DK2PORT ADAPTOR

November, 2014

Introduction:

Mission Statement

Our mission is to provide our customers with reliable products, on time, and at a fair price. We are continually striving to maintain the highest standards, by assuring defect-free products and by providing prompt and courteous customer service.

The staff at Spectral Products (***SP***)` will be happy to answer any questions about our products and our services. For immediate assistance, please contact Spectral Products directly at (505) 343-9700, by fax (505) 343-9705, or by e-mail at *sales@spectralproducts.com*

Warranty

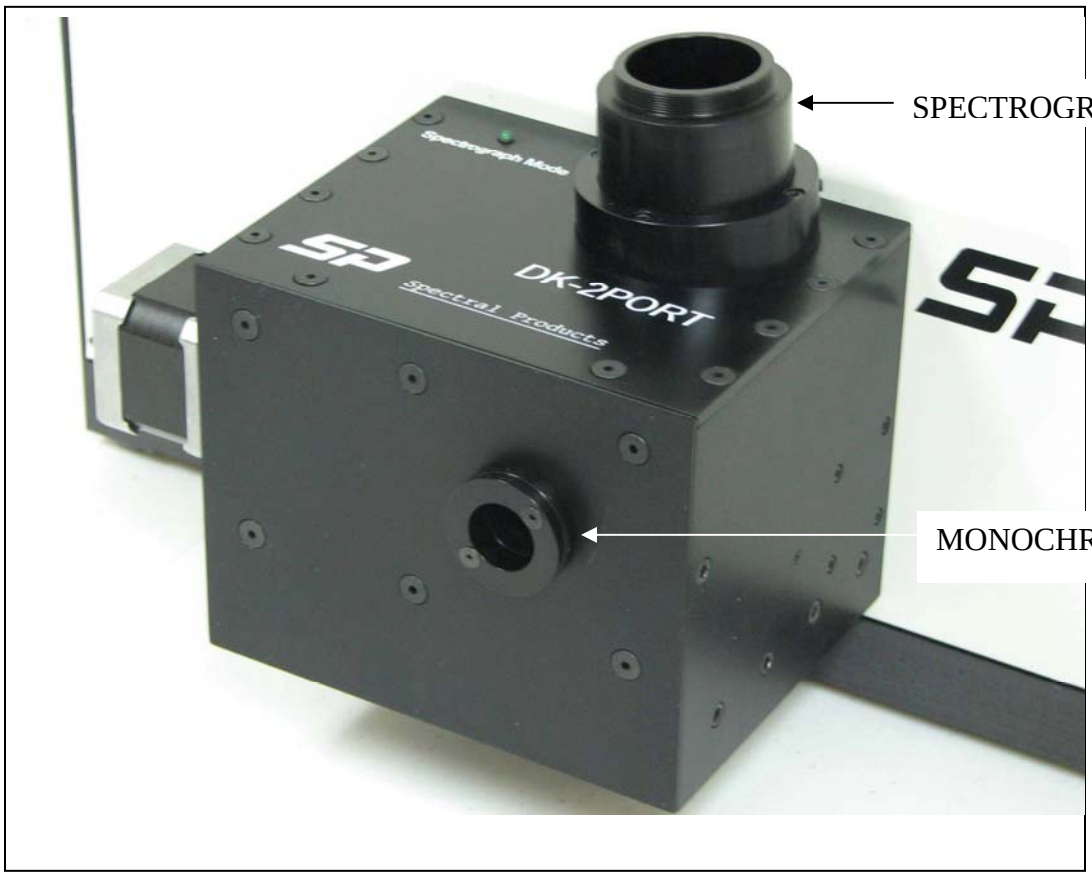
- This product is warranted to be free of defects in materials and workmanship for one year from date of purchase.
- This manual and the software it describes are provided free of charge as a service to the customer. The software is intended to be used as a tool for development and as an example of one possible method of code implementation. It is not intended to be a "user application."
- Any software associated with this product is provided "as is" with no warranty, expressed or implied. While it is Spectral Products' intent to provide error-free development tools, no guarantee is made regarding either the accuracy or usefulness of this material.
- Failures or damages resulting from lack of operator attention to proper procedures, failure to follow operating instructions, unauthorized modifications, and natural disasters are not covered under this warranty.
- ***SP*** reserves the right, without prior or further notice, to make changes to any of its products described or referred to herein to improve reliability, function, or design.

- ***SP*** accepts no liability for incidental or consequential damages arising from the use of this software.
- ***SP*** does not recommend the use of its components or software products in life support applications wherein a malfunction or failure of the product may directly threaten life or result in injury.
- ***SP*** does not recommend the use of this product on the same power line as other equipment with high current draw requirements.
- The Digikröm DK240/480 does not contain any user serviceable parts. Removing its cover, without explicit written permission from Spectral Products, will void any written or implicit warranty.

Copyrights

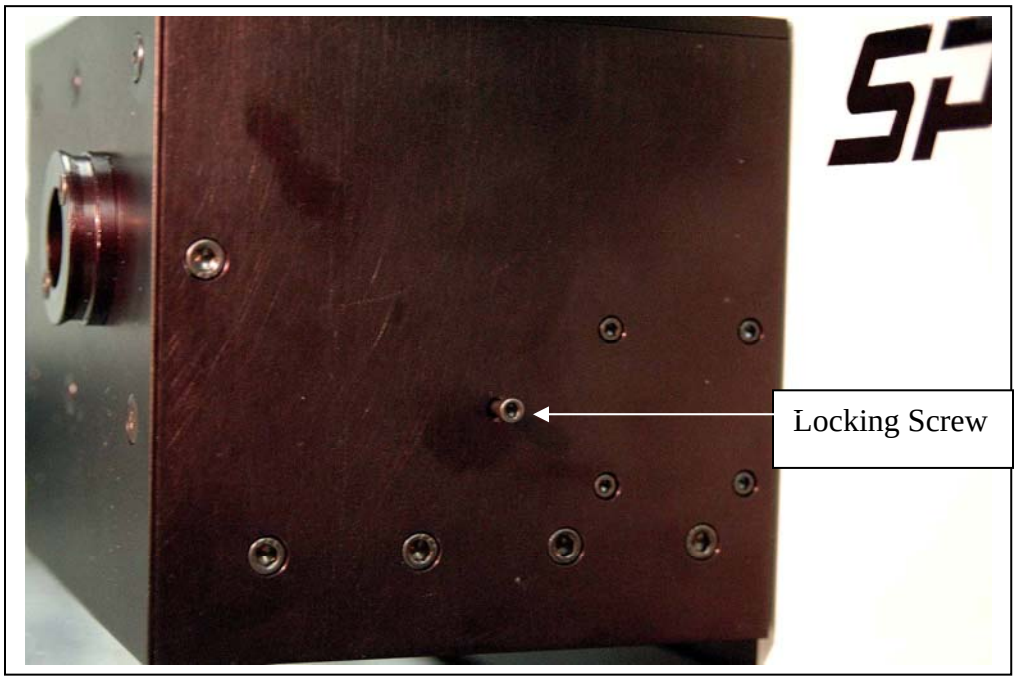
Operation:

The DK2Port adaptor is an extension of the output usage of the DKSP240. The user has the option of directing the light path for monochromator or CCD operations. A stepper motor controlled flip mirror directs the light path to the appropriate port. The software to control this operation is available in the Lab VIEW DK C Flip software that is included with this package.



SetUp:

Remove the flip mirror locking screw ***prior to*** applying power to the DK. This screw is used to lock the flip mirror for shipping purposes.

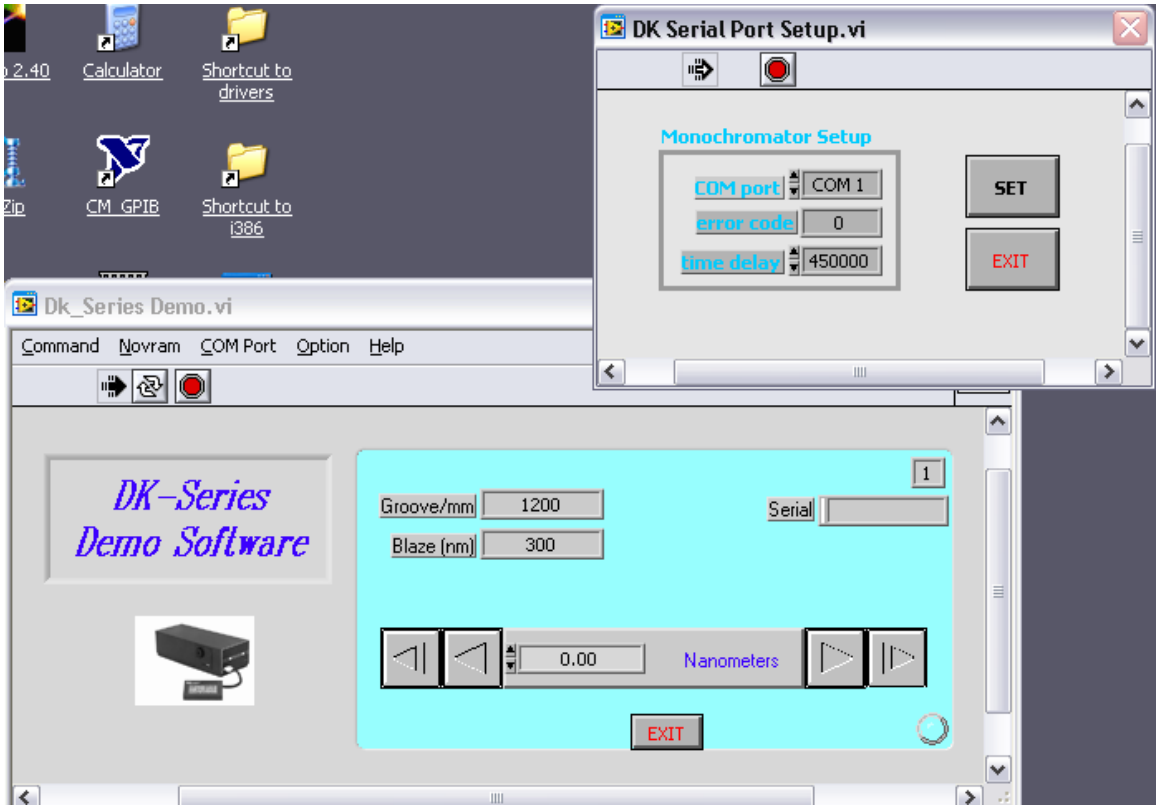


Failure to remove the locking screw could result in damage to the flip motor.

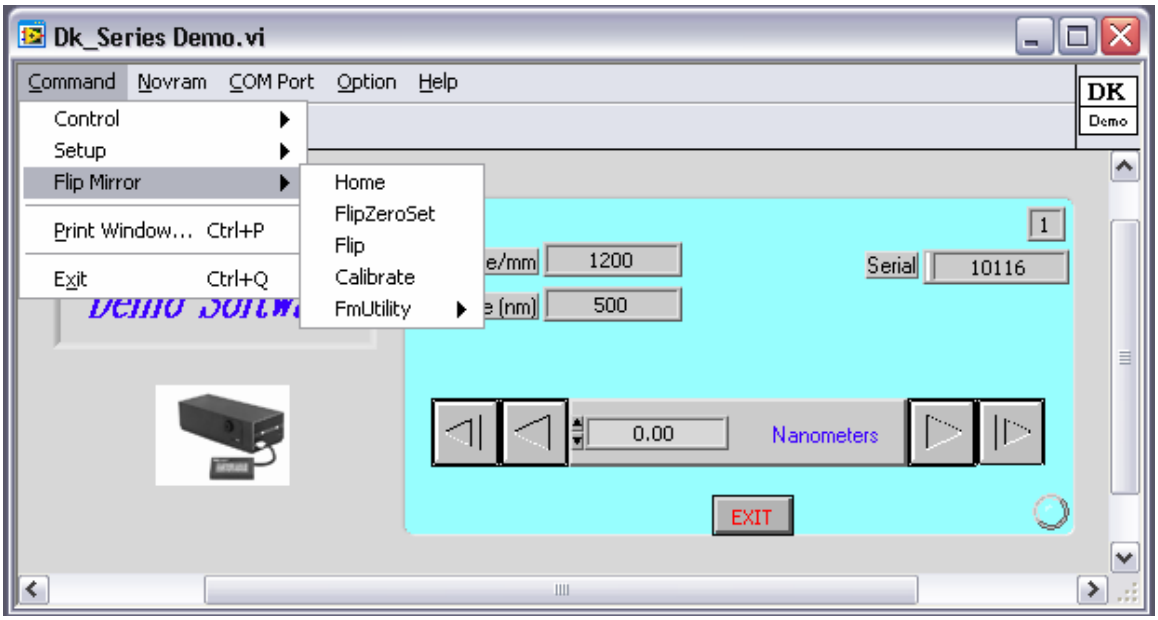
Operation:

Following is an explanation of DK-C Flip commands used to change the mode of operation:

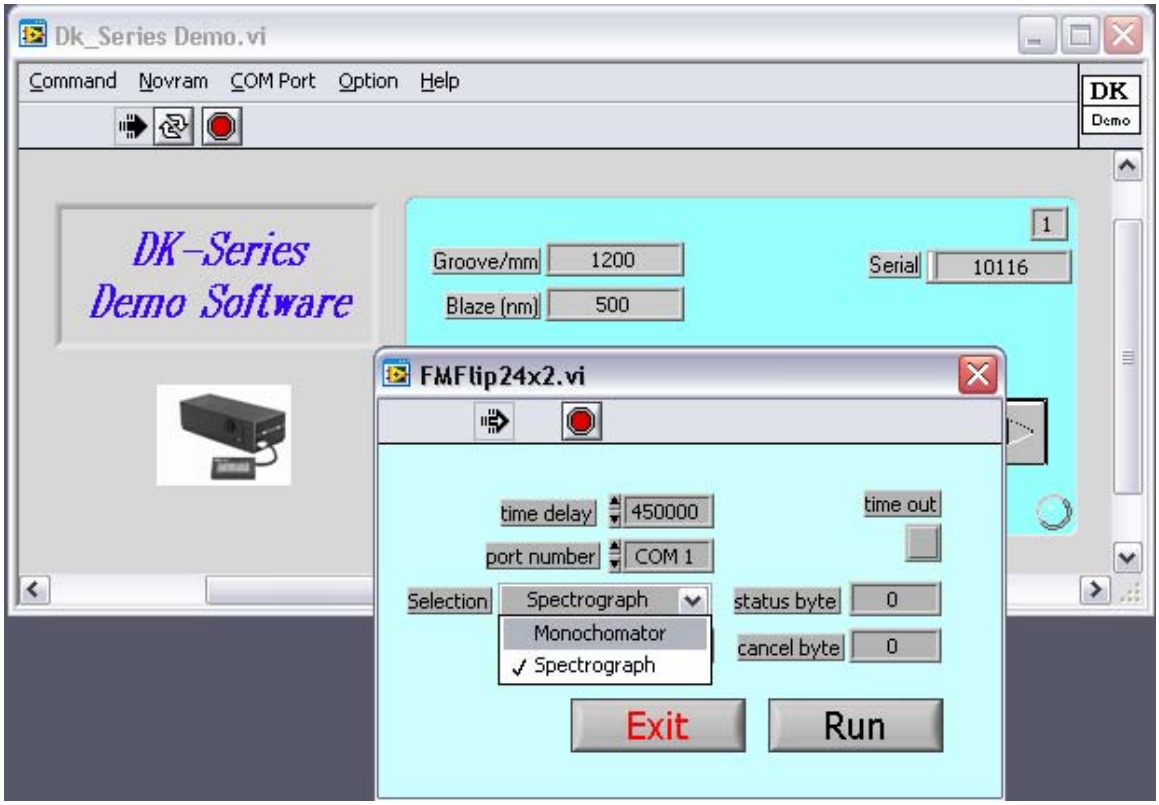
1. Apply power to the DK240 and allow to reset (this will take approximately 2 minutes). A green LED on the monochromator end plate will light to indicate when the monochromator has completed its reset.
2. Open the DK-C Flip software. You will be prompted to set the computer communications port connected to the monochromator. Choose the correct port, press SET, and then EXIT. The software should now show the correct grating, monochromator serial number, and current wavelength.



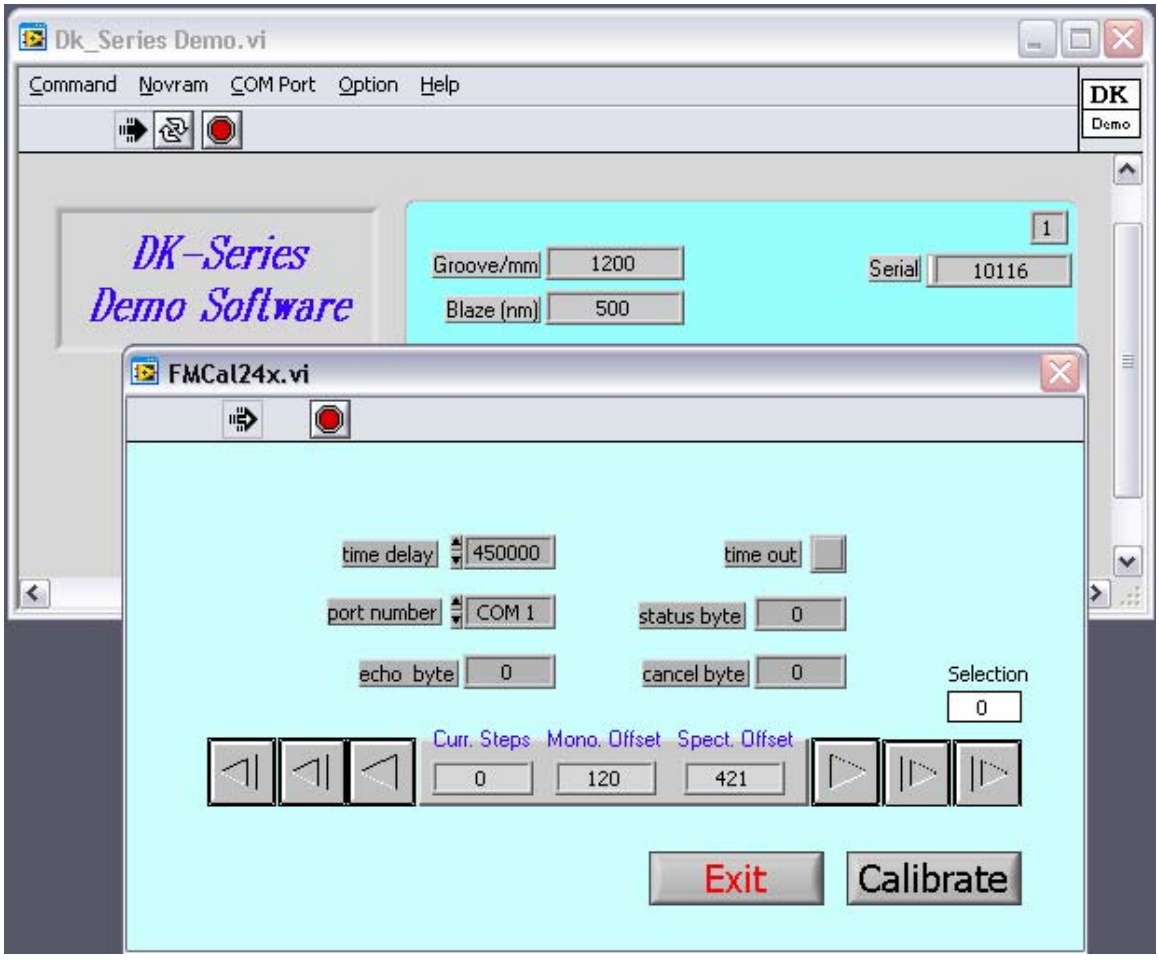
3. The DK240 is shipped in the monochromator mode. When first applying power it will return to monochromator mode upon completion of the power up routine. When performing a reset or power up routine, the DK240 will reset to the last used mode of operation. To change the mode of operation, press Command, Flip Mirror, Flip and then select the desired mode and press Run. Once the monochromator has switched modes, press Exit.



Note: There is a green LED on the top of the DK-2Port housing that will light to indicate the DK is in spectrograph mode.

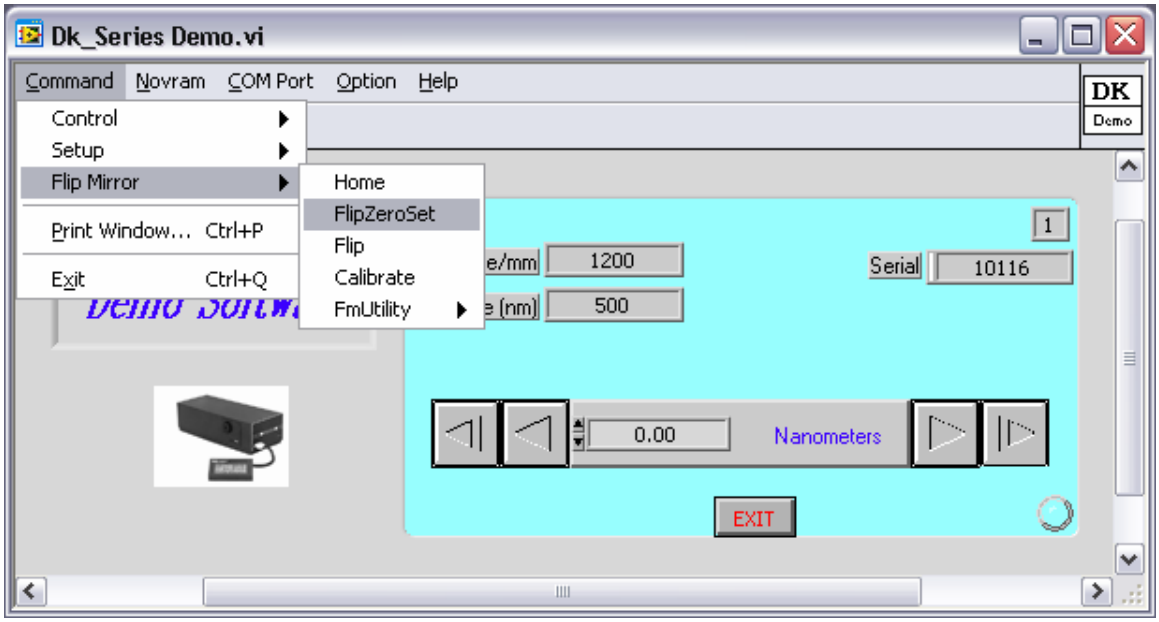

Dk_Series Demo.vi
Command
Novram
COM Port
Option
Help
DK
Demo
DK-Series
Demo Software
Groove/mm
1200
Blaze (nm)
500
1
Serial
10116
FMFlip24x2.vi
time delay
450000
time out
port number
COM 1
Selection
Spectrograph
Monochomator
Spectrograph
status byte
0
cancel byte
0
Exit
Run

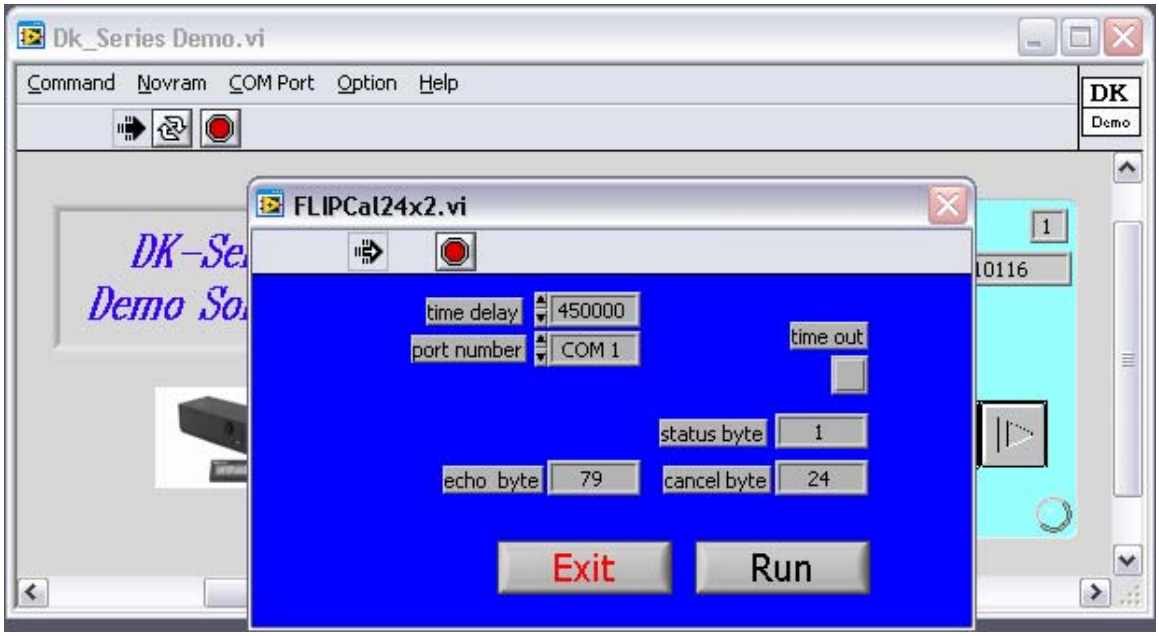
4. Under the Command / Flip Mirror tab, the Calibrate command is used to step the flip mirror to enable centering on the CCD exit port. This procedure has been performed at Spectral Products, and should not need further adjustment under normal operating conditions. Pressing the arrow keys will single step, step the mirror by 20 steps, or step the mirror by 80 steps in the current mode of operation. This command is used to change the angle of the flip mirror to center the light on the CCD center in spectrograph mode, or to move the mirror out of the light path while in monochromator mode.



5. As some shifting of optics is inevitable during shipping, it may be necessary to re-zero the DK240 upon receipt. The DK2Port utilizes separate zero order offsets for monochromator and spectrograph modes. For best results, a spectral line or laser source with appropriate detector should be used.

A. In Monochromator mode, press Command, Control, GoTo, and instruct the grating to go to 0nm. Check to see that the light exits the monochromator. If not, please refer to the DK User Manual grating zero instructions beginning on page 66. The DK should always be zeroed in Monochromator Mode before Spectrograph Mode, and absolutely always before a calibration command is issued.
B. Switch to Spectrograph Mode. If the light is not centered on the CCD center pixel, a new zero offset can be issued. Using the arrow keys on the front screen, step the grating until you are satisfied with the grating position. Then press Command, Flip Mirror, FlipZeroSet. Press Run (the DK will reset) and then Exit.




Dk_Series Demo.vi
Command
Novram
COM Port
Option
Help
DK
Demo
FLIPCal24x2.vi
time delay
450000
port number
COM 1
time out
status byte
1
echo byte
79
cancel byte
24
Exit
Run

Software Command Summary:

The subscript $_D$ indicates the decimal value of the byte is listed.

FM HOME

This command resets the DK240/480 to current mode.

To DK240/480:	<80>$_D$
From DK240/480:	<80>$_D$
From DK240/480:	<Status Byte>
DK240/480 Action:	Resets unit to monochromator or spectrograph
From DK240/480:	<24>$_D$

MONOCHROMATOR MODE

This command sets DK240/480 to monochromator.

To DK240/480:	<84>$_D$
From DK240/480:	<84>$_D$
From DK240/480:	<Status Byte>
DK240/480 Action:	Sets unit to monochromator mode
From DK240/480:	<24>$_D$

SPECTROGRAGH MODE

This command sets DK240/480 to spectrograph.

To DK240/480:	<85>$_D$
From DK240/480:	<85>$_D$
From DK240/480:	<Status Byte>
DK240/480 Action:	Sets unit to spectrograph mode
From DK240/480:	<24>$_D$

FM CALIBRATE

This command is used to calibrate the offset of the motorized flip mirror. It is dependant on mode status.

To DK240/480:	<86>$_D$
From DK240/480:	<86>$_D$
From DK240/480:	<Status Byte>
DK240/480 Action:	Saves offset to internal memory
From DK240/480:	<24>$_D$

FM MOVE

Moves the stepper motor for the flip mirror.

<81>, <82>, or <83>: Step, Slew, or Scan mirror up
<87>, <88>, or <89>: Step, Slew, or Scan mirror down

To DK240/480: <Byte> $_D$
From DK240/480: <Byte> $_D$
From DK240/480: <Status Byte>
DK240/480 Action: Moves the mirror up or down
From DK240/480: <24> $_D$

FM STEPS QUERY

Queries DK240/480 for stepper motor position.

To DK240/480: <90> $_D$
From DK240/480: <90> $_D$
To DK240/480: <2> $_D$
From DK240/480: <High Byte><Low Byte><Status Byte><24> $_D$

FM POSITION QUERY

This is dual function command to turn LED on/off or query unit for mode selection. If UtiBye = 1, then follow by a 0 for LED off or 1 for LED on.
If UtiByte = 0, then Qbyte = 0 for monochromator or Qbyte =1 for spectrograph.

To DK240/480: <90> $_D$
From DK240/480: <90> $_D$
To DK240/480: <UtiByte>
To/From DK240/480: <LED/Qbyte>
From DK240/480: <Status Byte>
DK240/480 Action: Turns LED on if Byte is 1 or off if Byte is 0
From DK240/480: <24> $_D$