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Dimension EXL with LM Integrated Chemistry System

Technical Specifications

www.siemens.com/diagnostics

Global Siemens Headquarters
Siemens AG
Wittelsbacherplatz 2
80333 Muenchen
Germany

Global Siemens Healthcare Headquarters
Siemens AG, Healthcare
Henkestrasse 127
91052 Erlangen
Germany
Telephone: +49 9131 84-0
www.siemens.com/healthcare

Global Division
Siemens Healthcare Diagnostics Inc.
511 Benedict Avenue
Tarrytown, NY 10591-5005
USA
www.siemens.com/diagnostics

Dimension® EXL™ with LM Integrated Chemistry System

Product Specifications

System Description	Random-access clinical chemistry and immunoassay system with LOCI® chemiluminescence technology
Test Throughput	Performs up to 440 photometric chemistry tests per hour and 187 IMT tests per hour on serum, plasma, urine, and cerebrospinal fluid; can perform up to 167 heterogeneous immunoassay tests per hour
Time to First Result	IMT (NA, K, CL): 1.5 min; Electrolytes (IMT + ECO2): 2.9 min; BMP-7 (Electrolytes, GLU, BUN, CREA) 4.0 min; CMP-6 (ALB, DBIL, TBIL, AST, ALT, ALP): 9.3 min; TNI: 11 min; HCG: 15.5 min
Assays Onboard	91, including 3 IMT
Disease-state Assay Groups	Anemia, Autoimmune/Rheumatoid, Bone Metabolism, Cardiovascular, Diabetes, Drugs of Abuse/Toxicology, Hepatic Diseases, Immunosuppressive Drugs/TDM, Inflammation, Nephropathies, Nutritional Assessment, Pancreatic Disease, Oncology, Reproductive Endocrinology, Thyroid

Sample Handling

Sample Tubes	5 mL, 7 mL, 10 mL tubes; 1.5 mL sample cups; 1.0 mL small sample containers and pediatric tubes
Sample Wheel	60 sample positions in six 10-tube segments; positive sample identification
STAT Handling	Not dedicated; STAT samples are processed with priority
Sample Integrity Control	Qualitative check for hemolysis, lipemia, and icterus; clot detection, flagging, and management; short-sample detection, flagging, and management
Auto-Repeat	Automatic repeat testing from the original sample
Sample Volume Per Test	2–60 µL
Sample Dilution	Automatic dilution: 1:1.5 up to 1:200
Auto-Reflex Testing	Automatic reflex testing based on results of first test
Primary Sample Probe	Liquid-level sensing, clot detection, short-sample detection
Sample Carryover Prevention	Automated wash
Sample Throughput	Up to 200 tubes per hour as part of the VersaCell® X3 Solution – Dimension® Suite; faster on automation

Bar Codes

Sample Bar Codes	Code 39; Code 128;, Codabar (USS); Interleaved 2 of 5 w and w/o check digit, 12 digits maximum

Reaction Area

Reaction Cuvettes	Onboard capacity of 12,000 formed cuvettes
Reaction Bath	Air; incubation temperature 37°C
Path Length	0.5 cm ±0.0125 cm
Photometer	The filter wheel holds optical filters for wavelengths of 293, 340, 383, 405, 452, 510, 540, 577, 600, 680, and 700 nm
Light Source	Standard tungsten halogen lamp, operation at 6.5A (6.8v)
Reaction Times	1, 3, 4, 5, 10, 15, 21, and 32 minutes
Automatic Correction	Serum blank, cell blank, reagent blank, measurement point change, autodilution
Assay Technologies	LOCI, heterogeneous immunoassay, PETINIA and ACMIA, photometry, potentiometry (ISE), turbidimetric, and Emit®
Assay Result Calculations	Endpoint, rate, multipoint

Reagent Handling

Reagent Tray	2 trays, 44 positions each, refrigerated between 2–8°C (36–47°F); one on the Reagent Management System (RMS)
Reagent Capacity Onboard	88 Flex® Reagent Cartridges plus 3 electrolytes via the QuikLYTE® IMT
Dispensing System	3 probes with liquid-level sensing
Reagent Cartridges	Flex Reagent Cartridges, bar coded, 15 to 360 tests/flex
Average Total Reaction Volume	350–500 µL per test
Reagent Integrity Control	Bar-code reagent identification; automatic inventory tracking and flagging; calibration and control validity tracking and flagging; reagent onboard tracking of tests remaining, lot number, onboard stability, and expiration date
Onboard Stability	Depending on assay, up to 42 days
Test Capacity Onboard	25,200 tests average; 33,300 tests maximum

Open-system Capability

Channels	110 assay channels; includes 10 channels for user-defined applications

IMT

IMT	Indirect simultaneous measurement of Na+, K+, Cl-
Sample Volume	40 µL for all three tests
Priming	Automatic priming cycle, no user calibration, automatic urine dilution 1:10
Expected Use	1000 samples or 5 days, whichever comes first

Calibration/QC

Validated Calibration Interval	Up to 90 days, tracked by software, with 500 most recent calibration logs stored electronically if a system restore is required (starting with software version 10.1)
Auto-calibration	Assay-specific time interval or with new reagent lot
Auto-QC	User-defined time interval
View Calibration	Graphical display of calibration curves
QC Data	Graphical display of QC plot (histogram or Levey-Jennings) with Westgard Rules; RealTime QC; QCC PowerPak™ efficiency package

User Interface/Data Management

Monitor	17-inch diagonal touchscreen with adjustable height
Operating System	Linux, 1 GB RAM
System Documentation	Operator manual
Data Storage	100,000 patient tests (10 MB), 100,000 QC results (10 MB), 9000 calibrations (5 yrs, 18 MB)
Auto-System Check	User-defined time of day
Host Interface	RS-232C bidirectional
Host Query	System requests work order or batch of work orders from host
Remote Access and Service	Ethernet port for remote access via Siemens Remote Service (starting with software version 10.1); modem for remote diagnostic access

Removable Media

Removable Media	CD, DVD, and USB (starting with software version 10.0)

General Specifications

Power Requirements System	115 VAC at 60 Hz (nominal); 11 amps max; 1.3 kW consumption in operating state 230 VAC at 50 Hz (nominal); 5.5 amps max; 1.3 kW consumption in operating state
Power Requirements RMS	115 VAC at 60 Hz (nominal); 4 amps max; 450 W consumption in operating state 230 VAC at 50 Hz (nominal); 3 amps max; 450 W consumption in operating state
Water Specifications[1]	• Instrument feed pressurized water source <3.8 bar (<55 psi) • Instrument feed water system must maintain stable DO2 content between 5 and 8 ppm[2] • Temperature: <35°C (<95°F) • Resistivity: >10 megohms cm • Bacterial content: <10 colony forming units/mL • System feed water line must not exceed 3 m (12 feet)
Water System	• Instrument may be supplied with a water purifier that provides instrument feed water • If an alternative water system is used, water must adhere to Siemens water specifications
Maximum Water Consumption	5.0 L/hr (1.32 gal/hr)
Drain Requirements	40 L/hr (10.6 gal/hr)
Dimensions	Normal operation: 252 cm W x 122 cm H x 132 cm D (99 in. W x 48 in. H x 52 in. D) With monitor fully extended, lids fully open, and external UPS: 255 cm W x 191 cm H x 155 cm D (100 in. W x 75 in. H x 61 in. D)
Weight	496 kg (1095 lb)
Compliance	Complies with international environmental, health, and safety standards
Noise Emission	<75 dB at 1 m while operating
Average Heat Output	1551 W/hr (5293 BTU/hr)
Operating Temperature Range	18–30°C (64–86°F)
Ambient Humidity	20–80% (noncondensing)

References:

1. Meets the definition of CLSI Clinical Laboratory Reagent Water (Clinical Laboratory Standards Institute, C3-A4, Vol. 26, No. 22).
2. Not applicable to CLSI Clinical Laboratory Reagent Water (CLRW), but required for proper instrument performance.