

Echo® 525

LIQUID HANDLER

TECHNICAL SPECIFICATIONS

Version 2.0 | DECEMBER 2015

Electrical and Size Requirements

Electrical	AC 100-120V, 50/60 Hz, 10 A or AC 200-240V, 50/60Hz, 5 A NOTE: The electrical requirements listed above do not account for chiller power requirements.
Weight	128 kg (283 lbs)
Dimensions	53.9 cm width x 68.3 cm depth x 92.5 cm height (21.2 x 26.9 x 36.4 inches)
Working envelope	Additional 25.4 cm (10 inches) on top, 2.5 cm (1 inch) on sides, 15.24 cm (6 inches) at front, 30.5 cm (12 inches) at back

Software Specifications

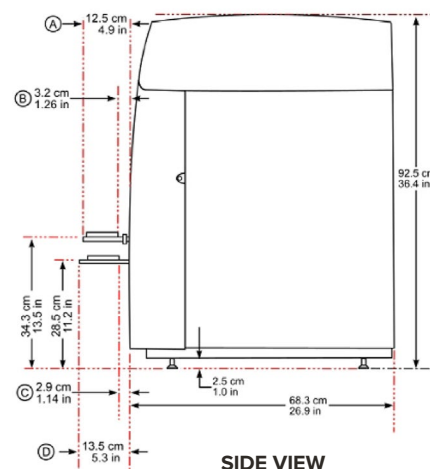
Client operating software	Microsoft Windows 7 32 bit
Application software (optional)	Echo® software applications: Echo Plate Reformat, Echo Dose-Response, Echo Cherry Pick, Echo Plate Audit, Echo Combination Screen, Echo Array Maker
Integrated system interface	ActiveX® controls Compatible with all Labcyte automation products: Tempo Automation Control Software 1.5.x onwards, Access Laboratory Workstation

Client Computer Specifications

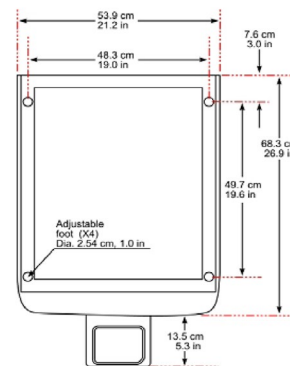
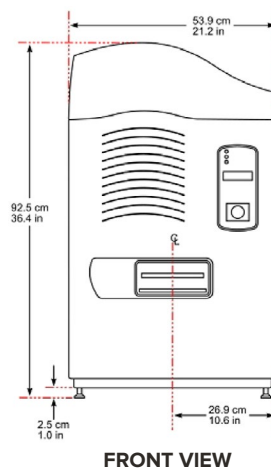
Client PC	Intel® Core™ 2 Duo processor or equivalent with Microsoft Windows 7 32, 64 bit; 1GB of RAM, minimum; 1 GB of available disk storage; video resolution of 1280 x 1024; and a 10/100/1000 baseT Ethernet port
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Operating Requirement

Temperature	21°C ± 5°C (70°F ± 9°F)
Air	Filtered, oil-free, dry air, 552 kPa/5.52 bar (80 PSI) minimum, 1034 kPa/10.34 bar (150 PSI) maximum
Vacuum (select one of the following)	<ul style="list-style-type: none"> • House supply: minimum 200 Torr (266 mbar, 22 inches Hg) • Standalone vacuum with surge tank, minimum pump speed 2.0 m³/hr (70.68 cu ft/hr), minimum pressure 100 Torr (133 mbar, 26 inches Hg)
Coupling fluid	1 L distilled water + 50 µL algacide
Coupling fluid temperature	22.1°C ± 0.9°C (71.8°F ± 1.6°F)



- (A) Maximum destination gripper extension from front cover
- (B) Destination plate "A1" corner to front cover
- (C) Source plate "A1" corner to front cover
- (D) Maximum source gripper extension from front corner



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Optional Hardware Components

Barcode Readers	
Compatible barcode reader formats	Readable bar width (mm)
CODE 39	0.19 – 1.0
ITF	0.19 – 1.0
INTERLEAVED 2 of 5	0.19 – 1.0
CODABAR	0.19 – 1.0
UPC/EAN	0.19 – 1.0
CODE 128	0.25 – 1.0
COOP 2 of 5	0.19 – 1.0
CODE 93	0.19 – 1.0

NOTE: The readable bar width expresses the range in which the width of thin barcode bars (narrow bar width) is readable.

Echo Platform [Server Version 2.5.x]

Description	Specification		
Drop transfer resolution	25 nL		
Volume transfer range	25 nL to 5 µL one well to one well 25 nL to 45 µL one well to many wells <i>Actual transfer range is dependent on fluid type and assay plate.</i>		
Source plate fill volume range			
	Echo Qualified Plate		Echo Qualified Reservoir
	384PP Plus	384PP	
Maximum	65 µL	65 µL	2800 µL
Minimum	20 µL	15 µL	250 µL
Working Range	45 µL	50 µL	2550 µL
Transfer accuracy	<10% deviation from target volume		
Transfer precision	<8% CV		
Source labware compatibility	Echo Qualified 384PP Plate (P-05525), Echo Qualified 384PP Plus Plate (PL-05525) Echo Qualified Reservoir (ER-0050)		
Destination labware compatibility	All Echo qualified microplates and most ANSI-compliant/SBS-standard microplates in 96-, 384-well formats 8 -16 mm in height. Use of 1536-well plates as destination plates is application dependent.		

Throughput Examples

Approximate fill time per plate transferred per 24-hour period, including robotic movement of microplates in and out of the instrument.

Source Plate Type	Destination Plate Type	Dispense Type	Dispense Volume per Destination Well	Destination Plate Fill Cycle Time (min)
384PP / 384PP	384	384:384	25 nL	2.2
384PP / 384PP Plus	384	384:384	1 µL	3.3
384PP / 384PP Plus	384	16:384	1 µL	3.7
384PP / 384PP Plus	384	48:384 ¹	5 µL	10
384PP Plus	1536	4 x 384:1536	25 nL	7.9
384PP Plus	1536	4 x 384:1536	1 µL	12.4

¹ Transfer from single source well to multiple target wells.

The Echo liquid handlers are for research purposes only; not for use in diagnostics. Information subject to change without notice. The Echo systems are covered by US Patent Nos. 6,416,164; 6,548,308; 6,596,206; 6,603,118; 6,610,223; 6,612,686; 6,642,061; 6,666,541; 6,707,038; 6,710,335; 6,746,104; 6,802,593; 6,806,051; 6,808,934; 6,809,315; 6,849,423; 6,855,925; 6,869,551; 6,893,836; 6,893,115; 6,916,083; 6,932,097; 6,938,987; 6,938,995; 6,991,917; 7,070,260; 7,090,333; 7,185,969; 7,270,986; 7,354,141; 7,405,072; 7,405,395; 7,439,048; 7,454,958; 7,481,511; 7,717,544; European Patent Nos. EP 1322430; 1324823; 1337325; 1352112; 1366356; 1614451; Japanese Patent Nos. 4189964; 4309131; Chinese Patent: CN 101035681. Other patents pending in the U.S. and other countries. Active X and Windows are registered trademarks of Microsoft Corporation.



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