

# Thermal Cyclers

Techne offers five thermal cycler models, one to fit every users needs. Quality manufacturing, competitive prices and an industry leading 4 year or 80,000 cycle warranty make the Techne series the obvious choice. All models feature Peltier technology, easily interchangeable blocks, intuitive user interfaces and networkable to a PC for ease of control and programming. Compact, robust and versatile, the range includes models to suit every application and budget.

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PCR Consumables

Gensoft PC Control Software

Purchase of this instrument conveys a limited non-transferable immunity from suit for the purchaser's own internal research and development and applied fields other than human in vitro diagnostics under non-real-time thermal cycler patents of Applied Biosystems LLC.

# Thermal Cyclers

## Thermal Cycler, TC-3000

The TC-3000 thermal cycler is unrivalled as the most reliable, low cost personal cycler. Designed with research and teaching laboratories in mind, the TC-3000 offers the ultimate in low cost solutions where ease of use is high on the priority list.

### Space saving small footprint

One of the world's best selling personal thermal cyclers, the TC-3000 is even economical on space.

### Rapid heating rate

Utilising the latest Peltier technology the TC-3000 can heat at 3.6°C/sec and cool at 2.0°C/sec.

### Heated lid

The adjustable heated lid (100°C to 115°C), designed to reduce the risk of sample evaporation, can be enabled or disabled. The heated lid only comes on if the block is set above 35°C.

### Fast-track programming

Modern intuitive programming and ready-to-go templates means creating even the most complicated protocols is simple.

### PC control & networking

The TC-3000 can be linked together with any other Techne cyclers; up to 32 cyclers can be networked to one computer.

### Additional benefits

- Temperature range 4°C to 99°C
- Block uniformity of  $\pm 0.1^\circ\text{C}$  at 50°C, ensuring optimal reproducibility
- Password protection: protect your program against unwanted modifications
- Portable dual voltage: has a variable voltage selector

### Technical Specification

	TC-3000
<b>Block formats</b>	
0.5ml capacity	20
0.2ml capacity	25
<b>Block Temperature</b>	
Maximum ramp rate	3.6°C/sec
Block uniformity at 50°C	$\pm 0.1^\circ\text{C}$
Temperature range	4°C to 99°C
Peltier element/block	4
<b>Heated Lid</b>	
Selectable heated lid temperature	100°C to 115°C
Heated lid enable/disable	Yes
<b>Programming</b>	
No. of programs	80
Programming display	4-line alphanumeric
Auto restart on power failure	Yes
Dimensions L x W x H	330 x 170 x 190mm
Voltage	230/115V, 50-60Hz
Power	230W
Shipping Weight	8kg



TC-3000



**ALL BLOCKS  
WITH EXTENDED  
WARRANTY**  
4 years or  
80,000 cycles\*  
\*See local distributor for  
details and conditions.



Licensed  
for **PCR**

### Ordering Information

Product Code	Description
FTC3/02	TC-3000 thermal cycler for 25 x 0.2ml microtubes, 115V/230V
FTC3/05	TC-3000 thermal cycler for 20 x 0.5ml microtubes, 115V/230V
FTC3/02/B	TC-3000 block for 25 x 0.2ml microtubes
FTC3/05/B	TC-3000 block for 20 x 0.5ml microtubes

## Thermal Cycler, TC-3000X

The new TC-3000X personal cycler is based on the unrivalled and reliable TC-3000. The new model is ideal for those laboratories that need just that little bit more, with its expanded sample capacity to accommodate 48 x 0.2ml tubes or for convenience, a 48-well plate.

### Increased sample capacity

The footprint remains the same, only 561cm<sup>2</sup> but the capacity increases to 48 x 0.2ml or 30 x 0.5ml tubes.

### Adjustable heated lid

The heated lid can now be adjusted for use with all PCR tubes, strip tubes or 48-well plates sealed with sealing mats.

### Rapid heating rate

Utilising the latest Peltier technology the TC-3000X has a heating ramp rate of 3.3°C/sec and a 2.0°C/sec cooling rate.

### Fast-track programming

Modern intuitive programming and ready-to-go templates means creating even the most complicated protocols is simple.

### PC control & networking

The TC-3000X can be linked together with other Techne cyclers; up to 32 cyclers can be networked to one computer.

### Technical Specification

	TC-3000X
<b>Block formats</b>	
0.5ml capacity	48
0.2ml capacity	30
<b>Block Temperature</b>	
Maximum ramp rate	3.3°C/sec
Block uniformity at 50°C	±0.2°C
Temperature range	4°C to 99°C
Peltier element/block	6
<b>Heated Lid</b>	
Selectable heated lid temperature	100°C to 115°C
Heated lid enable/disable	Yes
<b>Programming</b>	
No. of programs	80
Programming display	4-line alphanumeric
Auto restart on power failure	Yes
Dimensions L x W x H	330 x 170 x 190mm
Voltage	90-260V, 50-60Hz
Power	230W
Shipping Weight	6kg

### Ordering Information

Product Code	Description
FTC3X/02	TC-3000X thermal cycler for 48 x 0.2ml microtubes, 100V/115V/230V
FTC3X/05	TC-3000X thermal cycler for 30 x 0.5ml microtubes, 100V/115V/230V
FTC3X/02/B	TC-3000X block for 48 x 0.2ml microtubes
FTC3X/05/B	TC-3000X block for 30 x 0.5ml microtubes



TC-3000X



TC-3000X

# Thermal Cyclers

## Thermal Cycler, TC-3000G

The world's smallest gradient cycler, the TC-3000G will hold half a 96-well plate, in a horizontal format so that it offers 8 columns for annealing temperature optimisation and 6 rows for optimising reagents such as MgCl<sub>2</sub> and primer concentrations. Annealing temperatures can be optimised over a 15°C gradient between the temperatures of 20 and 80°C.

All the features of the TC-3000 and TC-3000X plus...

### Gradient block

A gradient of up to 15°C between the temperatures of 20 and 80°C can be set, allowing any protocol to be optimised within a single experiment.

### New software

Enables a gradient to be added to any temperature step of the program.

### Gradient calculator

The gradient calculator function displays the temperature for each of the 8 columns, ensuring easy replication of thermal conditions.

### Technical Specification

	TC-3000G
<b>Block formats</b>	
0.5ml capacity	48
0.2ml capacity	30
<b>Block Temperature</b>	
Gradient range	20°C to 80°C
Maximum gradient	15°C
Maximum ramp rate	3.3°C/sec
Block uniformity at 50°C	±0.2°C
Temperature range	4°C to 99°C
Peltier element/block	6
<b>Heated Lid</b>	
Selectable heated lid temperature	100°C to 115°C
Heated lid enable/disable	Yes
<b>Programming</b>	
No. of programs	80
Programming display	4-line alphanumeric
Auto restart on power failure	Yes
Dimensions L x W x H	330 x 170 x 190
Voltage	90-260 V, 50-60Hz
Power	230W
Shipping Weight	6kg



TC-3000G



### Ordering Information

Product Code	Description
FTC3G/02	TC-3000G gradient thermal cycler for 48 x 0.2ml microtubes, 100V/115V/230V
FTC3G/05	TC-3000G gradient thermal cycler for 30 x 0.5ml microtubes, 100V/115V/230V
FTC3G/02/B	TC-3000G gradient block for 48 x 0.2ml microtubes
FTC3G/05/B	TC-3000G gradient block for 30 x 0.5ml microtubes

**ALL BLOCKS  
WITH EXTENDED  
WARRANTY  
4 years or  
80,000 cycles\***  
\*See local distributor for  
details and conditions.



TC-4000



TC-4000

## Thermal Cycler, TC-4000

The TC-4000 is one of the most affordable full sized thermal cyclers in the market, flexible for all your protocols and easy on your budget.

### High performance

High performance, high sample throughput model for maximum flexibility and economy and ideal for a larger number of parallel samples.

### Versatile block format

The truly user-friendly fully interchangeable block system allows blocks to be exchanged in a matter of seconds without the need for any tools (60 x 0.5ml, 96 x 0.2ml, 96-well fully skirted plates, 384-well or flat plate for *In-situ*).

### Flexible heated lid

Defined pressure, programmable heated lid (100°C to 115°C) to accommodate a variety of consumables. The heated lid only comes on if the block is set above 35°C.

### Intuitive programming

4-line display with intuitive, simple-to-use software with alphanumeric programming, password protection, simple copy/edit functions and much more.

- Temperature range 4°C to 99°C
- Excellent heating rate of 2.6°C/sec and block uniformity of  $\pm 0.3^\circ\text{C}$  at 50°C ensures high reproducibility
- 8 peltiers; using the innovative Quad Circuit Technology, the TC-4000 ensures unsurpassed control accuracy and temperature uniformity
- The TC-4000 can be connected to a PC along with other Techne cyclers for high throughput applications using Gensoft software

### Technical Specification

	TC-4000
<b>Block formats</b>	
0.5ml capacity	60
0.2ml capacity	96
384-well	Yes
<i>In-situ</i>	Yes
<b>Block Temperature</b>	
Maximum ramp rate	2.6°C/sec
Block uniformity at 50°C	$< \pm 0.3^\circ\text{C}$
Temperature range	4°C to 99°C
<b>Heated Lid</b>	
Selectable heated lid temperature	100°C to 115°C
Heated lid enable/disable	Yes
Over-temperature cut-out	Yes
<b>Programming</b>	
Number of programs	80
Password protection	Yes
Programming display	4-line alphanumeric
Auto restart on power failure	Yes
Dimensions L x W x H (mm)	420 x 220 x 260
Voltage	230/115V, 50-60Hz
Power	620W
Shipping Weight	13kg

### Ordering Information

Product Code	Description
FTC4/05	TC-4000 thermal cycler for 60 x 0.5ml microtubes, 115V/230V
FTC4/H02	TC-4000 thermal cycler for 96 x 0.2ml microtubes or 96-well plates, 115V/230V
FTC4/F02	TC-4000 thermal cycler for 96 x 0.2ml microtubes or 96-well fully-skirted plates, 115V/230V
FTC4/384	TC-4000 thermal cycler for 384-well plates, 115V/230V
FTC4/FLAT	TC-4000 thermal cycler with flat plate for <i>In-situ</i> , 115V/230V
FTC41B5D	TC-4000 block for 60 x 0.5ml microtubes
FTC41BHD	TC-4000 block for 96 x 0.2ml microtubes or 96-well plates
FTC41BFD	TC-4000 block for 96 x 0.2ml microtubes or 96-well fully skirted plate
FTC4B384	TC-4000 block for 384-well plates
FTC41BID	TC-4000 block with flat plate for <i>In-situ</i>

# Thermal Cyclers

## Thermal Cycler, TC-5000

The TC-5000 gradient thermal cycler enables you to optimise your experiments at the "touch of a screen", with the same mechanical features as the TC-4000.

### Proven track record

Over 20 years experience in thermal cycler design ensures that the Techne TC-5000 encompasses reliability with all the specifications required for advanced protocols.

### Graphical display

The 'real-time' graphical display shows the sample temperature profile while the program is running, including the upper and lower limits of the gradient. This pictorial, real-time representation means instant visualisation of your experiment's status.

### Touchscreen

The TC-5000 incorporates a unique user-friendly programming interface provided by a 115 x 90mm touch-sensitive screen.

### Excellent heating rate

A maximum heating rate of 3.0°C/sec and block uniformity of  $\pm 0.3^\circ\text{C}$  at 50°C with or without a gradient...no compromise!

### Wide linear gradient

The most linear 96-well gradient cycler on the market, with an amazing range of 30°C, allowing annealing temperatures to be optimised in a single experiment.

### Gradient calculator

The gradient calculator function displays the temperature of each column of tubes. This ensures replication of the experimental conditions.

- Gradient range 20°C to 70°C, maximum 30°C
- Quad Circuit Technology: Each block consists of 8 Peltier units, controlled by 4 independent temperature thermistors (control sensors) distributed evenly across the block. This ensures that the TC-5000 exhibits the most accurately controlled linear gradient available
- Versatile block format: The truly user-friendly interchangeable block system allows blocks to be changed in a matter of seconds without the need for any tools (60 x 0.5ml, 96 x 0.2 ml, 96 x 0.2 ml for fully skirted plates, 384-well, or flat plate for *In-situ*)
- Decremental/incremental time and temperature
- Defined pressure, programmable heated lid
- PC control via Gensoft software with free upgrades available from [www.techne.com](http://www.techne.com). The TC-5000 is networkable and can be linked to a single PC together with other thermal cyclers in the Techne® range.



TC-5000

**ALL BLOCKS  
WITH EXTENDED  
WARRANTY**  
4 years or  
80,000 cycles\*  
\*See local distributor for  
details and conditions.



TC-5000

# Thermal Cycler Accessories

## PCR Consumables

### Tubes & Plates

Techne offers individual tubes, strip tubes and various multi-well PCR plates from 24 to 384-wells: coupled with the various sealing options the range now covers all sample formats required in the laboratory.

- Precision moulded: Made from virgin polypropylene, they are precisely moulded to achieve good thermal contact with the block
- Ultra-thin walls: Thin walls help to accelerate heat transfer from the thermal block to the sample, enabling shorter cycles and reduced run times
- Certified: RNase, DNase and human DNA-free ensuring no contaminants arising from the tubes will affect your experiments
- Various sample formats: Individual 0.2ml or 0.5ml microtubes, strip tubes; with or without caps and 24, 48, 96 and 384-well plates

### Tubes

Individual microtubes are available for use with all Techne thermal cyclers: 0.2ml thin-walled microtubes with domed caps or 0.5ml with flat caps. The lids are designed to both open easily without the use of tools and form an effective seal when closed to avoid sample evaporation.

For use with all 96-well and 48-well thermal cyclers, strips of 0.2ml tubes make setting up samples easier and faster. They are available in 5 formats:

Part Code	Description	Max. Fill Volume	Additional Caps Required*
FSTRIP1	8 low-profile clear tubes per strip	150µl	F8CAP1
FSTRIP2	8 clear tubes per strip	200µl	F8CAP2 or F8CAP3
FSTRIP3	8 clear tubes per strip with 8 individually attached caps	200µl	-
FSTRIP4	8 clear tubes per strip with attached hinged strip of 8 caps	200µl	-
FMITUBC	8 clear tubes per strip	250µl	FMICAPC

### Ordering Information

Product Code	Description
FTUB02TW	0.2ml microtubes with domed caps (1000 tubes per pack)
FTUB05TW	0.5ml microtubes with flat caps (1000 tubes per pack)
FSTRIP1	Strips of 8 low-profile tubes (120 strips per pack)
FSTRIP2	Strips of 0.2ml tubes which can be used with domed or flat cap strips (125 strips per pack)*
FSTRIP3	Strips of 0.2ml tubes with each tube having an individual flat cap (120 strips per pack)
FSTRIP4	Strips of 0.2ml tubes with attached, hinged strip of 8 domed caps (125 strips per pack)
FMITUBC	Strips of 8 x 0.2ml microtube strips (250 strips per pack)
F8CAP1	Strips of 8 flat optically clear caps (120 strips per pack)
F8CAP2	Strips of 8 domed caps for use with FSTRIP2 (125 strips per pack)
F8CAP3	Strips of 8 flat caps for use with FSTRIP2 (125 strips per pack)
FMICAPC	8 x 0.2ml domed microtube caps for use with FMITUBC (250 strips per pack)

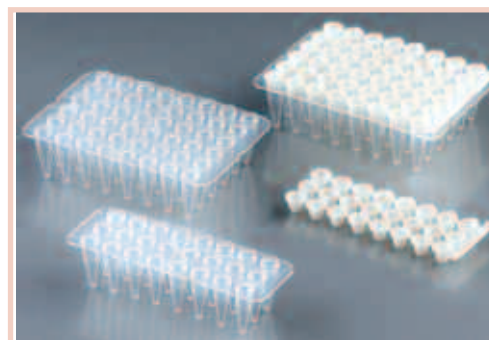
\*Cap strips must be ordered separately



Tubes



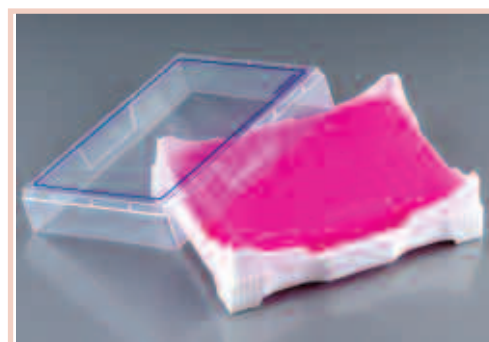
Strip Tubes



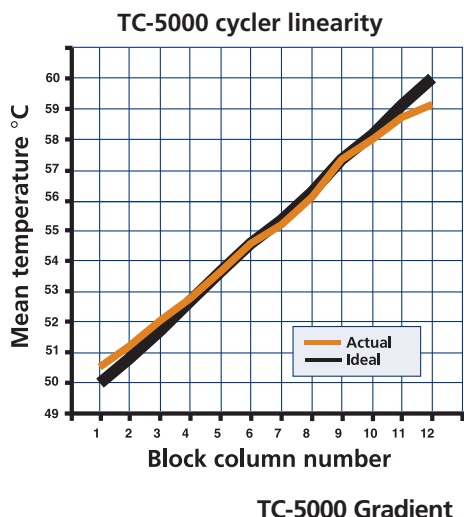
24 and 48-Well Plates



Strip Tubes



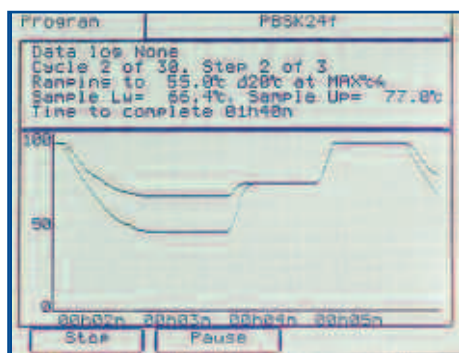
Mini Cooler



The graph on the right shows the linearity of a 0.2ml TC-5000 cycler block in relation to the ideal linearity. Due to quad circuit technology, the Techne® block exhibits an almost perfect linearity with deviations occurring only at block edges where the laws of thermodynamics prevent a perfect linearity from existing.

## Technical Specification

Model	TC-5000
<b>Block formats</b>	
0.5ml capacity	60
0.2ml capacity	96
384-well	Yes
<i>In-situ</i>	Yes
<b>Block Temperature</b>	
Temperature range	4°C to 99°C
Gradient range	20°C to 70°C
Maximum gradient <sup>1</sup>	30°C (16°C for 384 block)
Maximum ramp rate <sup>2</sup>	3.0°C/sec
Block uniformity at 50°C	<±0.3°C
<b>Heated Lid</b>	
Selectable heated lid temperature	100°C to 115°C
Heated lid enable/disable	Yes
Over-temperature cut-out	Yes
<i>Heated lid only comes on if the block is set above 35°C</i>	
<b>Programming</b>	
Number of programs <sup>3</sup>	50
Programming	Touchscreen
Graphical display	Real-Time Graph
Maximum hold time	99 hrs
Minimum hold time	1 sec
Auto restart on power failure	Yes
Dimensions L x W x H	420 x 220 x 260mm
Voltage	230/115V, 50-60Hz
Power	620W
Shipping Weight	14kg



**TC-5000 Screen**

## Ordering Information

Product Code	Description
FTC5/05	TC-5000 Gradient thermal cycler for 60 x 0.5ml microtubes, 115V/230V
FTC5/H02	TC-5000 Gradient thermal cycler for 96 x 0.2ml microtubes or 96-well plates, 115V/230V
FTC5/F02	TC-5000 Gradient thermal cycler for 96 x 0.2ml microtubes or 96-well fully skirted plates, 115V/230V
FTC5/384	TC-5000 Gradient thermal cycler for 384-well plates, 115V/230V
FTC5/FLAT	TC-5000 Gradient thermal cycler for <i>In-situ</i> (non-gradient), 115V/230V
FTC51B5D	TC-5000 Gradient block for 60 x 0.5ml microtubes
FTC51BHD	TC-5000 Gradient block for 96 x 0.2ml microtubes or 96-well plates
FTC51BFD	TC-5000 Gradient block for 96 x 0.2ml microtubes or 96-well fully-skirted plates
FTC5B384	TC-5000 Gradient block for 384-well plates
FTC51BID	TC-5000 Flat plate block for <i>In-situ</i> (non-gradient)

<sup>1</sup>Unavailable for *In-situ* block

<sup>2</sup>Given are typical values of a standard 0.2ml block, in an ambient temperature of 20°C.

<sup>3</sup>Actual numbers are dependent on complexity of the programs.

All Techne® cyclers have a full 4-year warranty with blocks having a 4-year or 80,000 cycle warranty – whichever comes first.





# Thermal Cycler Accessories



Multi-Well Plates

## Multi-Well Plates

Several plate formats are available for use with Techne's 48-well, 96-well and 384-well thermal cyclers. Along with the various plate formats numerous sealing options are available, such as the re-usable silicone mats which are fully autoclavable and re-used up to 50 times. Heat sealing foil and film for quick and effective plate sealing can be utilised and of course various caps can be used with the 96-well plates.

Part Code	No. of Samples	Description	Max. Fill Volume	Sealing Method**
F24PLNS	24	24-well PCR plates	200 µl	F24MAT
F48PLNS	48	48-well PCR plates	200 µl	F48MAT
F96PLFS	96	Low profile 96-well PCR plates, skirted***	200 µl	FHSEAL, FHSFILM, FMICAPC, F8CAP1
F96PLHS	96	96-well PCR plates, half skirted	300 µl	FHSEAL, FHSFILM, FMICAPC, F8CAP1
F96PLNS	96	Low profile 96-well PCR plates, non-skirted***	200 µl	FHSEAL, FHSFILM, FMICAPC, F8CAP1
F96T02	96	96-well PCR plates, non-skirted	300 µl	FHSEAL, FHSFILM, FMICAPC, F8CAP1
FMIP384	384	384-well skirted microplates	40 µl	FHSEAL, FHSFILM

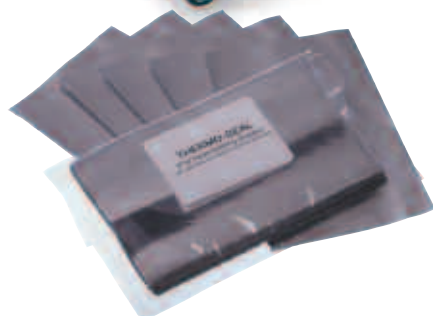
\*\* Must be ordered separately

\*\*\* Also available in black or white, see ordering information below

## Ordering Information

Product Code	Description
F24PLNS	24-well PCR plates (pack of 40 plates)
F48PLNS	48-well PCR plates (pack of 20 plates)
F96PLFS	Low profile clear 96-well PCR plates, skirted (pack of 25 plates)
F96PLFSB	Low profile black 96-well PCR plates, skirted (pack of 25 plates)
F96PLFSW	Low profile white 96-well PCR plates, skirted (pack of 25 plates)
F96PLHS	96-well PCR plates, half skirted (pack of 25 plates)
F96PLNS	Low profile clear 96-well PCR plates, non-skirted (pack of 25 plates)
F96PLNSB	Low profile black 96-well PCR plates, non-skirted (pack of 25 plates)
F96PLNSW	Low profile white 96-well PCR plates, non-skirted (pack of 25 plates)
F96T02	96-well PCR plates, non-skirted (pack of 25 plates)
FMIP384	384-well PCR microplates (pack of 50 plates)
F24MAT	24-well sealing mat
F48MAT	48-well sealing mat
FHSEAL	Heat seal foils (pack of 100)
FHSFILM	Optical heat seal films (pack of 100)

Heat Sealer



## PCR Accessories

### Heat Sealer

The heat sealer allows 96 or 384-well plates to be sealed in seconds with heat sealing foil or clear film. The foil or film is welded to the raised plastic rim of the plates ensuring no sample evaporation can occur. Simply load the plate, place the film on the plate and depress the heated element.

### Mini Cooler

The Mini Cooler protects sensitive samples and PCR reagents during sample set-up prior to thermal cycling. The Mini Cooler is stored in the freezer overnight and as it freezes turns purple in colour. When out on the bench, the cooler can then be used to maintain samples at 4°C for approximately 3 hours. As the cooler and hence the samples warm up, the colour changes from purple back to pink; this occurs at 7°C and provides an early warning signal to the user.

## Ordering Information

Product Code	Description
FHSEALSD	Heat sealer, 230V
FHSPA96	Heat seal plate adaptor for 96-well format
FHSPA384	Heat seal plate adaptor for 384-well format
FCOOL	Mini cooler, suitable for all 0.2ml tubes, strip tubes and 24, 48 and 96-well plates

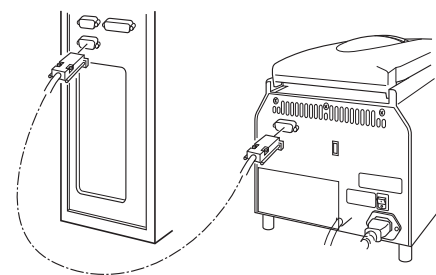
# Thermal Cycler Accessories

## Gensoft Cycler PC Control

The user-friendly PC control software.

Gensoft PC software provides the ability to connect up to 32 Techne® thermal cyclers to one PC, eliminating the need to program each thermal cycler or remember stored program names. Any of the Techne thermal cyclers can be connected to each other.

- Create and store programs: the intuitive screen layout means creating and storing programs could not be simpler
- Up to 32 cyclers: programs can be sent to one or multiple units at the same time
- Status screen: the PC status screen shows the position within a given protocol, time to complete and real temperature countdown for each cycler connected
- High-throughput screening made simpler



Connecting one unit to the computer using an RS232 cable

### Ordering Information

#### TC-3000, TC-4000 and TC-5000 PC Connections

To connect ANY single thermal cycler to a PC:

FGEN232                      RS232 cable and Gensoft software

To connect TC-3000's and/or TC-4000's to a PC, a single powerpack and cable set for the required number of cyclers is required. The power pack includes the PC connector, power pack, terminator box and cable to connect the PC to the first cycler.

FGEN485D                    230V Power pack UK and Gensoft software

FGENFOUR                  Four cycler cable set (4 connectors + 3 cables)

FGENTEN                    Ten cycler cable set (10 connectors + 9 cables)

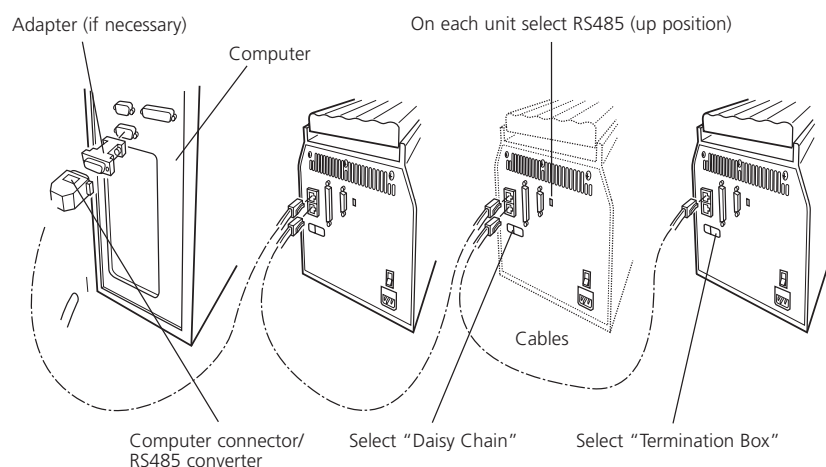
FGENONE                    One cycler cable extension set (1 connector + 1 cable)

If a TC-5000 or TC-512 is also being connected the power pack is NOT required and the TC-5000 PC connection option should be followed

FTGEN485                    PC 485 converter and cable

6103557                    Single cycler cable for connecting 2 cyclers together

6205046                    USB Cable



### Connecting multiple units to a computer