

Opera Phenix[®] Plus

high-content screening system



Simultaneous multi-color confocal imaging for higher throughput



Synchrony[™] optics and water immersion objectives to deliver and capture more light of your sample



On-board Liquid Handling to track fast cellular responses and movements

Opera Phenix Plus – liquid handling features

Tip-based, single channel pipettor

- Compatible with Revvity 20 μ l and 200 μ l tips, 1-200 μ l in 1 μ l increments

Compound addition

- Up to 2 additions per well from one compound plate and one reservoir

Automation compatibility

- Compatible with automated exchange of sample plate, tip racks and compound plate

Imaging compatibility

- Liquid handling module is compatible with brightfield imaging

Compatible tips and typical pipetting volumes

Plate Wells	Volume	Type	Item	Order Number
96	20 μ l	Conductive, black	20 μ l Conductive RoboRack, Qty 960 https://www.perkinelmer.com/de/product/20-ul-conductive-roborack-tip-gty-960-6000679	6000679
	200 μ l	Conductive, black	200 μ l Conductive Tips Sterile https://www.perkinelmer.com/de/Product/200ul-conductive-tips-sterile-6001250	6001250
384	25 μ l	Non-conductive, clear, non-sterile	25 μ l – 384 Rack Tips, non-sterilized https://www.perkinelmer.com/product/pipet-tip-25ul-box-10-racks-3rd-gen-125792	125792
		Non-conductive, clear, sterile	25 μ l – 384 Rack Tips, sterilized https://www.perkinelmer.com/de/Product/25ul-384-sterile-tip-box-10-racks-125795	125795

The robot picks up a tip and can dispense the same volume than aspirated

Working volumes in microplates

- 96 well plate well ~ 200 μ l
- 384 well plates 50 – 150 μ l

Add between 20 – 50% of final volume for optimal mixing. Typical volumes added

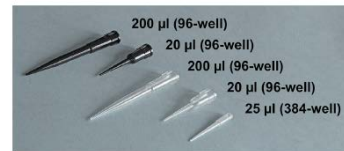
- 10 - 25 μ l for addition into 384 well plates
- 40 - 100 μ l for addition into 96 well plates

[Song et al. JBS 2010, 15, 138](#)

“Bulk addition shows fast and efficient mixing, without negative effects on cells”



Tip adapters



Pipette tips (black = conductive, clear = non-conductive)



96 tips, 20 μ l



96 tips, 200 μ l



384 tips, 25 μ l

Opera Phenix Plus – features

Fast Frame Rate Imaging

- Up to 105 fps with 1 camera with max. 948*948
- >15 fps for simultaneous imaging

Binning Modes

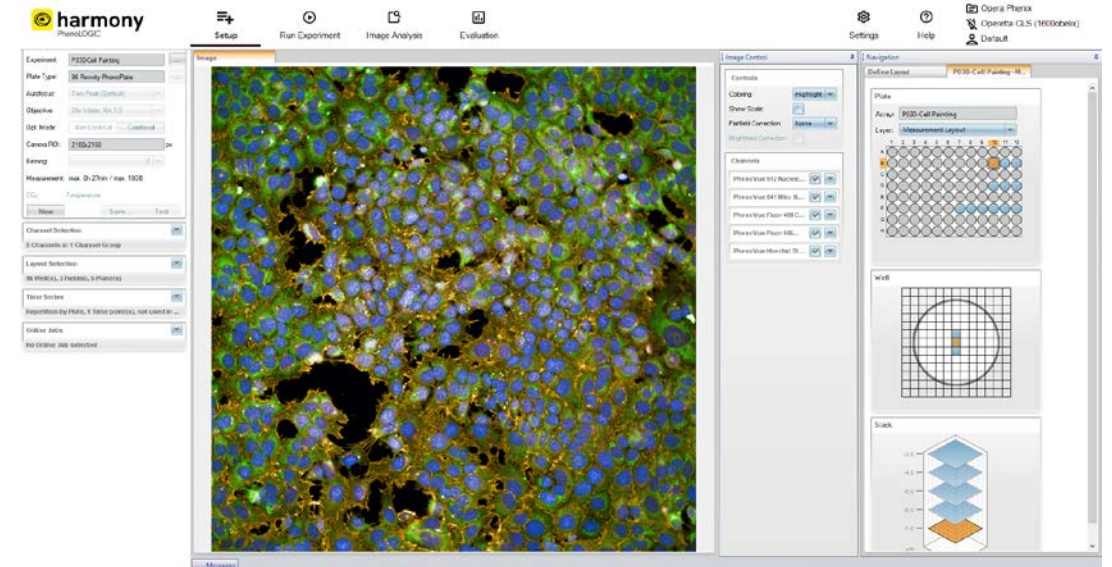
- Achieve higher signals at higher frame rates with binning modes 3 and 4

Well repeat

- Record all timepoints in one well before moving to the next well

Environmental Control Option

- Temperature and CO₂ identical to Opera Phenix Gen1
 - Temperature between 37° - 42°C
 - CO₂ between 1 - 10%
- Humidity is actively provided and controlled
 - Minimize evaporation from the sample plate over the duration of a time-lapse experiment



Can be used independent from Liquid Handling Option

Flexible emission filters –for better multiplexing

	Main Band	Alternative Band	Sub Filter	Common dyes	
EMISSION BANDS	435 - 480	435 –550	435 –480		
			435 –515	„FRET Filter“, Cerulean, CFP (when combined with YFP)	
			465 –480 Narrow	Cerulean, CFP	
	500 - 550		465 –530 Narrow	Brilliant Violet 480, Sytox Blue, CF430, ATTO 390, ATTO 425	
			500 –530 Narrow	Alexa 488, DyLight 488, FITC, eFluor 514, GFP, CellTracker Green, MitoTracker Green, LysoTracker Green	
			500 –550		
			515 –550 Narrow	Alexa 514, ATTO 495, ATTO 514, ATTO 520, YFP	
	570 - 630		570 - 630	570 – 630	
				571 –596 Narrow	Alexa 546, Alexa 555, ATTO 550, ATTO 565, DY547, RFP, MitoTracker Orange
		605 –630 Narrow		Alexa 594, ATTO 590, TexasRed, DyLight 594	
	650 - 760	650 –680 Narrow		Alexa 647, DY630, MitoTracker Deep Red, Cy5	
		690 –720 Narrow		Alexa 680, DY680, DyLight 680	
650 – 760					

Flexible emission filters – sold in packages/kits

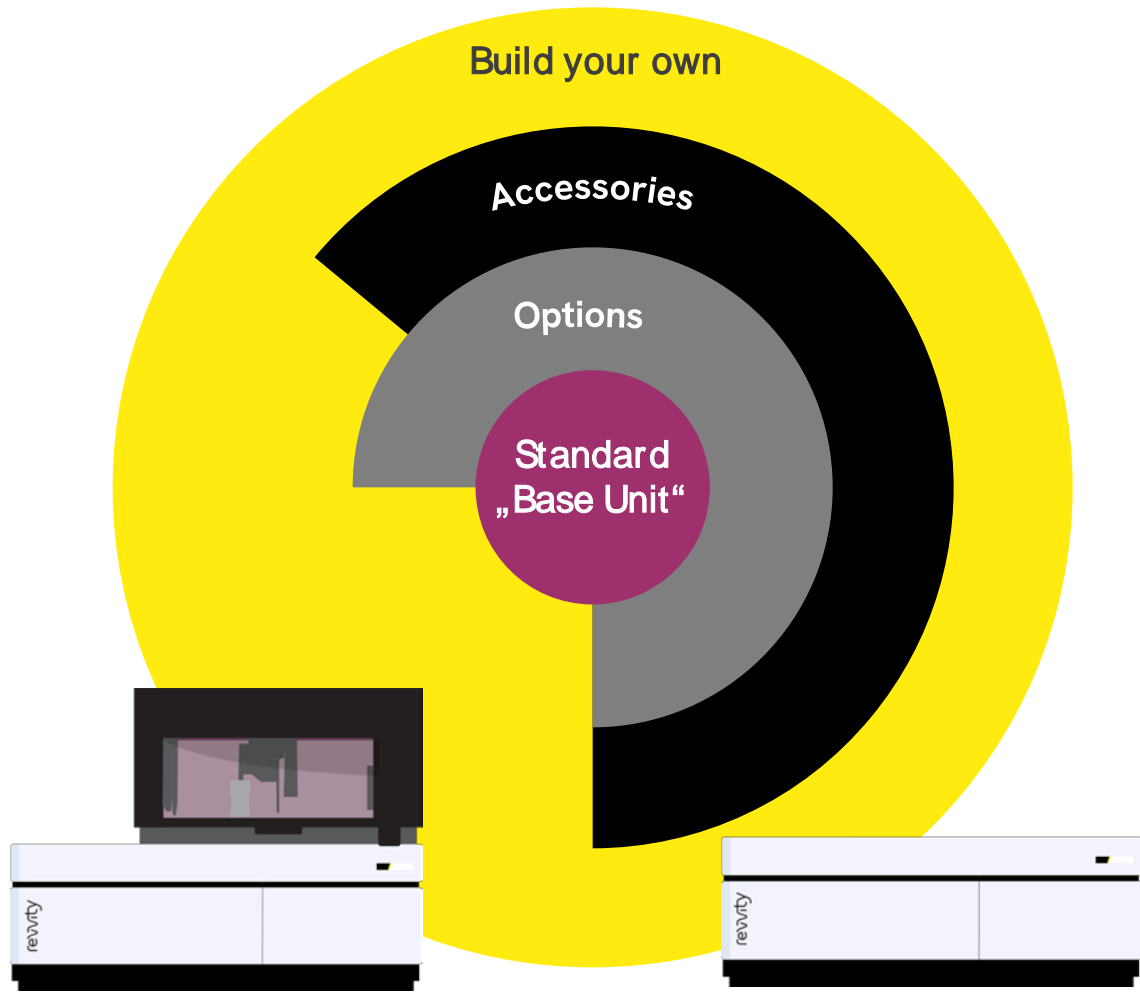
Camera Config.	Standard Configuration	Optional Configuration
1 Camera	435-550 nm 435-480 nm 500-550 nm 570-630 nm 650-760 nm	435-515 nm (HH14000341)
2 Cameras	Cam1: 435-480 nm Cam1: 435-550 nm Cam1: 570-630 nm Cam1: 650-760 nm Cam2: 500-550 nm Cam2: 570-630 nm Cam2: 650-760 nm	Cam1: 435-515 nm (HH14000341)
4 Cameras	Cam1: 435-480 nm Cam1: 435-550 nm Cam2: 500-550 nm Cam3: 570-630 nm Cam4: 650-760 nm	Cam1: 435-515 nm (HH14000341)

The following additional filter kits are available. There is no kit available for 1 camera instruments. These kits cannot be combined with the optional filter HH14000341 (see previous chapter).

Flexible Filter Kit for 2 Cameras + 375 nm Laser (HH14000343)	Flexible Filter Kit for 2 Cameras + 405 nm Laser (HH14000342)	All Filter Kit for 4 Cameras (HH14000344)
Cam1: 435-515 nm	Cam1: 465-480 nm	Cam1: 465-480 nm
Cam1: 465-530 nm	Cam1: 465-530 nm	Cam1: 465-530 nm
Cam1: 571-596 nm	Cam1: 571-596 nm	Cam1: 435-515 nm
Cam1: 605-630 nm	Cam1: 605-630 nm	Cam2: 500-530 nm
Cam2: 500-530 nm	Cam2: 500-530 nm	Cam2: 515-550 nm
Cam2: 515-550 nm	Cam2: 515-550 nm	Cam3: 571-596 nm
Cam2: 650-680 nm	Cam2: 650-680 nm	Cam3: 605-630 nm
Cam2: 690-720 nm	Cam2: 690-720 nm	Cam4: 650-680 nm
		Cam4: 690-720 nm



Build your own Opera Phenix Plus

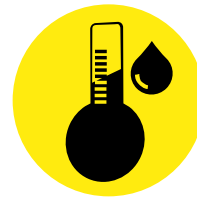


Options:



On-board Liquid Handling

requires selection of:



Temperature, CO₂ and Humidity



Opera Phenix Plus – Build your own

1

Lasers

2

Cameras

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Filters

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Country Kit

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Accessories



HH14000101 –4 Laser Standard

- 405 nm 50mW
- 488 nm 50mW
- 561 nm 50mW
- 640 nm 40mW



HH14000102 –5 Lasers Standard*

- 375 nm 50mW
- 425 nm 100mW
- 488 nm 50mW
- 561 nm 50mW
- 640 nm 40mW



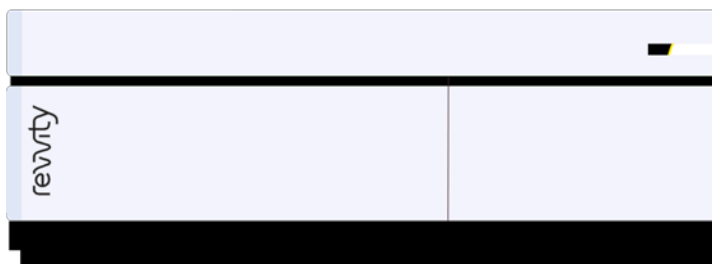
HH14000121 –4 Laser High Power**

- 405 nm 200mW
- 488 nm 150mW
- 561 nm 100mW
- 640 nm 140mW




HH14000122 –5 Lasers High Power*/**

- 375 nm 50mW
- 425 nm 100mW
- 488 nm 150mW
- 561 nm 100mW
- 640 nm 140mW



Includes:

- 2x  **harmony**
- 2x PhenoLOGIC
- 2x PreciScan

Opera Phenix Plus – Build your own

1 Lasers

2 Cameras

3 Filters

4 Options

5 Country Kit

6 Accessories



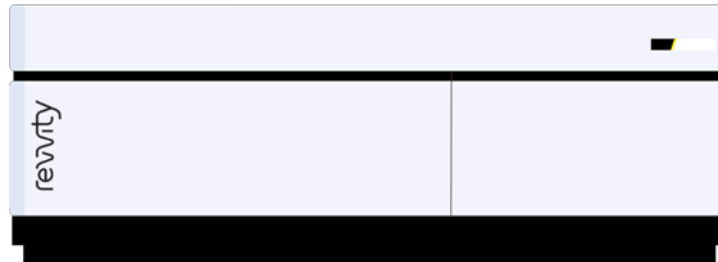
HH14000301 - 1 Camera



HH14000302 - 2 Cameras*



HH14000303 - 4 Cameras*



Each camera has an 8 emission filter wheel that is already prepopulated with a default emission filter set.

The following emission bands are included (multiple numbers of those filters depending on cameras quantity) in all configurations:

- 435-550 nm
- 435-480 nm
- 500-550 nm
- 570-630 nm
- 650-760 nm

* Benefit from simultaneous imaging

Opera Phenix Plus – Build your own

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Flexible Filter Sets:



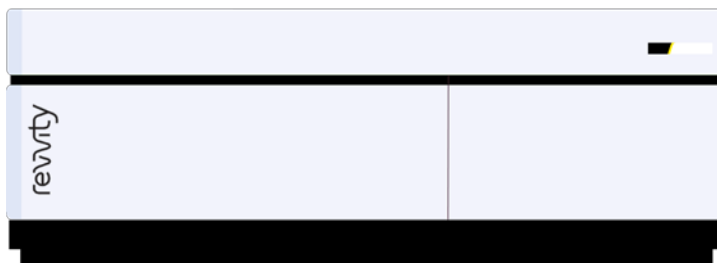
HH14000342 –for 4 lasers and 2 cameras



HH14000343 –for 5 lasers and 2 cameras



HH14000344 –for 4 cameras



HH14000341 –435 –515nm*



Opera Phenix Plus – Build your own

1 Lasers

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HH18000001 – Liquid Handling Option*



HH14000502 – Environmental Control Option



Opera Phenix Plus – Build your own

1 Lasers








2 Cameras


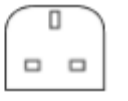
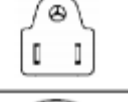

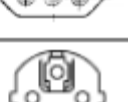


3 Filters








4 Options


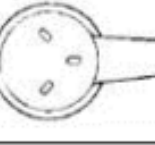
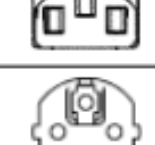
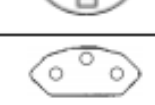

5 Country Kit

6 Accessories

-  HH14001601 –DE
-  HH14001602 –UK
-  HH14001603 –US
-  HH14001604 –CN
-  HH14001605 –IT
-  HH14001606 –ES
-  HH14001607 –FR, BE

Keyboard layout	Power plug
DE QWERTZ	
UK QWERTY	
US QWERTY	
US QWERTY	
IT QWERTY	
ES QWERTY	
AZERTY	

-  HH14001608 –AUS, NZ
-  HH14001609 –IL
-  HH14001610 –JP
-  HH14001611 –Export
-  HH14001612 –CH, LI
-  HH14001613 –NORDICS
-  HH14001614 –East Europe

UK QWERTY	
QWERTY	
US QWERTY	
US QWERTY	
DE QWERTZ, AZERTY	

Opera Phenix Plus – Build your own

1 Lasers


2 Cameras


3 Filters


4 Options


5 Country Kit

6 Accessories

 HH14000421 –20x Water
NA 1.0, WD 1.7 mm (field of view: approx. 646 μ m x 646 μ m)

 HH14000422 –40x Water
NA 1.1, WD 0.62 mm (field of view: approx. 323 μ m x 323 μ m)

 HH14000423 –63x Water
NA 1.15, WD 0.6 mm (field of view: approx. 205 μ m x 205 μ m)

 HH14000407 –20x hNA Air
NA 0.8, WD 0.55 mm (field of view: approx. 646 μ m x 646 μ m)

 HH14000408 –40x hNA Air
NA 0.75, WD 0.71 mm (field of view: approx. 323 μ m x 323 μ m)



Opera Phenix Plus – Build your own

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Lasers

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HH14000401 – 1.25x Air
NA 0.03, WD 4 mm (field of view: approx. 10 333 μm x 10 333 μm)



HH14000402 – 5x Air
NA 0.16, WD 12.1 mm (field of view: approx. 2583 μm x 2583 μm)



HH14000403 – 10x Air
NA 0.3, WD 5.2 mm (field of view: approx. 1292 μm x 1292 μm)



HH14000405 – 40x Air
NA 0.6 WD 2.9 mm (field of view: approx. 323 μm x 323 μm)



Opera Phenix Plus – Build your own

1 Lasers

2 Cameras

3 Filters

4 Options

5 Country Kit

6 Accessories



HH20110151 – Heavy Duty Lab Cart *



HH14000750 – Slide Holder (up to 4 slides)

