

Multidrop®

**The most precise and reliable
reagent dispensing solution**

Analyze • Detect • Measure • Control™

Thermo
ELECTRON CORPORATION

The Multidrop® dispenser family

Thermo Electron's Multidrop dispensers provide the most reliable bulk reagent dispensing available for drug discovery scientists performing assay development, primary and secondary screening or compound storage in pharmaceutical laboratories. Multidrops are also extremely useful for research scientists working in the area of genomics and proteomics in biotechnology laboratories. They are the best answer to the existing demand for precise and quick dispensing of liquids into 96-, 384- or deep well plates, providing high-speed continuous dispensing with excellent precision and robot compatibility for higher productivity.

The Multidrop reagent dispensers offer you

- Precise dispensing – reliable assay data
- Fast dispensing – increased throughput
- Small size – easily fits on bench and into automation
- Autoclavable and detachable dispensing cassette – easy to maintain
- Easy programming and quick volume selection – ease of use
- Back-flush of reagents – expensive reagents not lost

The Multidrop family consists of three dispensers that cover volume ranges starting from 1 µl up to 995 µl and accommodate 96-, 384- and deep- well plates.

Multidrop Micro

- Optimized for small volume dispensing
- Volumes of 1-50 µl

Multidrop 384

- Fast dispensing
- Volumes of 5-395 µl

Multidrop DW

- Fast dispensing of large volumes
- Volumes of 20-995 µl

Precise and reliable dispensing for solid assay data

The Multidrop reagent dispensers allow continuous dispensing using a peristaltic pump, and can dispense directly from single or even multiple reagent bottles. All Multidrops offer excellent dispensing precision, the CV is less than 1.5% when dispensing 20 µl. Precise and accurate dispensing volumes assure high-quality results. Multidrops provide laboratories with dispensing reliability that guarantees reproducible results and diminishes the need for expensive reruns.



Wide range of applications

for example:

- Primary screening
- Secondary screening
- Assay development
- Compound storage
- Cell dispensing
- ELISA assays
- Genomics and proteomics
- Sequencing set-up
- PCR set-up

Easy to automate for increased throughput

The Multidrop family offers the advantages of high speed and automated reagent dispensing to all steps of the drug discovery process. Although Multidrops are stand-alone instruments, they can be easily integrated with robotic platforms via the RS-232 serial port to provide even greater flexibility and higher throughput. The Multidrop's plate carrier has been optimized for easy plate access by a robot arm. A special prime through priming

vessel and an additional dispensing cassette with 2 m of tubing are also available for convenient use in a robotic environment.

Fast dispensing for higher productivity

Multidrop's capability to prepare plates fast allows laboratories to speed up their dispensing and increase throughput. The table alongside presents dispensing speed for different plate types and liquid volumes.

Designed for ease of use

All Multidrops are easy to use with quick volume selection from the instrument keypad, and their compact size lets them fit into laminar cabinets. Multidrops offer outstanding flexibility. They are designed to dispense up to 8 different liquids simultaneously into 1-12 columns and the plate format can easily be changed from 384- to 96-well plates. Multidrops are easy to maintain because of their detachable and autoclavable dispensing cassettes.

The Multidrop Family



Multidrop Micro

Multidrop Micro dispenses volumes of 1-50 μl in 1 μl increments into 96- and 384-well plates. It is recommended for volumes less than 20 μl and the CV is < 5 % for 2 μl , with a very small dead volume. Multidrop Micro lets you choose between 2 optimized cassettes: a metal tipped cassette for protein containing and viscous solutions, and a cassette with molded tips for other solutions.



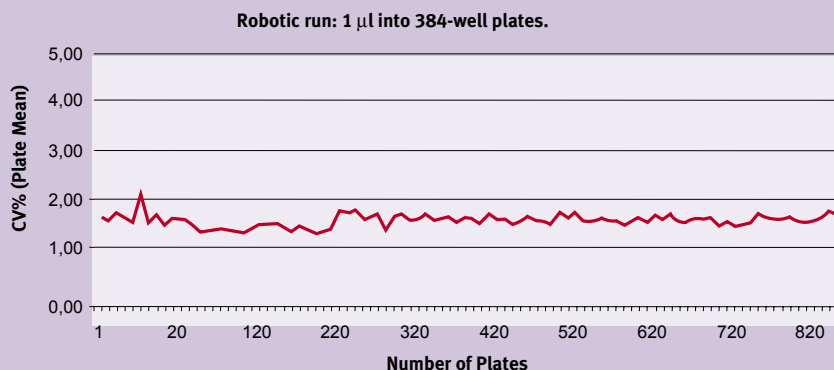
Multidrop 384

Multidrop 384 helps you to speed up high-throughput screening and microvolume dispensing, offering superior dispensing flexibility for both 384- and 96-well plates. It is ideal for volumes over 20 μl , and dispenses volumes of 5-395 μl in 5 μl increments into 96- and 384-well plates.



Multidrop DW

As the highest volume member of the family, Multidrop DW lets you accelerate your larger scale assays because it is specifically designed for repetitive dispensing of large volumes. Multidrop DW dispenses volumes of 20-995 μl in 5 μl increments into 96-well plates, deep well plates, Micronic® tube racks and 1.1 ml tubes in racks.



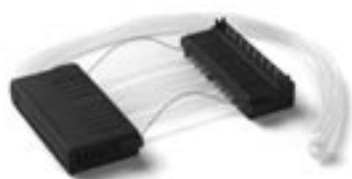
All Multidrops offer excellent dispensing precision. The CV for dispensing 1 μl into a 384-well plate with Multidrop Micro is less than 2%.

Typical Multidrop dispensing speeds

	Multidrop 384	Multidrop Micro
96-well plate		
1 µl	N/A	5.9 sec
5 µl	4.6 sec	6.4 sec
10 µl	5.0 sec	7.5 sec
20 µl	5.7 sec	9.5 sec
50 µl	8.0 sec	15.4 sec
100 µl	12.0 sec	N/A
384-well plate		
1 µl	N/A	14.2 sec
5 µl	10.0 sec	17.0 sec
10 µl	11.8 sec	21.0 sec
20 µl	14.6 sec	28.8 sec
50 µl	24.0 sec	52.8 sec
100 µl	39.2 sec	N/A

Detachable and autoclavable dispensing cassette for convenience

All Multidrops use a special 8-channel, detachable and autoclavable dispensing cassette to ensure sterile conditions and to avoid cross contamination. All reagent lines can be back-flushed into the reagent bottle minimizing the loss of expensive reagents. Multidrop 384 and Multidrop DW use the same the same dispensing cassette. Multidrop Micro has two different cassettes, a dispensing cassette with metal tips and a dispensing cassette with molded tips. The tip design of the metal tip cassette makes it especially ideal especially for dispensing of protein containing solutions, and extended robotic runs. The cassette with molded tips is particularly recommended especially for dispensing water based buffers and reagents.



Dispensing cassette for Multidrop 384 and DW

The black dispensing cassette with polyamide covers and standard 40 cm silicone tubing is intended for routine use with Multidrop 384 and DW. It is designed for reliable functionality and accurate performance. The wide tip diameter also allows reliable dispensing of cells into microplates.

Code 24072670



Dispensing cassette for Multidrop Micro

The green dispensing cassette is specially designed for small volume dispensing for use with Multidrop Micro. The optimized tip and tubing diameter enables reliable and reproducible dispensing, especially with water based buffers, reagents and solutions.

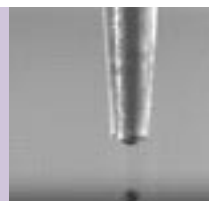
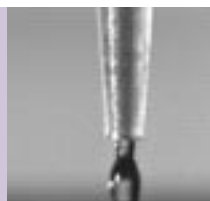
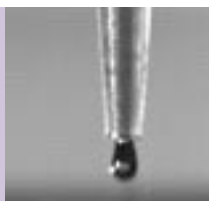
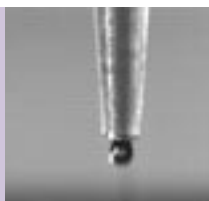
Code 24073290



Dispensing cassette for Multidrop Micro

The grey dispensing cassette is another cassette option designed for Multidrop Micro. The tip material combined with optimal tip design guarantees high liquid speed and precise dispensing. This cassette with stainless steel tips is recommended for dispensing of liquids containing proteins or solutions with special surface tension properties.

Code 24073295



Drops fall from the tip of the cassette with high-speed resulting in excellent precision.

The new RapidStak™ microplate stacker and Multidrop for unattended high-throughput dispensing

- Longer walk-away time – High capacity
- Highest throughput – Yielding maximum productivity
- Expandable – Increase capacity and/or automate other instruments in the future
- Reliable – Confident, error free operation

Researchers from biotechnology to pharmaceuticals can now pair the high-productivity RapidStak microplate stacker with their Multidrop reagent dispenser.

The RapidStak microplate stacker for Thermo’s Multidrop 384 dispenser, Multidrop Micro dispenser, and Wellwash® AC microplate washer saves time and provides unattended operation in the lab. Its high capacity and reliable design allows for longer and more confident walk-away time than typical stackers. As the RapidStak can deliver and stack plates simultaneously, it is the fastest Multidrop stacker. Maximum throughput, assuming a 7 second or less instrument operation, is 300

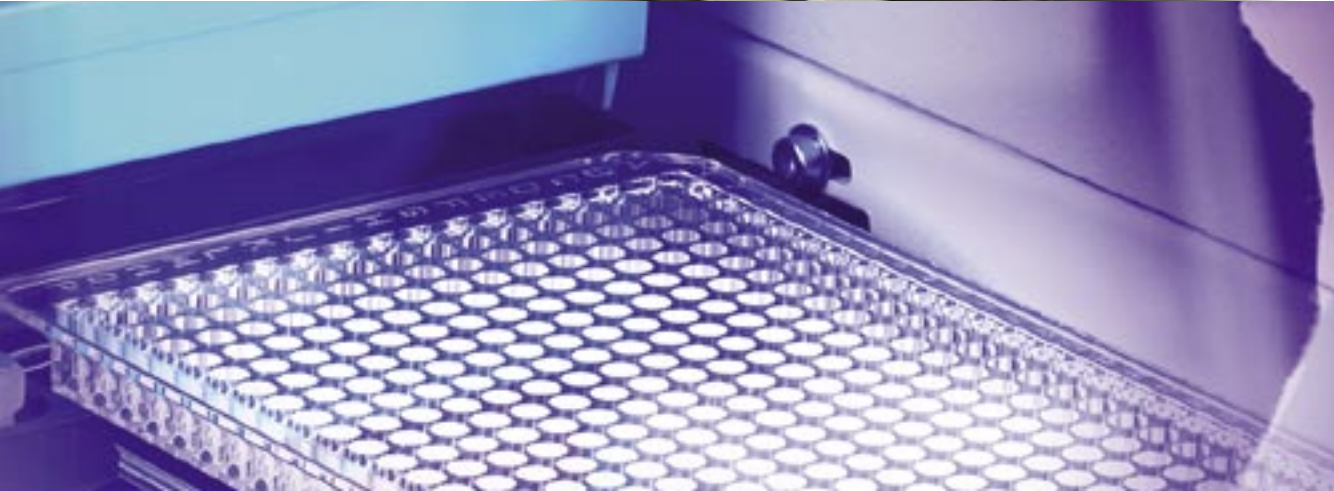
plates per hour. It’s the only stacker that can be easily upgraded to triple the capacity as your needs grow. The result is the industry’s speediest, most expandable, most seamless stacking solution.

Quick and Easy Set-up

The RapidStak is easy to unpack, set-up and configure. There are no special tools required for set-up and if you are automating a Multidrop or Wellwash AC there is no PC required either - simply position the instrument relative to the RapidStak. Set-up is so easy that it can be done in the lab in minutes, even with existing field instruments.

Specifications	
Models	RapidStak — 2 Staks RapidStak 2x — 4 Staks
Speed	6 second plate delivery/retrieval Restacking ~5 seconds per plate
Throughput	Up to 300 plates per hour
Plate Capacity (15 mm plates)	RapidStak — 50 plates RapidStak 2x — 150 plates
Upgrades	Interchangeable Staks Field upgradable from base unit to 2x 4-Stak model
Interface	RS232
Operating Modes	Run, Pause, Restack, Ready, Stop

Thermo’s new RapidStak microplate stacker for Thermo’s Multidrop 384 dispenser, Multidrop Micro dispenser and Wellwash AC microplate washer can deliver and stack plates simultaneously.



Technical specifications

	Multidrop Micro	Multidrop 384	Multidrop DW
Plates	384-well plates	384-well plates	96-deep well plates
	96-well plates	96-well plates	96-well plates
			1.1 ml tubes in 96 tube rack Micronic 96-place tube racks
Dispensing volume	1-50 µl	5-100 µl into 384-well plate	20-995 µl
		5-395 µl into 96-well plate	
Dispensing interval	1 µl increments	5 µl increments	5 µl increments
Dispensing speed	14 s / 1 µl into 384 wells	20 s / 20 µl into 384 wells	5 s / 20 µl into 96 wells
	6 s / 1 µl into 96 wells	25 s / 50 µl into 384 wells	8 s / 50 µl into 96 wells
	30 s / 20 µl into 384 wells	5 s / 20 µl into 96 wells	26 s / 300 µl into 96 wells
	10 s / 20 µl into 96 wells	8 s / 50 µl into 96 wells	74 s / 900 µl into 96 wells
Dispensing accuracy	± 10% @ 2 µl (typical)	± 3% @ 5 µl (typical)	± 2% @ 20 µl (typical)
	± 5% @ ≥ 10 µl (typical)	± 2% @ 20 µl (typical)	± 1% @ 100 µl (typical)
		± 1% @ 100 µl (typical)	± 1% @ 900 µl (typical)
Dispensing precision	CV ≤ 5% @ 2 µl (typical)	CV ≤ 10% @ 5 µl (typical)	CV ≤ 1.5% @ 20 µl (typical)
	CV ≤ 3% @ ≥ 10 µl (typical)	CV ≤ 1.5% @ 20 µl (typical)	CV ≤ 1% @ 100 µl (typical)
		CV ≤ 1% @ 100 µl (typical)	CV ≤ 0.5% @ 900 µl (typical)
Dead volume	< 1 ml	< 7 ml	< 7 ml

Ordering information:

5840230	Multidrop Micro, 220-240 V, 50/60 Hz
5840237	Multidrop Micro, 100-120 V, 50/60 Hz
NOTE: Multidrop Micro includes two dispensing cassettes cat. no. 24073290 and 24073295	
5840150	Multidrop 384, 220-240 V, 50/60 Hz
5840157	Multidrop 384, 100-120 V, 50/60 Hz
5840170	Multidrop DW, 220-240 V, 50/60 Hz
5840177	Multidrop DW, 100-120 V, 50/60 Hz
NOTE: Multidrop 384 and Multidrop DW include one dispensing cassette, extruded covers (with 40 cm tubing set), Polyamide cat. no. 24072670	
24073290	Multidrop Micro moulded tip dispensing cassette
24073295	Multidrop Micro metal tip dispensing cassette
24072670	Dispensing cassette, extruded covers (with 40 cm tubing set), Polyamide
24072677 *)	Special dispensing cassette, extruded covers (length of tubing 50-200 cm in 10 cm increments), Polyamide
NOTE: *) Please specify length when ordering!	
F01350	RapidStak (Requires 2 Staks)
F01351	RapidStak 2x (Requires 4 Staks)
F01362	30 Plate Stak
F01363	50 Plate Stak
F01397	Stak Plate Release Accessory

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