

Echo® 550/555

LIQUID HANDLER

TECHNICAL SPECIFICATIONS

Version 2.0 | OCTOBER 2016

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

Operating Requirements

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 Vac) • 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 Vac)
Coupling fluid	Type 1 ultra-pure water
Coupling fluid temperature	22.1°C ± 0.9°C (71.8°F ± 1.6°F)

Client Computer Specifications

Client PC (minimum requirements)	Microsoft® Windows® 7 using 32- or 64-bit OS; Intel® Core™ 2 Duo processor or later; 1GB of RAM or greater; 1 GB of available disk storage; display resolution of 1280 x 1024; 10/100/1000 baseT ethernet port; ActiveX; C, C++, C#, Visual Basic, Visual J#, or Windows .Net Framework compatible
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Software Specifications

Client operating software	Microsoft Windows 7 32-bit or 64-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

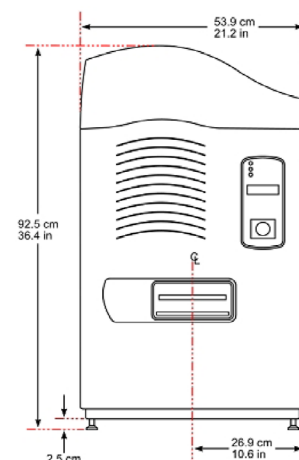
*For Windows 7 64-bit, additional configuration of the client PC is required.



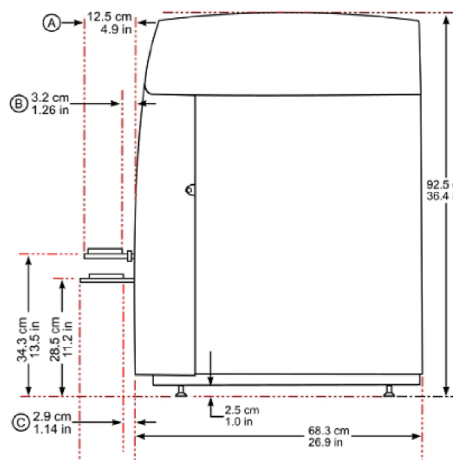
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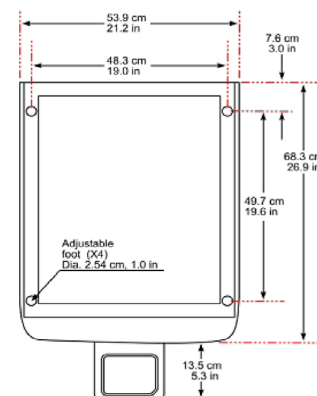
Echo® 555 shown



FRONT VIEW



SIDE VIEW



TOP VIEW

Optional Hardware Components (available from Labcyte)

Echo Client Computer	
Dell OptiPlex XE2	Operating system: Microsoft Windows 7 32-bit
CPU	Intel® Core™ XE2 i5-4570S 2.9 GHz processor
Memory	4GB RAM or greater
Display	1280 x 1024 resolution
Ethernet	2 Gigabit 10/100/1000 (<i>two ethernet cards</i>)
Accessories	<ul style="list-style-type: none"> • Microsoft Office 2016 • 22" monitor DVI-D/DP/VGA • Dell USB keyboard (black) • Dell MS111 USB optical mouse, OptiPlex and Fixed Precision • Labcyte mousepad
Vacuum	Vacuubrand Vacuum System MZ 2S NT
Air compressor	JUN-AIR 0F302-4B; oil-less

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 volume	2.5 nL
Volume transfer range	2.5 to 10,000 nL <i>(the range is dependant on the fluid type, assay, and source plate used)</i>
Transfer accuracy	<10% deviation from target volume
Transfer precision	<8% CV*
DMSO hydration accuracy	<8% deviation from target
DMSO hydration precision	<5% CV
Source labware compatibility	All Echo® qualified 384- and 1536-well microplates
Destination labware compatibility	All Echo qualified microplates and most ANSI-compliant/SBS-standard microplates in 96-, 384-, 1536-, and 3456-well formats 8 to 16 mm well height

* Excluding protein crystallography fluid class

Throughput Examples

Approximate plate transferred per 24 hour period and plate processing time. Times include plate surveying, Dynamic Fluid Analysis, liquid transfer, and automated plate loading and unloading.

Volume Dispensed: 2.5 nL					
Plate type and reagent	Dispense type	Destination plate fill cycle time (minutes)		Plates per 24-hour period	
Echo® Liquid Handler Model		555	550	555	550
384PP with DMSO	384:384	1.6	2.7	900	525
384PP with aqueous solutions	384:384	2.1 - 2.4	3.4	685 - 610	420
384PP for protein crystallography	384:384	2.9	3.9	384	370
384LDV with DMSO	384:384	1.7	2.8	870	515
384LDV with aqueous solutions	384:384	1.7	2.8	870	515
1536LDV with DMSO	1536:1536	2.8	4.6	515	310
1536LDV high-throughput with DMSO	1536:1536	2.8	n/a	515	n/a

Volume Dispensed: 100 nL					
Plate type and reagent	Dispense type	Destination plate fill cycle time (minutes)		Plates per 24-hour period	
Echo® Liquid Handler Model		555	550	555	550
384PP with DMSO	384:384	2.1	4.1	675	354
384PP with aqueous solutions	384:384	2.6 - 3.0	4.1	555 - 485	355
384PP for protein crystallography	384:384	6.3	7.4	230	195
384LDV with DMSO	384:384	2.2	4.1	645	355
384LDV with aqueous solutions	384:384	3.0	4.1	485	355
1536LDV with DMSO	1536:1536	6.7	8.5	215	170
1536LDV high-throughput with DMSO	1536:1536	4.9	n/a	295	n/a

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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