



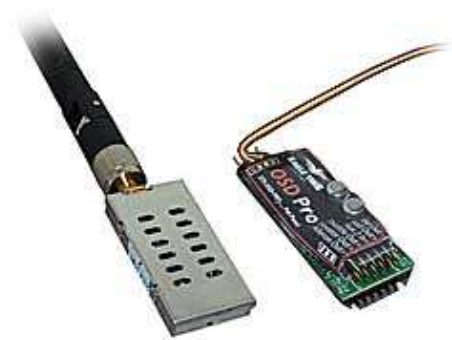
# OSD PRO / 900MHz TRANSMITTER KIT

## Part Number OSDPRO-905

### INTRODUCTION

Thank you for purchasing the OSDPRO-905 OSD transmitter kit. Before installing it, please take a moment to review the tips and guidelines presented here. We want you to be successful and the information shared in this document will help you avoid costly mistakes.

The kit contains a wireless video transmitter and a sophisticated OSD (On Screen Display) telemetry system. Basically we have gathered all the necessary parts, which saves you the trouble of deciding what is needed to get started.



### BEFORE YOU START

It is important to familiarize yourself with all the components before you proceed. Unfortunately, that means you must review the documentation that is provided by the manufacturer. Some of the items have printed instructions, whereas others will require an online download using the links on the [dpcav.com](http://dpcav.com) web site.

We know you are excited to get started, but please don't skip reading the instruction manuals. One important tip is that the printed instructions are also available online. It is helpful to download the latest version so that your documentation is the most current revision.

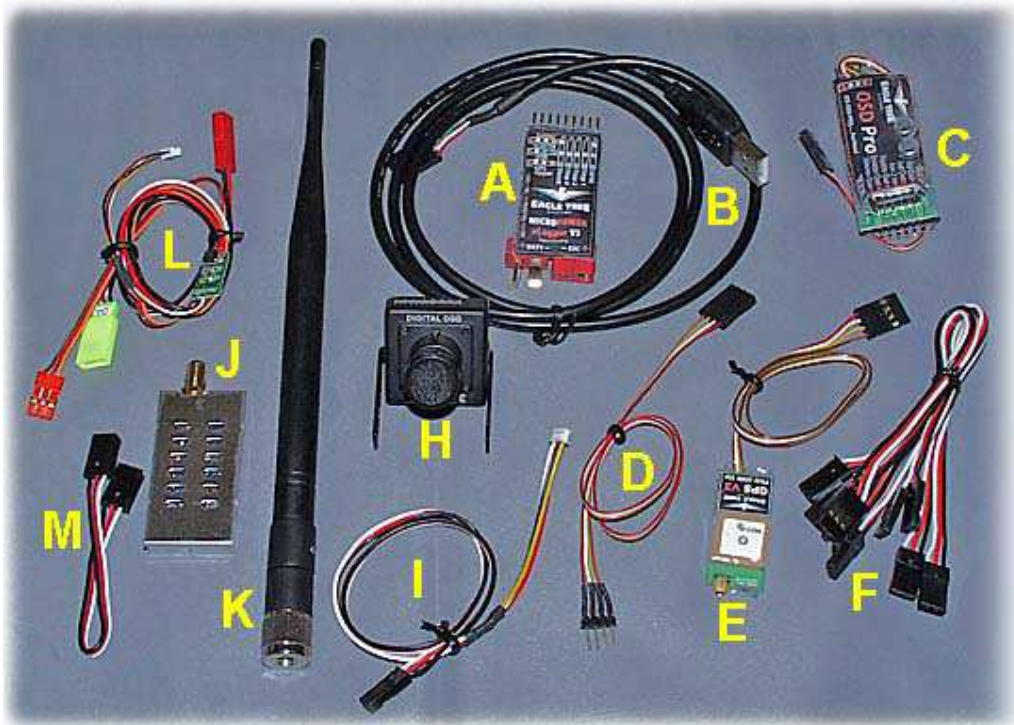
### WHAT IS IN THE KIT?

Here is a complete parts list of what is included in this kit (see Figure 2 on next the page):

- Item A,B: #ETS-MPRV-CONN-100, EagleTree eLogger V3 or V4.
- Item C,F: #ETS-OSD-PRO, Eagle Tree OSD-PRO Video Expander module.
- Item D: #ETS-CAB-EXP-EXT, eLogger GPS Expander Extension Cable.  
(discontinued in kits shipped after May-31-2010).
- Item E: #ETS-GPS-V4 (or V3), eLogger GPS Expander Module.
- Item G: (Not shown) eLogger Throttle Y-cable.
- Item H: #DPC-420A, 420 line CCD color camera.
- Item I: #CAB4X-3PSU, DPC-420A camera interconnect cable.
- Item J: #TX9-500, 900MHz/500mW wireless video transmitter.
- Item K: #ANTHWD-900 (or equivalent), +3dBi dipole antenna.
- Item L: #CABRW-DLX4, Deluxe A/V cable for TX9-500 transmitter.
- Item M: #CAB3MM-125F, Male-male video adapter cable.

#### Not Included:

- Battery (required).
- 900MHz Video Receiver (required).
- Microphone (optional).
- Model R/C system (required).



**Figure 2,** Contents of OSDPRO-905 kit

### **RADIO SPECTRUM REGULATIONS**

The kit includes our TX9-500 wireless video transmitter. It is designed for Amateur (ham) Radio use and must not be used in commercial applications.

Due to its high RF power, operating it will require a ham radio license and some countries may forbid its use. It is your responsibility to ensure that you follow the requirements imposed by your government's RF spectrum regulations. Do not install this product if you are unsure of the requirements or are not able to comply with them.

Because of FCC regulations, video transmitters shipped to USA destinations will be fixed to one channel (910MHz). Transmitters shipped outside the USA will have four channels (910MHz, 980MHz, 1010MHz, and 1040MHz) . Please see the TX9-500's instruction manual for more details (available as a free download from [www.dpcav.com](http://www.dpcav.com)).

**DPCAV or its resellers will not be held responsible for ANY problems that may occur due to the use of this RF device. Use at your own risk!**

### **WHAT DO I DO FIRST?**

Once you have reviewed the various instruction manuals, it's time to load the EagleTree eLogger and the OSD Pro with the latest firmware. **Do not install anything until you do this!**

EagleTree's instruction manuals describe how to upgrade the firmware and they also provide an installation CD with the PC application on it. However, software fixes and updates may

have been released since the CD was printed. So, we recommend that you download the latest version from the EagleTree web site and use it instead. Here is the direct link:  
<http://eagletreesystems.com/Support/apps.htm>

The PC application is also used to configure the eLogger module and OSD. But for now, you are only interested in updating (re-flashing) the firmware. Once the latest firmware is loaded, and all the hardware is installed, you can return to the PC application and configure your EagleTree OSD.

It is not necessary to install a battery during the firmware update. Power is supplied by the USB cable. But before connecting the eLogger to the USB cable, ensure EVERYTHING is unplugged from the eLogger module. It is best to remove the OSD Pro Expander until after you have successfully updated the eLogger module. Once it is updated, you can plug the OSD Pro in and update it too.

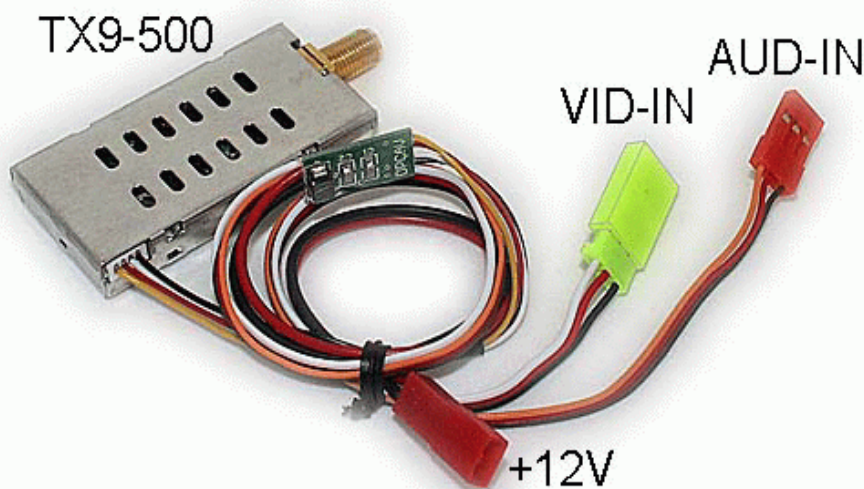
If you have problems with updating the firmware then please review the Troubleshooting section in the eLogger instructions. In addition, here are some things that have helped us:  
Do not plug the USB cable into a USB hub. Directly connect it to the PC.  
If necessary, unplug ALL other USB devices from the PC.  
e-Logger not detected? Unplug it for one hour, then try again.  
As a last resort, try another PC.

### **WHERE DO ALL THE CABLES GO?**

You may have noticed by now that there are a lot of cables to connect. It can be a little overwhelming at first, so we will offer some tips on what to do.

#### Transmitter Cable:

The transmitter's A/V cable (p/n #CABRW-DLX4) plugs directly into the 4-pin receptacle on the TX9-500 transmitter. See Figure 3.



**Figure 3, TX9-500 A/V Cable**

### TX9-500 Battery Power:

TX9-500 transmitter cable provides a +12V battery input connector. This connector is a JST (BEC) 2-pin female and is compatible with several 3-cell LiPO packs offered by dpcav.com and most R/C hobby retailers. The required voltage is 9.5VDC to 12.5VDC. Higher voltages will cause damage. We recommend a 600-1200mAH size battery (approximately 1.5 to 3 hours continuous use).

The battery installed on the TX9-500 also powers the DPC-420A camera and optional microphone. However, it does not power the Eagletree telemetry system components. Instead, they are powered by the R/C system battery (we will discuss that shortly).

### DPC-420A Camera Cable:

The #CAB4X-3PSU cable plugs into the 4-pin receptacle on the back of the DPC-420A camera. This 3-wire cable carries the +12V, ground, and video-out signals. It will plug directly into the VID-IN port of the OSD Pro Expander.

Although there is a microphone built into the DPC-420A camera, it is not used (the audio signal wire is ignored). If a microphone is needed, we recommend that you use a separate microphone equipped with a volume control (such as our optional Tiny-Mic accessory).



**Figure 4,** Camera cable

### Power Cable:

Those of you that have used an EagleTree eLogger before may have noticed that it received its power from the battery that was connected to the big Deans/Ultra T-connectors. However, because of the additional current required by the GPS and OSD expander modules an additional power source is needed. As discussed in the eLogger module's instruction manual, the Throttle Y-cable (included) provides supplemental power to the eLogger system. It also allows throttle position logging if you care to do that.

### GPS Installation / Extension Cable:

To minimize GPS signal interference, it is important to install the GPS-V4 receiver as far from the video transmitter as possible. To help assist with this, OSDPRO-905 kits shipped before May-31-2010 include a #ETS-CAB-EXP-EXT Expander Extension Cable. It is used to extend the length of the GPS cable so that it can be mounted further from the video transmitter. Kits shipped after May-31-2010 do not include the cable; instead, a revised GPS-V4 is provided that has an extended cable length with integrated EMI/RFI Toroid filter.

Regardless of which GPS you have, be sure to route its wiring far away from the video transmitter. Poor placement will affect GPS reception and cause loss of GPS signals or reduced accuracy. Please experiment with the GPS mounting location (and wire routing) if you run into GPS reception trouble.

## OSD Pro Expander Module

In order to use the OSD's on-screen menus, the OSD Pro Expander will require two R/C channels. One R/C channel must be dedicated and the other can be shared with another servo function. Please review EagleTree's instructions for details.

The OSD Pro also has a Failsafe feature that is designed to return an R/C model back home if the R/C signal is lost. This is a very advance feature that requires either a very stable model airplane or the use of a supplemental stabilization system such as the FMA Co-Pilot™. Please consult with the EagleTree instructions for full details.

## OSD Pro Video Cables:

The OSD Pro Expander module must be connected to the eLogger, as well as to the TX9-500 transmitter and to the DPC-420A camera. The EagleTree instruction manual is quite clear on how to connect these items. But to make it even simpler, here are some photos that help show some useful details.

Figure 5 shows the DPC-420A camera's cable plugged into the OSD Pro Expander's VID-IN port.



**Figure 5,** Camera Video to OSD Pro



**Figure 6,** TX9-500 Video Cable to OSD Pro

Figure 6 shows the TX9-500 transmitter's VID-IN cable plugged into the OSD Pro Expander's VID-OUT port. Please note how the p/n #CAB3MM-125 male-male cable is used to convert the female connector into a male type.

Figure 7 shows the TX9-500 transmitter's AUD-IN cable plugged into the OSD Pro Expander's AUD-OUT port.



**Figure 7,** TX9-500 Audio to OSD Pro

If the optional microphone is used then it connects to the OSD Pro's AUD-IN port. To avoid damaging the microphone please be very careful with connector orientation. The OSD Pro's microphone input must be enabled using the on-screen configuration menus (set Microphone Mute=Disable). So don't forget to do that when you configure the OSD features. We also recommend that you set the Mic volume level to 1 (lowest setting).

## **SOFTWARE CONFIGURATION**

The eLogger and OSD Pro features are configured using the PC application software and USB cable. In addition, several OSD Pro features are configured using on-screen menus that require using your R/C system to navigate them. Full details are in the EagleTree instruction manuals.

## **WHAT ELSE DO I NEED?**

Congratulations, you have just installed your wireless transmitter and OSD telemetry system. But, you'll need a compatible 900MHz receiver to go with it. These are available from [dpcav.com](http://dpcav.com), along with a variety of antenna choices.

## **USEFUL THINGS TO KNOW**

- 1 Do not operate the TX9-500 transmitter without the antenna and always use an antenna that is specifically designed for 900MHz operation. A missing or incorrect antenna is stressful to the transmitter's circuitry and may cause permanent failure.
- 2 Do not exceed the recommended voltage and never connect any power connections backwards (reverse polarity). Otherwise serious damage will result and the warranty will be voided.
- 3 If mains powered, the TX9-500 requires a voltage regulated 12VDC wall adapter. Do not use unregulated types since they may cause serious damage. Battery power sources are recommended; a 3-cell (11.1V) lithium polymer / LiPO pack works well for portable operation.
- 4 The transmitter will become hot during use. It must have adequate air flow to prevent over heating. If it becomes too hot to touch then immediately remove power and allow it to cool.
- 5 The 900MHz RF signal is very strong and may cause EMI/RFI (interference) to nearby GPS systems, electronic controllers, radio receivers, and other electronic items. If this occurs, move the transmitter antenna further away from the affected items and any related wiring. We recommend a minimum of 16 inches (more may be required).
- 6 This kit is specially designed so that the wireless video transmitter and camera can be used without the eLogger telemetry system. To do this just remove the eLogger and OSD. Then connect the TX9-500 directly to the DPC-420A camera (simple cable plug-in effort). This is a useful thing to do if you experience video or interference problems and need to isolate the source of the trouble.
- 7 If the microphone does not work then check the OSD Pro's configuration menus; If Microphone Mute is enabled then disable it. Also, turn the volume down lower if loud microphone sounds cause visible lines in the video image.