

Eagle 3 Wireless Speed Sensing (WSS)

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Vehicle Speed Sensing (VSS) Background

Kustom Signals has been delivering our patented TruTrak™ Vehicle Speed Sense feature with our RADAR for more than 20 years. TruTrak takes the pulses from the patrol vehicle's speedometer and synchronizes with the Kustom RADAR. This feature has many benefits including an independent verification of the Doppler patrol speed which eliminates common RADAR anomalies like shadowing, batching, and combining. It enables the RADAR to quickly display patrol and target speeds when coming out of hold. And it enables the popular feature for automatic mode switching from stationary to moving operations and vice versa. The Eagle 3 RADAR with the patent pending Wireless Speed Sensing (WSS) delivers the benefits of the wired vehicle integration with none of the headaches of locating and connecting into the electronic speedometer signal.

The Issue

A growing number of police vehicles no longer have a VSS signal easily accessible to be integrated with the RADAR. Additionally, the automotive manufactures have long said that the OBD II port should not be used for auxiliary equipment and the upfitter's guides clearly indicate the risks associated with this type of connection. Regardless of these warnings, some RADAR manufactures are using the OBD II port for power and to query the VSS signals. Some manufactures are even warning customers that they will void their RADAR warranty if they move equipment to a new vehicle and utilize the wrong OBD II cable!

OEM Message to Upfitters - Do NOT connect to OBD II

Ford recently released the [2022 Police Modifiers Guides](#) for F-150 SSV and 2022 Expedition SSV and have updated their statement relative connections to Control Modules and CAN-Bus networks stating, *[“Do not install any components into the PCM or PCM harness. Connecting into this system may affect engine and transmission operation. Connecting any aftermarket electrical equipment into the brake light circuit or any other circuit connected to the PCM, anti-lock brake computer, air bag system or any other vehicle system will cause a vehicle malfunction.”](#)*

Dodge recently updated their 2015 – 2022 [Charger Pursuit Upfit Guide](#) with the warning, “Do not connect a RADAR unit or any other police equipment to the vehicle's diagnostic connector or the vehicle operating CAN bus. These connections are designed only for authorized service tools during vehicle maintenance. Other



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equipment connected to the vehicle in this manner can induce unexpected faults and/or degraded vehicle performance and will not be covered by the vehicle's manufacturer warranty."

The Solution

The Eagle 3 is the first RADAR to provide a method to independently verify the Doppler patrol speed without an electrical connection to the patrol vehicle. The Eagle 3 with Wireless Speed Sensing has an integrated antenna that utilizes satellite signals as an independent speed source to verify the patrol vehicle's Doppler ground speed. That means the Eagle 3 wireless technology is built-in so no customer IT support is required. Only the actual Doppler signal is used for the Patrol Speed reading. The satellite signals are used to guide the RADAR DSP to search for the Patrol Doppler signal in a specific area. The result is the Eagle 3 with Wireless Speed Sense quickly displays patrol speed and targets when coming out of HOLD, features Automatic Mode Switching and eliminates common RADAR anomalies like shadowing, batching, and combining without the need for a wired connection from the RADAR to the patrol vehicle.

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