

**eppendorf**



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# Mastercycler nexus X2

**Product presentation**

Hamburg, December 2013

# Product presentation – Mastercycler nexus X2

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Technical specifications subject to change.

- > Overview of Mastercycler nexus family
- > Mastercycler nexus X2 / GX2 / X2e / GX2e
- > Support and sales tools

# Agenda

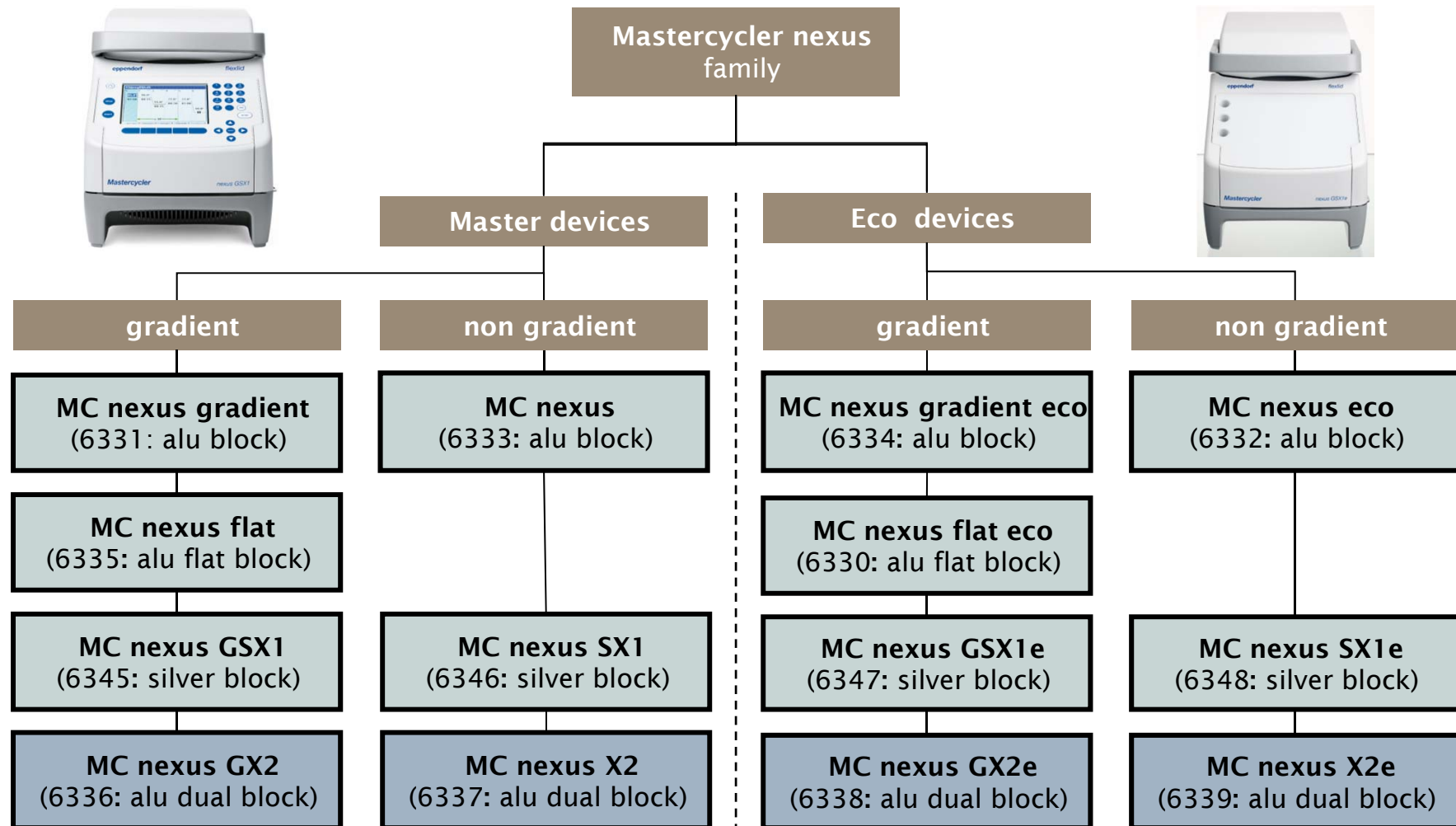
- > **Overview of Mastercycler nexus family**
- > Mastercycler nexus X2 / GX2 / X2e / GX2e
- > Support and sales tools

# Agenda

# Mastercycler nexus family

- > **Launch in December 2011**
  - > Mastercycler nexus
  - > Mastercycler nexus gradient
  - > Mastercycler nexus eco
- > **Launch in December 2012**
  - > Mastercycler nexus SX1
  - > Mastercycler nexus GSX1
  - > Mastercycler nexus SX1e
  - > Mastercycler nexus GSX1e
  - > Mastercyler nexus flat
  - > Mastercycler nexus flat eco
  - > Mastercycler nexus gradient eco
- > **Launch in December 2013**
  - > Mastercycler nexus X2
  - > Mastercycler nexus GX2
  - > Mastercycler nexus X2e
  - > Mastercycler nexus GX2e





# Mastercycler nexus models

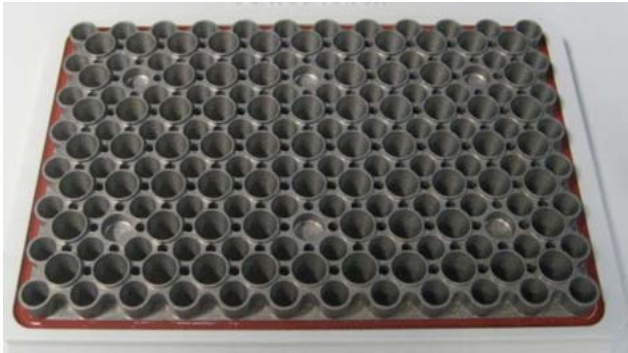
	Silver Block (0.1 / 0.2 mL)		Universal Block (0.1 / 0.2 / 0.5 mL)				Flat (Slides / plates)
	gradient	non-gradient	gradient		non-gradient		(gradient)
	single block	single block	dual block	single block	dual block	single block	single block
<b>Control Unit</b>	<b>X</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>
<b>Eco Unit</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>

**x = new**

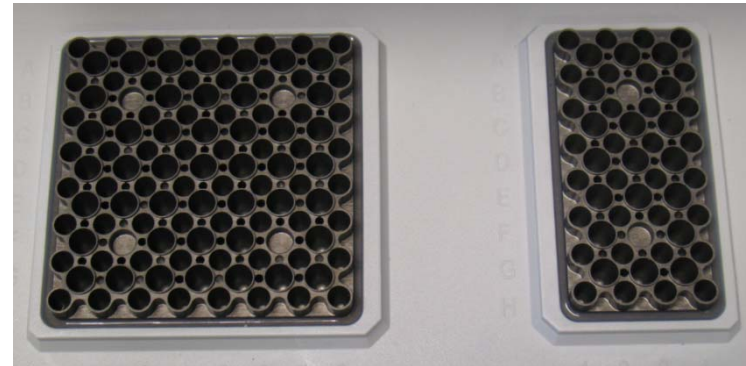
> 14 Mastercycler nexus devices → **max. flexibility**



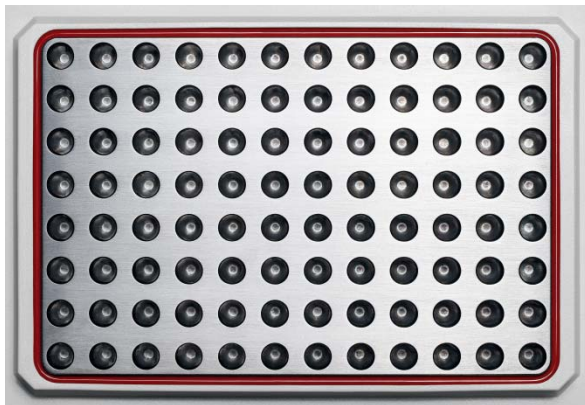
## Block variants



96/71 well universal aluminum block



64/45 and 32/19 well universal aluminum block

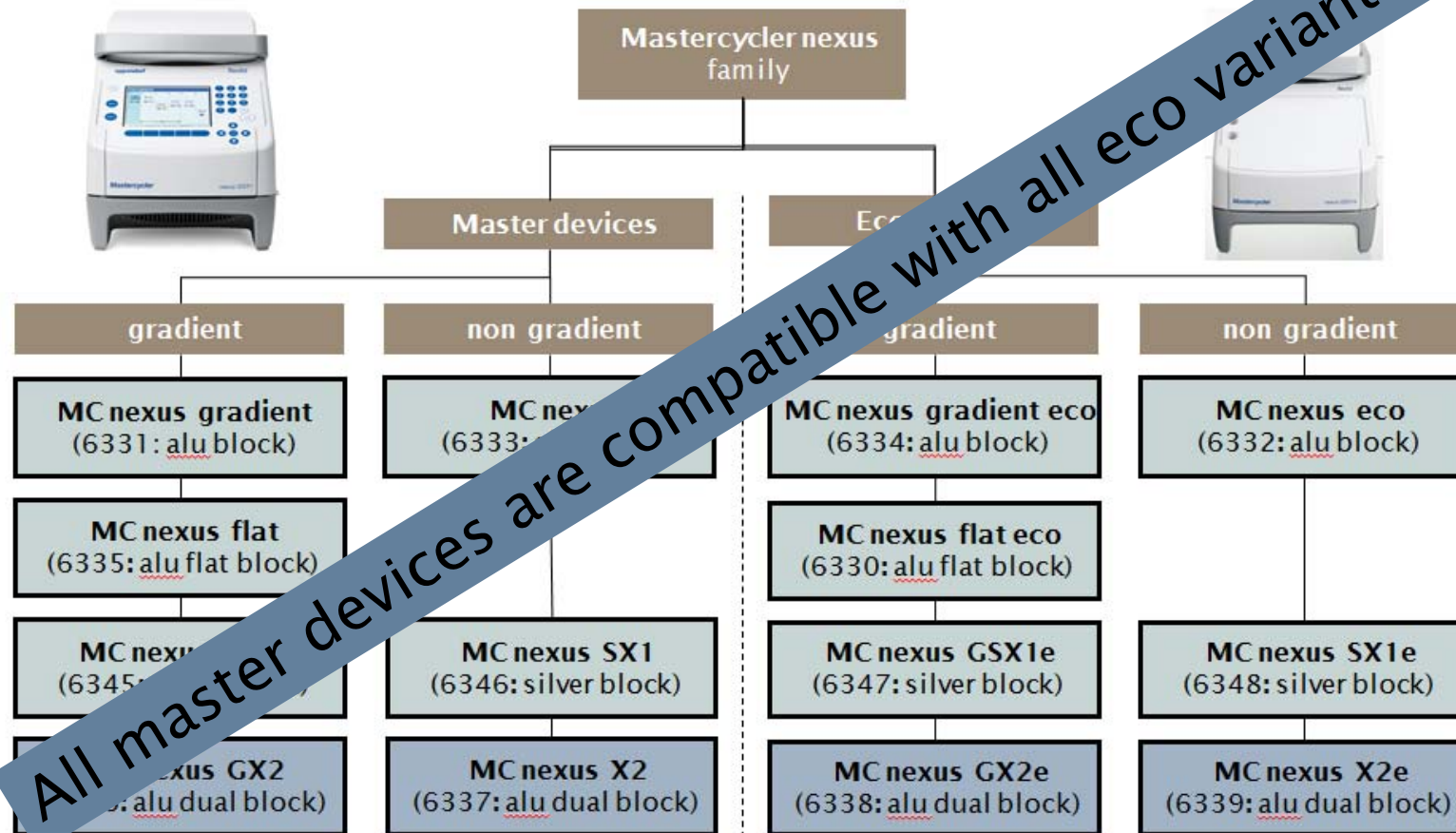


96 well silver block



flat aluminum block

# Full Compatibility



- > Overview of Mastercycler nexus family
- > **Mastercycler nexus X2 / GX2 / X2e / GX2e**
- > Support and sales tools

# Agenda

## Product profile

The Mastercycler nexus X2 is the extension of the very successful Mastercycler nexus family into the multi-block market segment. Today's hot topics like software convenience, flexibility and responsible use of natural resources are addressed to an unrivalled extend.

## General concept: Mastercycler nexus X2

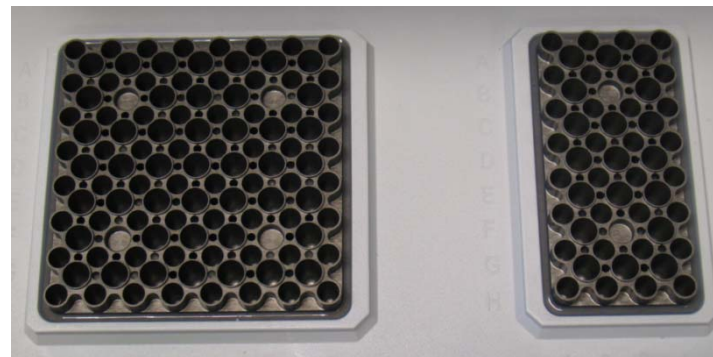
- > 2 thermoblocks
  - > asymmetrical dual block (64 well/32 well)
  - > 2 heated lids
- > 2 status LEDs
- > Software features consistent to Mastercycler nexus family



**→ Mastercycler nexus X2 combines consistency with flexibility**

## Mastercycler nexus X2 – dual block

	64 x 0.2/0.1 ml and 45 x 0.5 mL 32 x 0.2/0.1 ml and 19 x 0.5 mL	
	with gradient	without gradient
with control unit	Mastercycler nexus GX2	Mastercycler nexus X2
eco* variant: without control unit	Mastercycler nexus GX2e	Mastercycler nexus X2e



\* an eco variant needs to be connected to a nexus variant with control unit

## Main feature: Flexibility

- > The Mastercycler nexus X2 enhances the superior features of the Mastercycler nexus family with an utmost degree of flexibility

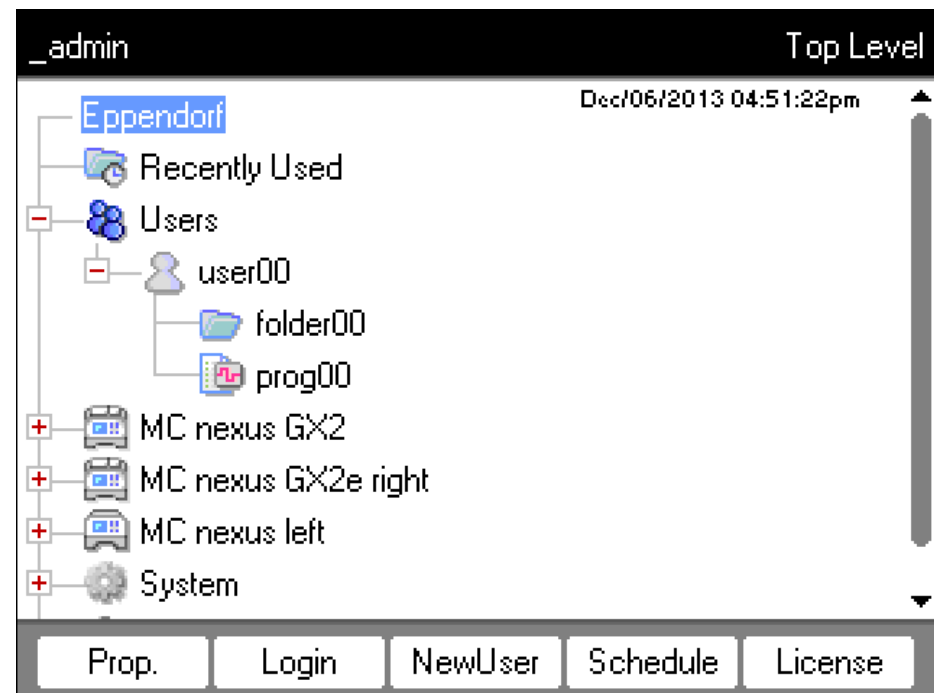


## Software: New features and new design

New software version 2.4.5.0 for all Mastercycler nexus variants

Modifications:

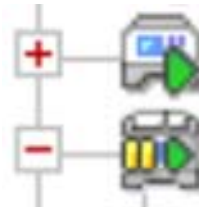
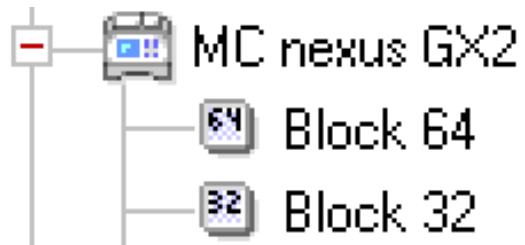
- > icons
- > gradient function
- > status
- > booking schedule
- > selftest
- > temperature verification /  
adjustment





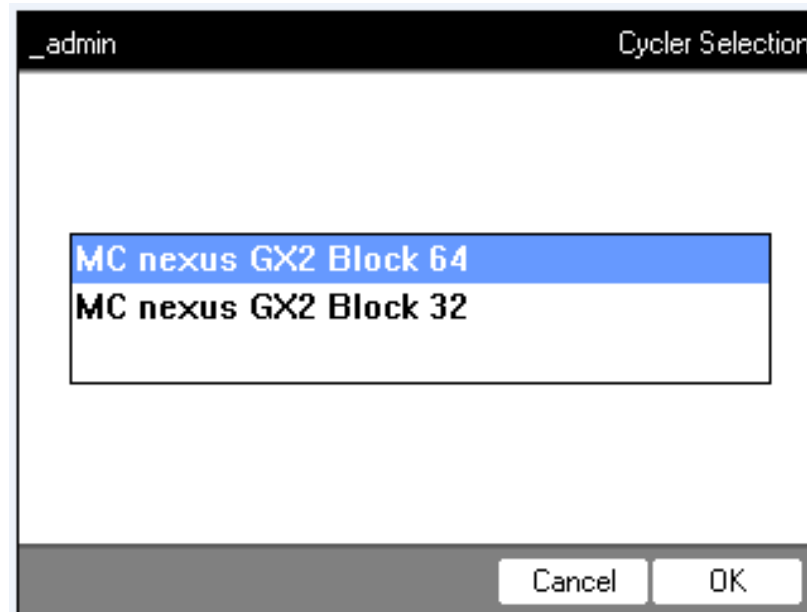
## New icons

- > Enable an intuitive operation



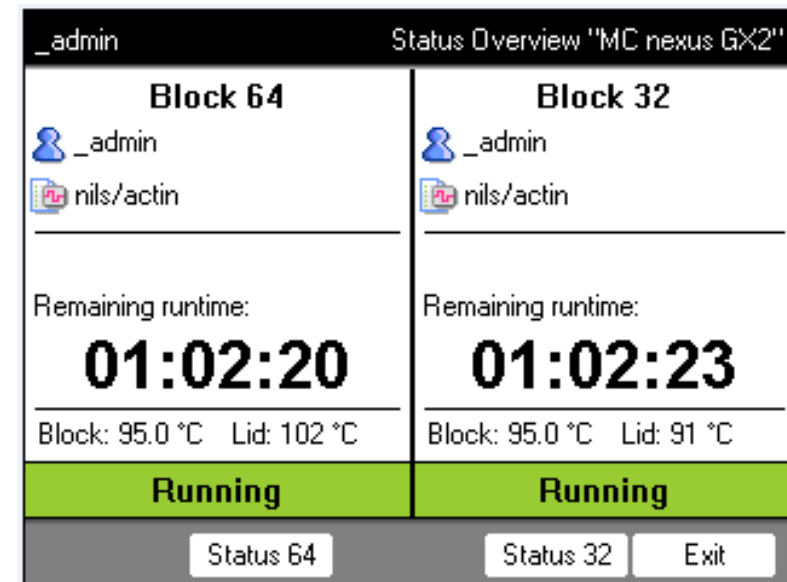
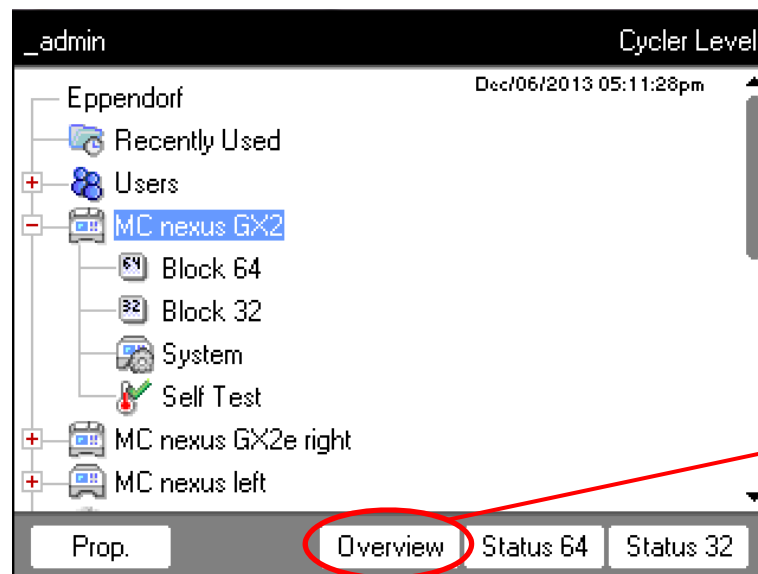
...

## Starting a new PCR protocol – selecting between the available blocks

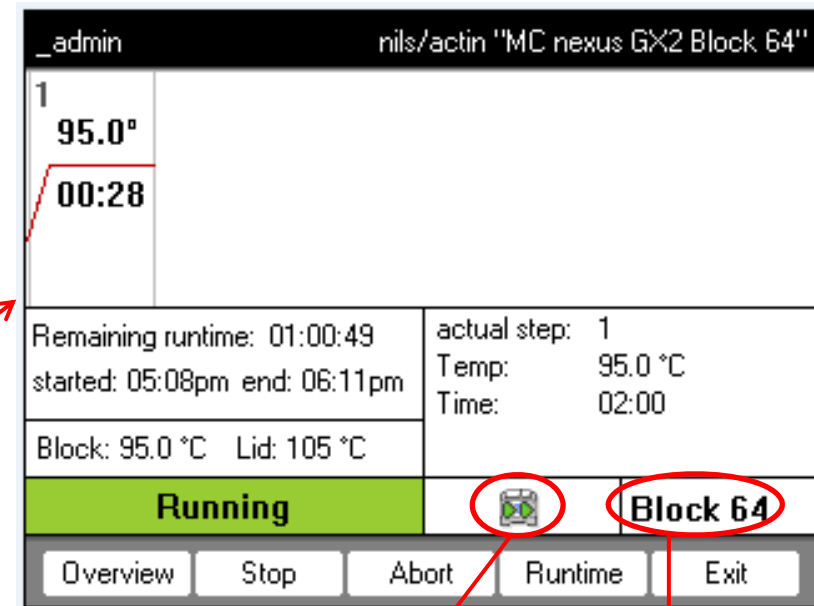
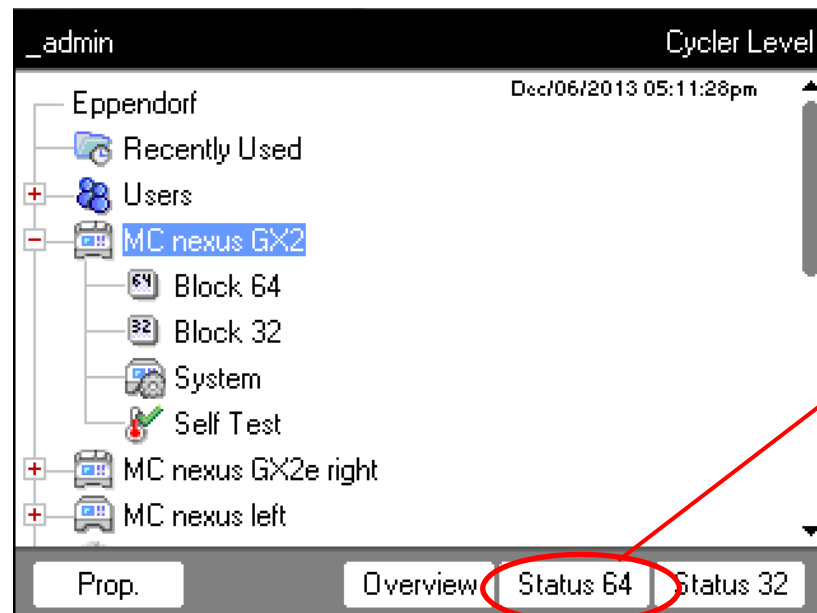


## “Overview”

- > Keep track of the block status



## “Status 64” and “Status 32”

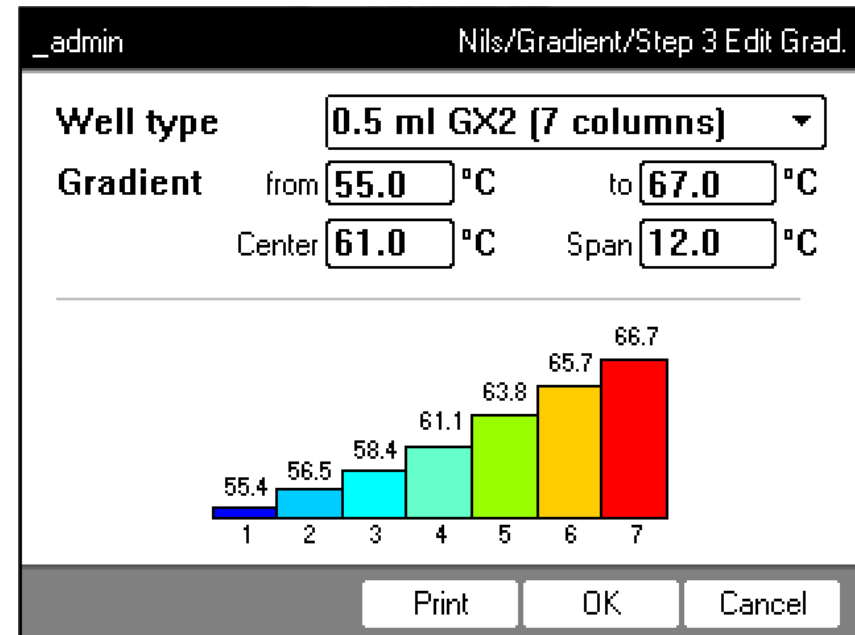
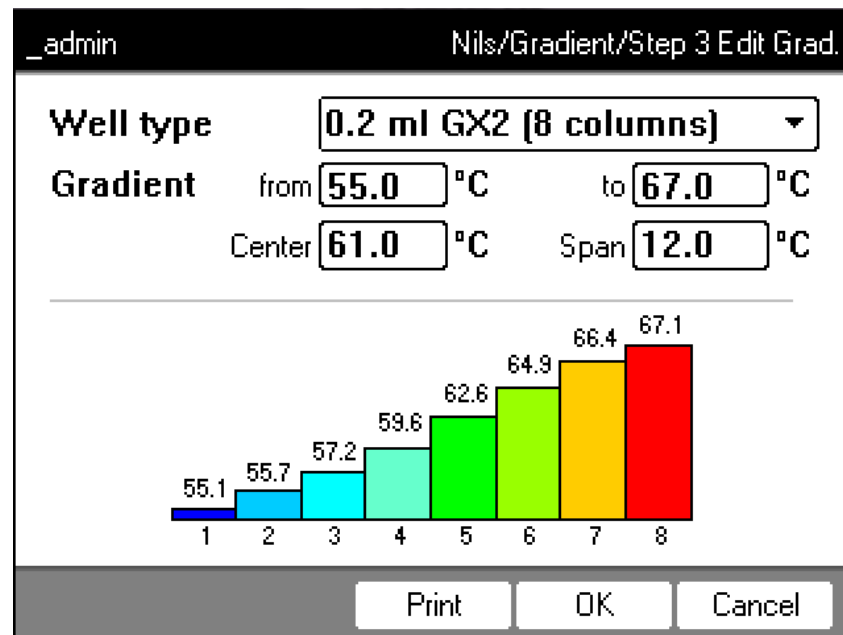


- > Status of all connected cyclers visible
- > selected Cycler is highlighted

- > selected block

## Gradient

- > only available on the 64 well block of the MC nexus GX2 and GX2e
- > over 8 (0.2 mL) or 7 columns (0.5 mL)
- > max. gradient span: 12 °C



# Booking Schedule

**\_admin** **New Schedule Entry**

Month Day Year Begin: Hour Minute PM

12 06 2013 06 00 PM

End: 07 00 PM

User Cyclor

Nils MC nexus GX2 Block 64

Comment MC nexus GX2 Block 64

MC nexus GX2 Block 32

MC nexus GX2e right Block 64

Cancel OK

**Booking Schedule** Dec/06/2013 05:10pm

◀ Friday, Dec/06/2013 ▶

Use arrow keys to navigate

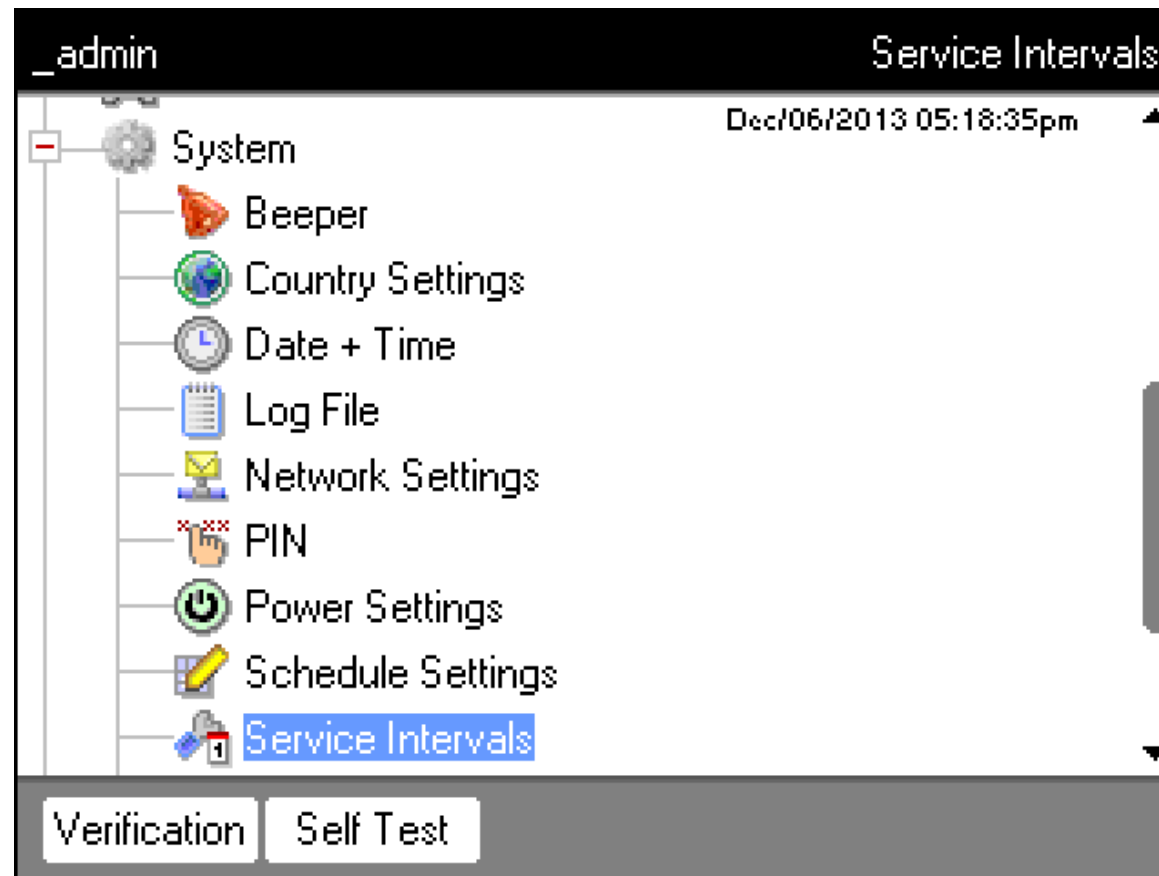
Time	User	Cyclor
06:00pm -	Nils	MC nexus GX2
07:00pm		Block 64

Exit

## Temperature verification / adjustment

- > Procedure for using the Temperature Verification System (single-channel) will be integrated in the cyclor software
- > Both blocks will be verified/adjusted within the procedure (it won't be possible to verify/adjust only one block)

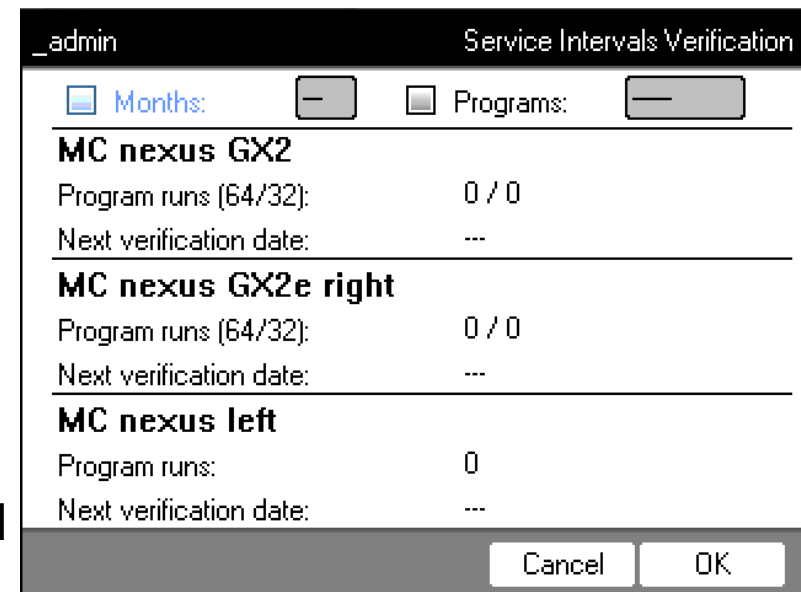
## new Administrator function: Service interval





## new Administrator function: Service interval

- > resolution:
  - a) time (months):  
min.: 1 / default: 12 / max.: 24
  - b) runs (number of starts):  
min.: 1 / default: 1000 / max.: 2000
  - c) defining both, time and runs
- > when the defined time or run number is reached an appropriate message will appear at every PCR program start
- > if the run is started anyway, the service interval message will be logged in the run protocol



## new Administrator function: Service interval

- > if wanted, the Administrator is able to deactivate the function – but, this action would be logged
- > interval is only definable for both blocks / the complete cyclor
- > users can check the number of runs at every time: „Cycler“ → „Prop.“
- > the interval feature is implemented for the self test function in an analogous way

## New: Serial no. is written into log file

### Log File

#### ----- Log-Datei Anzeige -----

Erstellungsdatum : 14.Mar.2013 14:04:16  
Software : 2.3.1.18  
epApplikation : 0.001  
-----

07.Mar.2013 20:46:41 6336PA200000 680 [12, 1]  
Please restart cycler. If error persists, please call service.  
[[CTaskSystemControl.cpp: Run(): l. 457]]

07.Mar.2013 20:46:41 6336PA200000 680 [12, 1]  
Please restart cycler. If error persists, please call service.  
[[CTaskSystemControl.cpp: Run(): l. 457]]

07.Mar.2013 20:46:41 6336PA200000 680 [12, 1]  
Please restart cycler. If error persists, please call service.  
[[CTaskSystemControl.cpp: Run(): l. 457]]

## Main features

- > Flexibility: The Mastercycler nexus X2 can
  - > run 2 different protocols at the same time
  - > accomodate > 48 samples in the large block
  - > accomodate 0.1, 0.2 and 0.5 mL PCR tubes & strips additionally
  - > gradient function of the MC nexus GX2 and GX2e allow temperature optimization of a PCR protocol
- > Compatibility: All X2 units are fully compatible with the existing Mastercycler nexus units and can be combined to networks.
- > Block: Temperature accuracy and block homogeneity are excellent and allow reproducible and reliable results.

# Application Note 289



APPLICATION NOTE No. 289 | December 2013

## Straightforward PCR optimization and highly flexible operation on the dual block thermocycler Mastercycler® nexus GX2

Nils Gerke, Andrea Hellberg, Eppendorf AG, Hamburg, Germany

### Abstract

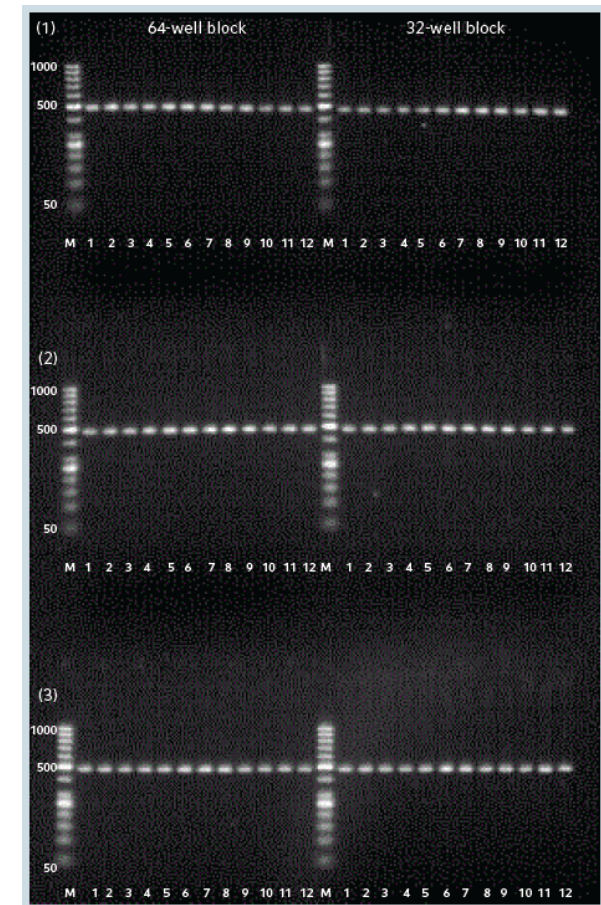
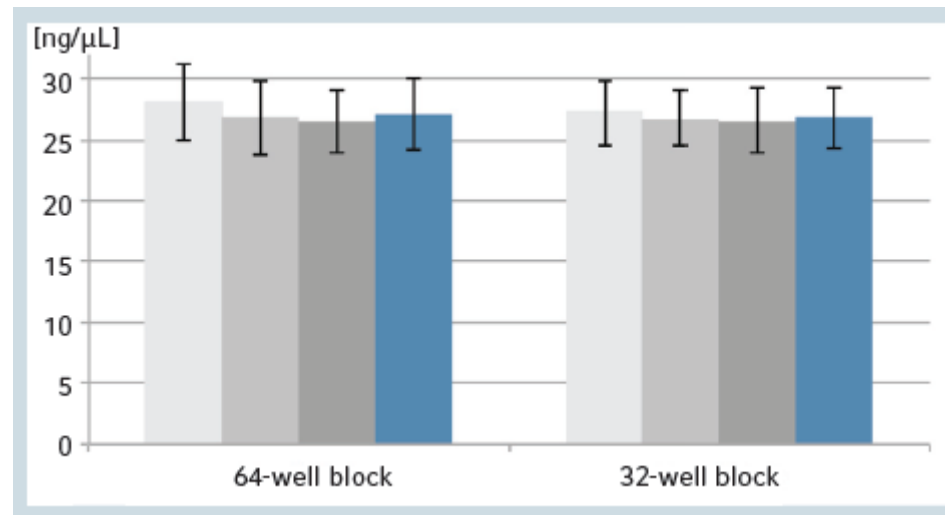
The Mastercycler® nexus GX2 provides the user with the utmost flexibility. The combination of a 64-well block and a 32-well block offers optimum utilization of both thermoblocks with respect to the sample number of each PCR preparation. In addition, this thermocycler may be

employed for routine applications while simultaneously performing PCR optimization using the temperature gradient function. The PCR applications presented herein show that these flexible possibilities go hand in hand with consistent, high quality results.

## Application Note 289

### Objective of the Application Note

- > Demonstrating Flexible operation without compromising the high quality of the results on both blocks



## Mastercycler nexus family . . .

- > covers almost all conventional PCR applications and price segments
- > gives you the chance to address all PCR users who are performing...



- > **routine** PCR applications
- > **advanced** PCR applications
- > **special** PCR applications

- > Overview of Mastercycler nexus family
- > Mastercycler nexus X2 / GX2 / X2e / GX2e
- > **Support and sales tools**

# Agenda



# Mastercycler Support

## Eppendorf Application Hotline

Phone: + 49 1 803-666 789 (Hamburg-based Application Hotline, Germany)

E-mail: [support@eppendorf.com](mailto:support@eppendorf.com) (Europe, International)

[support\\_na@eppendorf.com](mailto:support_na@eppendorf.com) (Eppendorf North America)

[support\\_asiapacific@eppendorf.com](mailto:support_asiapacific@eppendorf.com) (Eppendorf Asia Pacific)

Homepage: [www.eppendorf.com](http://www.eppendorf.com)

+ [www.mastercycler.com](http://www.mastercycler.com)

Manuals

Applications

FAQs

Tips & Tricks

PCR Calculator



# Application Notes

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APPLICATION NOTE No. 289 | December 2013

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APPLICATION NOTE No. 274 | January 2013

## Comparative run time evaluations of PCR thermal cyclers

Nils Gerke, Eppendorf AG, Hamburg, Germany

### Abstract

The speed of different thermal cyclers was evaluated by consideration of heating and cooling times according to the technical specifications. The actual run times. An estimation of these technical ramp times. Whereas the

Mastercycler® pro S and the Mastercycler® nexus GSX1, as expected from their fast ramp rates, achieved the shortest total PCR run times in these evaluations, some thermal cyclers made by other manufacturers showed noticeably slower run times despite similar cited ramp rates.

APPLICATION NOTE No. 249 | December 2012

## Imaging of single cell gene expression via *in situ* RT-PCR on the Mastercycler® nexus flat

Anne Jörns

Institute of Clinical Biochemistry, Hannover Medical School, Hannover, Germany; joerns.anne@mh-hannover.de



Family Brochure

Technical Specifications	Mastercycler pro	Mastercycler pro 5	Mastercycler pro 384
Thermoblock	Aluminum	Silver	Aluminum
Sample Capacity	96 x 0.2 ml PCR tubes or 1 x 96-well PCR plate		1 x 384-well PCR plate
Temperature control range of the block	4-99 °C		
Temperature control mode	Fast, Standard, Safe		
Heating technology of the block	Peltier elements, Triple Circuit Technology		
Gradient block	over 12 columns		over 24 columns
Gradient range	1-20 °C	1-24 °C	1-20 °C
Gradient temperature range		30-99 °C	
Lid temperature range	37-110 °C		
Lid descent and closing pressure	vapo.protect® technology with Thermal Sample Protection		
Block homogeneity: 20 °C-72 °C	≤ ±0.3 °C		
95 °C	≤ ±0.4 °C		
Block temperature accuracy	± 0.2 °C		
Heating rate*	ca. 4 °C/s	ca. 6 °C/s	ca. 4 °C/s
Cooling rate*	ca. 3 °C/s	ca. 4.5 °C/s	ca. 3 °C/s
Interfaces	Centronics, USB, CAN in, CAN out		
Dimensions (W x D x H)	26 x 41.5 x 37 cm		
Weight	18.5 kg (40.8 lbs)		
Power supply	230 V, 50-60 Hz		
Max. power consumption	950 W		
Sound power levels	≤ 56 dB(A)		

\* Heating and cooling rates measured at block  
\* CAN only in operation as a Mastercycler real-time PCR unit (including the 31 thermocycler control and display panel)  
Product appearance and/or specifications are subject to change without notice.

New from Eppendorf: Mastercycler nexus X1

# Amplify

Eppendorf Mastercyclers—best conditions for PCR

Eppendorf Mastercycler Family 12

Mastercycler nexus SX1	Mastercycler nexus GSX1e™	Mastercycler nexus SX1e™
Silver	Silver	Silver
x 0.2 ml PCR tubes or 1 x 96-well PCR plate		
4-99°C		
Fast, Standard, Safe		
Peltier elements, Triple Circuit Technology		
--	over 12 columns	--
--	1-20 °C	--
--	30-99 °C	--
37-110 °C		
flexi.d® technology with Thermal Sample Protection		
≤ ±0.3 °C		
≤ ±0.4 °C		
± 0.2 °C		
ca. 5 °C/s		
ca. 3.5 °C/s		
CAN in, CAN out	CAN in, CAN out	
25 x 41.2 x 32.1 cm		
4.7 lbs	10.7 kg (23.6 lbs)	
230 V, 50-60 Hz		
540 W		
≤ 40 dB(A)		

# Mastercycler nexus X2 Brochure





Eppendorf Mastercycler nexus:  
combine, connect, control

**Thank you**