

# ESCO

WORLD CLASS. WORLDWIDE.



## Aeris™

Thermal Cyclers





## WELCOME TO ESCO

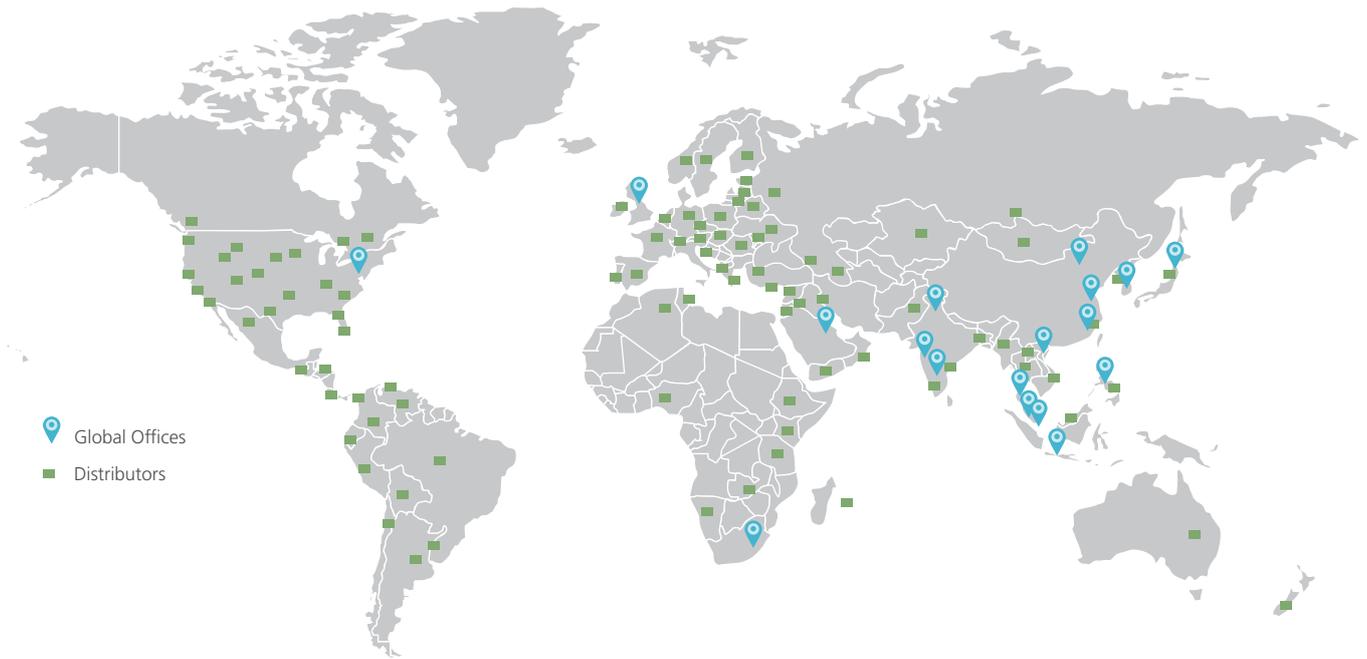
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*Esco's vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.*

- A leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions.
- A world leader in biological safety cabinets.
- With offices in 13 countries such as Bahrain, China, India, Japan, Korea, Malaysia, Philippines, Singapore, U.K., U.S., Vietnam, South Africa and Indonesia, and more expansions planned.
- North American facilities in Pennsylvania for sales, service and logistics in the U.S. and Canada.
- More than 600 employees total.
- Distributors in more than 100 countries.
- Products independently tested to international standards.
- Large R&D investments, world-leading technologies.
- State-of-the-art production, vertically integrated manufacturing floor space.
- Worldwide service covering a geographic expanse so broad that the sun never sets on what we do.

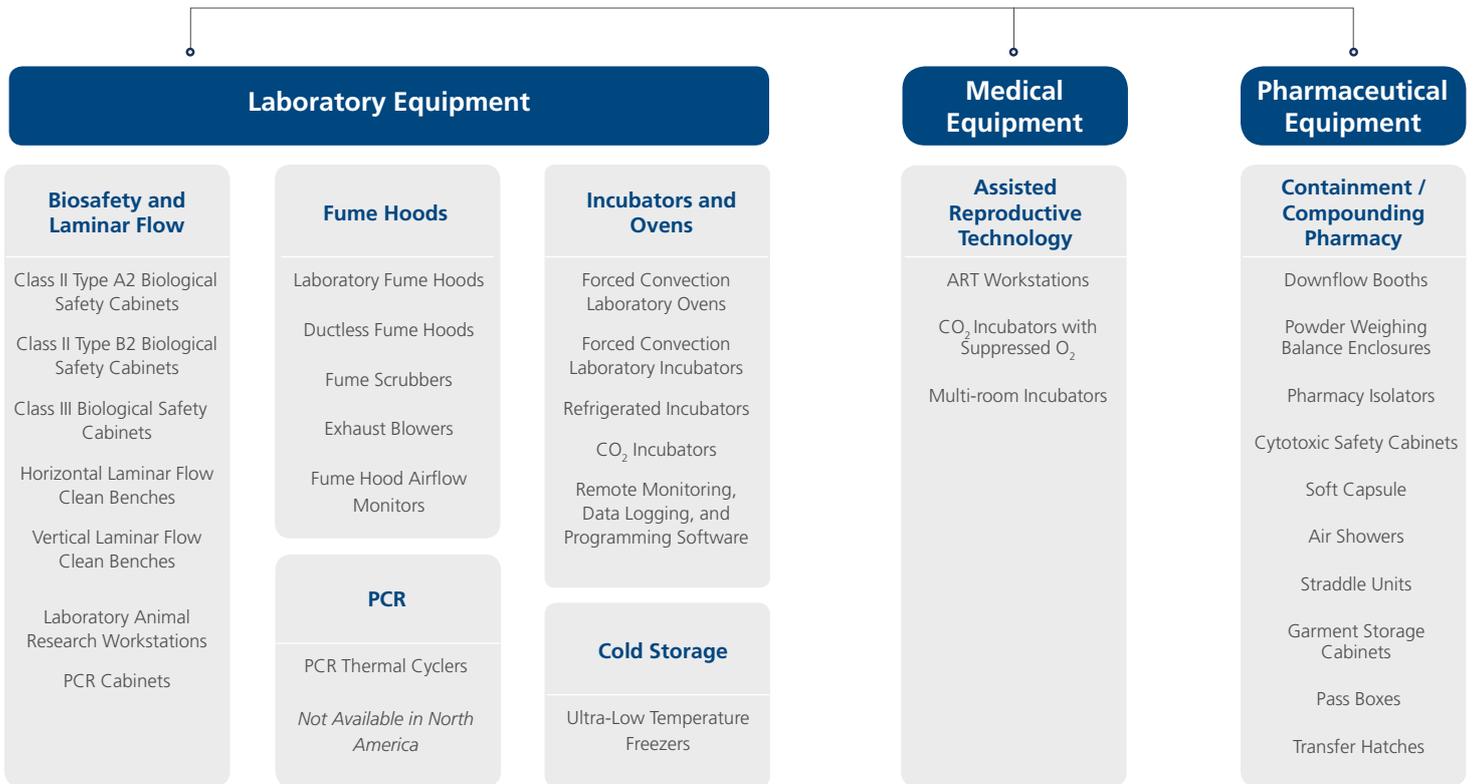


# GLOBAL NETWORK



## PRODUCTS AND APPLICATION

### Esco Life Science Tools





# AERIS™

## Thermal Cyclers

The AERIS™ thermal cycler offers five interchangeable blocks designed to meet critical requirements for different applications. It comes with an intuitive touch screen to deliver easy-to-use programming; **AeonStar™** Peltier is qualified to deliver outstanding and precise performance and unique IsoHeat™ temperature control technology delivering high heating and cooling rates with excellent temperature accuracy and uniformity. **SmartDrive™** automatic block recognition increases user convenience. **AERISLine™** software enables the remote control of up to 30 individual units via one PC.

### AERIS™ BENEFITS



- Saves time when programming with the intuitive color touch screen

- Keeps the latest operation records which deliver the proven reliability of PCR results
- Durable design to guarantee longer instrument lifetime
- Tm calculator for optimized primer temperature
- Extensive applications for researchers to do 'Long PCR' and 'Nested PCR'
- Hot lid temperature adjustment to secure the temperature control on the block and to prevent condensation and water evaporation on the hot lid itself
- Better performance with temperature accuracy



## ADDITIONAL FEATURES

- Multi-block capability with automatic block recognition software minimizes the need for manual settings
- Adjustable hot lid temperature and ramp rate
- Powerful software meets a variety of experimental requirements, such as Gradient PCR, Touchdown PCR, Time Release PCR, In Situ PCR, and others
- The Peltier module, electronics, and sensors are precision tuned and tested to ensure the longest operating lifespan possible
- Pre-programmed methods provide easy choice
- Large memory stores up to 250 individual methods in equipment, with unlimited methods on USB memory stick or PC
- Password protection guarantees secure system access



Reliable Performance Peltier



Powerful PC Software **AerisLine™**

## FLEXIBLE - YOUR APPLICATION, YOUR CYCLER

Five Interchangeable Blocks



### **AERIS G-96 WELL,**

*Gradient 96x0.2ml temperature gradient is programmable on 12 rows*

**Applicable consumables:** 0.2ml tube, 96-well microplate, 12x8 strips, 8x12 strips



### **AERIS 48X0.2ML+30X0.5ML WELL**

**Applicable consumables:** 0.2ml tubes, 0.5ml tubes, 4x12 strips



### **AERIS G-384 WELL AERIS-BG384**

*High throughput block with temperature gradient is programmable on 24 rows*

**Applicable consumables:** 384-well microplate



### **AERIS D-48X0.2ML AERIS-BD048**

*Two in one! Two independent experiments may be carried out at the same time.*

**Applicable consumables:** 0.2ml tubes, 6x8 strips



### **AERIS 4 IN SITU SLIDES**

*For In Situ PCR*

**Applicable consumables:** 4 slides in situ

## THREE MODES OF OPERATION



- 1 Stand-Alone Unit**  
Operate with keypad directly.



- 2 PC Controlled**  
Operate cycler via PC, and save programs.



- 3 Satellite Function Via AerisLine™**  
Up to 30 Aeris cyclers can be controlled from one PC.

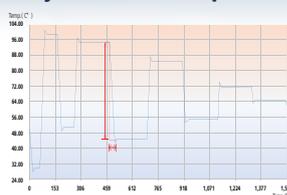
## HIGHLIGHTS

### Adjustable Hot Lid



To prevent reagents from evaporating, the height of the hot lid is adjustable to suit all kinds of tubes.

### Adjustable Ramp Rate



High ramp rate of up to 4.0°C/sec. Suits all reagents. Allows protocols to be transferred from other cyclers.

### Open Platform

Open platform chemistry and consumables assure compatibility with commonly used protocols. Most common tubes, strips and microplates can be used with the Aeris™ Thermal Cycler.

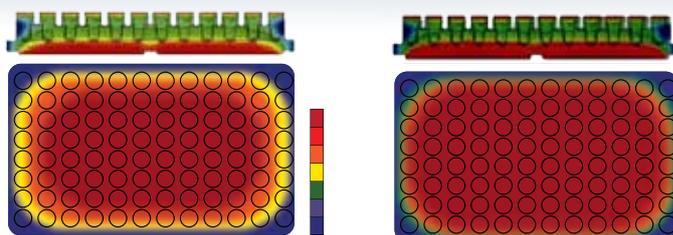
### Automatic Block Recognition

**SmartDrive™** automatic block recognition feature minimizes the need for manual settings. Simply depress the locking handle, and the block will move forward and be detected by the base.

### Excellent temperature uniformity

Unique **IsoHeat™** temperature control technology guarantees extremely uniform temperature between central and edge wells. Precisely tuned and tested **AeonStar™** Peltier, temperature sensor, and proprietary control algorithms provide highest temperature accuracy.

### Promise No 'Edge Effect'



Normal Block

Aeris™ Block

# EASIER PROGRAMMING



Main Interface



New Protocol

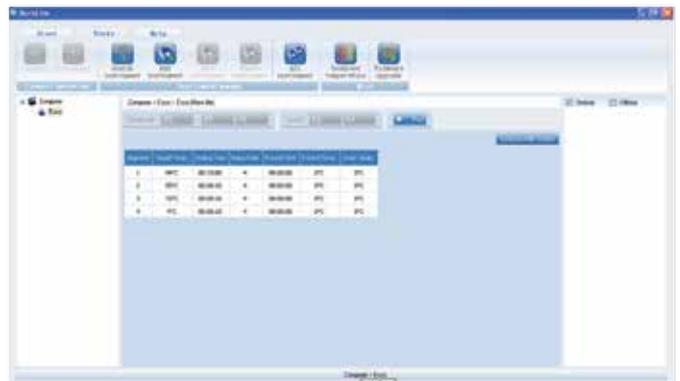
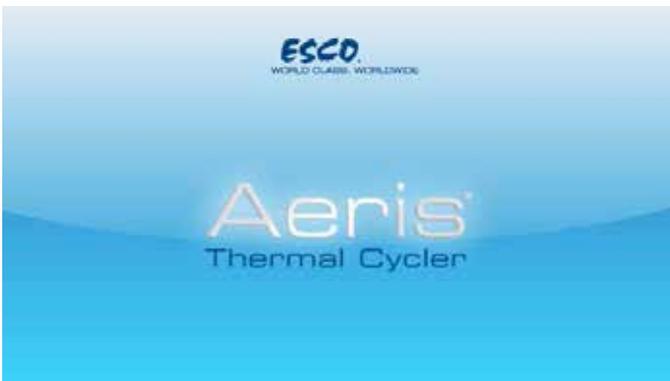
HOT LID TEMPERATURE : 10°C		SEGMENT :		REMAINING TIME	
BLOCK TEMPERATURE : 10°C		CYCLE :		00:00:00	
USERNAME	FILE NAME	DATE MODIFIED			
Default	1	2012-07-10			

Shortcut

HOT LID TEMPERATURE : 10°C		SEGMENT :		REMAINING TIME		
BLOCK TEMPERATURE : 10°C		CYCLE :		00:00:00		
USER LIST						
1	2	3	4	5	6	7
8	9	0	A	B	C	D
E	F	G	H	I	J	K
L	M	N	O	P	Q	R
S	T	U	V	W	X	Y
Z	Caps	Clr	Backspace	Enter		

Run

## AerisLine™ PC Software



### Easy Setup

Network Enabler Administrator helps you configure the instrument by IP address.

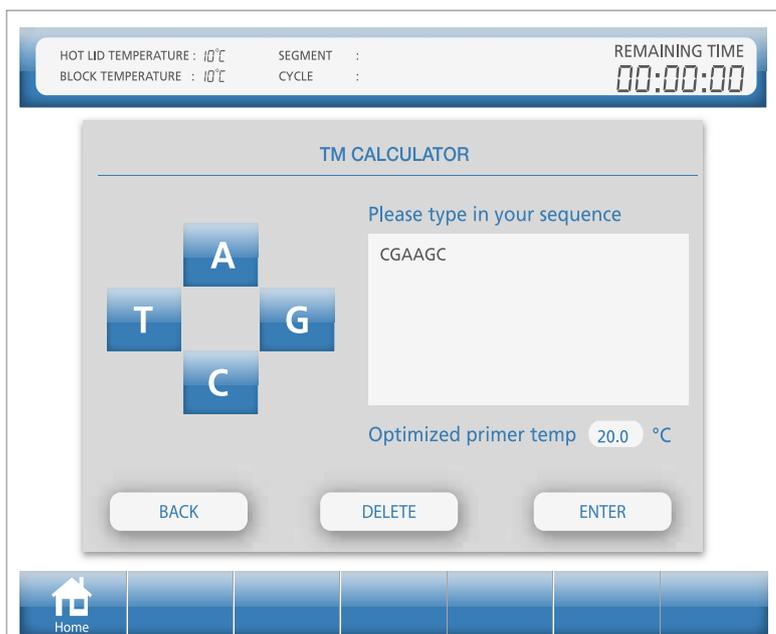
### Simple

Once you install the software, you get easy access to set up protocols and edit the program.

### Powerful

One PC can control up to 30 Aeris™ Thermal Cyclers.

## TM CALCULATOR



Tm calculator allows you to calculate the optimal PCR annealing temperature based on the sequence of a pair of primers. The Tm calculator by default calculates by the simpler GC content.

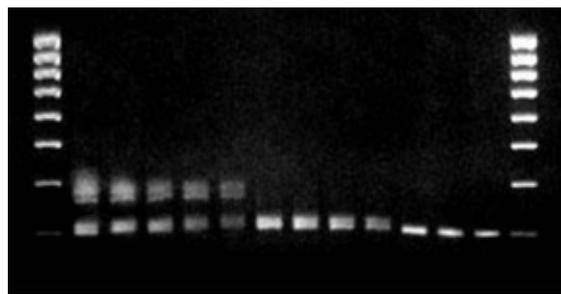
## GRADIENT FUNCTION



The purpose of the gradient function is to determine the optimal annealing temperature. It's particularly useful when testing suitable annealing temperatures for primers.

**Note:** Experimental determination of optimal annealing temperature. The calculated primer annealing temperature was 56.5°C. The actual annealing temperature was 63.2°C. This experiment used the gradient function of Block G096, and a gradient of 55 to 65°C was set.

### End Point Analysis Result



The best conditions are found in Well 10, where the temperature was 63.2°C.

## WIDER APPLICATION

### Nested PCR



Why Use Nested PCR?

Nested PCR is a modification of a polymerase chain reaction intended to reduce the contamination in products due to the amplification of unexpected primer binding sites.

### Long PCR



Why Use Long PCR?

Long PCR, a new technique based on ordinary PCR, applies to amplify the PCR template longer than 5kb.

### Touchdown PCR



Why Use Touchdown PCR?

Touchdown PCR is a method of polymerase chain reaction by which primers avoid amplifying nonspecific sequences. The annealing temperature during a polymerase chain reaction determines the specificity of primer annealing. The melting point of the primer sets the upper limit on annealing temperature. At temperatures just below this point, only very specific base pairing between the primer and the template occurs.

## AERIS™ COMPONENTS



USB Port



Touch Pen

## USB PORT

- User friendly
- Convenient and quick data transfer
- Convenient USB port and RJ45 port simplify data transfer and product updates between the Aeris Thermal Cycler and USB memory stick

### Storage



There are 250 protocols in internal memory; unlimited with use of USB memory stick and PC save as many of your important methods as you want

### RJ45

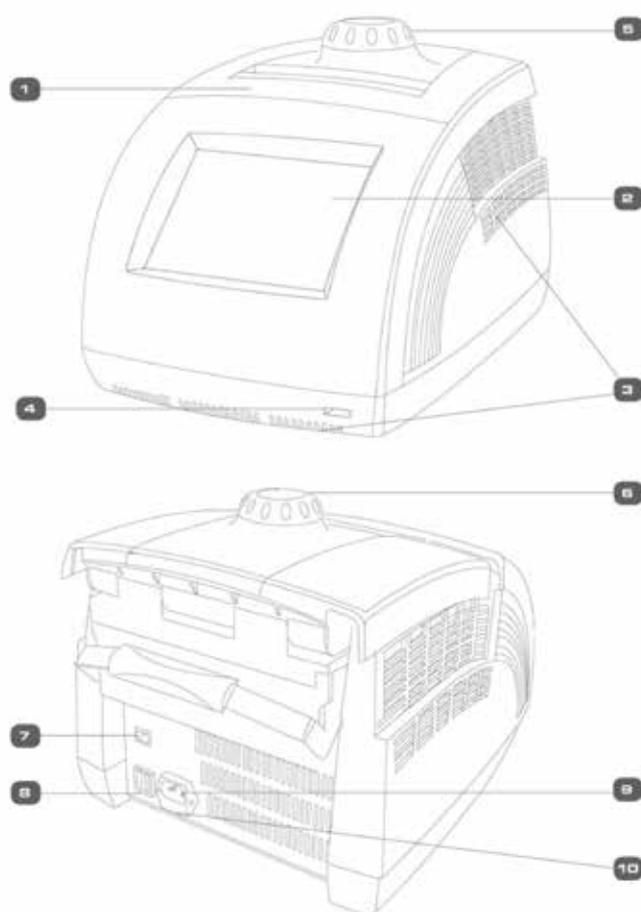


Aeris Thermal Cycler and PC/Laptop  
(update software via RJ45 port when enhancements are available)

## CERTIFICATION



## AERIS STRUCTURE



1. Block
2. Color Touch Screen
3. Ventilation Vents
4. USB Interface
5. Hot Lid Knob
6. Unlocking Device
7. RJ45 Interface
8. Power Switch
9. Power Socket
10. Fuse socket

## ACCESSORIES



Black cable for single unit connecting to AerisLine™ PC software



White cable for multiple units connecting to AerisLine™ PC software



Fuse

## ORDERING INFORMATION

ITEM CODE	DESCRIPTION
AERIS-MB	Aeris™ Thermal Cycler Main Body (100-240V)
AERIS-BG096	Aeris™ Thermal Cycler Gradient Block (96x0.2ml)
AERIS-B4830	Aeris™ Thermal Cycler Combined Block (48x0.2ml+30x0.5ml)
AERIS-BG384	Aeris™ Thermal Cycler Gradient Block (384 wells)
AERIS-BD048	Aeris™ Thermal Cycler Dual Block (48x0.2ml)
AERIS-B4076	Aeris™ Thermal Cycler (4 slides in situ)

## General Specifications, Aeris™ Thermal Cycler

Model Code	AERIS-BG096	AERIS-B4830	AERIS-BG384	AERIS-BD048	AERIS-B4076
Sample Capacity	96X0.2ml	48x0.2ml+30x0.5ml	384 wells	48x0.2ml+48x0.2ml	4 slides in situ
Application Consumables	0.2ml tubes 96-well microplates 12x8 strips 8x12 strips	0.2ml tubes 0.5ml tubes 4x12 strips	384-well microplates	0.2ml tubes 6x8 strips	4 slides in situ
Max. Heating Rate	4.0°C/sec	2.8°C/sec	2.8°C/sec	4.0°C/sec	1.8°C/sec
Max. Cooling Rate	4.0°C/sec	2.8°C/sec	2.8°C/sec	4.0°C/sec	1.8°C/sec
Gradient Capability	Yes	-	Yes	-	-
Gradient Range	30-105°C	-	30-105°C	-	-
Maximum Gradient	1-30°Cmode	-	1-30°C	-	-
Temperature Control Mode	Tube or Block				
Temperature Range	4-105°C				
Over-temperature Cut-Out	Yes				
Number of Programs	Up to 250 programs, unlimited with USB flash drive				
Maximum Hold Time	59mins and 59secs				
Temperature Accuracy	≤±0.1°C below 50°C				
Temperature Uniformity	≤±0.2°C				
PCR Volume Range	10-100 µl				
Tm Calculator	Auto				
Extensive Experiment Application	Option setting for time up/down is between 0-9m59s, which is suitable for Long PCR Temperature when up/down is between 0.1°C to 9.9°C, it is suitable for Touchdown PCR				
Auto Re-start on Power Failure	Yes				
Connection to PC Control	Yes				
Software	AerisLine™				
Pre-Run Sample Cooling	Yes, 4°C				
Language	English, Chinese, Spanish				
USB	Yes				
Display	6.5" Color LCD Touch Screen				
Dimensions	306x386x295mm(12"x15"x11.6")				
Weight	10kg				
Power	100-240V 50-60Hz				

\* The parameters are tested under optimized lab environments.

# ESCO

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