

Enhanced Convenience and Productivity with the Spectrum 100 FT-IR and 100N FT-NIR Spectrometers



Summary

The Spectrum™ 100 FT-IR and 100N FT-NIR Spectrometers are providing new levels of convenience and productivity for users. A new form of user interaction via a Go button, new multiple sample tables entry in software and major sampling innovations such as the new fiber probe accessory provide major efficiency

improvements. This technical note describes some of these key new features and benefits.

Introduction

With today's cost-cutting initiatives taking place inside companies, users of analytical instrumentation are under increasing pressure to perform analysis tasks in a shorter time and at a lower cost.

It is therefore important for instrument manufacturers when they consider introducing a new instrument, that they be able to provide customers with higher productivity instrumentation. The new Spectrum 100 Series was designed to meet this productivity requirement and supplies users with better and easier ways to run their routine samples in a shorter time. Some of these enhancements are discussed here.

The Go button

A new user interface feature has been designed to improve ease-of-use. This is the Go button (Figure 1), a small button on the front right-hand side of the instrument that allows the user to interact directly with the instrument by remotely starting or stopping a scan without using the PC. It is supplemented by a small instrument display close to the button that shows messages to the user. Depending on the message displayed, the user can respond by clicking the Go button, for example, to start a scan.

The concept behind this approach is to give the user an improved way of direct interaction with the instrument in addition to the standard operation from a PC via mouse clicks or keying-in information. This new communication is very useful in all cases where the user manually runs samples and works on the sample compartment or on the accessory. Operation via the Go button is always started by selecting the Scan and Instrument Setup dialog, entering the sample information and clicking START in the Spectrum software. This brings the

instrument into a mode of waiting for action by the user. At the same time, the user is informed on the display to present the sample with the sample ID entered and to press the Go button to start the scan. After presenting the sample, for instance by placing it into the slide holder, the operator can stay at the instrument and use the Go button to start the scan. While scanning, the instrument displays the name of the sample being scanned and allows the scan to be stopped via this button. When the scan is finished, the spectrum is displayed in a new dialog, the Scan Progress dialog on the PC (Figure 2). By closing this window, the spectrum measured is copied into a graph window and saved.

The same operation would have been possible on the PC, which also provides the user with similar messages in the Scan Progress dialog. All these text messages on the instrument display and in the Scan Progress dialog can be displayed in all many local languages.

The Scan Preview dialog can be selected for operation with accessories that require further adjustments before the start of the scan, like the

UATR accessory. It works in a similar way to the familiar Monitor Ratio function and is automatically displayed as soon as the START button is pushed. This enables the user to finish the adjustments and start the scan with the Go button without leaving the instrument.

This superior user interaction via the Go button can also be used within the AssureID software to allow even greater convenience and higher productivity with routine samples.

The Sample Table

Another feature improving productivity with the Spectrum 100 Series is the new Sample Table in the Scan dialog (Figure 3). It allows entry of sample information of a whole sequence of samples into the table and then to scan all these samples at one time. After each sample, the operator is informed via the instrument display which sample is next in the sequence to be analyzed. This permits the operator to select and prepare the corresponding sample and then to start the scan with the Go button, enabling the user to concentrate on the sampling and the measurement



Figure 1. The Go button on the Spectrum 100 FT-IR Spectrometer.

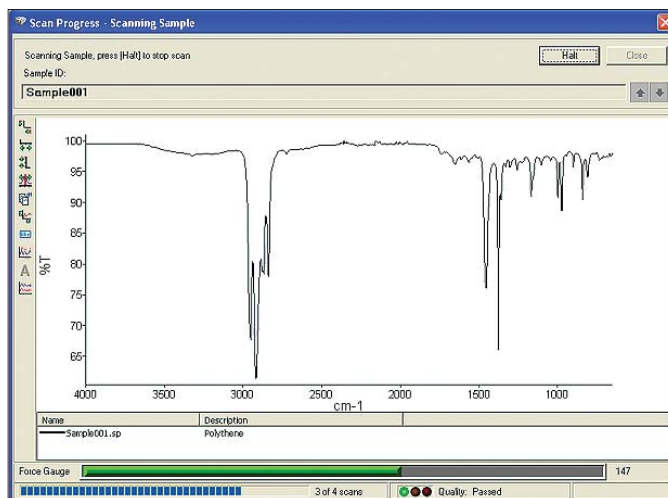


Figure 2. The Scan Progress dialog.

of the whole sequence without having to switch back and forth between the instrument and the PC. The individual filenames in the Sample Table can be entered manually or filled down automatically when starting with a base filename that is incremented.

While the sequence of samples is measured, the scanning order of the samples can also be changed. With the UP and DOWN buttons in the Scan Progress dialog, the last sample can be rescanned or any other unmeasured sample can be selected as the next one from the list. The Sample Table also shows analysis progress. Successfully measured samples are marked with a green tick while samples that have been halted are indicated with a red cross. The result of the quality check of each spectrum is highlighted in a separate column.

When Autoincrement Filenames and the Continuous mode are selected, the Sample Table can be operated to measure an arbitrary number of samples in sequence. With each sample, a new row is generated in the Sample Table.

Afterwards, when the sequence is finished, additional sample information can be entered into the Sample Table. Leaving the Scan dialog then saves all the spectra from the Sample Table with this information.

For added convenience, the Sample Table supports the Tablet Auto-sampler. This permits running as a standard autosampler from the Spectrum software. The high productivity of the Tablet Autosampler is easily accessible not only with tablet samples but also with any kind of solid samples in vials by using the lower detector for diffuse reflectance work. After entering all their information, the samples in the carousel can be scanned automatically. With the Tablet Autosampler, the Sample Table has additional columns for sample position and carousel number (Figure 4), which are stored with the spectra.

In a similar way, the Sample Table is also implemented in the Spectrum AssureID™ software, with enhanced operation with the Sample Table supported for the UATR accessory, the Tablet Autosampler and the Solids Fiber Probe accessory.

The Solids Fiber Probe Accessory

The new Solids Fiber Probe accessory for the Spectrum 100 Series significantly enhances operating convenience and productivity. It supports the same user interaction as the Go button by allowing the user to start a scan remotely while the probe is in contact with the sample. It also provides the user with the analysis results that are shown on the integrated display and the LED built into the probe handle. The rear side of the probe handle is equipped with a display that provides the same information to the operator as the instrument display (Figure 5). For further user interaction, there is a central ENTER button and UP and DOWN buttons plus an LED.

Operation of the Solids Fiber Probe begins by clicking the START button in the Spectrum or AssureID software. This allows the user to walk to the remote sample, bring the probe head into contact with it and press the trigger button to start the scan. During scanning, a message on the display and the amber-colored LED indicate scanning process.

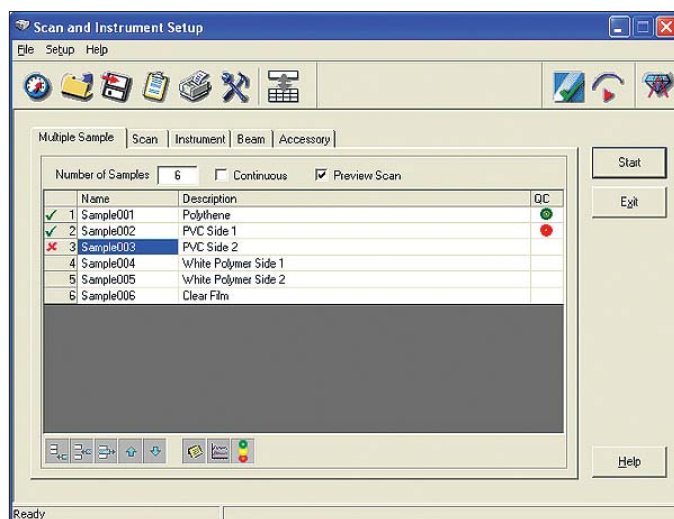


Figure 3. The Multiple Sample dialog.

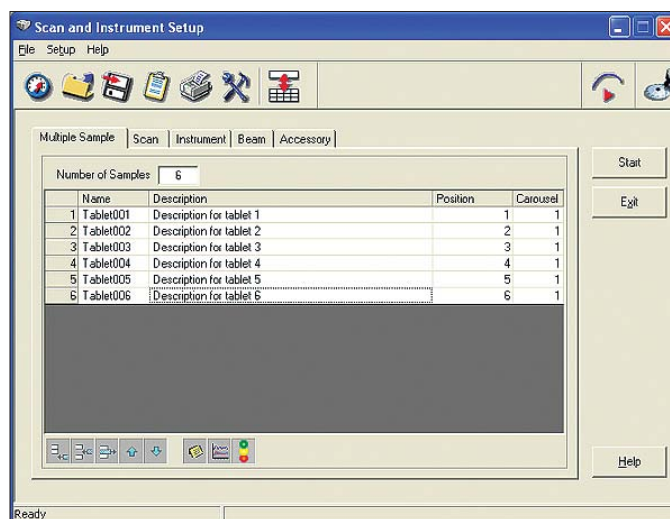


Figure 4. The Multiple Sample dialog with the Tablet Autosampler.

Clicking the ENTER button halts scanning at any time. If operated from the Analyzer part of the AssureID version software, the result of the analysis is shown on the probe display after finishing the measurement. In addition, the LED turns to green or red color depending on Pass or Fail of the sample. If

the Sample Table is used, the analysis of the last sample may be repeated if it failed by selection with the UP button. The DOWN button enables a sample further down the Sample Table to be selected on the display as next sample and run immediately afterwards without forcing the operator to go back to the PC.

Conclusion

A number of new productivity features in both hardware and software are helping the Spectrum 100 to provide customers with significantly enhanced convenience, while increasing sample throughput and productivity in routine FT-IR analysis.



Figure 5. The Solids Fiber Probe Accessory.

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