CVI SM-240 spectrometer operation notes

by

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1. Turn on the notebook PC and connect CVI SM-240 spectrometer via the USB connector.

2. After the PC has detected and installed the driver, double click on the SM32Pro icon on the desktop to start the program. (Fig. 1)

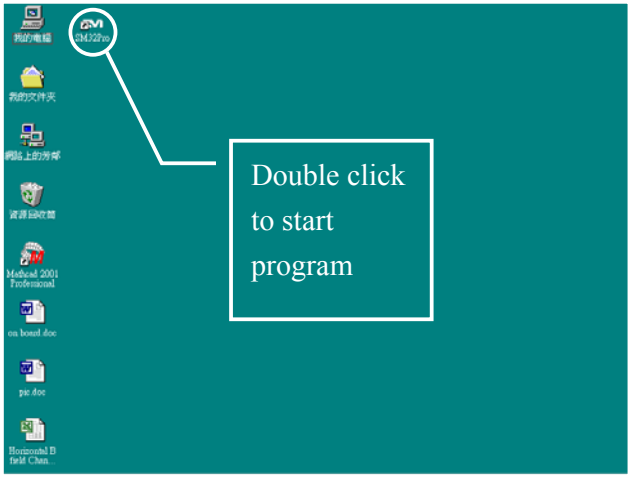


Fig 1

3. A panel (Fig 2) will show up.

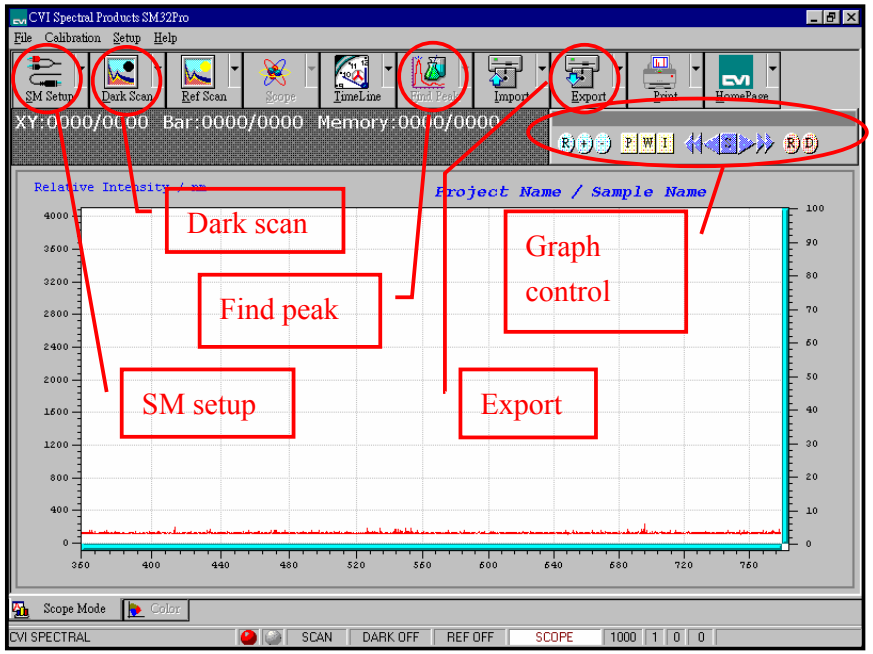


Fig. 2

These are the major functions for routine spectrum analysis:

(a) SM setup: settings for Scope Mode scan

(b) Dark scan: settings for Background Scan

(c) Find peak: find peaks in spectrum

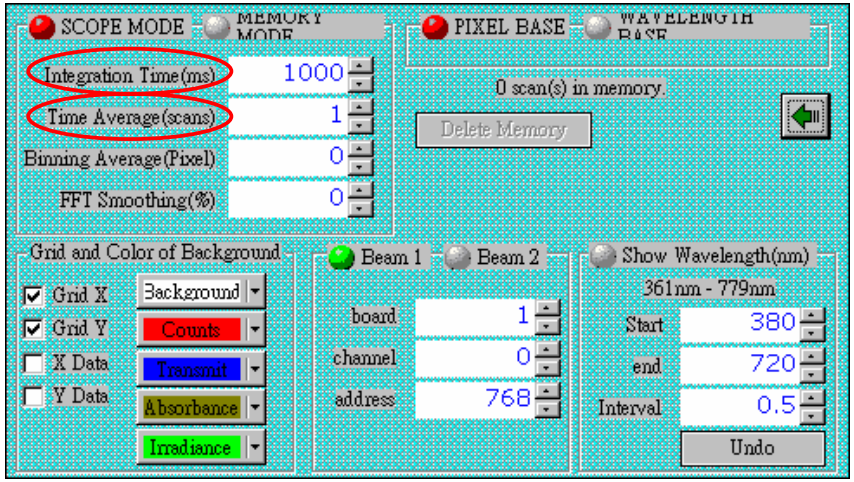
(d) Export: export data to ASCII, excel, bitmap and other format files

(e) Graph control: Spectrum zoom, axes units, scan control.

4. Routine spectrum analysis operations

When the program is started, it will load the default calibration set and is ready for Scope Mode (real-time) spectrum analysis. Only a few settings needed to be adjusted for optimal output.

Step 1: Enter SM setup (Fig 3a) by clicking its icon.

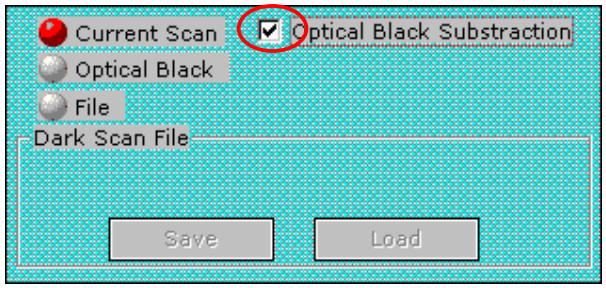


(Fig 3a)

Integration time: Increase this value if the spectrum peak is too low.
Decrease this value if the spectrum output saturates.

Time average: More time average eliminates fluctuations in output spectrum but output becomes less real-time.

Step 2: Enter Dark Scan setup (Fig 3b) by clicking the arrow next to its icon. Select Optical Black Substraction if necessary.



(Fig 3b)

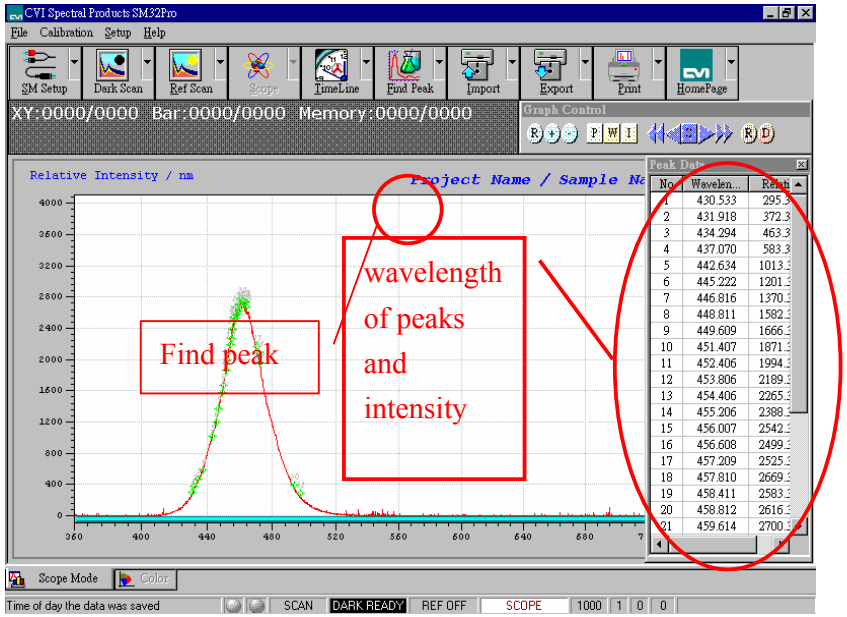
Step 3: Click "Dark Scan" icon for background scan.

(This step must be performed to allow functioning of "Find peak" and "Calibration". It is also necessary to run this when Scope Mode condition changes.)

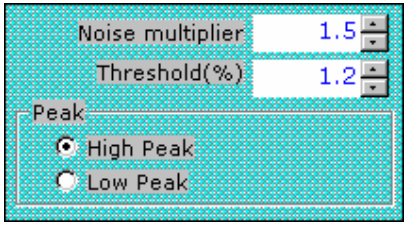
Step 4: Target the detector to the light source to be analyzed.

Step 5: An emission spectrum should show on screen. Align the detector until a clean spectrum is obtained.

Step 6: Hold the position of the detector and clicks “Find Peak” icon for finding peaks in the spectrum.

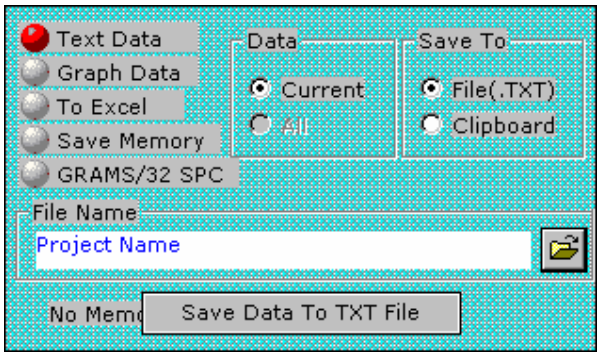


Step 7: To alter peak finding conditions, click the arrow next to “find peak” icon. (Fig. 5)

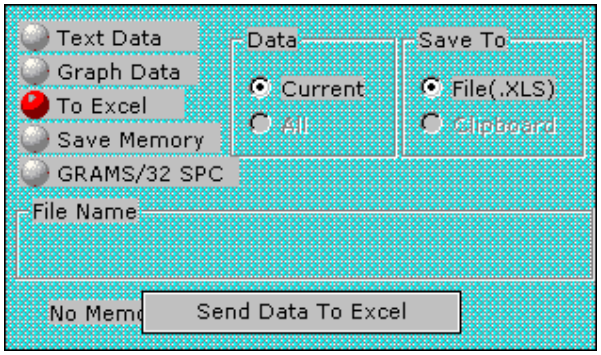


(Fig. 5)

Step 8: The spectrum is now ready to be exported. It can be saved in plain text file (.txt), bitmap file (.bmp), GRAMS/32 SPC file (.SPC) or exported to Microsoft excel program. A filename is required for exporting spectrum to a file, while Microsoft Excel will be loaded for “To Excel” option (fig 6a & 6b)



(Fig 6a)



(Fig 6b)

Step 9: To capture another spectrum, select “Continuous Spectrum capture” in scan control. It also allows zoom controls (zoom in/out/reset) and axes unit control (pixel/wavelength/wave number as the unit of x-axis) of the spectrum. (Fig. 7)