

EL406 Combination Washer Dispenser

Liquid Handling > Combination Washer Dispenser



Overview:

The EL406 Combination Washer Dispenser offers fast, full plate washing along with three reagent dispensers in one, compact instrument... all from the recognized industry leader. The EL406 is the latest advancement in 1536-, 384- and 96-well microplate washing and dispensing incorporating BioTek's patented Dual-Action™ manifold, optimized washing for loosely adherent cell monolayers, built-in patent-pending Ultrasonic Advantage™ for unattended wash manifold maintenance and up to four wash buffers for complex wash routines.

BioTek's EL406 magnetic bead washing module offers high strength biomagnetic separation in both 384- and 96-well microplates. Based upon what is regarded as the industry standard in microplate washing, BioTek's EL406™ Microplate Washer Dispenser offers full plate washing of magnetic microspheres used in a growing number of multiplex assays and bead-based ELISAs along with reagent dispensing. Developed in conjunction with leaders in genotyping, gene expression and protein assays built upon the [Luminex® xMAP®](#) platform, BioTek's magnets incorporate high-energy neodymium iron boron magnets for rapid separation of micrometer and nanometer beads with superior retention. An accessory magnet adapter kit allows any EL406 configuration to accommodate magnetic bead assay washing and dispensing. An available vacuum filtration module makes the EL406 also well suited for polystyrene bead assays and filtration-to-waste processes. The EL406 Washer Dispenser is [Luminex® xMAP®](#) approved.

Up until now scientists had to choose their microplate dispenser technology – usually between either a peristaltic or syringe pump. Each of these technologies has its unique advantages. The EL406 eliminates the need to choose, offering both dispenser technologies on a single platform plus microplate washing. Now you can simply press a button and walk away. Automate an entire process by adding a [BioStack™ Microplate Stacker](#).

The EL406 can be used for applications such as:

- ELISA Automation
- MSD Automation
- High Content Screening Immunocytochemistry
- Label-free Cell-based Assays – especially 1536-well density
- FLIPR® Ca²⁺ flux
- Magnetic and Polystyrene Bead Assay Automation for gene- and protein-expression

xMAP® is a registered trademark of [Luminex® Corporation](#).
 FLIPR® is a registered trademark of Molecular Devices®

Features:

- 1536-, 384- and 96-well microplates
- Magnetic and polystyrene microsphere assays
- ELISAs and cell-based assays
- High-energy neodymium iron boron magnets
- Selection of optimized field gradients within wells
- Rapid separation of micrometer and nanometer beads with superior retention
- Fast and efficient vacuum filtration
- Fast microplate washing and dispensing
- Patented Dual-Action™ wash manifold
- Up to three reagent dispensers
- Unattended operation for long and tedious liquid handling processes
- Smaller benchtop or robotic system footprint compared to separate washer and three dispensers
- BioStack™ compatible for automated processing of up to 50 standard height microplates
- Choice of software control from instrument keypad or Liquid Handling Control™ (LHC) PC software
- Built-in ultrasonic cleaner
- Automatic switching of up to four wash buffers or reagents

Models:

Model	EL406™									
	Part #	1536-/ 384-/ 96-well	1536-/ 384-well	1536- well	384-/ 96-well	384- well	96- well	3 reagent disp.	2 reagent disp.	1 reagent disp.
406PSUB3SB	•							•		
406PSUB3LB	•							•		
406PSUB1SB	•							•		
406PSUB1LB	•							•		
406PSUB2SB		•						•		
406PSUB2LB		•						•		
406PSU0SB				•				•		
406PSU0LB				•				•		
406SNAOLB				•					•	
406PSUB3					•			•		
406PSUB1					•			•		
406PUB3					•					•
406PUB1					•					•
406PSUB2						•		•		
406PUB2						•				•
406PSNA4							•	•		
406SNA4							•		•	
406P4							•			•

EL406™ 1536-/384-/96-well Microplate Washer Dispenser Configurations

	Feature	Design
P	1-Reagent Dispense Module – 1 Peristaltic Pump	<ul style="list-style-type: none"> • Autoclavable • 8-tip (1 x 8) cassette • Sapphire jeweled, steel or plastic tips
S	2-Reagent Dispense Module – 2 Syringe Pumps	<ul style="list-style-type: none"> • Autoclavable • 2 16-tube (1 x 16) manifolds • Steel tubes
SNA	2-Reagent Dispense Module – 2 Syringe Pumps	<ul style="list-style-type: none"> • Non-autoclavable • 1 16-tube (2 x 8) manifolds - except with P/N 406SNA0-LB • Steel tubes
U	Wash Module – Ultrasonic Advantage™	
B	Wash Module – Automatic 4-Buffer Switching	
1	Wash Module – 384-/96-well microplate washing	<ul style="list-style-type: none"> • Dual-Action™ • 96-tube (8 x 12) manifold • Steel tubes
2	Wash Module – faster 384-well microplate washing	<ul style="list-style-type: none"> • Dual-Action™ • 192-tube (16 x 12) manifold • Steel tubes
3	Wash Module – 384-/96-well microplate washing	<ul style="list-style-type: none"> • Dual-Action™ • Interchangeable 96-tube (384-/96-well washing) and 192-tube (faster 384-well washing) manifolds • Steel tubes
4	Wash Module – 96-well microplate washing	<ul style="list-style-type: none"> • 96-tube (8 x 12) manifold • Steel tubes
SB	Wash Module – 1536-well microplate washing and dispensing	<ul style="list-style-type: none"> • 2 32-tube (1 x 32) dispense manifolds • Small bore, sapphire jeweled tubes • 128-tube (4 x 32) aspiration manifold
LB	Wash Module – 1536-well microplate washing and dispensing	<ul style="list-style-type: none"> • 2 32-tube (1 x 32) dispense manifolds • Large bore, steel tubes • 128-tube (4 x 32) aspiration manifold

Specifications:

General	
Assays	Magnetic bead, polystyrene bead (optional) <ul style="list-style-type: none"> • Multiplex assays • Bead-based ELISA

	ELISA Cell-based assays (model dependent) Filtration-to-waste processes (optional)
Separation	Biomagnetic separation, vacuum filtration (optional)
Microplate Types	96-, 384- and 1536-well (model dependent) Low profile and standard height Solid and filter bottom (optional) <ul style="list-style-type: none"> Filter pore sizes 0.45 μM to 1.2 μM
Shaking	Programmable in minutes and seconds, up to 60 minutes Intensities - slow, medium, fast or variable
Soak Time	Programmable in minutes and seconds, up to 60 minutes
Magnet	High strength 96- and 384-well designs <u>Flat</u> - Flat-bottom well - beads pulled to band across well bottom - Round-bottom well - beads pulled to button at well bottom <u>Ring</u> - beads pulled to 4-zone ring at well bottom
Safety/Convenience/Maintenance	Waste and vacuum sensing, fluid and flow detection Aerosol cover Adjustment utility for plate positioning Overflow protection Pre-programmed maintenance routines
Automation	BioStack™ Microplate Stacker - up to 50 SBS standard height plates (optional) <ul style="list-style-type: none"> Except filter bottom plates
Onboard Software	2 x 24 character LCD display 25 alphanumeric soft keys Create, edit or run multiple protocols
Software	Liquid Handling Control™, for PC protocol programming and execution (optional)
Operating Temperature	15°C to 35°C (59°F to 95°F)
Humidity	Maximum 80% relative humidity at temperatures up to 31°C (87.8°F) decreasing linearly to 50% at 40°C (104°F)
Electrical	Compatible with 100 to 240 V~ \pm 10% @ 50-60 Hz
Washing	
Manifold Types	<u>96-well washing:</u> 96-tube (8x12) manifold - 316 stainless steel tubes <u>96-/384-well washing:</u> Dual-Action 96-tube (8 x 12) manifold - 316 stainless steel tubes <u>384-well washing:</u> Dual-Action 192-tube (16 x 12) manifold - 316 stainless steel tubes <u>1536-well washing:</u> 2 32-tube (1 x 32) dispense manifolds - sapphire jeweled or 316 stainless steel tubes 128-tube (4 x 32) aspiration manifold
Washing Speed	<u>Solid bottom plates</u> 1 asp. / disp. cycle: 300 μL /well, 96 wells, 96-tube manifold: 13 seconds 100 μL /well, 384 wells, 192-tube manifold: 17 seconds

	10 μ L /well, 1536 wells, two 32-tube manifolds: 36 seconds <u>Filter bottom plates:</u> Variable, based on wash parameters
Fluid Delivery	<u>96- and 384-well washing:</u> One positive displacement pump <u>1536-well washing:</u> Two positive displacement syringe drives
Vacuum Filtration	Selectable vacuum levels: 0 to -380 mmHg (final at 30 seconds) Vacuum filtration time range: 5 - 999 seconds
Volume Range	3 - 3,000 μ L/well (model dependent) Selectable in 1 μ L increments
Buffer Selection	Automatic switching for up to 4 wash buffers (model dependent)
Flow Rates	1 - 11, including low flow cell wash rates (model dependent)
Wash Cycles	1 - 250
Dispense Accuracy	\pm 3% typical
Dispense Precision	\leq 3% CV (model dependent)
Residual Volume	\leq 2 μ L/well
Sterilization	Chemical
Ultrasonic Cleaning	Built-in ultrasonic bath for protein and salt crystal buildup Programmable in hours and minutes, up to 24 hours (model dependent)
Supply Bottle Volume	4 L or 10 L (optional)
Dispensing - Peristaltic pump	
Manifold Types	8-tip cassette (1 x 8) - sapphire jeweled 316 stainless steel, 316 stainless steel or polypropylene plastic tips
Dispensing Speed	10 μ L /well, 96 wells, 8-tip cassette: 8 seconds 5 μ L /well, 384 wells, 8-tip cassette: 12 seconds 1 μ L /well, 1536 wells, 8-tip cassette: 27 seconds
Volume Range	1 - 3,000 μ L/well (model dependent) Selectable in 1 μ L increments
Fluid Delivery	One positive displacement peristaltic pump
Flow Rates	Low, medium or high
Cassette Size	<u>1 μL:</u> Recommended Volume Range: 1 - 50 μ L Dispense Accuracy: \pm 5% typical at 1 μ L Dispense Precision: \leq 5% CV typical at 1 μ L Minimum Prime Volume (30" tubing length): 1.20 mL <u>5 μL:</u> Recommended Volume Range: 5 - 2,500 μ L Dispense Accuracy: \pm 2.5% typical at 5 μ L Dispense Precision: \leq 2.5% CV typical at 5 μ L Minimum Prime Volume (30" tubing length): 4.23 mL <u>10 μL:</u> Recommended Volume Range: 10 - 3,000 μ L Dispense Accuracy: \pm 2.0% typical \geq -10 μ L Dispense Precision: \leq -2.0% typical \geq -10 μ L Minimum Prime Volume (30" tubing length): 7.36 mL

Recommended Replacement Interval	1 μ L Cassette: 1,000 384-well microplates at 5 μ L / well 5 μ L Cassette: 1,000 96-well microplates at 50 μ L / well 10 μ L Cassette: 1,000 96-well microplates at 100 μ L / well
Sterilization	Autoclave, chemical
Dispensing - Syringe pump	
Manifold Types	96-well dispensing: 1 16-tube (2 x 8) manifold - 316 stainless steel tubes 96-/384-well dispensing: 2 16-tube (1 x 16) manifolds - 316 stainless steel tubes 1536-well dispensing: 2 32-tube (1 x 32) manifolds - sapphire jeweled 316 stainless steel or 316 stainless steel tubes
Dispensing Speed	10 μ L /well, 96 wells, 1 x 16 or 1 x 8 tubes: 9 seconds 5 μ L /well, 384 wells, 1 x 16 tubes: 11 seconds 3 μ L /well 1536 wells, 2 x 32 tubes: 14 seconds
Volume Range	3 - 3,000 μ L/well (model dependent) Selectable in 1 μ L increments Minimum Prime Volume: 12 mL
Fluid Delivery	Two positive displacement syringe drives
Flow Rates	1 - 5
Dispense Accuracy	\pm 1 μ L typical at 5 μ L \pm 1 μ L typical at 20 μ L \pm 1% typical at 100 μ L
Dispense Precision	\leq 5% CV typical at 5 μ L \leq 2.5% CV typical at 20 μ L \leq 1% CV typical at 100 μ L
Reagent Selection	Automatic switching for up to 4 reagents (optional)
Supply Bottle Volume	1 L or 2 L (model dependent)
Sterilization	Autoclave (model dependent), chemical
Physical Characteristics	
Dimensions	Depth: 18" (46 cm) Width: 16.5" (42 cm) Height: 12.5" (32 cm)
Weight	32 lbs (14.5 kg)
Regulatory	
Regulatory	All BioTek microplate instrumentation is CE and ETL marked