

# FIRSTPERSONVIEW ON SCREEN DISPLAY MANUAL



Orange = Analog signals in/out, Black = Ground, Red = +5V

**Manual Version FPV-0.05**

**PC Software Version 1010**

**OSD Firmware Version 1.16C**

8/10/07

# FirstPersonView On Screen Display

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# FirstPersonView On Screen Display

## INSTALLING THE OSD INTO YOUR AIRCRAFT

### GENERAL INFORMATION

The OSD is available in both PAL and NTSC versions. Please make sure you use the correct video format for your On Screen Display.

The label on your OSD has a set of dots next to each header set. The dots and labels identify the pins and their use. All pins which are marked with a red dot are connected together on the +5.0V supply rail. All pins marked with a black dot are connected to the ground. All orange marked pins are analog signals in or out. In general, they are in the same order and colour as a standard servo cable. A standard servo cable can be used as a connector to any of the pins on the OSD other than the GPS/PC port.

To connect power to the On Screen Display, connect exactly 5 volts to a red pin, and ground to a black pin. We recommend you use the 5v regulator version of the of the current sensor and we usually supply this with the OSD. This will give clean and well filtered power. There is **no** power supply over/under voltage protection! Please take care, and ensure you measure and check before power up, you can very easily destroy your on screen display by providing a few volts too many! Also our power supplies feed the OSD with a battery sense signal, so the OSD can read out your main battery voltage. This sense signal is done with a 1k protection resistor in series with the main battery voltage, if you need to measure much higher voltages you can change this resistor and re-calibrate the voltmeter reading.

### RECOMMENDATIONS

As with all electronics you place in your plane, we recommend that you place your on screen display as far away from the receiver and speed controller as possible. A speed controller can release electromagnetic radiation which may affect the on screen display or your video picture.

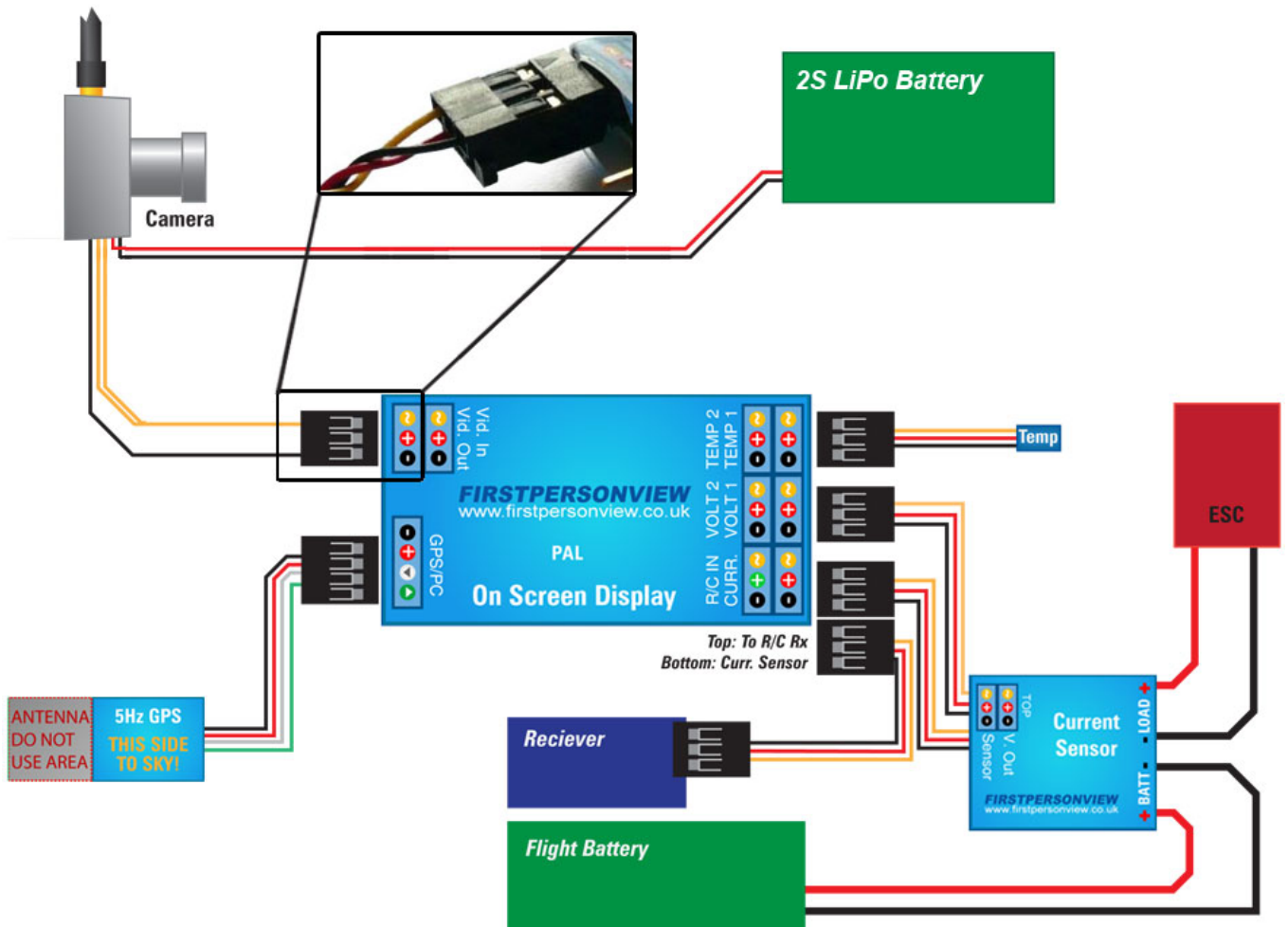
Make sure that your GPS unit is not next to your video transmitter. The video transmitter can flood GPS's receiver so that it is unable to receive the relatively weak signal from the satellites. Even though the video transmitter's frequency is likely very different from the GPS the amount of power from the transmitter and lack of filtering in GPS devices combined can be a problem.

After putting the OSD into your aircraft, be sure to check your centre of gravity and **perform a range check**. If the range check does not meet the minimum amount recommended by the manufacturer of your r/c equipment then do not fly your aircraft until after the problem is solved. Check that you have plenty of space between your r/c receiver, ESC, video transmitter, and on screen display – any of these can reduce control range.

# FirstPersonView On Screen Display

## CONNECTORS

### WIRING DIAGRAM



# FirstPersonView On Screen Display

## TEMPERATURE 1 AND 2

MAXIMUM VOLTAGE: 5V

The temperature inputs are designed to be used with FirstPersonView temperature sensors, but any sensor with analogue voltage output 0-1V can be used. The output voltage of the sensor must not ever exceed 5 volts. The configuration program allows for C and F readout by default for use with FirstPersonView temperature sensors. The FirstPersonView temperature sensors range is between -40C to 176C (-40F to 348F). At over 180C there is a strong risk of components or even the connection lead de-soldering.

There is no protection on the analogue inputs from over voltage, or reverse voltage. If connecting your own sensors take care!

## VOLTAGE 1

MAXIMUM VOLTAGE: 40V

Volt 1 when used with the current sensor that has a power supply on it provides the voltage supply and main battery voltage sensor on the one cable. Alternatively you may connect up to 40 volts to the orange pin and the ground for the battery to the black pin. If you require a higher voltage on this input, please contact support and organize for your OSD to be modified, or simply add a resistor in series with the orange signal to make the voltage drop, and re-calibrate the read out.

Voltage 1 is also used for calculating the number of watts being consumed.

**Note:** All FirstPersonView power supplies allow a female-to-female servo wire to be used between them and the OSD to allow the input voltage to be sensed. The third pin on FirstPersonView power supplies is a pass through of the input voltage (1k resistor in series on all our power supplies)

## VOLTAGE 2

MAXIMUM VOLTAGE: 40V

The extra voltage input can be used as an additional voltage input for monitoring the voltage of a second battery onboard or such. You can connect a maximum of 40 volts to the orange pin, and ground to the black pin.

# FirstPersonView On Screen Display

## R/C IN

### GREEN PIN

MAXIMUM VOLTAGE: 40V

The green pin provides an extra input voltage input that has some special features. It can either work as a standard voltmeter with the display as the voltage, or it can be displayed as a bargraph. The voltage required for each bar to activate can be configured and is designed for use with RSSI from quality receivers. When used as a standard volt meter and connected to a channel port on a r/c receiver it will display the voltage on your receiver. This is especially useful when flying on petrol planes that are powered by a set of cells plugged directly into the receiver. Any voltage up to 40volts may be used on this input.

### ORANGE PIN

MAXIMUM VOLTAGE: 5V

The orange pin allows connection to a r/c receiver's channel port. When connected to a 3 position switch channel this allows for changing between: no osd, user layout, user layout with WGS coordinates. If a loss of R/C signal is detected the WGS coordinates are automatically displayed to help locate your plane in the event of a crash or loss of r/c signal.

When all 3 wires are connected directly to the r/c receiver - the voltage is also read out, this is a useful feature if plane is fuel powered and receiver is powered from a battery pack with no regulator/BEC.

## CURRENT

RANGE: 0-68 AMPS, 0.1A RESOLUTION

The current sensor allows for the current number of amps being consumed, total mAh/Ah consumed and the number of watts being used, to be displayed. Once the milliamp hours reaches 10 amp hours, it will automatically display in amp hours rather than mAh, the sensor can track up to 65.5 amp hours. For the watt meter to work, the current sensor and pack voltage line must be connected. If you require more than 68amps maximum, please contact FirstPersonView. The current sensor can be configured to 100Amps with 0.2A resolution, or even 200A full scale if needed, ask.

**Note:** The current sensor can be fitted with an optional 5v power supply which supplies 5v on the voltage sensor wire which can be used to power the on screen display.

# FirstPersonView On Screen Display

## VIDEO IN

The video input should connect to your camera or other video source. The OSD provides 75 ohm termination of the input.

## VIDEO OUT

The video output of the OSD, which is your video plus the on screen display overlay. The device which takes this video must be 75 ohm terminated (e.g.: video transmitter, TV, etc). Double check this with OHM-meter is any problems with picture or OSD.

## GPS/PC SERIAL PORT

The GPS/PC port on the OSD is a serial port which operates at 19200 baud. The GPS must be configured to provide NMEA output at 19200 baud with the GGA and VTG codes. The OSD configuration program includes official Locosys LS20033, EB-85A, EM-406 and EM-411 GPS configuration for 1 Hz and 5 Hz (EB-85A only). You can use the OSD configuration program to program initialisation strings that will be sent to the GPS on start-up, please see your GPS manual for this information.

FirstPersonView recommends the use of a Locosys LS20033 GPS for its speed and accuracy and this GPS is included.

# FirstPersonView On Screen Display

## CONNECTORS

### USB

To install the USB driver:

1. Download the drivers from the FirstPersonView website support page.  
([http://www.firstpersonview.co.uk/index.php?main\\_page=page\\_3](http://www.firstpersonview.co.uk/index.php?main_page=page_3))
2. Extract the files within to a directory such as C:\temp\usb\.
3. Plug your USB connector into a spare port on your computer.
4. When the New Hardware Wizard is displayed, do not check for drivers on windows update, click next.
5. Select advanced/have disk, when asked for a location enter the directory you extracted the files to (C:\temp\usb\), continue with the installer.
6. The installer should find a USB Virtual COM Port and USB Serial Port.

When connecting to the OSD using the configuration application, the COM port from the USB connector will usually be the highest.

### SERIAL

To use the serial cable, simply plug it into the computer and connect to the COM port which you plugged it into – usually this is COM1, COM2 or 3.

# FirstPersonView On Screen Display

## CONFIGURATION SOFTWARE

### INSTALLING/UPDATING

1. Download the zipped installer from the FirstPersonView support page.  
([http://www.firstpersonview.co.uk/index.php?main\\_page=page\\_3](http://www.firstpersonview.co.uk/index.php?main_page=page_3))
2. Extract the installer, or if your zip program supports it, run Setup.exe from the zip.
3. There are no options in the installer other than the location to install, so click Next > until installed.

If the installer tells you that the Microsoft .Net 2.0 Framework Client is not installed, you can either obtain it from windows update, or by downloading it here: <https://www.microsoft.com/downloads/details.aspx?FamilyID=0856EACB-4362-4B0D-8EDD-AAB15C5E04F5&displaylang=en>. IA64 and AMD64 versions are available at the bottom of the page should you require them.

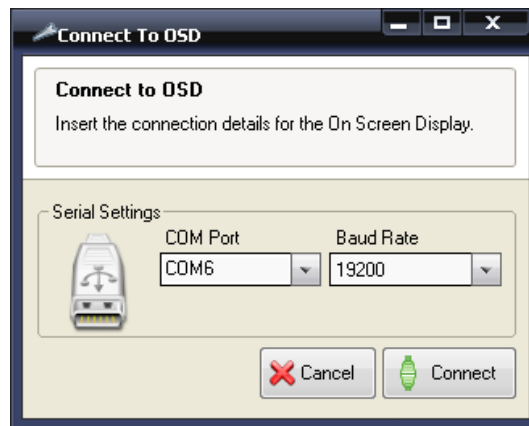
Once it is installed, you will not need to download the installer again. The OSD Configuration supports automatic updating of itself, when a new version is available a popup will be displayed asking if you would like to update. Updating usually takes only 1-2 seconds to happen. When an update is available it is **highly** recommended that you download it, they usually contain important updates to configuration files and/or fix bugs in the program.

# FirstPersonView On Screen Display

## CONNECTING TO ON SCREEN DISPLAY

To connect to the OSD with the configuration application, first connect the connector to the GPS/PC port on the OSD. The green wire should be towards the side of the board, and the black wire to the center of the board as on the label. Connect 5v power to the On Screen Display; if you're using a battery remember to disconnect it when you're finished!

After making sure that the OSD's connector is plugged into the computer – start the configuration application. You will see a connection window like what is shown below.



Ensure that the Baud Rate is set to 19200 and the correct COM port is selected. These settings will be remembered next time you start the program.

After clicking connect, the application will switch the OSD into setup mode, you should see this on your video screen. Once the program has connected and read the firmware version from the OSD, it will read all of the settings which are currently configured on the device.

If a new firmware version is available a popup will ask if you wish to upgrade the on screen display device, it is advised that you allow this.