

# HSFW Control Help

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## Introduction

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### Welcome

Thank you for choosing The High Speed Filter Wheel. The Optec team works hard to provide our customers with the highest quality product accompanied by unmatched technical support.

### What's new

Optec's High Speed Filter Wheel is based on the time-proven design of the original IFW (Integrated Filter Wheel). As PC technology continues to change and evolve, older technologies such as RS-232 (serial COM Ports) are being pushed out and newer technologies such as USB are taking over. Users wishing to connect to older serial devices are forced to purchase extra PC hardware or USB dongles in order to continue use. In an effort to stay up-to-date with the latest technologies, Optec developed the High Speed Filter Wheel device. The new High Speed Filter Wheel incorporates the following features:

- ***USB Connectivity***
- ***Asynchronous Control***
- ***Controllable from any language that supports COM***
- ***Over 6 times faster than the IFW***

# Getting Started

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## System requirements

Use of the Optec High Speed Filter Wheel requires that you have the following:

- **Windows 2000 or newer**
- **Microsoft .NET Framework 3.5 or newer**
- **12 Volt DC Power Supply**

## Device Driver Info

The HSFW communicates with the PC by using a built-in driver that has been part of every Windows Operating System since Windows 2000. This driver is called the Human Interface Device (HID) driver and it is shared by mice, keyboards and other products. It is not necessary to install any special drivers for Windows to detect your filter wheel and communicate with it.

The first time you attach your filter wheel to your PC via USB, Windows will enumerate the device and determine the device's identity. During this process Windows will determine that the HSFW uses the HID interface and will associate your filter wheel with the correct driver. The first time this happens it may take several seconds for the process to complete. After the first enumeration, this process will happen nearly instantaneously.

Once your Operating System has enumerated the HSFW device, any program is allowed to use it and control it. Optec Inc's **High Speed Filter Wheel Control** is a simple Windows application that allows you to control multiple HSFW devices at the same time. The program is alerted any time an HSFW is attached to the PC. When this happens the program creates a tab displaying the status of the filter wheel and providing users the ability to change filter positions and modify device settings.

## Operation

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### Controlling Filter Wheels

As devices are detected by the operating system the *HSFW* control program is notified and will automatically display the device controls on the main program window for the connected device. If multiple devices are connected their controls will be available on individual tabs which correspond to each device.

If the connected *HSFW* has an error code set in the firmware try homing the device by pressing the "Home" button in order to clear the error. If the error cannot be cleared an error message will be displayed on the main program window or in a message box. For example, if no wheel is inserted into the *HSFW* the program will detect this and prompt you to insert a wheel.

### Device Settings

The image below shows the Filter Wheel Setup form. The form contains the following properties:

#### **Device Properties:**

**Centering Offset:** The centering offset can be used to adjust the final position of the wheel after each move or home. Setting the offset more positive will cause the wheel to travel further clockwise. Setting the value more negative will cause the wheel to travel further counter-clockwise. The centering offset can be adjusted anywhere in the range of -128 to 127.

**Serial Number:** The *Serial Number* property displays the unique serial number for the selected device. This number is programmed into the firmware at assembly time and can not be changed.

**Firmware Version:** The *Firmware Version* property displays the current firmware revision that is programmed into the selected device. This value is read-only.

#### **Wheel Properties:**

**Wheel ID:** The *Wheel ID* property is used to select which wheel's property you want to view/modify. By default the wheel that is currently in the device is selected.

**Wheel Name:** The *Wheel Name* property can be used to set a nick-name for the selected wheel. This name is stored in the devices non-volatile FLASH memory and thus is preserved through device power cycles. Some wheels are only capable of holding 5 filters. When such wheels are selected, "Not Available" will be displayed for the Name of filter numbers 6 through 8.

**Filter x Name:** The Filter x Name properties can be use to set nick-names for specific filters within a wheel. This name is stored in the device non-volatile memory and thus is preserved through device power cycles.

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**Restore Default Names:** This button will reset all of the filter names as well as the wheel names back to their default values. If you press this button all of your stored filter and wheel nick-names will be lost.



