HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER MATERNITY AND CHILDREN HOSPITAL

Department:	Laboratory and Blood Bank (Chemistry)		
Document:	Internal Policy and Procedure		
Title:	Quick Guide for DimensionEXL200 machines		
Applies To:	All Laboratory Staff		
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1. PURPOSE:

1.1 This policy provides all the information about the handling and operational technique for the DimensionEXL200 machine.

2. DEFINITONS:

2.1 N/A

3. POLICY:

3.1 The DimensionEXL200 is an auto analyzers used in Clinical chemistry section for analysis of different chemistry parameters after performing complete and correct calibration and running quality control for these different chemistry parameters.

4. PROCEDURE:

4.1 Principle of the DimensionEXL200 machine is Photometric and ion selective electrode methods.

4.2 **Safety Precaution:**

4.2.1 Biological: Treat all samples material as infectious

4.2.2 Chemical: Beware of some chemical that may causes irritation.

4.2.3 Physical: Avoid touching the probes and other moving parts during operation, which may cause injury

4.2.4 Electrical: Make sure that machine is directly plugged to emergency socket (not through an extension cord).

4.3 **Method:**

Test	Sample size(ul)	Reagent size	Filter	Type of measurement	Assay ranges	Types of calibrators
GLU	3 UL	R1 56 ul	340/383 nm	Biochromatic - End-Point		CHEM1-3 levels
BUN	3 UL	R190 µL	340/383 nm	Biochromatic - rate		CHEM1-3 levels
CRE 2	20 UL	R1 74ul R2 18 ul	510/600 nm	Biochromatic - rate		CHEM1-3 levels
UA 2	17 UL	R1 132 µl R2 264	293/700 nm	Biochromatic - End-Point		CHEM1-3 levels
CA	5 UL	R1 145 ul R2 33ul	293/700 nm	Biochromatic - End-Point		CHEM1-3 levels
PHOS	3 UL	R1 50 ul R2 20ul R3 20 ul	340/383 nm	Biochromatic - End-Point		CHEM1-3 levels
T.BIL	10 UL	R1 250 ul R2 47 ul	340/383 nm	Biochromatic - End-Point		TBI/DBI calibrator

D.BIL	10 UL	R1 25 u R2 50ul	340/383 nm	Biochromatic - End-Point		TBI/DBI calibrator
AST	40 UL	R1 100u R2 65 ul	340 /700nm	Bichromatic rate		Enzyme verifier
ALT	35 UL	R1 30 ul R2 80ul	340 /700nm	Bichromatic rate		Enzyme verifier
ALP	7 UL	R1 14ul R2 45ul R3 45ul	405/510 nm	Bichromatic rate		Enzyme verifier
AMYL	14 UL	R1 220u	405/577 nm	Bichromatic rate		Enzyme verifier
TP	15 UL	R1 85 ul R2 85ul	540/700 nm	Biochromatic - End-Point		Total Protein/Albumin calibrator. Purified human albumin
ALB	5 UL	R1 125 ul	540/600/700 nm	Biochromatic - End-Point		
CHOL	3 ul	R1 88ul R2 26ul	452,540,700 nm	Biochromatic - End-Point		Chol Calibrator
TRIGL	4 ul	R1 133 ul	510-700 nm	Biochromatic - End-Point		CHEM1-3LEVELS
AHDL	3 ul	R1 300ul R2 100ul	700/600 nm	Biochromatic - End-Point		AHDL cal
CK			340/540nm	Bichromatic rate		CKI/MBI Calibrators.
CKMB			340/540nm	Bichromatic rate		
LDI	8 ul	R1 106u R2 50ul	700/340 nm	Bichromatic rate		ENZ 1 CAL
IRON	40ul	R1 200ul R2 70ul	700/600 nm	Bichromatic - End-Point		IRON cal
IBCT	25 UL	R1 36ul R2 25ul	700/600 nm	Bichromatic - End-Point		IBCT cal
AMON	53 UL	R1 155ul R2 50ul	340/383 nm	Bichromatic rate		Ammonia cal
LA	4 UL	R1 158ul R2 20ul R3 75 ul R4 20 ul	383/340 nm	Bichromatic - End-Point		CHEM I-3levels
UCFP	10 UL	R 350 ul	700/600nm	Bichromatic - End-Point		UCFP cal
MG	4 UL	R1 100ul R2 200ul	600/510 nm	Bichromatic - End-Point		CHEM II-3LEVELS
MALB	17 UL	Particle R 76 ul Antibody R 76 ul_	700/340 nm	Turbidimetric rate		MALB cal 5level

4.4 **Operating the machine:**

4.4.1 Start up

4.4.2 Delete all segment positions : Press ALT+S

4.4.3 Press F3:

4.4.4 Delete: Respond to prompts

4.5 **Calibration: Main screen**

4.5.1 F5: process control

4.5.2 F1: calibration
4.5.3 F2: SET UP&RUN (Select the method to be calibrated by pressing its test key, enter the lot, Enter the segment position where you will place the first cup, and enter the bottle value).
4.5.4 F8: QC YES/NO (To change QC levels to yes)
4.5.5 F4: Assign cups
4.5.6 F7: load run
4.5.7 F4: Run (Then waiting for the printed results for calibration).

4.6 **Control: Main screen**
4.6.1 F1=enter data
4.6.2 Enter the position and desired tests for qc
4.6.3 F4=next priority (Change the priority: From routine to Serum QC or urine QC)
4.6.4 F8=next fluid (Change the Fluid (From serum or QC1to urine or serum QC2)
4.6.5 F1= to save the control or F2 to process sample, then run.

4.7 **Running of Sample: Main screen**
4.7.1 F1=enter data
4.7.2 Choose rack no
4.7.3 Choose position no
4.7.4 Choose type of sample(serum/plasma--)
4.7.5 CHOOSE STAT OF RACK sample
4.7.6 Specimen no of patient on sample ID
4.7.7 Select tests
4.7.8 F1(new sample) then run

4.8 **Shut down: Exit**
4.8.1 main screen the options appear
4.8.2 Restart
4.8.3 Install or update software
4.8.4 Prepare to turn off the instrument
4.8.5 More options
4.8.6 Type a number to select an option then press enter

4.9 **Daily Cleaning:**
4.9.1 The instrument and areas around it should be kept clean based on guidelines set by manufactures in in the operator's manual.
4.9.2 Cleaning spill immediately.
4.9.3 Routinely clean the outside surfaces of the entire Dimension XL200 clinical chemistry system using a cloth dampened with warm soapy water.
4.9.4 Ample probe, reagent probe and sample area should be cleaned together with IMT sample probe according to the instructions provided by the manufacturers in the operator's manual.

4.10 **Daily Maintenance:**
4.10.1 Clean the sample area and empty cuvette waste.
4.10.2 Run a system check.
4.10.3 Record system check results in the daily maintenance log.

4.11 **Weekly/ Monthly maintenance:**
4.11.1 Clean outside of R2 and HM wash probes
4.11.2 Clean IMT port.
4.11.3 Replace / Clean IMT pump tube.
4.11.4 Replace mono pump rotary valve seal

4.12 **Quality Control Check:**
4.12.1 Run normal and pathological control every day as per laboratory policy
4.12.2 The analytical value must fall within assigned range.
4.12.3 Document quality control activities on daily basis.
4.12.4 Check Levy-Jennings graph.
4.12.5 Check violation of rule.
4.12.6 Take print out of Levy-Jennings graph on monthly basis and document it.

4.13 **Results Reporting:**
4.13.1 Format: X or Y Numeric

4.13.2 Turnaround time following the TAT policy for ER, Stat and routine samples.

4.14 **Understanding Test Report Messages:**

4.14.1 Abnormal Assay (abnl assay) : indicates that the expected absorbance was not met for a specific cuvette. This result cannot be reported. First check if sufficient amount of sample present and Rerun the sample. If the same message appears do the flowing: Run a QC sample for that method. If the message reoccurs, remove and confirm the removal of the Flex® reagent cartridge for the method. Then add that same Flex® reagent cartridge back into the instrument. If the instrument will not accept it, obtain and add a new Flex® reagent cartridge. Then, rerun the sample. If the message reoccurs, call the Technical Assistance Center.

4.14.2 Abnormal Reaction (abnl reaction): Indicate an abnormal condition (foaming, air bubbles, or turbidity) occurred in the reaction mixture in the cuvette. This result cannot be reported. Align the sample and reagent probes, and then rerun the sample.

4.14.3 Aborted test: An action by either the operator or instrument aborted this test. Rerun the test.

4.14.4 Absorbance: The result is above the method assay range and cannot be calculated. Manually dilute the sample and rerun the test. Make the smallest dilution possible to bring the result down into the assay range. Enter the dilution factor on the Sample Data screen and the instrument will multiply the result by this factor for you.

4.14.5 Assay Range: The result is above or below the method assay range listed in Method Parameters on the instrument. Can be either low or high. If the result is LOW, analyte values may be depressed below the assay range because the patient sample has very little or no concentration of the analyte, or insufficient sample is present. If the result is HIGH, do proper dilution for the test method.

4.14.6 Hemoglobin (TBL and DBL): When this message appears with TBL or DBL result, it indicates a hemoglobin concentration greater than 100 mg/dL and will lower the DBIL result for that sample.

4.14.7 High 'A' Error (high 'A' err): The absorbance at the measurement wavelength was higher that the limit set in the system software for that method. Do proper dilution for the test method.

4.14.8 Low 'A' error (low 'A' err): he absorbance at the measurement wavelength was lower than the limit set in the system software for that method may cause by very little or no concentration of the analyte, or insufficient sample is present.

4.14.9 Measurement: during photometric measurement, the system detected an insignificant software timing error. Run sample. If this error recurs for a photometric method, a problem may exist in the instrument measurement system. Call the Technical Assistance Center.

4.14.10 Process Error: error occurred that prevented the system from determining the result. Rerun sample.

4.15 **How to make dilution:**

4.15.1 For example, to make a 1:5 dilution of 100 L of sample. you would add 400ul of diluents to the 100 ul of sample.

Volume of Sample Dilution Factor = Total Dilution Volume 100 ul, * 5 = 500 ul Total Dilution Volume— Volume of Sample = Volume of Diluent 500 µL — 100 ul = 400 ul

4.16 **Test Limitation:**

4.16.1 Recognizing Errors.
4.16.2 Reagent deterioration.
4.16.3 Variation in reconstitution of control material
4.16.4 Instability of the control material.
4.16.5 Inaccuracy of the standard.
4.16.6 Hemolyzed sample
4.16.7 Lipemic sample.
4.16.8 Icteric sample

4.17 **Avoiding Errors:**

4.17.1 Discard deteriorated or outdated reagents.

4.17.2 Exercise proper preparation, storage and shell-life of control material.
4.17.3 Kit calibration.
4.17.4 Adjustment of machine by maintenance Daily. Weekly and monthly.

4.18 **Errors Correction:**

4.18.1 Check the sample cups for sufficient amount, air bubble.
4.18.2 Check fibrin clots for patient's samples.
4.18.3 Repeat control.
4.18.4 Repeat calibration
4.18.5 Repeat the patient's samples from original tube.
4.18.6 Ask for fresh sample if required.

5. MATERIALS AND EQUIPMENT:

5.1 **Materials:**

5.1.1 Non-consumable material
- 5.1.1.1 Dimension machines.
- 5.1.1.2 Computer terminal
- 5.1.1.3 Water supply

5.1.2 Consumable materials:
- 5.1.2.1 Calibrators.
- 5.1.2.2 Controls
- 5.1.2.3 Serum / Plasma / Body fluids
- 5.1.2.4 Distilled water
- 5.1.2.5 Reagents

6. RESPONSIBILITIES:

6.1 Chemistry shift on charge is responsible for maintenance, running calibration and control and samples
6.2 Chemistry staff are responsible for running samples all over the day

7. APPENDICES:

7.1 Maintenance Dimension

8. REFERENCES:

8.1 Operative manual of the instrument

9. APPROVALS:

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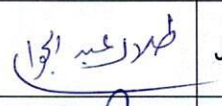
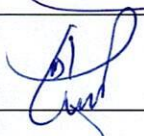
Prepared by:	Dr. Talal Abdelgawad	Clinical Pathologist		January 06, 2025
Reviewed by:	Dr. Kawther M. Abdou	Consultant & Lab. Medical Director		January 08, 2025
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