
TECHNE

GENSOFT 2.0

Thermal Cycler PC Control Software

CONTENTS

	PAGE
INTRODUCTION	1
CONNECTING THERMAL CYCLERS TO A COMPUTER	2
RS232: Connecting one unit to a computer	2
RS232: Connecting several units to a computer	2
USB: Connecting one unit to a computer	3
USB: Connecting several units to a computer	3
RUNNING GENSOFT	4
THE STATUS SCREEN	6
WRITING A NEW PROGRAM	8
OPENING AND EDITING AN EXISTING PROGRAM	11
RUNNING A PROGRAM	12
ENDING A RUN	13
CONTACT INFORMATION	14

INTRODUCTION

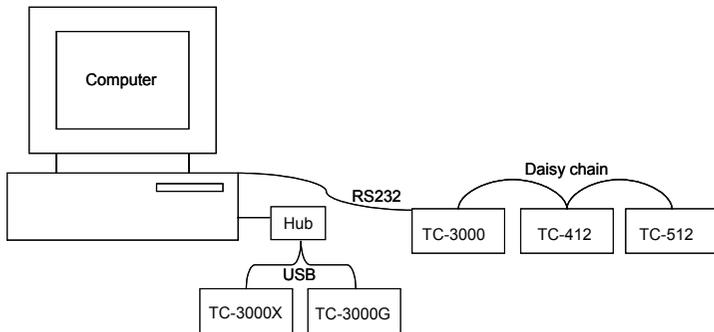
Gensoft, Techne's thermal cycler PC control software, allows the user to control a network of up to 32 Techne thermal cyclers from a single computer. The interface is simple and intuitive to use and facilitates high throughput applications. Each unit is controlled individually and the status of the run readily monitored.

Gensoft is compatible with Windows®98, Windows®2000 and Windows®XP. The computer requires an RS232 (serial) port, although some USB to RS232 converters will also work; please contact Techne or your local supplier for further advice.



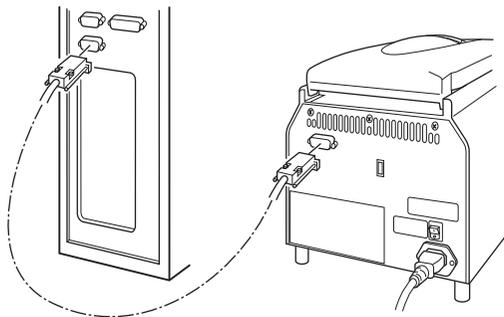
CONNECTING THERMAL CYCLERS TO A COMPUTER

In order to control the thermal cyclers using Gensoft they must be connected to a computer either via the RS232 port (TC-3000, TC-412 and TC-512) or by USB (TC-3000X and TC-3000G). The TC-X12 series and TC-3000 can be daisy chain linked to each other. Cyclers with a USB port can be interconnected via a USB hub.



RS232: Connecting one unit to a computer

To connect a single RS232 port unit to a computer you will need part number FGEN232 which includes a 9-pin female to female, null modem, RS232, fully screened cable.



RS232: Connecting several units to a computer

If you are connecting two or more units, which do not include any TC-512 units, you will need a power pack set which consists of a computer connector (which also converts to RS485), a power pack, the necessary cables and a termination box. The set also includes a CD of the Gensoft PC control software.

Part number	Description
FGEN485D	230V UK power pack set
FGEN485E	230V European power pack set
FGEN485P	120/110V USA power pack set

If a TC-512 is included in the units to be connected, a power pack is NOT required as the TC-512 unit can be used as the terminator of the chain. Instead the following will be required:

Part number	Description
FTGEN485	PC 485 converter and cable

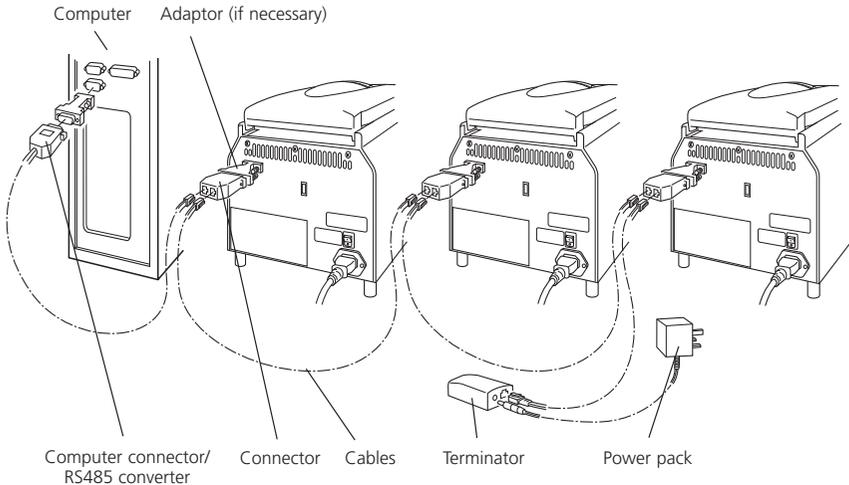
For TC-3000 and TC-412 units you will also need one or more of the following:

Part number	Description
FGENTWO	A two unit set which includes two connectors for the cyclers and a cable to interconnect them.
FGENFIVE	A five unit set which includes five connectors for the cyclers and four cables to interconnect them.
FGENTEN	A ten unit set which includes ten connectors for the cyclers and nine cables to interconnect them.
FGENONE	A one unit set for extending the daisy chain; includes one connector for the cycler and one cable for connecting it to the daisy chain.

To interconnect TC-512 units, a connector is not required, just a cable:

Part number	Description
6103557	Single cable for connecting two TC-512 units

The cable connections to the cyclers should be inserted alternately right to left on the connector. For further information please see the instrument instruction manuals.



USB: Connecting one unit to a computer

To connect a single USB port unit to a computer, you will need the USB cable part number 6205046.

USB: Connecting several units to a computer

If you are driving two or more units then you will need a USB cable for each unit and a USB hub.

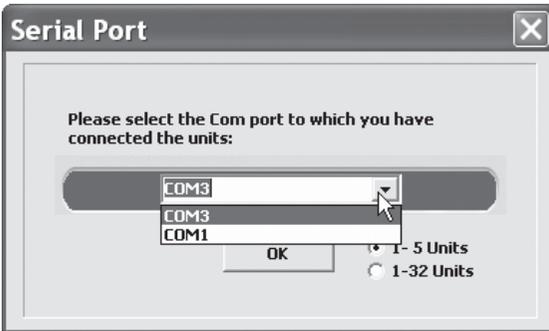
RUNNING GENSOFT

Before starting, ensure that each of the units connected to the computer have a unique COMMS address. Please see the instrument instruction manual(s) for details of how to set the instrument COMMS address.



Insert the CD into the computer and save the program to a convenient location (e.g. Desktop).

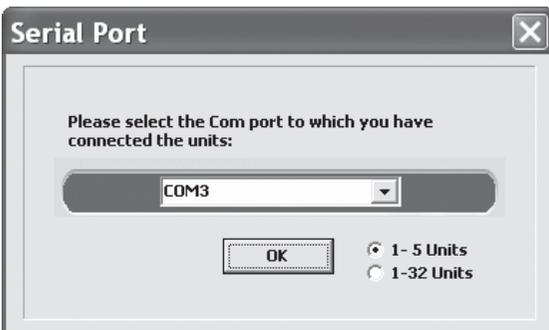
Click on Run Software to open the application.



Select which COM port on the computer you have connected the cable to.

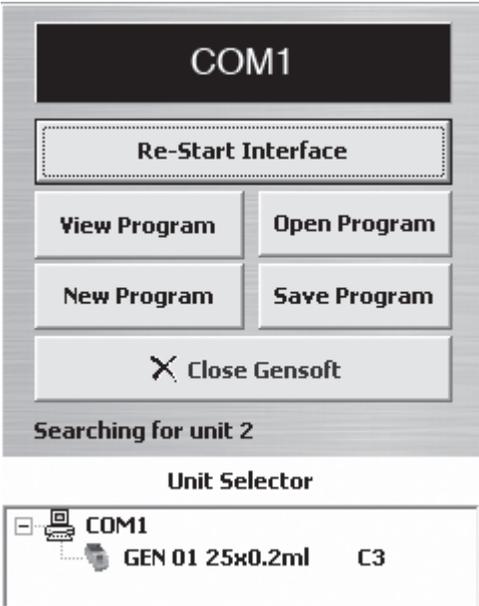
If you are not sure which one is being used, click on the computer Start button and select Control Panel followed by System, Hardware, Device Manager then Ports. This will indicate which ports are in use.

If no units are identified, re-start the interface and select an alternative port.



Select the number of units connected to the computer, either 1-5 or 1-32.

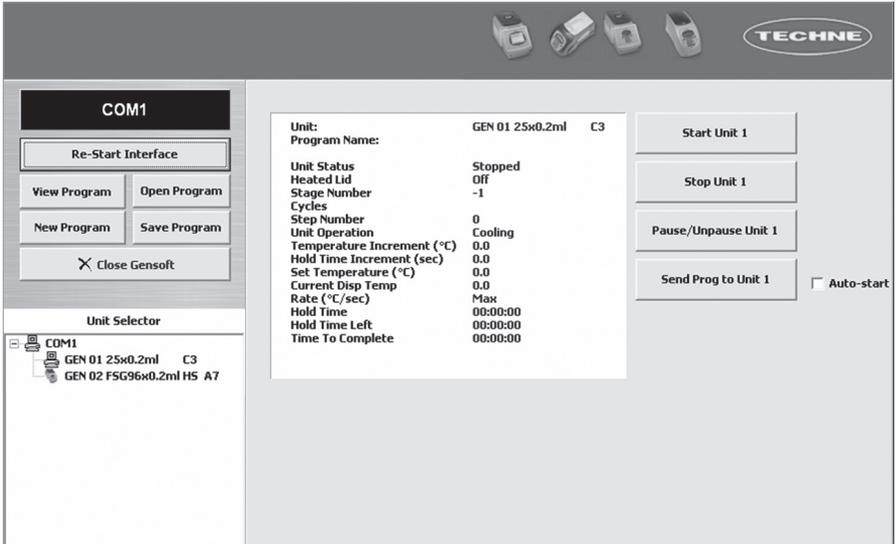
Click OK.



Gensoft will search for connected units and once they have been identified they will be listed in the Unit Selector on the left hand side of the Status Screen.

THE STATUS SCREEN

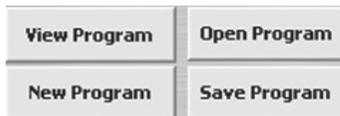
On opening Gensoft, the first screen is the Status Screen which shows the units connected and status of the currently selected unit. From this screen programs can be downloaded to the thermal cycler(s) and the units started or stopped.



Indicates the COM port on the computer to which the units are connected.



Initiates a search by the software for units connected to the indicated COM port.



View Program: opens the Edit Thermal Cycler Program window and displays the current program. If no program has been selected, a blank program will be displayed.

New Program: opens the Edit Thermal Cycler Program window to display a blank program.

Open Program: opens a browser allowing the user to select previously saved programs.

Save Program: opens a browser allowing the user to select the location in which to save the current program.



Closes the application. A warning will be given asking if you are sure you wish to exit. Any programs currently running on connected units will continue as normal.



Lists the units currently connected to computer. To select a unit, click on the required unit from the list and the status will be displayed in the status window.



Start Unit: starts the current program on the selected unit.



Stop Unit: stops the program currently running on the selected unit.



Pause/Unpause Unit: pauses or cancels the pause on the selected unit.



Send Prog to Unit: sends the current program to the selected unit.



If Auto-start is checked, the selected unit will start automatically once the program has been downloaded.

Unit:	GEN 02 FSG96x0.2ml HS A7
Program Name:	Gene X
Unit Status	Running
Heated Lid	On
Stage Number	1
Cycles	4 of 40
Step Number	2
Unit Operation	Cooling
Temperature Increment (°C)	0.0
Hold Time Increment (sec)	0.0
Set Temperature (°C)	58.0
Current Disp Temp	76.2
Rate (°C/sec)	1.0
Hold Time	00:00:20
Hold Time Left	00:00:20
Time To Complete	01:33:16

Status window: indicates the current status of the selected unit. Displays the program name, current cycle number and time to complete.

WRITING A NEW PROGRAM

- From the Status Screen, select New Program to open the Edit Thermal Cycler Program window.

- Type in a program name.

Up to 6 characters can be used and this will be the default name once the program is saved. This name will also be displayed on the unit it is sent to.

- Set the defaults for the program.

Heated Lid: default is ON. Uncheck to disable the heated lid.

Initial denaturation: default is ON. Uncheck to disable.

To edit the temperature, click on the temperature box and enter the required value.

To edit the hold time, click on the Hold box; a window will appear to allow easy entry of time in hours, minutes or seconds.

Initial Denaturation (4 - 99°C)

Temp °C

hh mm ss

Enter the required hold time. When finished, click OK.

Hot Start (4 - 99°C)

Temp °C

Enable

Hot Start: default is ON. Uncheck to disable.

To edit the temperature, click on the temperature box and enter the required value.

Hot start will cause the unit to pause at the set temperature. A manual intervention is required to re-start (unpause) the unit.

Final Extension (4 - 99°C)

Temp °C

Hold

Enable

Final Extension: default is ON. Uncheck to disable.

To edit the temperature, click on the temperature box and enter the required value.

To edit the hold time, click on the Hold box; a window will appear to allow easy entry of time in hours, minutes or seconds.

Final Hold (4 - 99°C)

Temp °C

Enable

Final hold: default is ON. Uncheck to disable.

To edit the temperature, click on the temperature box and enter the required value.

The set temperature will be maintained until the user stops the unit manually.

4. Enter the thermal cycling parameters. Up to six stages each with six steps can be programmed.

	Temp °C	Time (hh:mm:ss)	Rate (°C/sec)	Gradient °C	Temp Inc °C	Time Inc sec
Step 1	94	00:00:15				
Step 2	58	00:00:20				
Step 3	72	00:00:30				
Step 4						
Step 5						
Step 6						

Number of Cycles: Empty Setpoint = cycle not used Temp Range (4 - 99°C)

Temp °C To enter or edit the temperature, click on the box and enter the required temperature. One decimal place may be used.

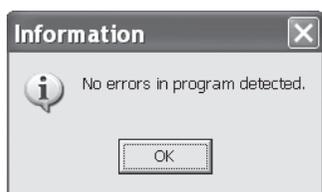
- Time (hh:mm:ss)** To edit the hold time, click on the box; a window will appear to allow easy entry of time in hours, minutes or seconds. Enter the required hold time. When finished, click OK.
- Rate (°C/sec)** The rate will be the maximum heating or cooling rate of the unit unless a lower value is entered. The value refers to the rate of heat up or cool down from the temperature in the previous step.
- Gradient °C** A temperature gradient for a step may be entered here. The maximum allowable gradient for a 96 well block is 30°C between the temperatures of 20 and 70°C. If the program is sent to a unit that does not support the gradient feature, a warning will be displayed on the screen and the gradient will be ignored.
- Temp Inc/Dec °C** To program a temperature increment or decrement, enter the required temperature change in °C per cycle. Enter a positive value for increment or a negative value for decrement.
- Time Inc/Dec sec** To program a time increment or decrement, enter the required time change in seconds per cycle. Enter a positive value for increment or a negative value for decrement.
- Number of Cycles** Enter the number of cycles for the current stage. Up to 99 cycles can be performed.

5. Check the program.



When programming is complete, the program can be checked for any errors by clicking on Check Program.

If the currently selected unit does not support the gradient feature, a warning will be displayed on the screen:



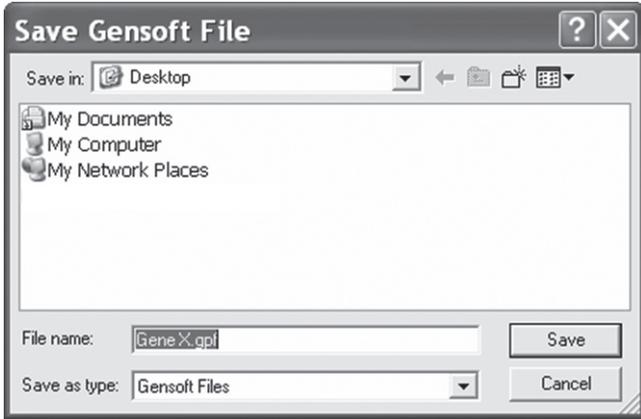
If there are no errors, then the Information box shown opposite will be displayed.

Common errors include invalid gradient temperatures or ramp rates.

6. Save the program.



Once the program has been checked for errors, click on Save Program.



A window will open allowing the user to save the program in the desired location.

The name given to the program will be the default file name, although this can be changed if required.

Once the location has been selected, click Save, or Cancel to return to the Edit Thermal Cyclor Program window.

7. Close the Edit Thermal Cyclor Program window.

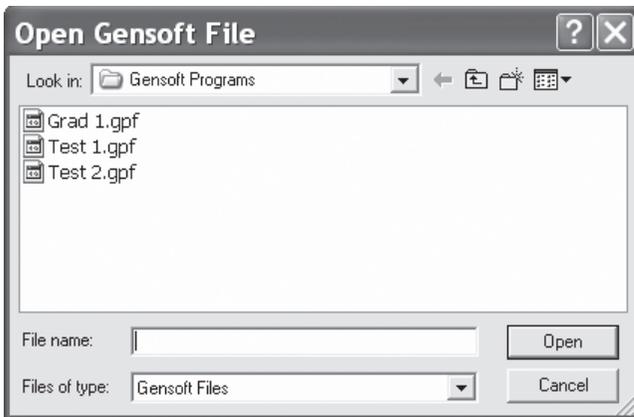


To close the Edit Thermal Cyclor Program window, click on Close Edit Window. This will return the user to the Status Screen.

OPENING AND EDITING AN EXISTING PROGRAM



To open an existing Gensoft program, from the Status Screen, click on Open Program.

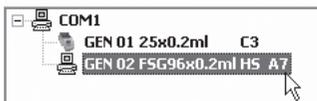


A browser window will open allowing the user to select a previously saved program.

The program will be displayed in the Edit Thermal Cyclor Program window and can be edited as required.

RUNNING A PROGRAM

1. Select a connected unit.

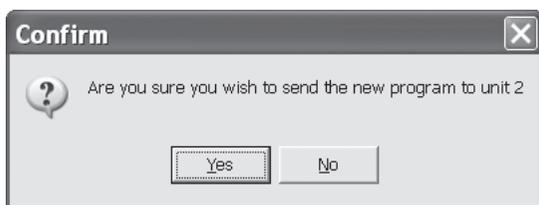


Select the required unit from the list in the Unit Selector.

2. Send the program to the selected unit.

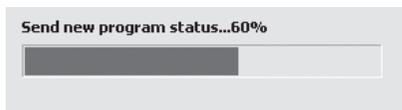


Click on Send Program to Unit.



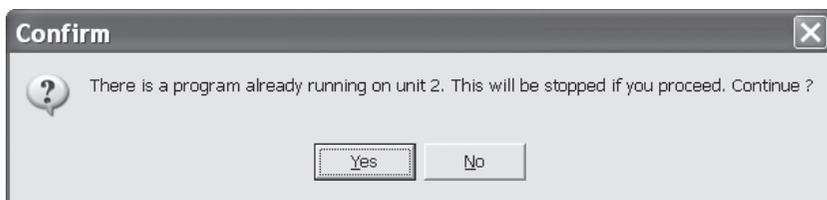
A window will open asking for confirmation.

If correct, click Yes.



The program will be sent to the selected unit.

If a program is already being run on the selected unit, a warning window will appear:



If Yes is clicked, Gensoft will stop the current program and send the new program to the unit.

3. Start the unit.



Click on Start Unit.



If Auto Start is checked, the program will begin to run automatically as soon as it has been sent to the unit.

Unit:	GEN 02 FSG96x0.2ml HS A7
Program Name:	Gene X
Unit Status	Running
Heated Lid	On
Stage Number	1
Cycles	4 of 40
Step Number	2
Unit Operation	Cooling
Temperature Increment (°C)	0.0
Hold Time Increment (sec)	0.0
Set Temperature (°C)	58.0
Current Disp Temp	76.2
Rate (°C/sec)	1.0
Hold Time	00:00:20
Hold Time Left	00:00:20
Time To Complete	01:33:16

Once the program is running, the status of the unit can be viewed in the status window. To view the status of other running units, select the required unit from the Unit Selector.

Stop Unit 1

To stop or pause a unit during a run, click on Stop Unit or Pause/Unpause Unit.

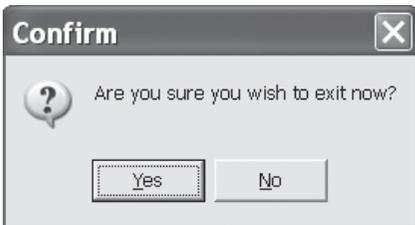
Pause/Unpause Unit 1

To continue after a pause, click on Pause/Unpause again.

ENDING A RUN

X Close Gensoft

When the run has finished or all units have been stopped, Gensoft can be shut down by clicking on Close Gensoft.



A warning will be given asking if you are sure you wish to exit. Any programs currently running on connected units will continue as normal.

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