iFLAG
driven

Penguin r/c
SIMULATION

PSPD
iFlag Pro Display

Connection and Default Settings:

Connection to the PSPD can be made using a standard Micro USB cable (1M option is included):

The PSPD uses serial USB communication for set-up and use. The device will communicate over any USB serial channel (COM port), however, optimal setup can only be done via the iFlag Program (**Penguin***r/c* version) with the **Penguin***r/c* Extension for Windows*. The PSPD iFlag Pro Display will also work directly with SimHub and does not require re-flashing of the Firmware in order to do so. Device settings for the PSPD are stored within the iFlag Program settings and are individualized to the COM port on which the device connected. This multi-device support allows use multiple PSPD iFlag Pro Displays, other iFlag driven displays, or iFlag enabled devices.

The iFlag program (if needed) can be downloaded from www.penguinrc.com or shop.penguinrc.com. If you were the original purchaser of this product you may log into your account and re-Download from the "Downloadable Products" Section in your account information. ⬇ This program and extension are free to download.

Upon first connection most of common modules for the PSPD are enabled within iFlag, these include:

- Demo Mode - Enabled
- SimLogo Connection Flag - Enabled
- 50% brightness
- Common Standard iFlag Modules (all Enabled w/advanced options)
- Penguin r/c Modules (Gear Selection, Pit Box Countdown, CommonCoder Display,
                Rear Proximity Monitor, and Visual Spotter+)

* The **Penguin***r/c* Extension for iFlag is required for the PSPD iFlag ProDisplay to be recognized and work properly with iRacing and the iFlag software.
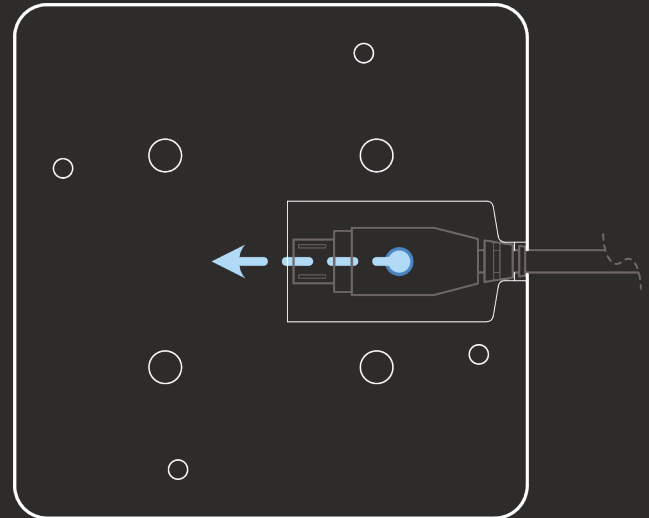
Physical Device Connections:

Connection to the PSPD can be made using a standard Micro USB cable (1M option is included):

The Connection for the iFlag Pro Display is a semi-blind connection which requires some care when it comes to connection of the cable to protect the USB connector. This section goes over the best method to make this connection.

1. Hold the USB cable about a 1/2" (12mm) from the back of the USB cable strain relief of the connection.

2. Lay the connection end of the cable into the recess in the back of the PSPD with the plug connection clips facing you. *(see diagram to the right)* Your hold on the wire should be outside the PSPDs case.

3. Lightly move the plug toward the the device socket. Moving the cable a little to the left and right will help the cable self position in the plug. You may feel a slight click when the cable has seated. At this point the cable will be inserted into the device by approximately 1/8" (3mm). A correctly inserted cable will be fairly flush with the backside of the Pro Display.

WARNING: DO NOT place significant pressure on the cable when connecting the plug until you are sure the cable has been pre-seated and aligned properly. Doing so may add undue stress to the device socket as the USB cable will be pressing on the connection housing and can cause damage to the PSPD.

USB Cable Removal: Pull straight from the connection via the wire from outside the PSPD to avoid stress on the plug.

Installing iFlag: (Main Software) - *use with iRacing*

The iFlag Pro Display requires the use of a software package to display properly. The native software package for the PSPD is iFlag. Upon purchase you should have automatically been provided access to the download for iFlag which can be found in the "Downloadable Products" Section in your account information.

- **Download** - Download .zips from your account for BOTH iFlag and the **Penguin*r/c*** iFlag Extension. We recommend placing the .zips on your desktop to ease final installation and then moving them where you want after.

- **Extract** - Double Click on each .zip and click on the Extract All button in the upper right side of the window in Windows 10 (it may be located elsewhere with other versions of windows). This will bring up a window for you to decide where to place your extraction and what folder to create while doing so. Just continuing to extract with no change to the path created Windows will place a folder of the same name as the .zip in the location where the original .zip is currently. (On the desktop if that is where you chose to place the download suggested above.)

- **Extension Installation** - Once both items have been extracted take the ENTIRE folder for the **Penguin*r/c*** Extension and place it inside the iFlag Folder/Extensions Folder. Once this is done your installation will be complete.

- **Launch** - You can run iFlag using the provided shortcut in the iFlag folder or by running the actual .exe in the iFlag folder within the extracted iFlag folder. Windows may ask you to download .Net6 components to run the program, Follow the directions as given. IF this fails it may be done manually by downloading the .Net6 Desktop from Microsoft.
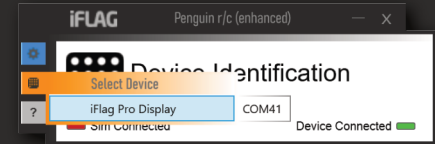
SimHub Use: (Secondary Software) - *use with games other than iRacing*

The Pro Display is designed to auto configure and run as a LED Matrix within SimHub. You do not need to re-flash the device with any SimHub firmware. This allows use of the Pro Display with games and modules that iFlag does not currently support but are supported through SimHub. The PSPD will configure to the software package that communicates with it first. To guarantee iFlag use, it must start before SimHub and visa-versa. If you wish for the Pro Display to be used ONLY with one software package you can disable COM Port access in SimHub or iFlag.
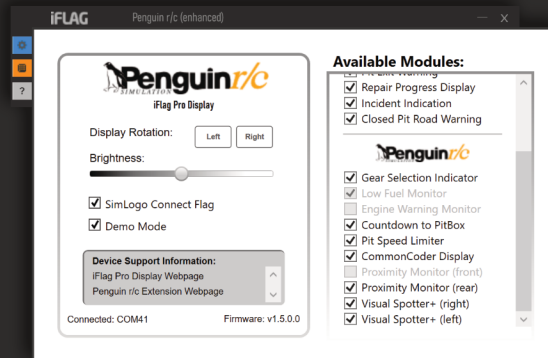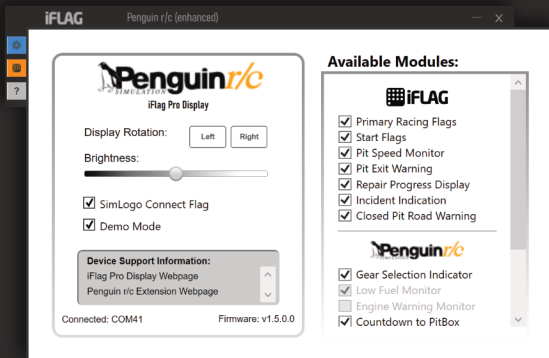
Setting up the PSPD via iFlag: (Interface Overview)

iFlag allows you to customize the PSPD through the use of the Penguin*r/c* Extension. The primary user interface for set-up can be accessed via selecting the iFlag Pro Display via the Orange Device menu within the iFlag program. To facilitate selecting from multiple iFlag displays when you roll over each display the COM port it is connected to will be displayed to right of the name and the display will indicate itself to you by changing the display flag to a white "I".

• **Primary Device Settings** - Display Rotation, Brightness, SimLogo Connect Flag, and Demo Mode.

• **Available Modules** - This section shows a list of all modules currently available for use on the Pro Display. Modules can be turned off individually per display by checking on the box next to the module name. This allows multiple displays to show common or individualized information. When a module is greyed out it means it could be used with the Pro Display but has been disabled globally at the System level in the module setup.

Settings via iFlag: (Basic Settings)

The following settings are available from the main device page within the **Penguin*r/c*** iFlag program with the **Penguin*r/c*** Extension:

- **Display Rotation** - This setting allows rotation of the display in 90 degree increments to match the viewing orientation that you expect from your preferred mounting location.

- **Brightness** - Initially set at 50% for power saving and decent brightness, the Pro Display can be increased in brightness or dimmed depending upon your preference. Please note that LED's tend to shift in color balance when very dim, so some flag coloring may change if running the display at very low levels.

- **SimLogo Connect Flag** - This setting allows a flag to be displayed on the device upon initial connection to the the sim being used (currently ONLY iRacing is supported by iFlag). This display may be overridden by game flags so in some cases it may not be displayed upon connection.

- **Demo Mode** - This mode runs through different flags from the modules at an interval of 5 seconds each when a game is not connected and using the device.

Reset the PSPD - To reset the Pro Display if it should become unresponsive to display commands, hover your mouse over the Connected: COM port.. This will reveal the reset device button. Click here to reset…
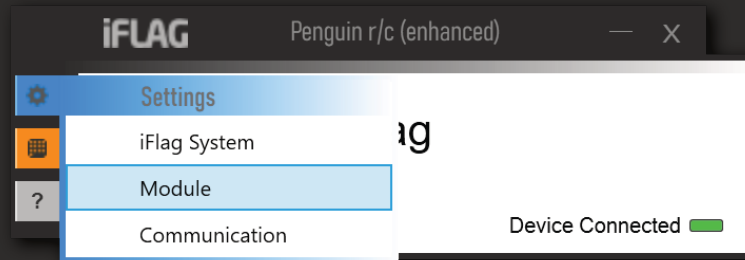
Module Setup via iFlag: (Global System)

The PSPD iFlag Pro Display can use many modules which all have their own individual settings. Some of these modules are specifically designed for the ProDisplay and will only function with a PSPD unit. These modules will usually have advanced settings allowing more control over what is displayed.

To access the individual Module Settings you would select the blue menu on the left side of the iFlag main window and then select modules. This will bring up a list of all the installed modules and allow you to adjust any settings associated with that module OR globally enable or disable the module if you choose.

For more information about what the settings do for each module provided with iFlag or the **Penguin***r/c* Extension please refer to the the iFlag software user manual. You may also experiment and play with the settings on your own.

PSPD Pro Display Optional Accessories:

PSPD_m - Mounting Plate:

This mounting option provides users with several methods to mount the PSPD to 80/20 Profile or anything else for that matter. It includes two 5mm mounting screws to mount the PSPS iFlag ProDisplay and then two 6mm Flat head screws for mounting the PSPD to 80/20 profile using standard 6mm T-Nuts. *(not included)* Cutouts in the plate allow unobstructed use of the PSUSB_up_1.5 optional USB cable for rear exit of the connection cable.

Currently only possible with
PSPD_m modifications. **

** Modifications required for this mounting configuration: (option #1) Countersink 5mm holes on the opposite side from the 6mm countersinks and use 5x10mm FH screws for PSPD mounting. (option #2) Use longer 6mm FH screws with a spacer so included 5mm Cap Screws clear 80-20 profile. USB cord side exit ONLY.

PSUSB_up_1.5 - Right Angle Heavy Duty USB Cable:

This option is a custom made Heavy Duty 1.5 meter USB-A to Micro USB cable where the Micro USB end is of a up direction. This up direction allows connection of the USB cable in a manner where the USB Cable exits out the rear of the device. Using this cable can make mounting the PSPD iFlag ProDisplay cleaner by hiding the cable and cable management behind the device instead of the standard side exit mounting.

Troubleshooting:

PSPD does not display any flags and is not connected to iFlag :
You may have another program that claims devices not allowing them to function properly. Programs known to do this are SimHub, some USB HID emulation systems, and some systems that read serial data. These programs will claim and then not release the COM port a device is on rendering it inoperable.

The PSPD allows dual use functionality with SimHub which is a culprit in claiming devices. Option #1 goes over how to allow this dual usage to still be retained through SimHub but use the more advanced iFlag systems. Option #2 has information on how to keep SimHub and others from claiming the PSPD inadvertently.

Option #1: *SimHub (dual use)*
1. Close SimHub.
2. Cycle the power on the Pro Display by disconnection.
3. Start iFlag prior to opening SimHub to allow the Pro Display to properly connect to iFlag.
4. Start SimHub for your other devices. The iFlag program has an advanced check system that will only allow it to fully connect to iFlag based devices.

Option #2: *Permanent disabling of alternative program connection including SimHub*
1. Check to see if the PSPD is connected to your computer but not functioning by checking the "Devices and Printers" system control panel.
2. If the PSPD is shown, right click on the device to get to the device properties.
3. Under the Hardware Tab make note of which COM Port the PSPD is connected to "USB Serial Device (COM xx)"
4. Enter the program which is conflicting with the PSPD and set the program, if possible, to ignore or not scan the COM port that the PSPD is on. For SimHub *(the most common culprit)* this can be found under Arduino/My Hardware / Scan Settings / (radio) Never scan selected ports → Select the port of the PSPD and unplug, reconnect, or restart.

Troubleshooting *(continued)*:

PSPD does not display any flags but is connected to iFlag :

1. If PSPD COM port is listed under "Uninitialized Devices" in the iFlag System Settings page under the blue systems menu.
    a. Roll over the COM port to see what the tooltip indicates. If the tooltip says:
       • "iFlag Device, Extension Not Detected" →
          Verify installation or install the Penguin r/c iFlag Extension.
       • "No Ping Detected" or "Incompatible Ping Detected" →
          Unplug, reconnect, or restart PSPD as it may have registered mid-ping.

2. If PSPD has stopped displaying flags but is currently fully connected to iFlag and settings can be accessed. Use the reset device button as indicated on Page 5 of this manual to force the device to restart and reconnect to iFlag. *Please note:* Using a program that can claim devices as mentioned in the previous troubleshooting entry could interfere with reconnection.

Any additional issues with regard to this device you may contact us in the following manner for Support:

1. **email** - *support@penguinrc.com* or click the link on the device page in iFlag.
2. **Website** - *https://shop.penguinrc.com/contactus* - fill out the contact us form for help.
3. **Discord** - *https://discord.gg/qUcarHvR5R* - Join and place a message in out Troubleshooting forum.

Warranty and Repair:
   All Penguin r/c Products carry a lifetime warranty which provides differing levels of repair service depending upon the age, issues present, and perceived condition of the device. (I.e. overly abused items may be denied warranty service due to apparent mis-use). Warranty is transferable to resold items at described in our complete warranty details on our website :
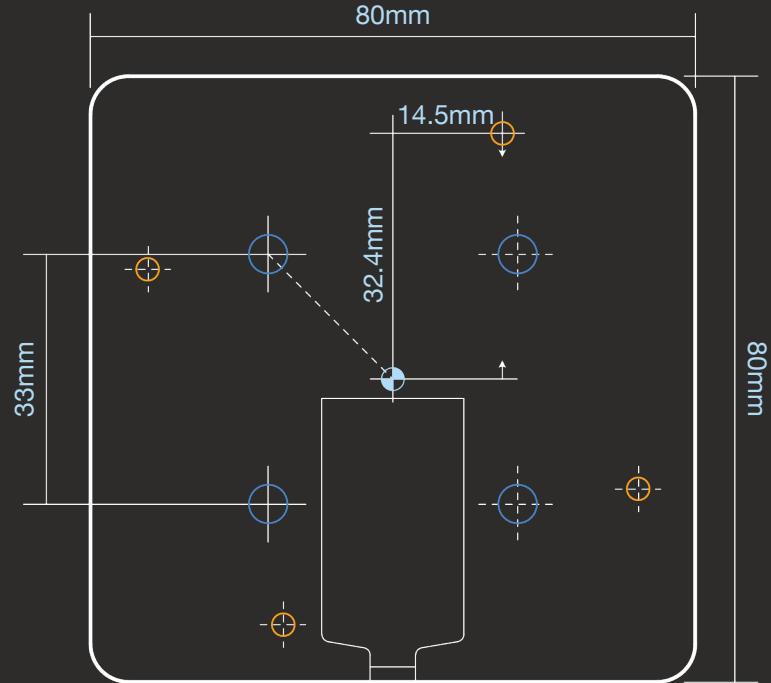
https://shop.penguinrc.com/warranty-information

PSPD Dimensions and Installation:

PSPD Mounting:

Four threaded mounting positions for standard 5mm screws are provided as the main mounting points for the Pro Display. *(blue holes on the diagram to the right)* These mounting provisions are common around the center point of the device and are 33mm apart. You may use as many of these as needed to mount the device but it is recommended to use at least two.

An additional four mounting positions for use with standard 3mm screws are also provided as secondary mounting options. *(orange holes on the diagram)* These positions are again common around the center point of the device.

WARNING: Any screw used to mount the PSPD via the provided locations must not penetrate into the device by more than 6mm. Longer screw penetration has possibility of doing damage to the internal RGB Matrix which would NOT be covered under the lifetime limited warranty.

80mm

14.5mm

32.4mm

33mm

80mm

1:1 scale - PSPD Thickness = 21.5mm

Penguin *r/c*
SIMULATION

Package Contents:

PSPD iFlag Pro Display
1 Meter USB Cable

iFLAG
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