# Dimension EXL 200 Integrated Chemistry System

## Technical Specifications

### Overview
The Dimension® EXL™ 200 Integrated Chemistry System offers revolutionary chemiluminescent technology and automated, productivity-enhancing features that assure unparalleled performance for the smaller-sized laboratory.

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<td>Methods Capacity Onboard</td>
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### Sample Handling

| Sample Tubes | 5 mL, 7 mL, 10 mL tubes, 1.5 and 1.0 mL sample cups, pediatric tubes |
| Sample Area | 60 samples in 5 x 10 tube segments, positive sample identification |
| Sample Integrity Check | Qualitative check for hemolysis, lipemia, and icterus |
| STAT Sample Loading | 60, not dedicated |
| Bar Codes | 39, Code 128, Codabar (USS) Interleaved 2 of 5 w and w/o check digit |
| Auto-Repeat | Automatic repeat testing from the original sample |
| Auto-Dilution | Automatic dilution from original sample |
| Auto-Reflex Testing | Automatic ability based on results of first test |
| Primary Probe | Liquid level sensing, clot check, short sample detection |

### Microvolume Technology

| Method-Specific Autodilute Capability | 1–1.6 up to 1–200, automatic urine dilutions |
| Original Sample Volume | 2 – 60 mL |
| Average Reagent Volume | 80–120 µL per test |
| Storage Capacity Onboard | 12,600 tests average; 16,650 tests maximum |

### Reaction Area

| Reaction Tray | 12,000 cuvettes formed onboard |
| Path Length | D1+T3 - [E1+T1+T2] = 0.5 cm +/- 0.0125 cm |
| Photometer | The filter wheel holds the optical filters (293 nm – 700 nm) 293 nm, 340 nm, 383 nm, 405 nm, 452 nm, 510 nm, 540 nm, 577 nm, 600 nm, 700 nm |
| Light Source | Standard tungsten halogen lamp, operation at 6.5A (6.8v) lamp current provides >1µA of zero absorbance measurement current at any wavelength except 293 nm |
| Assay Methods | Endpoint, rate, multipoint, homogeneous immunoassay, turbidometric, LOCI |
| Reaction Times | 3, 4, 5, 10, 15, and 21 minutes |
| Automatic Correction | Serum blank, cell blank, reagent blank, measurement point change, autodilution |

### Reagent Handling

| Reagent Tray | 1 tray, 44 positions |
| Reagent Capacity Onboard | 44 Flex® Reagent Cartridges plus 3 electrolytes via the QuikLYTE® IMT |
| Dispensing System | 2 probes with liquid level sensing |
| Reagent Wedges | Flex® Reagent Cartridges, bar coded, 15 to 240 tests/level |
| Reagent Inventory Management | Tracks tests remaining, lot number, onboard stability, and expiration date |
| Onboard Stability | Up to 30 days |
Dimension EXL 200 Integrated Chemistry System

Open System Capability

Channels
10 channels, includes user-defined applications

Buyer Third-Party Applications
Varies by country, can be configured on system

ISE

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

Electrode Shelf Life
1,000 samples or 5 days

Throughput Rate
187 tests/hour; 62 tubes/hour

Calibration/QC

Calibration Interval
Up to 90 days, tracked by software

Auto-Calibration/Auto-QC
User-defined time interval or with new reagent container

View Calibration/QC Data
Graphical display of calibration curves and QC; RealTime QC

Data Management

Operating Computer
Linux Operating System, 1 GB RAM, touch screen monitor 17”

System Documentation
Operator manual and method sheets online

Host Interface
RS 232C bidirectional

Data Storage
100,000 patient tests (10 MB), 100,000 QC results (10 MB), 9,000 Calibrations (5 yrs, 18 MB)

Host Query
ASCII; system requests work order or batch of work orders from host

General Specifications

Water Requirements
- Instrument is supplied with a water purifier that provides instrument feed water
- Instrument feed water system must maintain stable d02 content between 5 and 8 ppm
- Consumption 1.32 gal/hr (5.0L/hr) at maximum throughput
- Temperature: <35°C
- Resistivity: >10 megohms cm
- Bacterial content: <10 colony forming units/mL
- System feed water line must not exceed 12 feet
- Water system may or may not be a part of the sale. Customer may purchase their own water system. If the customer purchases the Millipore system, they must adhere to Siemens water specifications.

Drain Requirements
Maximum of 10.6 gallons (40 liters) per hour

Dimensions
56” W x 49” H x 41” D (without monitor)

Weight
770 lbs (349 kg)

Noise Specifications
<75 dBa at 1 m while operating

Average Heat Output
3,753 BTU/hr

Operating Temperature Range
64° – 86°F (18° – 30°C)

Power Requirements

<table>
<thead>
<tr>
<th></th>
<th>Dimension EXL 200 System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Line Voltage vac</td>
<td>115</td>
</tr>
<tr>
<td>Line Voltage Range vac</td>
<td>230</td>
</tr>
<tr>
<td>Nominal Line Frequency Hz</td>
<td>47 to 63</td>
</tr>
<tr>
<td>Maximum Continuous Current, AMPS</td>
<td>-11</td>
</tr>
<tr>
<td>Power Consumption WATTS</td>
<td>1265</td>
</tr>
<tr>
<td></td>
<td>1265</td>
</tr>
</tbody>
</table>

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Dimension® Xpand® Plus
Instrument Specifications

Effective: November 2008

Instrument Weight and Dimensions

Weight
765 lb (348 kg) Basic
783 lb (356 kg) with Heterogeneous Immunoassay (HM) Module

Dimensions
51 in. wide x 45 in. high (without monitor) x 31 in. deep
(129 cm w x 114 cm h x 79 cm d)

Additional Instrument Clearances (Minimum)

- Monitor overhead clearance—62 in. (157 cm)
- Monitor left side clearance—34 in. (86 cm)
- Raised instrument lids clearance—70 in. (178 cm)
- Cooling fan clearance on right side—3 in. (8 cm)
- Ventilation clearance in back—6 in. (16 cm)
- Doorway opening for installation—32 in. (81 cm)

Notes: No leveling required; however, the two front casters should be locked during system operation.

A 360° access is needed for service. Installation and service require at least 36 in. (91 cm) of working space on each side. Access to the back of the instrument requires moving it forward.
**Room Environment**

**Operating Temperature**
Room temperature must be 65–85°F (17–30°C) with a maximum fluctuation of 5°F (2.8°C) per hour. The system requires a maximum of 120 minutes to warm up from a cold start to the incubation temperature.

**Relative Humidity**
Maintain between 20% and 80%

**Average Thermal Output**
3753 BTU/hr (1100 W)

**Average Noise Output**
<70 dBA at 1 m while operating

**Water Requirements**
- Instrument feed water: must maintain stable dO2 content between 5 and 8 ppm
- Consumption 0.53 gal/hr (2.0 L/hr) at maximum throughput
- Temperature: < 35°C
- Resistivity: ≥ 10 megohms cm
- Bacterial content: ≤ 10 colony-forming units/mL
- System feed water line must not exceed 12 feet
- System is supplied with water system

**Waste Requirements**

**Liquid Waste Output**
0.53 gal/hr (2.0 L/hr) at maximum throughput

A 50-ft (15.2-m) tubing is supplied for external waste disposal. Maintenance of the waste tubing from the instrument to the disposal point is the responsibility of the user. The disposal point should be selected in accordance with local hazardous waste guidelines.

**Electrical Installation Requirements**

**Current/Operating Power Requirements**

<table>
<thead>
<tr>
<th>Xpand® Plus system</th>
<th>Nominal Line Voltage vac</th>
<th>Line Voltage range vac</th>
<th>Nominal Line Frequency Hz</th>
<th>Maximum Continuous Current, AMPS</th>
<th>Power Consumption WATTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>115</td>
<td>103 to 127</td>
<td>47 to 63</td>
<td>~11</td>
<td>1265</td>
</tr>
<tr>
<td>system with HM</td>
<td>230</td>
<td>207 to 253</td>
<td>47 to 63</td>
<td>~5.5</td>
<td>1265</td>
</tr>
</tbody>
</table>

**Recommended Service Outlet**

- 115 vac, 60Hz, Single Phase, 20A (North America)
- 230 vac, 50Hz, Single Phase, 16A (EU)*
  *230 VAC/13A for U.K.

**Transient Overvoltage**

Installation Category II (branch circuit)

**Circuit**
The instrument must have a separate, dedicated line with Hot, Neutral, and Isolated Ground in its own conduit. The conduit should start at the distribution panel and be continuous to the receptacle. Three-wire distribution to the receptacle is required for each instrument. The third (green) ground wire should start at the distribution panel and be continuous to the receptacle in accordance with NEC paragraph 250.146(d) unless local codes prohibit. The ground wire should not be tiedgrounds from other loads.

**Receptacle**

Customer must provide a Hospital Grade receptacle, installed by a qualified electrician before arrival of the instrument. The receptacle must be accessible to the 9-ft (2.7-m) power cord furnished with the instrument. The U.S.A. requires NEMA #5-20R 20 amp straight blade receptacle (Hubbell receptacle No. IG-8310 or equivalent).

**Electromagnetic Radiation**

Do not locate the instrument within 50 ft (15 m) in any direction of an electromagnetic radiation source such as diathermy apparatus.

**Leakage Current**

<table>
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<tr>
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<th>115 vac/60 Hz</th>
<th>230 vac/50 Hz</th>
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<tbody>
<tr>
<td>Normal Supply Connections</td>
<td>Under 10 µA</td>
<td>Under 100 µA</td>
</tr>
<tr>
<td>Ground Disconnected</td>
<td>Under 70 µA</td>
<td>Under 150 µA</td>
</tr>
<tr>
<td>Measurement Standard</td>
<td>UL3101-1</td>
<td>EN61010-1</td>
</tr>
</tbody>
</table>

This complies with the requirement of UL 3101-1, CSA C22.2 #1010.1 and TUVS Certification for EN61010-1 safety standards for laboratory equipment in non-patient-vicinity laboratory equipment.
Phone Line Requirement

A dedicated phone line connected to the Dimension® Xpand® Plus system is required for installation.

- Dedicated, direct line connected only to the Dimension® Xpand® Plus system (not through a switchboard)
- Full duplex, capable of two-way transmission
- Standard phone connection (not digital)
- RJ11C or RJ11W phone jack

Host Interfacing

A 25-pin female connector is required for hookup to the male connector used for host communications port.

Installation

The Dimension® Xpand® Plus clinical chemistry system will be installed by a qualified representative of Siemens Healthcare Diagnostics Inc. The installation will include checkout of all aspects necessary to ensure the equipment is fully operational.

Preventive Maintenance Frequency

Four Siemens service preventive maintenance visits per year for the Dimension® Xpand® Plus system with HM.

Three Siemens service preventive maintenance visits per year for the Dimension® Xpand® Plus system without HM.

Code Compliance

Safety Compliance

The Dimension® Xpand® Plus system has been designed and tested to comply with safety standards UL3101-1, CSA C22.2 #1010.1 and EN61010-1 under the following environmental conditions [subclause 1.4]:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Temperature</td>
<td>5°C (41°F) to 40°C (104°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>Maximum 80% at 31°C to 50% at 40°C</td>
</tr>
<tr>
<td>Altitude</td>
<td>Maximum 2,000 m (6,562 ft)</td>
</tr>
<tr>
<td>Main Supply</td>
<td>115±10% vac or 230±10% vac, 50/60Hz</td>
</tr>
<tr>
<td>Overvoltage Category</td>
<td>Category II, connected to a branch circuit</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>Degree 2, normal indoor laboratory environment. Air contains only non-conductive pollutants with occasional condensation.</td>
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Additional functional environmental conditions are discussed earlier in this document.

Emission Compliance

The Dimension® Xpand® Plus system has been designed and tested to EN55022 Class A. In a domestic environment it may cause radio interference, in which case you may need to take measures to mitigate the interference.

The Dimension® Xpand® Plus system should not be used next to any Industrial Scientific and Medical (ISM) equipment that must functionally produce RF energy (e.g., diathermy equipment).

Barcode Scanner

The barcode scanner uses Class I LEDs (light-emitting diodes) and is not hazardous to your eyes.
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| Auto-Dilution | Automatic dilution from original sample |

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