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The picture above shows an example of a benchtop CRS Thermal Cycling workstation capable of loading up to 4 MBSR units, processing a standard capacity of up to 45 PCR plates. The MBSR can also be automated in other configurations from Thermo using a CRS Vertical Array Loader (CRS VAL™) to allow loading of up to 30 MBSR units, for production-line PCR.

MBSR Robot Compatible Satellite Blocks – Expandable automated PCR

By ejecting the whole sample block through the front of the unit, the MBSR satellite blocks are fully stackable.

Visit www.thermo.com for more information on Thermo's automation capabilities.



Is your Thermal Cycler licensed for PCR? If not, you could be liable to prosecution by the patent holder. All Thermo Electron PCR machines are licensed for PCR.

1. Unique airflow system

This means you can snugly arrange blocks up against each other and they will be adequately cooled.

2. Portrait orientation

The block orientation makes the MBS and extremely narrow unit, further reducing the space required for this unit.

3. No bulky power supply

The MBS has a sophisticated and slim power supply on the back of the unit, taking up no extra laboratory space.



Ordering Information

Product	Block Capacity	Gradient Facility	Temperature Control Available	Catalog Number	
MBS Satellite Block Units				(110 volts)	(220 volts)
0.5ml standard block	48 x 0.5ml tubes 96 x 0.3ml tubes 1 plate 0.3ml x 96 well	N/A	Active tube control Simulated tube control Simulated plate control Block control	HBMS05110	HBMS05220
0.2ml standard block	96 x 0.2ml tubes 1 plate 0.2ml x 96 well	N/A	Active tube control Simulated tube control Simulated plate control Block control	HBMS02110	HBMS02220
0.5ml gradient block	48 x 0.5ml tubes 96 x 0.3ml tubes 1 plate 0.3ml x 96 well	Up to 15°C spread	Active tube control Simulated tube control Simulated plate control Block control	HBMSG05110	HBMSG05220
0.2ml gradient block	96 x 0.2ml tubes 1 plate 0.2ml x 96 well	Up to 15°C spread	Active tube control Simulated tube control Simulated plate control Block control	HBMSG02110	HBMSG02220
384 well block	1 plate 0.04ml x 384 well	N/A	Simulated plate control Block control	HBMS384110	HBMS384220
Robot Compatible MBSR Satellite Block Units				(110 volts)	(220 volts)
0.2ml gradient block MBSR	96 x 0.2ml tubes 1 plate 0.2ml x 96 well	Up to 15°C spread	Simulated plate control Block control	HBMS96R110	HBMS96R220
384 well block MBSR	1 plate 0.04ml x 384 well	N/A	Simulated plate control Block control	HBMS384R110	HBMS384R220
Accessories					
MBS configured computer*	N/A	N/A	N/A	HBMBSCOMK	
Configured with MBS Software and expansion card. Includes software pack, licence and dongle					
MBS configured laptop	N/A	N/A	N/A	HBMBSLAPK	
Configured with MBS Software and expansion card. Includes software pack, licence and dongle					
MBS software	N/A	N/A	N/A	HBMBS5W	
Tube thermistor	0.2ml	N/A	N/A	HBPXTT02	
Tube thermistor	0.5ml	N/A	N/A	HBPXTT05	
MBS Start Up Kits*					
1 block MBS start up kit (includes configured Desktop PC with PCR authorized software and any MBS satellite block unit)				HBMBSKIT1	
2 block MBS start up kit (includes configured Desktop PC with PCR authorized software and any 2 MBS satellite block units)				HBMBSKIT2	
1 block MBS start up kit (includes configured LAPTOP with PCR authorized software and any MBS satellite block unit)				HBMBSKIT1L	
2 block MBS start up kit (includes configured LAPTOP with PCR authorized software and any 2 MBS satellite block units)				HBMBSKIT2L	

MultiBlock System Specification

Performance**	MBS	MBSR	MBS Software	
Heated lid temperature	95°C - 120°C	105°C	Number of programs	Unlimited
Dimension of modules (w x d x h)	200 x 300 x 290mm	342 x 545 x 246mm	Maximum number of program stages	35
Power	550W	550W	Maximum number of steps per stage	44
Weight	8.4kg	20.6kg	Gradient software	Yes
Block temperature range	4°C - 99°C	15°C - 99°C	Maximum programmed dwell time	18 hours
Block heating rate	Up to 3°C/sec	Up to 3°C/sec	Pause facility	Yes
Block cooling rate	Up to 2°C/sec	Up to 2°C/sec	Temperature ramping	Yes
Block uniformity	±0.3°C within 30sec	±0.3°C within 30sec	Time increment/decrement	Yes
Input precision	0.1°C	0.1°C	Temp increment/decrement	Yes
			Auto restart facility	Yes
			Run "end time" calculation	Yes
			File protection	Yes
			Program naming	Yes
			Ability to edit during cycling	Yes

* Computers are all current Dell models. Desktop computers include LCD flat panel display.

** MultiBlock performance measurements are traceable to the UK National Physical Laboratory, the equivalent of U.S.NIST and comparable standards worldwide.

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HBPROMMBS1003

MultiBlock Satellite PCR System (MBS)

The MultiBlock System is an advanced PCR system, perfect for labs requiring GLP or future expandability.

Control and traceability with our user friendly software.

- Flexibility of adding one block at a time as your needs grow.
- Confidence in your PCR performance with real-time temperature tracking and historical block reports – essential for GLP.
- Space saving – unique design means you can place satellite blocks side by side, maximizing your lab space.
- NEW! Cost effective START-UP KITS are now available to reduce the cost of entry.
- True walk away PCR – MBSR robot compatible satellite block now available!

"...flexible, networked PCR!"



MultiBlock Satellite PCR System – the most flexible networked PCR* system available

* The polymerase Chain Reaction (PCR) is covered by US patents, which are owned by F. Hoffman-La Roche Ltd.

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The MBS PCR System is designed to:

Save your valuable laboratory space
The sophisticated design of the MBS allows you to maximize the space in your laboratory.

Give you flexibility with type of consumable used
Our heated lid design is simple to operate. In one action, the lid is closed and the heated plate lowered to the correct height. Increased pressure and temperature have been incorporated to ensure ultimate flexibility in choice of sample format and sealing options.

Consistently provide reproducible results
The MBS exhibits an excellent block uniformity, of $\pm 0.3^{\circ}\text{C}$ across the block within 30 seconds of reaching the target temperature (measured at 72°C). This block uniformity ensures reproducible and consistent results, irrespective of the position of the samples within the block.

Give you peace of mind!
Each networked MBS block is independently controlled and has individual mains power supply. If the computer crashes or is switched off, the satellite units continue the existing run to completion. The built-in diagnostics check facility ensures the continued reliability of the MBS.

The MBS PCR system comprises a central computer, controlling MBS software and MBS satellite thermal cycling blocks. The number and format of cycling blocks you choose is totally flexible depending on your PCR needs. You can have a 1 or 2 block system and add on additional blocks as your needs grow.

Once you have installed a Thermo MBS system in your laboratory, expansion costs are minimal as you add additional satellite blocks, rather than having to invest in a stand-alone PCR machine.

The MBS PCR system is truly flexible in terms of format, quantity and expandability.

User-Friendly Software
The MBS controlling software is specially designed for ease of use. Computer control not only provides a superior graphical interface and large data storage capabilities, it means you can manage your data and archive your run logs which gives you traceability unachievable with other PCR systems – vital for GLP procedures (see screen shots below).

- Graphical options for editing and running protocols means designing your experiment has never been easier
- Edit and control all your blocks in unison so you don't have to duplicate your efforts

- Graphical real-time data showing temperature and experimental parameters allows you to monitor your protocol
- View all your blocks on a summary screen allowing you to easily identify which blocks are active and what protocols are running
- Run logs and programs can be printed and inserted into laboratory books or stored on your PC giving you maximum traceability

Easy Optimization with our advanced gradient function

If transferring a PCR protocol from an alternative instrument manufacturer, or just starting with a new primer set, our gradient blocks easily

facilitate protocol optimization. These blocks can be programmed with a protocol containing a simultaneous range of annealing temperatures. The optimal annealing temperature can subsequently be determined by onboard gradient calculation software.

Once optimized, our outstanding well-to-well uniformity ($\pm 0.3^{\circ}\text{C}$ within 30 sec) ensures reproducible results when conditions are transferred to standard protocols.

Value for money with our NEW Start-Up Kits

Start-up kits are available to users in two formats: a one-block option and a two-block option. Both formats include a PC or laptop with

PCR authorized software and full configuration. For users who require more blocks or for those who have a system and whose lab has exceeded capacity, the ability to add single economically priced satellite blocks further enhances the system's value. Whether running a few samples or thousands, the MBS system offers value for money.

MBSR Robot Compatible Satellite Blocks – Expandable automated PCR

The addition of the robot compatible satellite block (MBSR) makes the MBS PCR system the perfect solution for automated PCR. Due to its expandability, the MBSR is suited for all users – from high throughput users, to users with more modest requirements.

- Fully robot compatible – true walk away PCR
- Innovative block action – the whole sample block is ejected from the front of the unit resulting in easy robotic access, reducing robotic costs
- Truly stackable – saves space and further reduces robotic costs
- Sterility – blocks reach into hooded pipetting stations

By ejecting the whole sample block through the front of the unit, the MBSR satellite blocks are fully stackable. This means that more blocks can be placed in reach of the robotic arm so reducing total cost and space while increasing PCR throughput. The ejection mechanism also enables the sample block to enter the reach of hooded programmable pipette stations.

Positional flexibility culminates in the ultimate high throughput PCR suite, with the MBSR built into cabinets to form a wall of thermal cycling units. The sophistication of the MBS software, combined with the flexibility of the stackable MBSR satellite blocks, results in a robotic compatible PCR system with unparalleled flexibility.

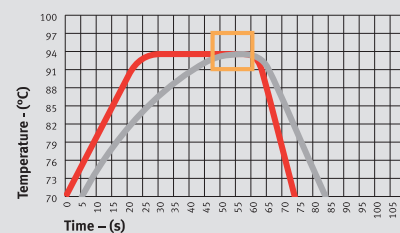
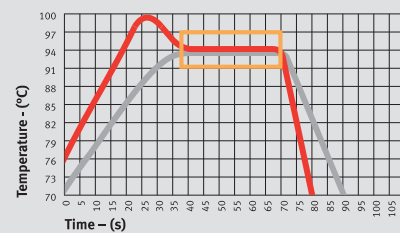
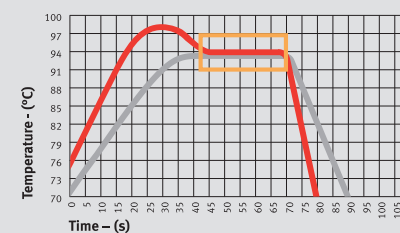
Temperature Control Options

Fig.1 – Simulated Tube/Plate Control
To compensate for the temperature lag that occurs in the sample compared to the block, Thermo has developed an advanced software algorithm to calculate the sample temperature during the PCR. The software constantly adjusts the block temperature to ensure the sample, not just the tube, reaches the programmed temperature.

Fig.2 – Active Tube Control
Active Tube Control (ATC) is Thermo's advanced method for monitoring and controlling a PCR reaction. This method can be used when using tubes and not all wells are required.

Fig.3 – Block Control
This is the sole control method used on some thermal cyclers. If used during short incubation periods, as required during a PCR reaction, the reaction mix is at the set temperature for a considerably shorter time than that programmed, which could lead to a reduced yield of PCR product.

Optimal PCR performance can be obtained in our blocks because of their accurate and reproducible temperature control and uniformity.



Simulated Control
Calculated sample temperature controls the progress of the reaction. Block temperature exceeds the set point, bringing sample to programmed temperature faster.

Active Control
The sample probe measures the actual sample temperature and controls the progress of the reaction. Block temperature exceeds the set point, bringing sample to programmed temperature faster.

Block Control
Best for prolonged static incubations Note: the sample is at temperature for less than the programmed time.

Reduced dwell times and improved PCR performance can be achieved with Simulated and Active Tube Control

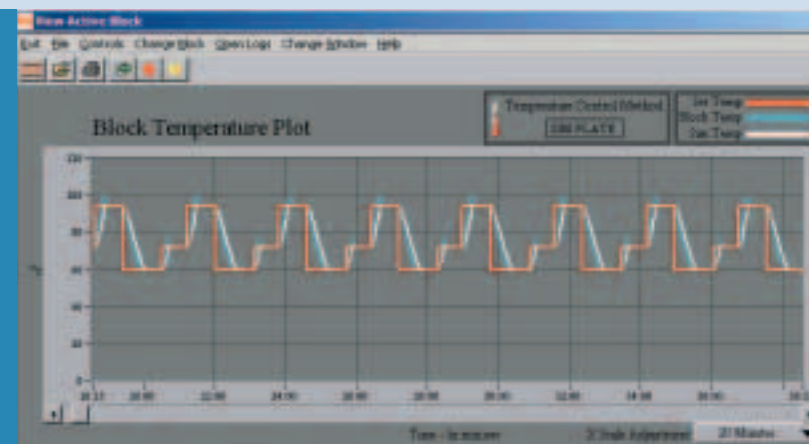


Fig.4

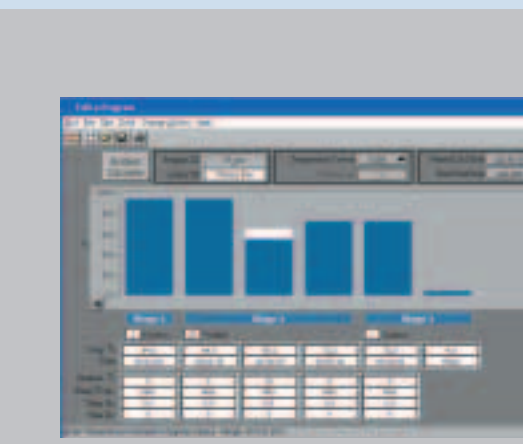


Fig.5

Fig.4
View active block:
Both real time temperature plots and archive logged temperature plot data can be viewed

Fig.5
Edit a program:
Editing, saving and downloading programs is easy with MBS software



The MBS satellite units can be linked to a laptop or PC. Unique design means units can be placed side by side to preserve laboratory space.



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