Kyratec.
Innovative Products for Bioscience

High Performance Gradient
Thermal Cycler

SuperCycler™

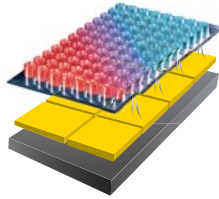Find out why everyone is

talking about the

SuperCycler™

Smaller…Faster…Lighter…Cheaper…

And perhaps the most user friendly
PCR cycler ever…?

Platform

Block
Sensor
Peltier
Heatsink

The SuperCycler™ is a high performance block cycling system configured and optimised for Industry standard 200ul individual or strip tube (domed or flat-capped) or 96-well plates (low or high skirt) with wtrip caps or adhesive film seals. It incorporates state of the art electronics, precision quality peltier devices and a flexible user interface.

Configuration

The SuperCycler™ utilises eight Peltier devices to actively heat and cool the block between 4°C and 99°C.

Peltier devices are driven by four independent thermal sensors arranged evenly across the block. This Configuration of peltiers and sensors enables a highly linear gradient to be established via a sophisticated computer control system. A precision composite alloy- block with low mass and high thermal conductivity gives good ramp rates, long peltier life and low well to well temperature variation.

Linearised Gradient

Thermal gradient technology enables a varying temperature to be set across the reaction wells of the block. Applications of this feature include the ability to optimize the annealing temperature of an assay in a single experiment by determining the temperature of the wells that yield the best result.

The SuperCycler™ is capable of generating a linear gradient of between 0°C and 20°C across the block. The software interpolates and displays the temperature of each column of wells in real-time during a run.

Most other gradient thermal cyclers generally use fewer Peltier devices and sensors producing a less uniform gradient across the block. The resulting non linear gradient makes it difficult to predict actual sample tempperature in each well and leads to optimization experiment prone to error.

Heated Lid Evaporation Control

The SuperCycler™ employs an applied pressure heated lid disign to keep the air contained within the tube hotter than the reaction volum. This causes any evaporation to condense back into the cooler reaction liquid, thereby eliminating the need for oil or wax condensation overlay.

User Interface

The SuperCycler™ offers the choice of 2 powerful user interface options. The Primary interface is via an internal high performance graphical controller. A large 7" widescreen color touch panel gives a vibrant and flexible means of run setup and monitoring. All SuperCycler™ also have a USB port interfacing to Windows based PC software. This software opens the user up to easy profile setup, sharing of files, and post run examination of any temperature data.

New software features and updates are regularly incorporated and available as free upgrades via web download.

Both interface options provide a graphical and intuitive means of cycler setup and control. During run progress, temperatures measured across the block are displayed in real-time as a scrolling graph and numerical output. The PC based software also allows logging of the actual well temperatures throughout the run which can be post examined.
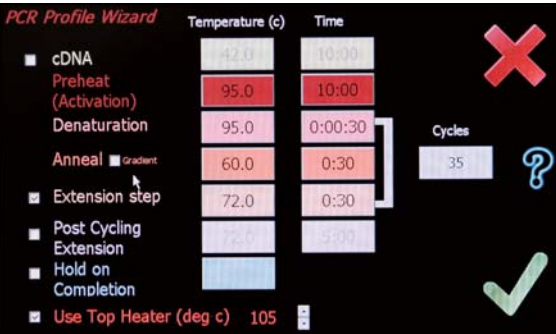
Desktop 'Home' Screen

Access all systems functions from here by pressing the icons

Wizard Mode

- Allows rapid setup of most typical runs
- Use the checkboxes to enable the optional steps
- Press the temperature and time boxes to adjust these values
- Select OK to proceed to the run review screen

PCR Profile Creation.

You can load an existing experiment from either the internal drive or an external USB drive, or create a new thermal profile using either the Wizard or the manual builder.

Interface

Thermal profile engine

The SuperCycler™ has a powerful thermal profile engine implemented within. A profile may contain up to 100 events. Each 'event' can be either a hold at temperature, pause, ramp or 2 to 5 step cycling with up to 100 repeats. Any event or step can contain gradient, touchdown or long range features. An almost unlimited number of profiles may be stored on the device for re-running. Despite its capabilities profile setup is straightforward.

Live Graphing
Gives vivid feedback of the thermal activity.

Manual Control
Enables the user to set the block to a specific temperature quickly without creating a thermal profile. This function is useful for incubating reactions such as DNA digestion or ligation. Manual Mode also supports thermal gradient.

Oligo Calculator
Is incorporated into the software to assist the operator in oligonucleoide design.

Quickstart Wizard Mode
SuperCyclerTM software includes a Quickstart Wizard utility which enables the user to configure easy to moderate complexity profiles in just moments. Pre-programmed protocols are available to set up quickly for your convenience or which are easily edited as your own methods with only a single click.

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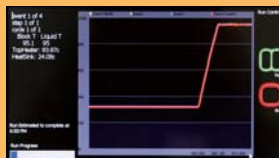
Running Screen

Live Graphical display of temperatures Numerical temperature display Zone temperatures displayed in gradient mode

Upgrade Software

The upgrade file you receive from our support team or the website should be placed on the main root directory of your USB memory stick.

External Connectivity

The SuperCycler™ features a front access USB host port enabling the user to easily transfer files between units using an ordinary USB memory stick. This USB interface also supports either a mouse or keyboard.

Pause

Allows the user to pause the profile at any number of pre programmed points while emitting an alert beep. The current set temperature is held indefinitely until the continue button is pressed. Holds are useful if there is a need to remove tubes or add reagents at a particular point in a run.

User Accounts

Enables easy separation and organisation of user run profiles.

LongRange

Feature enables the time of a particular cycling step to be automatically increased or decreased by a preset amount over a specified range of cycle repeats. The Long Range increasing time mode feature is often used to provide gradually extended times for enzymatic polymerization of longer products during later cycle repeats of an amplification reaction.

Long Range decreasing time mode can be used to shorten the tatal run time. During later cycles the majority of enzymatic polymerization is occurring on previously generated amplicons which are shorter in length than the original template. Shorter hold times are often sufficient for polymerization of these shorter length products.

TouchDown / up

Enables the temperature of a step to be automatically increased or decreased by a preset amount over a range of successive cycle repeats. It's primary use is as a mechanism tominimise primerdimer artifacts by gradually decreasing the annealing temperature during initial cycle repeats of an amplification profile.

Specifications

Thermal Cycling System	High performance active heating and cooling using quality Peltier elements x 8 & precision sensors x 4
Temperature Range	4°C–99°C
Temperature Accuracy	±0.25°C of set temperature, 1 minute after target
Temperature Uniformity	±0.5°C, 30 seconds after target
Temperature Resolution	0.1°C increments
Heating / Cooling Rate	3°C/sec maximum(block)
Well Configuration	96-Well block supporting : 0.2 mL tubes or strip tubes with flat or domed caps; 96-well high-or lowskirt plates with strip caps, adhesive cover, or oil overlay
Linear thermal gradient	Programmable 0–20°C across block width(12 wells)
Condensation control	Automatic utilising applied pressure heated lid
Heated Lid Temperature Range	Controllable 60°C–110°C
Dimensions	W180mm(7") D 285mm(11.2"); 350mm(13.8") including cables H 190mm(7.5") lid closed(340mm (13.4") lid open)
Weight	5.5kg(11 lbs)
Color	White on black
Electrical	100–240 VAC @ 4 Amp(50/60 Hz) Automatic voltage sense Standard IEC Inlet plug
External Conectivity Interface	USB1.1 interface to Windows XP / Vista based PC USB host port - File tr ansfer to & from USB memory stick - mouse / keyboard connection - printer *(future software release)
Internal Interface(optional)	Embedded graphical controller with 7" widescreen touch sensitive color backlit display
Software	Supplied with unlimited user license. Free upgrades available via web download.
Functionality	Touchdown/up, long-range, linear thermal gradient, program pauses, temperature graphing, temperature logging(PC only), User accounts, Profile load & saving, Manual mode, USB file transfer.
Included Accessories	Power Cable, User manual, Touchscreen Stylus