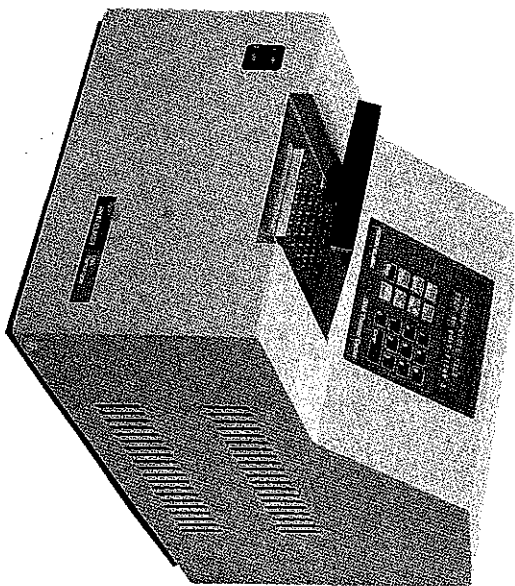


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DNA Thermal Cycler

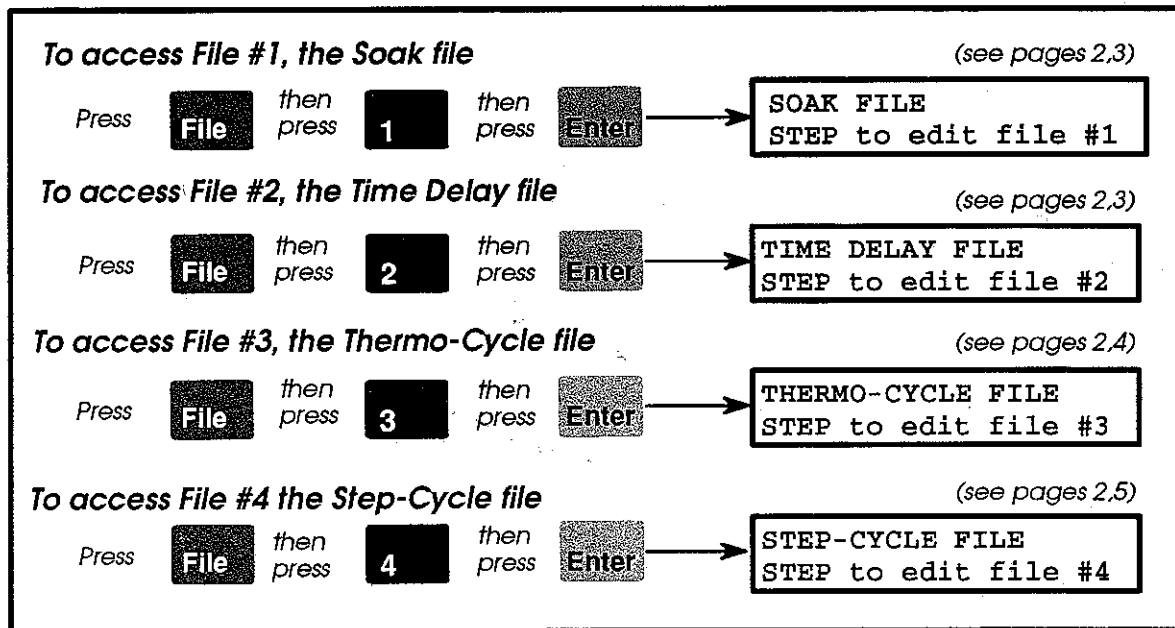
Quick Reference Manual



There are three main functions of the software that you can access after you turn on the DNA Thermal Cycler.

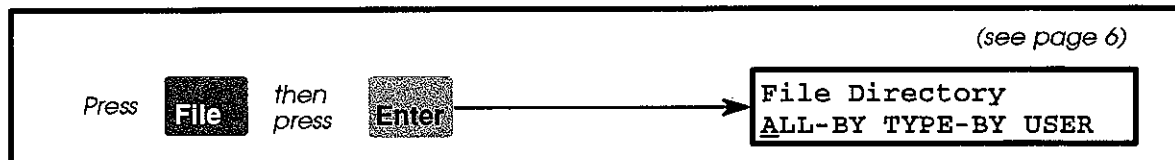
1 Access a Default File

Access a default file to customize, store, or run a PCR file and method.



2 Get to the File Directory

Review a directory of all or some of your PCR files.



3 Get to the Configuration and Diagnostic Files

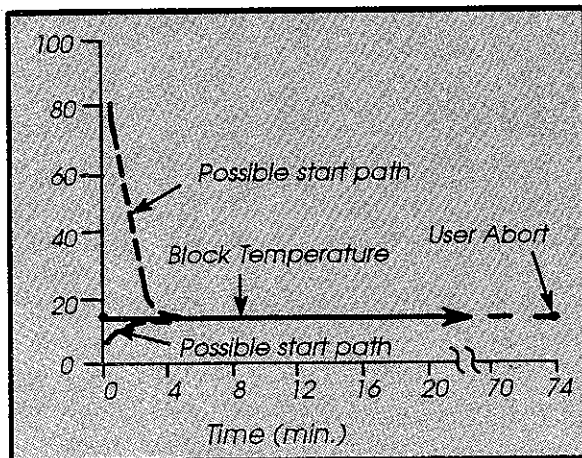
Perform two configuration tasks and run eight diagnostic tests.



The Incubation Files

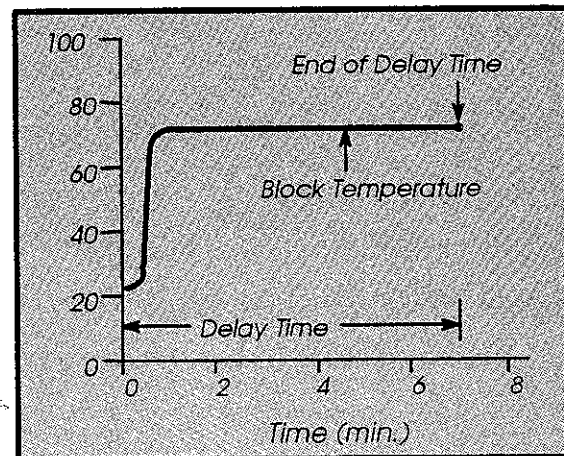
Soak File #1

Soak files hold a single temperature until you abort the run.



Time Delay File #2

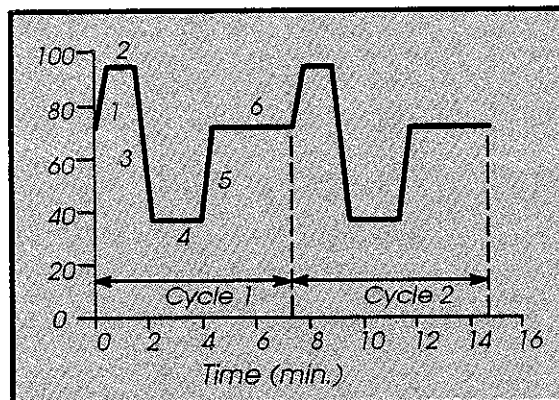
Time Delay files hold a single temperature for a specified period of time.



The Cycle Files

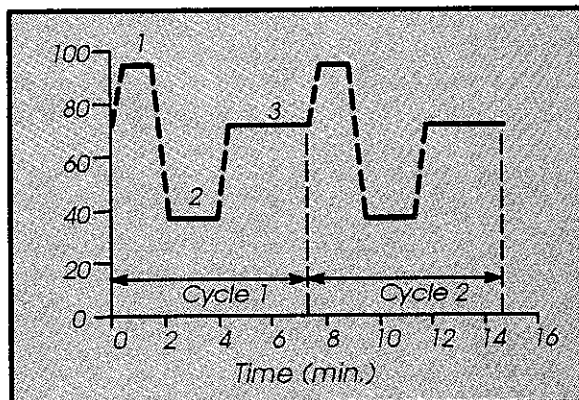
Thermo-Cycle File #3

Thermo-Cycle files contain programmed thermal transitions and thermal plateaus for PCR cycling. You can also select the Auto Segment Extension feature.



Step-Cycle File #4

Step-Cycle files contain programmed thermal plateaus for PCR cycling. You can also select the Auto Segment Extension feature.



How to Customize a Soak File, File #1

SOAK FILE STEP to edit file #1	This is the first display in the Soak file. Press STEP to edit the first parameter.
Soak temperature (0-100) 25 ° C	Enter the desired soak temperature. <ul style="list-style-type: none">• Press STEP to accept a default value and move to the next display. Or, to change a value and move to the next display, use the numeric keys then press ENTER.
End of file RUN-STORE-PRINT	

How to Customize a Time Delay File, File #2

TIME DELAY FILE STEP to edit file #2	This is the first display in the Time Delay file. Press STEP to edit the first parameter.
Delay Time (0-999) 7min 0sec	Enter the desired delay time and temperature. <ul style="list-style-type: none">• Press STEP to accept a default value and move to the next display or parameter. Or, to change a value and move to the next display or parameter, use the numeric keys then press ENTER.• Press HELP to move to the previous parameter.• Press STOP to move to the last display in the file.
Delay Temperature (0-100) 72 ° C	
Beep while Delay NO-YES	Choose YES to turn on a beeper, which will sound while the file is running, by pressing NO , then ENTER . Or, press ENTER to choose NO .
Link to stored file (0-99, 0=SHUT-OFF) 0	Enter the file number of the file you wish to link to in a method, then ENTER , or press STEP to accept the default link to shut-off.
End of file RUN-STORE-PRINT	Press NO to select one of the options, then ENTER . Press STOP to return to the first display in the file.

How to Customize a Thermo-Cycle File, File #3

THERMO-CYCLE FILE
STEP to edit file #3

Seg 1 Target Temp
(0-100) 94 ° C

Seg 1 Segment Time
(0-999) 0min 1sec



Seg 7 Target Temp
(0-100) 0 ° C

Seg 7 Segment Time
(0-999) 0min 0sec

Auto Seg. Extension
NO-YES

Cycle Count
(1-99) 25

Link to stored file
(0-99, 0=SHUT-OFF) 0

End of file
RUN-STORE-PRINT

This is the first display in the Thermo-Cycle file.
Press **STEP** to edit the first parameter.

For a three-temperature PCR program, enter the desired temperatures and times for Segments #1, 2, 3, 4, 5, and 6. Odd-numbered segments are thermal transitions and even-numbered segments are thermal plateaus.

- Press **STEP** to accept a default value and move to the next display or parameter.
Or, to change a value and move to the next display or parameter, use the numeric keys then press **ENTER**.
- Press **HELP** to move to the previous parameter.
- Press **STOP** to move to the last display in the file.

Segment #7 is the terminating segment in the file and must have a time and temperature of zero. The terminating segment marks the end of one cycle.

- Press **STEP** to accept a default value and move to the next display or parameter.
Or, to change a value and move to the next display or parameter, use the numeric keys then press **ENTER**.
- Press **HELP** to move to the previous parameter.

Select **YES** to automatically extend any segment by pressing the **NO** key, then **ENTER**. Then enter the number of the segment you wish to extend (usually 6) and the extension time per cycle in seconds; Or, press **ENTER** to choose **NO**.

Enter the number of cycles you wish to run. Use the numeric keys and **ENTER** to change the value, or press **STEP** to accept the default value.

Enter the file number of the file you wish to link to in a method, then **ENTER**, or press **STEP** to accept the default link to shut-off.

Press **NO** to select one of the options, then **ENTER**.
Press **STOP** to return to the first display in the file.

How to Customize a Step-Cycle File, File #4

STEP-CYCLE FILE
STEP to edit file #4

This is the first display in the Step-Cycle file.
Press **STEP** to edit the first parameter.

Seg 1 Target Temp
(0-100) 94 °C

Seg 1 Segment Time
(0-999) 1min 0sec



Seg 4 Target Temp
(0-100) 0 °C

Seg 4 Segment Time
(0-999) 0min 0sec

For a three-temperature PCR program, enter the desired temperatures and times for segments #1, 2, and 3, which are thermal plateaus:

- Press **STEP** to accept a default value and move to the next display or parameter. Or, to change a value and move to the next display or parameter, use the numeric keys then press **ENTER**.
- Press **HELP** to move to the previous parameter.
- Press **STOP** to move to the last display in the file.

Segment #4 is the terminating segment in the file and must have a time and temperature of zero. The terminating segment marks the end of one cycle.

- Press **STEP** to accept a default value and move to the next display or parameter. Or, to change a value and move to the next display or parameter, use the numeric keys then press **ENTER**.
- Press **HELP** to move to the previous parameter.

Auto Seg. Extension
NO-YES

Select **YES** to automatically extend any segment by pressing the **NO** key, then **ENTER**. Then enter the number of the segment you wish to extend, and the extension time per cycle in seconds. Or, press **ENTER** to choose **NO**.

Cycle Count
(1-99) 25

Enter the number of cycles you wish to run. Use the numeric keys and **ENTER** to change the value, or press **STEP** to accept the default value.

Link to stored file
(0-99, 0=SHUT-OFF) 0

Enter the file number of the file you wish to link to in a method, then **ENTER**, or press **STEP** to accept the default link to shut-off.

End of file
RUN-STORE-PRINT

Press **NO** to select one of the options, then **ENTER**. Press **STOP** to return to the first display in the file.

How to Store a Customized User File

Use these instructions to store your customized user files.

End of file
RUN-STORE-PRINT

When the last display in your customized file appears, press **NO** to select the **STORE** option, then press **ENTER**.

File Store
Enter User #1031

Assign a one- to four-digit User Number (0 to 9999) to your customized file by using the numeric keys and **ENTER**.

- Assign the same user number to a group of files.
- We suggest using your birthday, in the month-day format, for your user number.

File Store
Enter File #7

Assign a one- or two-digit File Number (7 to 99) to your customized file by using the numeric keys and **ENTER**.

- Use this number for direct access to your customized file anytime in the future. In this example, you would press **FILE, 7**, then **ENTER**.

Yes to store
User #1031 File #7

Press **YES** to store your file. In this example, we assigned User #1031 and File #7 to our customized file.

How to Use the File Directory

Use the File Directory to view all or some of the stored files.

File Directory
ALL-BY TYPE-BY USER

Press **NO** to select the kind of directory you wish to view, then press **ENTER**.

This option lets you view all user files with the same user number.

This option lets you view all files of a specific type. For example, all Soak files, all Time Delay files, etc.

This option lets you view all stored files in numerical order (by file number)

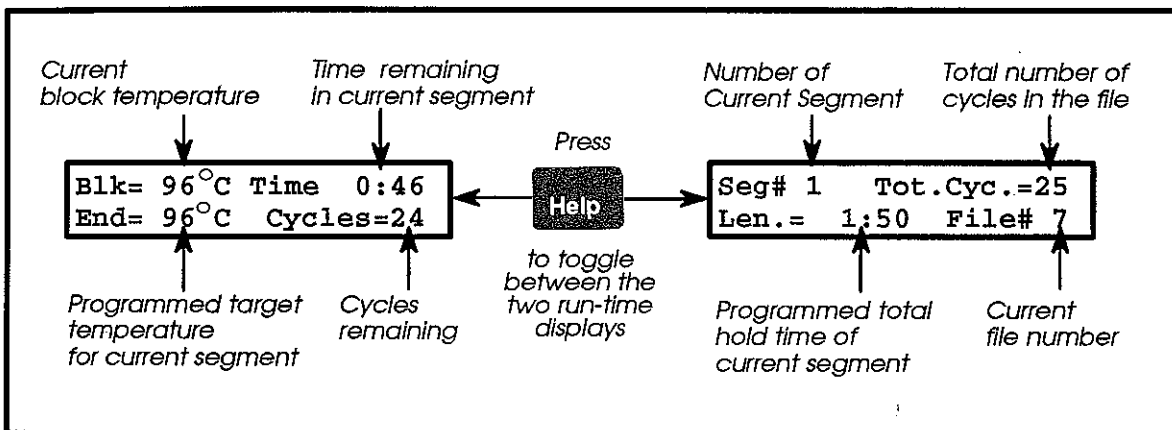
How to Run a File

Use these instructions to run any file. You can run a file even if you haven't stored it yet.

- | | | |
|---|-----------|---|
| <ol style="list-style-type: none">1. Access the desired file by pressing FILE, then the desired file number, then ENTER.2. Press the START key.3. If you have configured your instrument for use with a printer, use the NO key to select a print mode, then press ENTER.4. The run begins. | <p>or</p> | <ol style="list-style-type: none">1. From the last display in a file, press ENTER when the cursor is positioned under the RUN option.2. If you have configured your instrument for use with a printer, use the NO key to select a print mode (OFF, CYCLE, or SEGMENT), then press ENTER.3. The run begins. |
|---|-----------|---|

Run-Time Displays for Cycle Files

While a file is running, a display with information about the run appears. The following example shows the run-time displays for a Thermo-Cycle and a Step-Cycle file run.



How to Create a Method

A method is a series of files linked together in a specific sequence. To create a method:

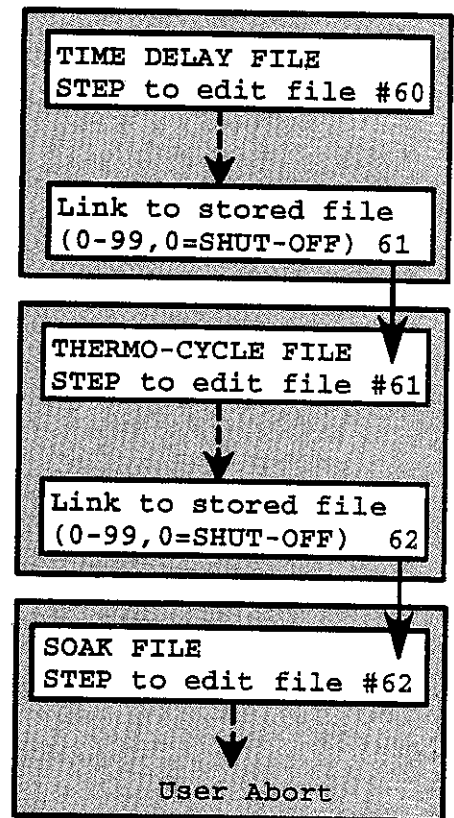
1. Edit or create the first file in the sequence.
Link this file to the file number of the second file in the sequence, using the "Link to stored file" parameter..
2. Store the file. Remember to assign the correct file number.
3. Edit or create the second file in the sequence.
Link this file to the file number of the third file in the sequence.
4. Edit or create the third file in the sequence.
Link the file to shut-off if it is the last file in the method, unless the last file in the method is a Soak file, in which case you will have to manually abort the run.
5. Store the file. Remember to assign the correct file number.

How to Run a Method

1. Run the first file in the method.
2. When that file has been run, the second file in the method will run automatically.
3. When the second file has been run, the third file in the method will run automatically.
4. When the last file in the method has been run, temperature control will end and the block temperature will drift to ambient.

Or, if the last file in the method is a Soak file, the temperature will remain at the programmed temperature until you manually abort the program.

In the example method on the right, File #60, a pre-PCR cycle incubation Time Delay file, was linked to File #61, a Thermo-Cycle file. This file was linked to File #62, a post-PCR cycle incubation file. Soak files run indefinitely until aborted by the user.



The Configuration File

This file contains the two configuration parameters.

Select Function
CONFIG-DIAGNOSTIC

Press **ENTER** to access the Configuration file.

User Configuration
STEP to edit

Press **STEP** to edit the first configuration parameter.

Pause Time-out limit
(9-999) 99sec

The pause time-out limit is the time at which a manually paused run will automatically abort.

- Press **STEP** to accept a default value and move to the next display.
Or, to change a value and move to the next display, use the numeric keys then press **ENTER**.
- Press **HELP** to move to the previous display.

Printer Mode
OFF-ON

Press **NO** to select the ON option then press **ENTER** to configure your instrument for printer output.
Or, press **STEP** to select the OFF option if you are not using a printer.

End of config. file
STEP to continue

Press **STEP** to re-edit the first configuration parameter.
Press **STOP** to exit the file.

The Diagnostic File

This file contains eight diagnostic tests.

Select Function
CONFIG-DIAGNOSTIC

Press **NO** to select DIAGNOSTIC, then press **ENTER** to access the tests in the Diagnostic file.

Diagnostic Tests
Enter test # (1-8)

Use the numeric keys and **ENTER** to select the test you wish to run:

Test #1 - Display/Keypad Test

Test #2 - Delete User Files
(This test deletes ALL user files.)

Test #3 - Heater Test

Test #4 - Chiller Test

Test #5 - Sensor Test

Test #6 - Auto-Tune Initialize Test

Test #7 - Overshoot Test

Test #8 - Undershoot Test

Using the Keypad

<u>To Do This</u>	<u>Press This Key</u>
Start a run from the first display in the file	Start
View the next display or parameter in a file Accept a default value or condition and move to the next parameter in a file	Step
While editing a file, view the previous display parameter While running a file, toggle between the two run-time displays	Help
While editing a file, move to the last display in the file	Stop
Pause a run in progress	Stop
Abort a run in progress	Stop Stop
Access a file (for example, File #4)	File 4 Enter
Get to the File Directory	File Enter
Get to the Configuration and Diagnostic Files	File Yes
Delete an individual file from the first display in that file	File Clear
Enter numerical values	0 to 9 , Enter
Erase numerical values not yet entered	Clear
Move the screen cursor to the next option in a hyphenated list on a display	No
Accept a selection	Enter