PCRmax
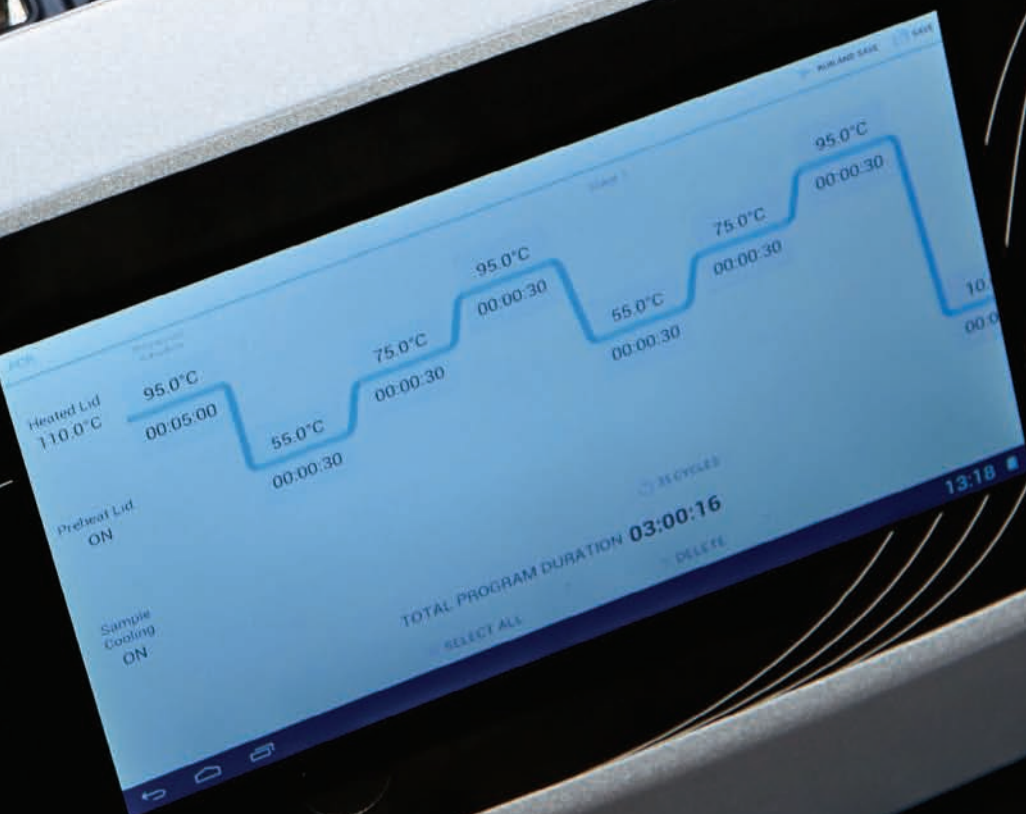
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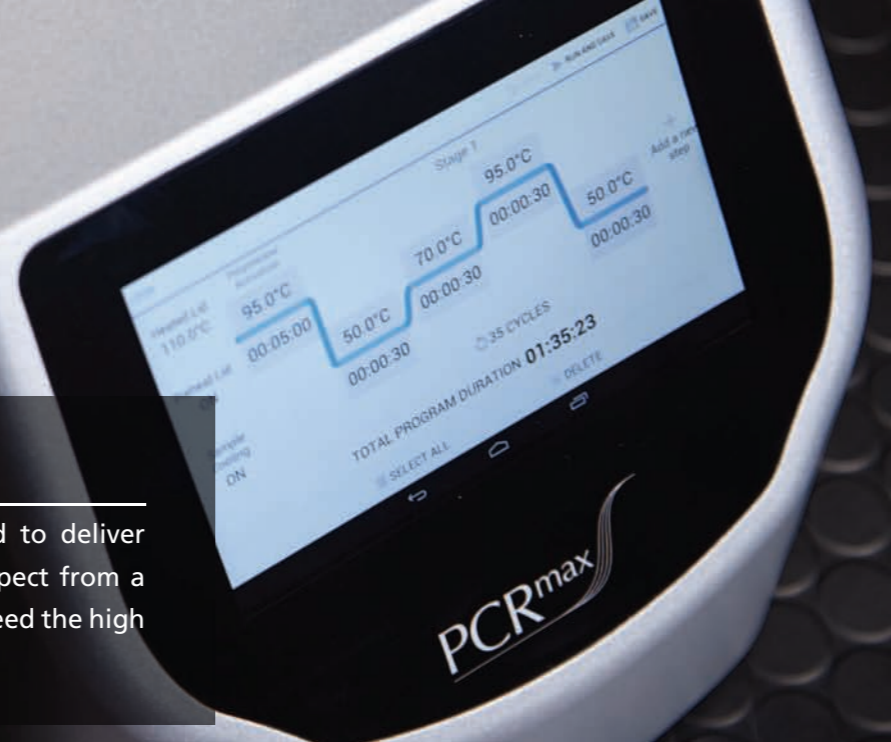
Alpha Cycler

Endpoint PCR range and Alpha Track Reporting

Speed. Confidence. Value. Sensitivity. Performance.

PCRmax Alpha Cyclers

The PCRmax Alpha Cyclers are developed to deliver not only the best quality data you can expect from a thermal cycler but also to innovate and exceed the high standards expected by the community.

Alpha Cycler AC-1

The single block Alpha Cycler 1 (AC-1) is a compact and feature driven entry level PCR machine with ease of use and performance at its core. Alpha Cycler software has features such as recently used Programs; allowing users to quickly access their most commonly used protocols without the need to navigate through folders to find it, individual user logins; with protected protocols as-well-as allowing users' access to temperature logs after each run to monitor the state of the system.

AC-1 Key features

- Compatibility with Alpha Track Mobile reporting App.
- Active Sample cooling - For sharper amplification and minimal non-specific amplification.
- Program Wizard - Generate a protocol specific to your sequence, template source and amplicon length in seconds.
- 96/384 well gradient blocks - Flexibility for any scale and user needs.
- USB connectivity and login/out function – Login and out to any system with it automatically configured to your defaults.
- Android driven 7" tablet interface – HD screen with excellent response.

Alpha Cycler AC-2

The Alpha Cycler 2 (AC-2) dual block system allows multiuser labs without the throughput or demand for a four block system access to multi-block flexibility or an option to scale up from single block systems as and when the project work load requires it. The AC-2 is a truly independent two block system capable of running totally different programs on each block simultaneously giving end users two separate PCR systems in one unit.

AC-2 Key features

- Compatibility with Alpha Track Mobile reporting App.
- Independent dual block system – allows for two different programs to run simultaneously.
- Active Sample cooling - For sharper amplification and minimal non-specific amplification.
- Program Wizard - Generate a protocol specific to your sequence, template source and amplicon length in seconds.
- 96/384 well gradient blocks - Flexibility for any scale and user needs.
- USB connectivity and login/out function – Login and out to any system with it automatically configured to your defaults.
- Android driven 10" tablet interface – HD screen with excellent response.

Alpha Cycler AC-4

The Alpha Cycler 4 (AC-4) is the only true fully independently controllable four block thermal cycler available today. The system can be specified in any combination of 96 and 384 well formats across its four bays. Alpha Cycler software allows the user to quickly access their most commonly used protocols without the need to navigate through folders to find it, individual user logins; with protected protocols as-well-as allowing users' access to temperature logs after each run to monitor the state of the system.

AC-4 Key features

- Compatibility with Alpha Track Mobile reporting App.
- Scalable - Chose from any combination of 96 or 384 well blocks.
- Compact - Small labspace footprint, condenses four truly independent blocks into one unit with no network / connectivity issues.
- Active Sample cooling - For sharper amplification and minimal non-specific amplification.
- Program Wizard - Generate a protocol specific to your sequence, template source and amplicon length in seconds .
- 96/384 well gradient blocks - Flexibility for any scale and user needs.
- Report generated on run conditions and state following completion of protocol.
- USB connectivity and login/out function – Login and out to any system with it automatically configured to your defaults.
- Android driven 10" tablet interface - HD screen with excellent response.

Advanced Feature Set

Alpha Cycler uses an Android operating system and is controlled by either a 7"
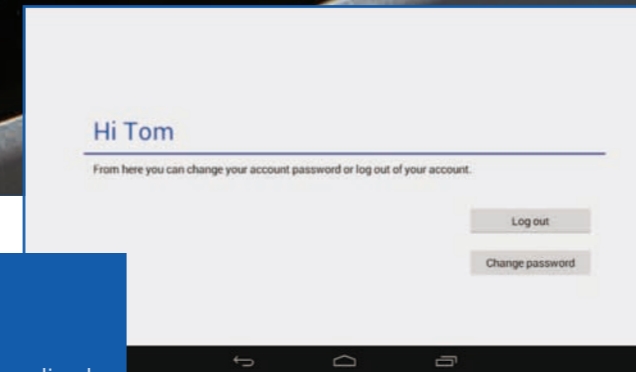(AC-1) or 10" (AC-2 and AC-4) HD touchscreen interface. Each Alpha Cycler has:

Remote monitoring via the free Alpha Track App.
Program Wizard to automate optimisation.
USB login for easy access to any system.
Potential to detect an error state before it effects results.
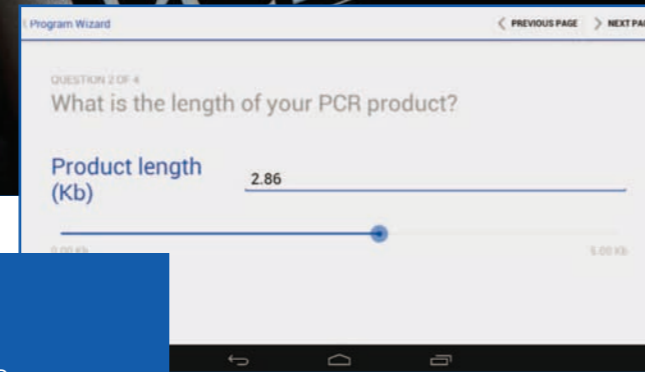
Program
Wizard



Personalised
login

Alpha Track
App

Program Wizard

All Alpha Cycler systems also contain a novel Program Wizard which allows users to automatically optimise a PCR protocol
Automate optimisation, simply:

- Input the forward and reverse primer sequences, define the amplicon length and source of the template and the built in and validated algorithms will define a bespoke protocol for your target.

- Program wizard allows for high specificity touch down PCR and will accommodate for GC/AT imbalances in your target sequence to get optimal Tms and hold times.

Let the Alpha Cyclers Program Wizard optimise your reaction for you.

Program storage

Set the Alpha Cycler to display Favourite, Most Frequent or Most Recently used programs on the home screen for easy and fast access. No need at all to access the systems memory or hunt though files, just select, confirm and run.
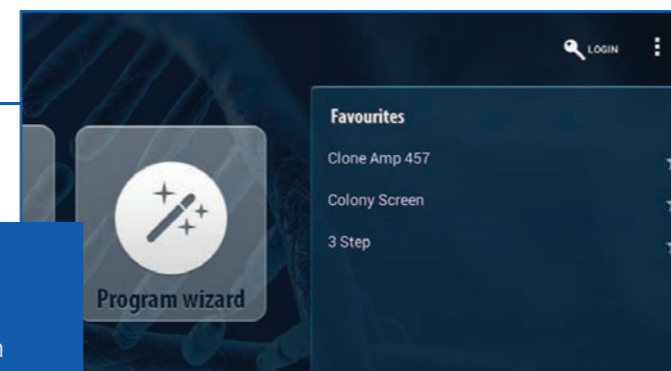
Program
manager

Remote monitoring via Alpha Track App

Users will scan the displayed QR code and remotely be able to check on run status and the health of the system to give confidence in the systems continued performance. Alpha Track will:

- Start a countdown clock of all running blocks on the unit.
- Allow users to specify alarm notifications for system finish.
- Check on the progress of runs.
- Send health reports to have the system checked for any errors or deviations from system performance.

System Health Checks

Each QR code scanned with Alpha Track contains a health check on ths system. This report can be sent to service teams who can diagnose any issues with any system anywhere in the world and report back to the individual any issues the system may be having. It's like a service visit every time the system is run.

USB Logins

Users can make any USB device their own login key. This means users don't need to remember passwords for each system, they simply insert the USB key to login which:

- Sets all defaults to user specific setting.
- Allows access to logged in user programs.
- Protects programs from being accessed by any other user.
- Allows users to use multiple systems in different locations like their own unit. Simply remove the USB and the user is logged out and their programs are not displayed on the system.

Gradient Technology

All Alpha Cycler block formats, 96 or 384 well, run gradients across the 12 or 16 columns respectively. Allowing for a much finer optimisation of your temperatures and by extension more specific PCR product amplification. Each block also contains 6 individual heat sources (peltier elements) which are monitored and controlled by the system for improved accuracy of gradient and fixed hold temperatures.

With the Alpha cycles gradient converter you can in one click adjust the gradient step to the specific temperature of the column that gave the best results: no need to re-write the protocol just convert the gradient to the optimised temperature.

Also available
PCRmax Eco 48 Real time qPCR system

The PCRmax Eco 48 real time PCR system is a high specification, economically priced real time thermal cycler that accommodates a unique 48-well polypropylene PCR plate utilising the same geometry as standard 384-well plates, but only 1/8 of the size. This enables users to dramatically reduce the qPCR reagent volumes compared to traditional 96-well instruments, saving users precious sample, whilst still producing a strong fluorescence signal. Minimizing the plate size also significantly improves thermal uniformity. A minimum volume of 5µl is validated, resulting in a more efficient use of expensive and 'hard to acquire' template DNA samples.
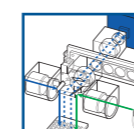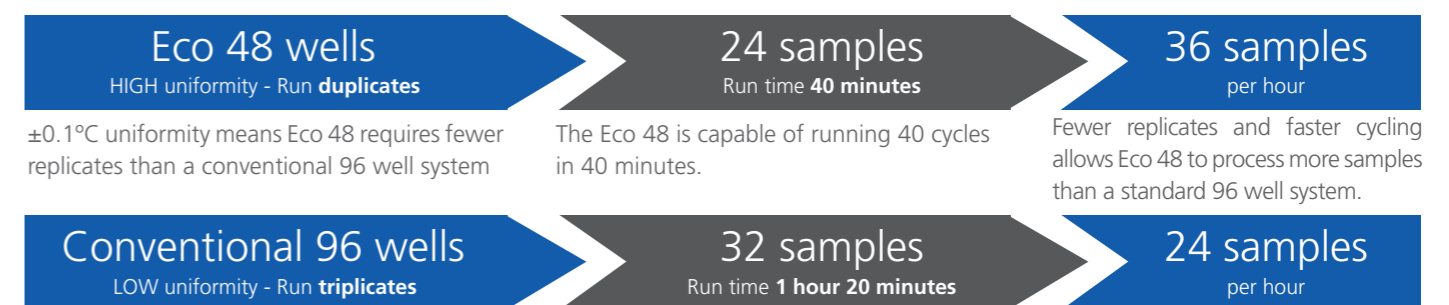
The Eco 48 Real-time system offers the qPCR capabilities of larger instruments in a compact, accurate footprint. Innovative features include a precise thermal system for unrivalled temperature control, an advanced optical system for highly sensitive fluorescence detection, a 48-well plate for flexible sample throughput, and intuitive, icon-driven software for error-free instrument operation.

Active Sample Cooling

Active Sample Cooling (ASC) is an approach which the Alpha Cycler takes to reduce non-specific amplification in your PCR reactions.

Active sample cooling can all but stop the formation of primer dimers early in cycling. When even a very small number of primer dimers occur early in a reaction these will often be preferentially amplified over your target as PCR will preferentially amplify these shorter fragments over the longer target amplicon, wasting components needed to generate your target thereby reducing your yields.

ASC works by simply chilling the block to 4 degrees and holding it there until the heated lid gets to temperature. Other systems often allow the heated lid to pollute your samples with heat allowing the primer dimers to form early in cycling and these can amplify through the remaining cycles giving the characteristic fuzzy bands at the bottom of your gel.
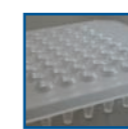
Key features

- MIQE compliant.
- HRM functionality is provided as standard and can discriminate class IV SNP 99.9% of the time.
- The Eco 48 can utilise four colours for easy multiplexing.
- Industry leading ±0.1°C temperature uniformity (recorded at 95°C no settle time).
- High uniformity provides high quality data.
- Fast cycling enables several experiments per day, all at an economical price.
- Fastest block-based real-time PCR system with the ability to run 40 cycles in 20 minutes (or less when optimised).
- The PCRmax Eco 48 is an open platform that can utilise any chemistry, dye or PCR reagent.
- Calibrated for SYBR®, FAM™, HEX™, VIC™, ROX™ and Cy®5 fluorescent dyes.
- Easy to use software, streamlined for novices and experts.
- No need to run triplicates, to compensate for poor thermal uniformity of block.

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Also available
Gamma Cooling Block

- Maximum temperature range 0°C to 40°C *
- Count up and count down timer
- Temperature displayed in °C or °F
- Buzzer indicates reaching the set temperature and the end of the elapsed time
- Holds 2 aluminium insert blocks

* Please note the primary design of PCRmax Gamma is to maintain biological samples safely between 4 and 37°C. PCRmax Gamma will achieve any temperature between 4 and 37°C within 30 minutes in an ambient temperature of 20°C. PCRmax Gamma will also reach 0°C or 40°C, but this may take several hours. Reaching 0°C can be speeded up by pre-cooling the aluminium blocks before use.

Do more, with less

Results from multiple instruments can be combined together

Eco 48 wells	24 samples	36 samples
HIGH uniformity - Run **duplicates**	Run time **40 minutes**	per hour

±0.1°C uniformity means Eco 48 requires fewer replicates than a conventional 96 well system

The Eco 48 is capable of running 40 cycles in 40 minutes.

Fewer replicates and faster cycling allows Eco 48 to process more samples than a standard 96 well system.

Conventional 96 wells	32 samples	24 samples
LOW uniformity - Run **triplicates**	Run time **1 hour 20 minutes**	per hour

Sensitive optical system delivers precise detection for a range of fluorophores

Convenient 48-well format meets the throughput needs of most researchers
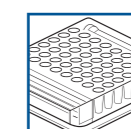
Unique thermal system provides unmatched temperature control for accurate results

Technical Specification

Unit	AC-1	AC-2	AC-4
Format:	Single block	Dual Block	Quad block
Block Options:	96 or 384 well format	96 or 384 well format	96 or 384 well format
			(All 96 or all 384, 96 and 3 x 384)
Maximum heating rate:	3.4°C per second	3.4°C per second	3.4°C per second
Block temperature range:	10°C to 100°C (4°C final hold)	10°C to 100°C (4°C final hold)	10°C to 100°C (4°C final hold)
Block uniformity at 55°C:	± 0.3°C	± 0.3°C	± 0.3°C
Temperature accuracy at 55°C:	± 0.25°C	± 0.25°C	± 0.25°C
Gradient:	Yes (on all formats)	Yes (on all formats)	Yes (on all formats)
Maximum Gradient:	29°C	29°C	29°C
Minimum Gradient:	1°C	1°C	1°C
Maximum number of programs stored:	1000	1000	1000
Maximum fan noise:	50dB	50dB single block running	50dB single block running
		52-58db four blocks running	55-58db four blocks running
Peltier element type:	8	8	8
Adjustable heated lid temperature:	35°C to 115°C or off	35°C to 115°C or off	35°C to 115°C or off
Heated lid pressure:	Adjustable	Adjustable	Adjustable
Software platform:	Android	Android	Android
Program interface:	7" inch HD	10" inch HD	10" inch HD
Data transfer:	USB port	USB port	USB port
Auto re-start on power failure:	Yes	Yes	Yes
Dimensions (L x W x H) in mm:	430 x 260 x 200	470 x 535 x 335	700 x 535 x 335
Weight:	11.8kg	30kg	47kg
Voltage:	100-230, 50-60Hz	100-230, 50-60Hz	100-230, 50-60Hz
Power:	450W	900W	1600W
Electricity (standard 30 cycle program)	0.3 kWh	0.3 kWh	0.3 kWh

PCRmax