Performance.com](http://www.SW-Performance.com)

