

Thermo-Nicolet Nexus 670 FTIR

Operation instructions

MAKE SURE YOU SIGNED UP FOR TIME ON THE ON-LINE SCHEDULE FOR THIS INSTRUMENT BEFORE USING IT.

LOG YOUR USAGE IN THE LOGBOOK.

- 1) Turn on the power supply for the spectrometer (Figure 1). Allow 15 minutes for warm up. You can proceed through steps 2 to 6 while you wait.
- 2) Fill the detector with liquid N₂ (Figure 2).
- 3) Select and install the accessory you intend to use. Figure 6 show some accessories we have.

- 4) Start the OMNIC program

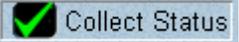


- 5) Select the experiment you want to do from the drop down menu (Figure 3). The choices available in this menu can change, depending on the accessory installed.

- 6) Select *Experiment Setup* from the toolbar () or from the *Collect* menu.

Adjust the parameters for your experiment (Figure 4). If the beam is not blocked you should see an interferogram like the one in figure 4 right, when you select the *Bench* tab.

- 7) Collect the background spectrum by clicking the () icon, or selecting it

from the *Collect* menu. The collection status should show . If it shows  or , then clicking *View collect status* on the pop-up dialog at the end of the collection (Figure 5) you can view information about the collection, including any problems that occurred. If you have a saturation problem, try using

one of the energy screens, stored in the toolbox by the instrument (Figure 7). A typical background spectrum is shown on Figure 8.

8) Place sample in the sample chamber, or on the designated place on the accessory you are using (Figure 6).

9) Collect the sample spectrum ().

10) There are some simple analyses that can be performed by the OMNIC program. These are described in more detail in the Nexus 670 User's Guide, and in the OMNIC on line help. You can also ask a LSF staff about these.

11) To save your data, select the spectrum you want to save by clicking on it's curve (it should then turn red, see Figure 9) and then click  . Please save your data only to, either of your personal subfolder in C:\MyDocuments\OMNIC\spectra, or to your own USB drive directly. If you already saved your spectrum in one format and want to save it in a different format (ascii, e.g.) then select *Save As*, from the *File* menu. Clicking  will only save it in the same format again.

12) After you finish using the instrument:

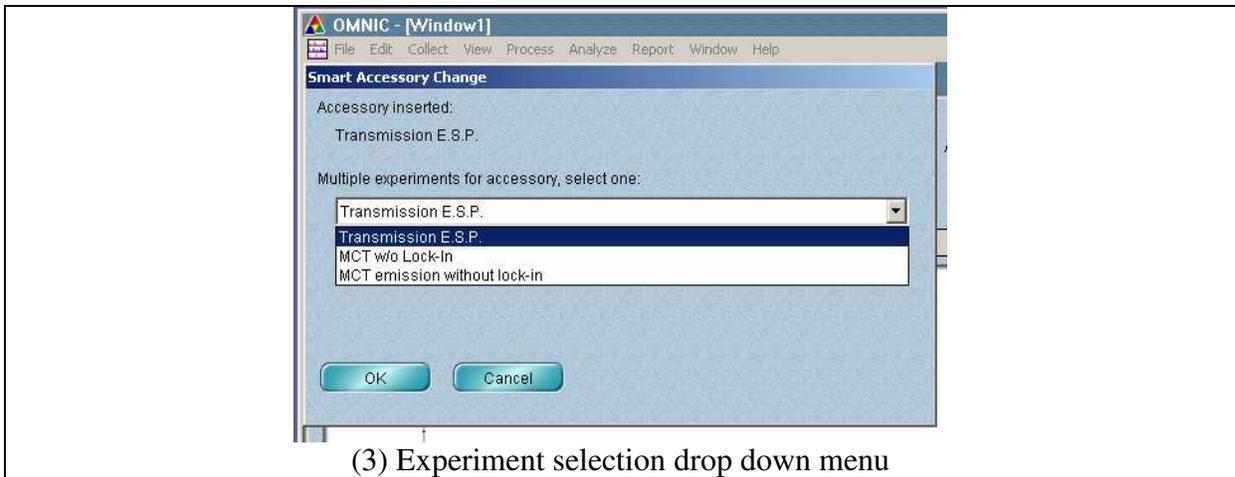
- a. Remove any sample and holders, returning them to the designated place.
- b. Turn off the spectrometer power supply.
- c. If you were using the smart refractor accessory, return it to the cabinet and re-install the transmission accessory in the sample chamber.
- d. Close and lock the sample chamber.
- e. Save your data. If you want to use a software other than OMNIC to analyze your data, it is advisable saving it in ascii format (CSV).
- f. Exit the OMNIC program.



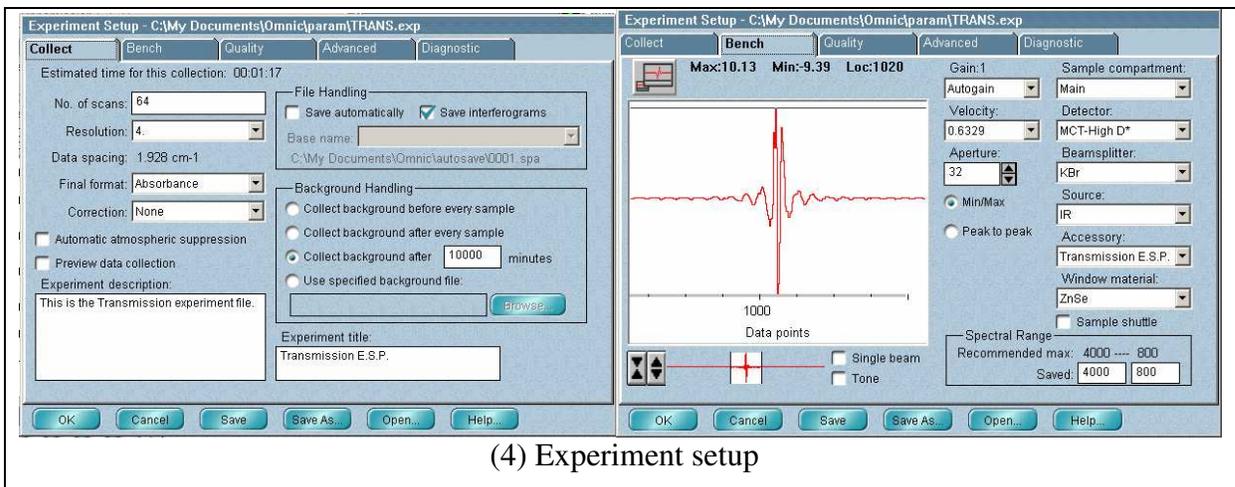
(1) Spectrometer power supply



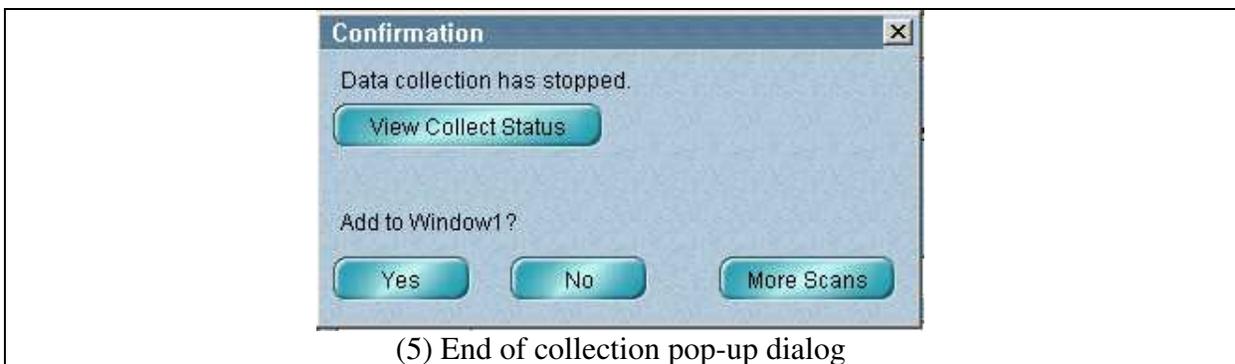
(2) Filling the detector with liquid N₂



(3) Experiment selection drop down menu

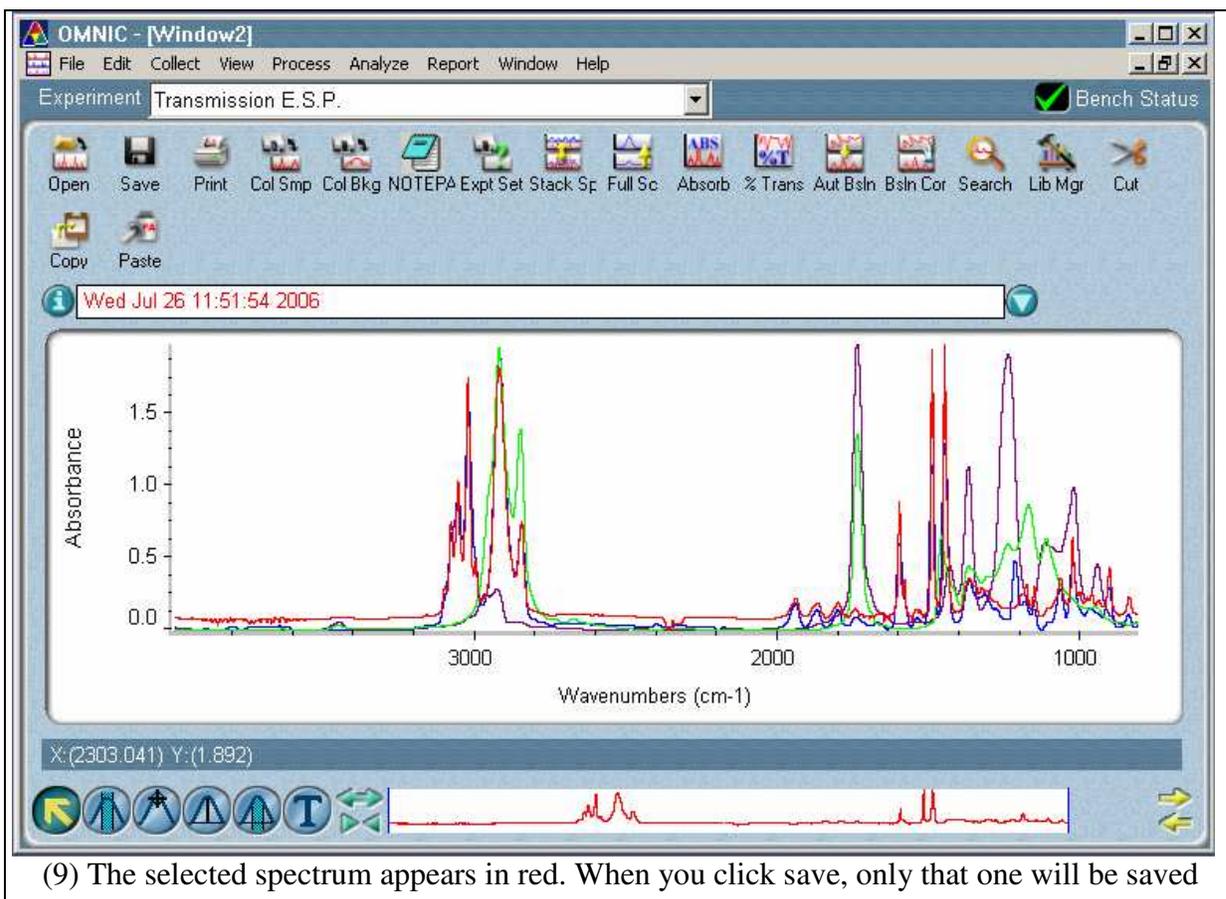
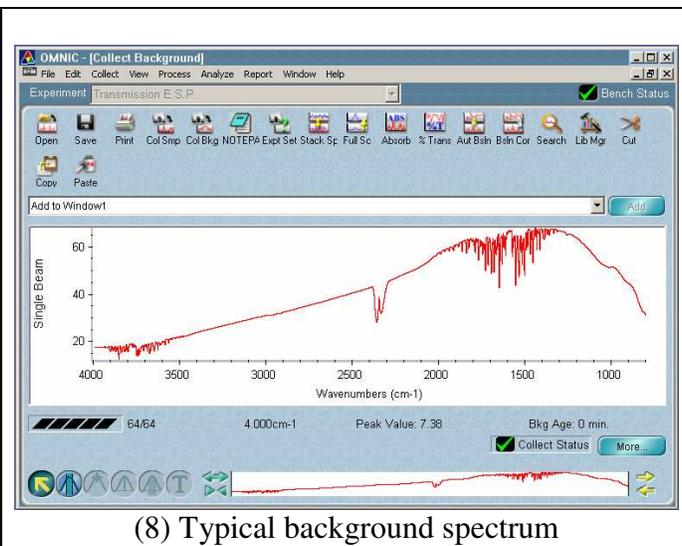
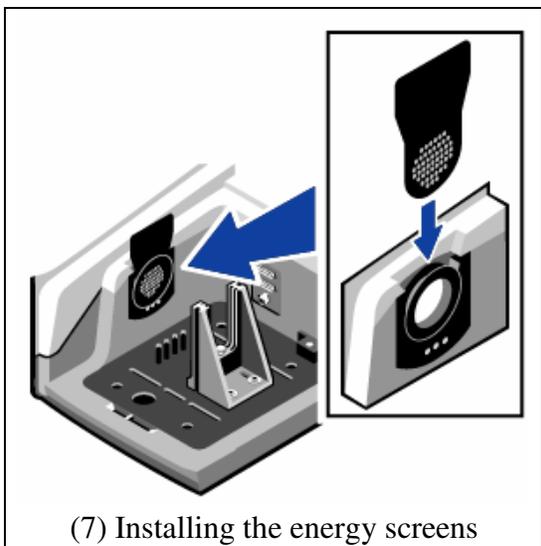


(4) Experiment setup



(5) End of collection pop-up dialog





Appendix 1

Accessories:

1) Smart refractor accessory (Factory description).

This accessory is ideal for very thin layers or coatings on reflective substrates – its high angle of incidence and built in polarization provide high sensitivity. Examples of such samples are thin films on metal and semiconductor substrates and laboratory and quality control applications.

Features:

- broad, horizontal sampling surface for high sample throughput
- fixed 75 degree incident angle
- built-in, removable polarizer and two wedged ZnSe windows

The Smart Refractor accessory incorporates two wedged windows to refract the beam to and from your sample. It also includes a pre-mounted, internal polarizing plate for enhanced spectral contrast. This unique design uses no mirrors. It is recommended for very thin layers or coatings on reflective substrates. The accessory's high angle of incidence and built in polarization provide high sensitivity for extremely thin layers. Example applications of the Smart Refractor accessory are thin films on metal and semiconductor substrates and laboratory and quality control applications.

In addition to the many advantages of using a Smart Accessory, the Smart Refractor accessory has these unique features: a broad, horizontal sampling surface for high sample throughput, a fixed 75 degree incident angle and built-in, removable polarizer and two wedged ZnSe windows to refract the beam to and from the sample.