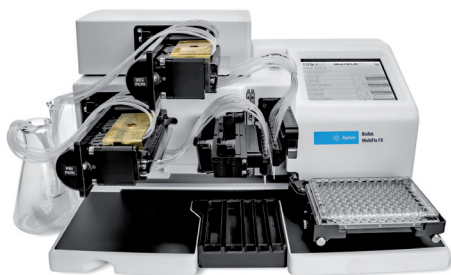


Agilent BioTek MultiFlo FX Multimode Dispenser



Product description

The Agilent BioTek MultiFlo FX multimode dispenser is a versatile tool for liquid handling workflows. The MultiFlo FX automates fast dispensing and washing, gentle media exchange for non or loosely-adherent cell-based assays and dispensing into individual wells. Its unique Parallel Dispense design allows up to four independent reagents to be dispensed in parallel without cross-contamination.

The MultiFlo FX can incorporate one or two peristaltic dispense pumps, two syringe dispense pumps, plus an available microplate wash module. The unique Random Access Dispensing (RAD) module can automatically dispense varying volumes into discrete wells of a 96- or 384-well plate for normalization protocols. The Automated Media Exchange Module (AMX) module gently automates critical steps in spheroid and non-adherent cell-based assays – all in one compact platform.

The MultiFlo FX, when integrated to the Agilent BioTek BioSpa 8 automated incubator with an Agilent BioTek imager or multimode reader provides complete walkaway workflow automation for many biochemical and cellular assays.

Features

- Multimode dispensing replaces up to four dispensers and a washer
- Automated Media Exchange (AMX) module protects 3D cell structures (e.g. spheroids, tumoroids), and suspension cells
- Random Access Dispensing (RAD) enables mapped dispensing to individual wells for normalization applications
- Wash module for 6- to 384-well plates combines dispensing and washing automated on one platform
- Parallel Dispense: peristaltic or syringe dispensing of up to four reagents with no cross-contamination
- Cell-friendly angled dispense and wash tubes, adjustable flow rates using lidded plates
- BioSpa 8 automated incubator compatible for live and fixed cell assay automation
- Compatible with Agilent BenchCel microplate handler to automate many workflows

Typical applications

- Primary/secondary screening assays
- Compound storage
- Genomics and proteomics research
- ELISA
- Cell-based washing, fixing and staining
- Volume or concentration normalization

Configurations

- MFXP1: MultiFlo FX with 1 module arm, 1 peristaltic dispense pump
- MFXP2: MultiFlo FX with 2 module arms, 1 peristaltic dispense pump
- MFXP2R: MultiFlo FX with 2 module arms and RAD module

Optional modules

- Wash module
- AMX module
- RAD module
- Dual syringe pump module
- Secondary peri-pump module

Optional accessories

- BioStack 4 microplate stacker
- BioSpa 8 automated incubator
- Liquid Handling Control (LHC) software
- Product qualification package
- Agilent BenchCel microplate handler

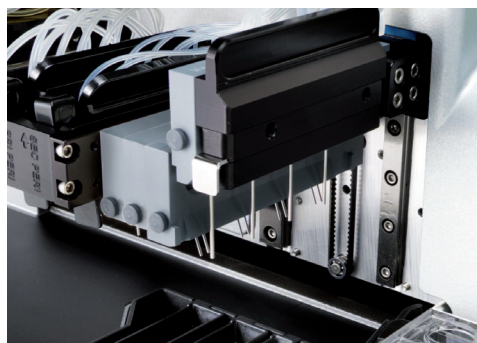


Figure 1. Wash 6- to 384-well plates with the wash module.

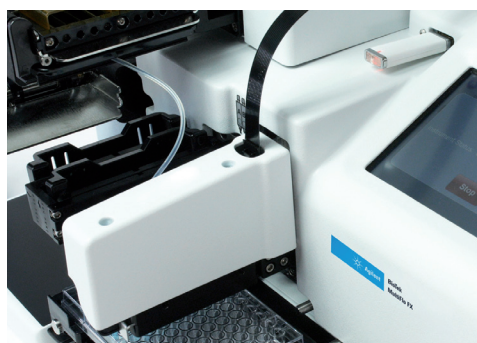
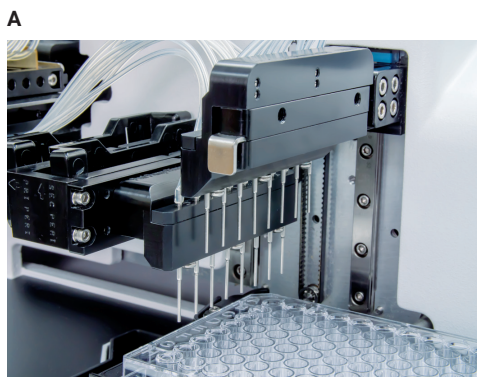


Figure 2. Dispense to custom-mapped wells with Random Access Dispensing (RAD).



B

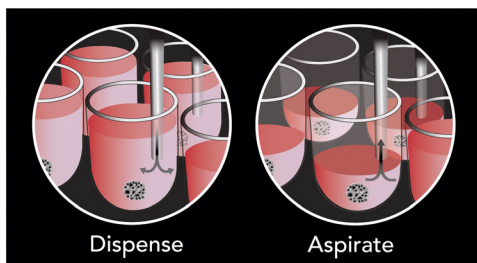


Figure 3. Automated Media Exchange (AMX) module (A) enables gentle media exchange for 3D cell structures as illustrated in (B).



Figure 5. The Agilent BioTek MultiFlo FX integrates with the Agilent BioTek BioStack microplate stacker for automated processing of up to 50 plates.

Technical details

General	
Microplate Types	Dispense, wash, Random Access Dispensing (RAD): 6- to 384-well Automated Media Exchange (AMX): 96- and 384-well (manifold dependent)
User Interface	Color touchscreen. Create, edit or run multiple protocols onboard.
Software	LHC2 software LHC2 Secure for 21 CFR Part 11 compliance (option) SiLA compliant driver (option)
Shaking and Soaking	Programmable up to 60 minutes
Automation	BioStack microplate stacker and 3 rd party automation compatible BioSpa 8 automated incubator compatible
Dispensing: Peristaltic pump (multi-channel)	
Fluid Delivery	1 or 2 peristaltic pumps
Dispense Speed	96 wells, 5 μ L cassette, 10 μ L/well: 3 seconds 384 wells, 1 μ L cassette, 1 μ L/well: 6 seconds 1536 wells, 1 μ L cassette, 1 μ L/well: 21 seconds
Dispense Volume Range	500 nL - 3,000 μ L/well, selectable in 1 μ L increments
Flow Rates	User programmable rates from high to low
Dispense Performance	1 μ L cassette: recommended range: 1 - 50 μ L Accuracy: + 5% at 1 μ L, Precision: < 5% CV at 1 μ L 5 μ L cassette: recommended range: 5 - 2,500 μ L Accuracy: + 2.0% at 5 μ L, Precision: < 2.5% CV at 5 μ L 10 μ L cassette: recommended range: 10 - 3,000 μ L Accuracy: + 2.0% at 10 μ L, Precision: < 2.0% CV at 10 μ L
Dispensing: Syringe pump (multi-channel)	
Dispense Speed	20 μ L/well, 1 x 16 tubes, 96/384: 5 s/14 s 3 μ L/well, 1536 wells, 2 x 32 tubes: 7 seconds
Volume Range	3 - 3,000 μ L/well, selectable in 1 μ L increments
Dispense Accuracy	$\pm$ 1 μ L at 5 μ L and 20 μ L; $\pm$ 1% at 100 μ L
Dispense Precision	< 2.5% CV at 20 μ L; < 1% CV at 100 μ L
Washing	
Wash Volume Range	20 - 30,000 μ L/well
Wash Cycles	1-10
Wash Speed	96 wells, 8-tube manifold, 3 cycles, 300 μ L/well: < 130 seconds
Dispense Accuracy	$\pm$ 3%
Dispense Precision	96-/384-well plates, 300 μ L/well: < 3 % CV 6-well plates, 5560 μ L/well: < 5 % CV
Residual Volume	96-well plate, 300 μ L/well: < 2 μ L/well
Flow Rates	140 - 422 μ L/well
Supply/Waste Bottles	2 L, waste bottle level detection

(Continued)

Media Exchange: Automated Media Exchange (AMX) module	
Manifold Types	Two 8-channel autoclavable manifolds
Cassettes	Autoclavable cassettes with 5 µL tubing
Performance	Precision: ≤ 5% CV, Accuracy: ≤ 5%
Aspiration Uniformity	≤ 5%
Random Access Dispensing (RAD)	
Other Labware	96-well cluster tubes (minitubes) up to 50 mm height (requires custom carrier)
Manifold Types	RAD single, plastic or steel tip with 1, 5 or 10 µL tubing, 7° angle RAD 8-to-1 plastic tip, with 5 µL tubing, angled bulk dispense chute
Volume Range	500 nL - 30,000 µL
Minimum Prime Volume	1 µL cassette 18": 90 µL ; 1 µL cassette 30": 150 µL 5 µL cassette 18": 320 µL; 1 µL cassette 30": 530 µL 10 µL cassette 18": 555 µL; 10 µL cassette 30": 920 µL
Dispense Speed (High Flow Rate)	1 µL cassette 1 µL/well: 19 s (96 wells) 55 s (384 wells) 5 µL cassette 5 µL/well: 19 s (96 wells), 58 s (384 wells) 10 µL cassette 10 µL/well: 21 s (96 wells), 66 s (384 wells)
Physical characteristics	
Power	100 - 240 Volts AC. 50/60 Hz, 90 W max consumption
Weight	Base instrument: 19.5 lbs (8.8 kg)
Dimensions	Base instrument: 11.75" D x 17.19" W x 8" H (29.21 x 43.51 x 20.32 cm)
Connectivity	Two USB ports: Protocol storage/transfer and for optional external mouse or keyboard

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