BioCheck DXDATA™

Automated Chemiluminescent Immunoassay Analyzing System

FOR PROFESSIONAL USE ONLY

REF

DXD-0001

IVD

CE





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Symbols List

Symbol	Description	Symbol	Description
IVD	In Vitro Diagnostic equipment	REF	Catalog Number
SN	Serial Number		Consult Instructions for use
I	Power on	0	Power off
C€	European Conformity	<u> </u>	Caution
	Manufacturer		Waste of electrical and electronic equipment
	High temperature, do not touch these areas		Biological hazard

1. About this manual

This manual contains the necessary information for safe, proper, and effective operation of the DxDATA TM Automatic Chemiluminescent Immunoassay Analyzing System (hereinafter referred to as " DxDATA TM "). Please read this manual carefully before operating the DxDATA TM.

2. About DxDATATM

This section includes the intended use, operating characteristics, and instrument performance of the DxDATA TM .

2.1 Intended Use

DxDATA TM is an automated discrete loading chemiluminescence enzyme-linked immunosorbent assay (CLIA) and magnetic particle separation analyzing system that uses indirect chemiluminescence based on a chemiluminescent substrate (APS-5) and alkaline phosphatase for qualitative or quantitative testing, including immune function, autoantibodies, tumorassociated antigens, myocardial diseases, hormones, proteins and peptides, sugars and their metabolites, liver diseases, coagulation markers and other items in human serum, plasma and whole blood samples.

2.2 Specifications and performance

Instrument type	Automated chemiluminescent immunoassay
	analyzing system
Model	DxDATA TM
Number of Channels	8-channel parallel detection
Sample material	Whole blood, serum, plasma
Sample volume	30-150μl
Wavelength	300-650nm
Data storage	Patient data: more than 100,000 samples (tests)
QC data	More than 100,000 results
Size	400 (W) * 610 (D) * 645 (H) mm
Weight	35 kg
Electrical requirements	110/220 VAC
Rated power supply	110/220V 60/50 Hz 300W
Printer	Built in
Computer	Built in
Screen	10 in LCD touch screen (800 x 600) pixels
Operating System	Microsoft Windows 10 Enterprise

3. Details of DxDATA ™

This section describes the measurement principle, equipment structure, and accessories used in DxDATA TM .

3.1 Principle of detection

The detection principle used by DxDATA [™] is Chemiluminescent Immunoassay (CLIA), and the reagents used in each test are stored in a special, individually packaged cassette sealed with aluminum foil.

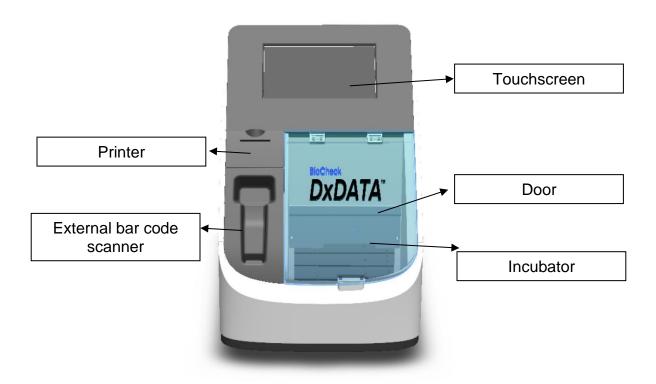
The DxDATA TM detection principle is described by applying the sandwich immunoassay reaction mode. The sample is combined with an alkaline phosphatase-labeled antibody and a biotinylated antibody to form a sandwich structure. The excess streptavidin-coated magnetic particles form a complex with the biotinylated antibody, and after washing, the luminescent substrate is catalytically cleaved by an enzyme in the complex to form an unstable excited intermediate. When the particle returns to the ground state, it emits photons. The light intensity of the reaction is detected by a photomultiplier tube, and the luminescence intensity of the analyte is converted into relative light units (RLU) by the instrument operating software.

3.2 DxDATA TM components

This section describes the components of the DxDATA TM and their functions.

3.2.1 Front of the Device

The necessary components for operating the DxDATA TM are located at the front and side of the unit; see the figure below. Component names and functions are described as follows:



The necessary components for operating the DxDATA TM are located at the front and side of the unit; see the figure below. Component names and functions are described as follows:

- Touchscreen computer Displays various information about the DxDATA TM analyzer and accepts input from the user operating the device.
- Printer Prints results and other information.
- Swing-up door Open upwards to insert the reagent strip. The reagent strip information could be read and the experiment program could be selected automatically via the QR code auto scanning function.
- External bar code scanner It is linked directly to the USB port at the backside of the instrument to read the information contained in the QR code.

3.2.2 Back of the device DxDATA TM





The supply voltage is 110VAC

The supply voltage is 220VAC

The input and output ports of the device are located on the back of the device, as shown in the figure above.

- Switch This is the main power switch of the device. After the instrument is turned on, the computer powers up in about 1 minute.
- USB Provides connection to the instrument's internal computer.
- □ 110/220 VAC Provides connection to the power cable.
- □ Fuse: F2AL250V/F3AL250V Protects the internal circuitry of the instrument.

3.2.3 Accessories

Information on the main DxDATA $^{\mathsf{TM}}$ accessories is shown in the table below.

Main Accessories Description	Quantity	Remarks	Picture
Power cord	1	Standard	
Fuse: F2AL250V/F3AL250V	2	Alternate replacement	
Cartridge rack	2	Standard	

4. Storage and Operation of the Equipment

4.1 Environmental conditions and placement instructions

4.1.1 Normal working conditions

- 1) Altitude: no more than 2000m
- 2) Power supply voltage DxDATA TM : 110/220V 60/50 Hz 300W
- 3) Ambient temperature: 10 °C ~ 30 °C; Relative humidity: ≤70%;
- 4) Atmospheric pressure: 85.0 kPa to 106.0 kPa;
- 5) Keep away from magnetic field interference sources, e.g., MRIs;

4.1.2 Placement instructions

- 1) The instrument should be placed on a flat, stable surface.
- 2) The rear panel of the instrument requires a distance of >200 mm for the power switch access and ventilation.
- 3) Avoid placing DxDATA TM in a place where it is exposed to direct sunlight, air conditioning, or other equipment.
- 4) Do not block the device vents, and ensure that there is no paper or other objects that may affect the air circulation in this area.
- 5) DxDATA TM is placed at an altitude of no more than 2000 meters.

5. Software Description

5.1 Software Overview

This section describes the software used with $DxDATA^{TM}$ instrument.

5.1.1 Software Environment

- 1) Devise uses a custom 10-inch touch screen, with a resolution of 800X600 pixels.
- 2) Pre-installed Microsoft Windows 10 Enterprise operating system.

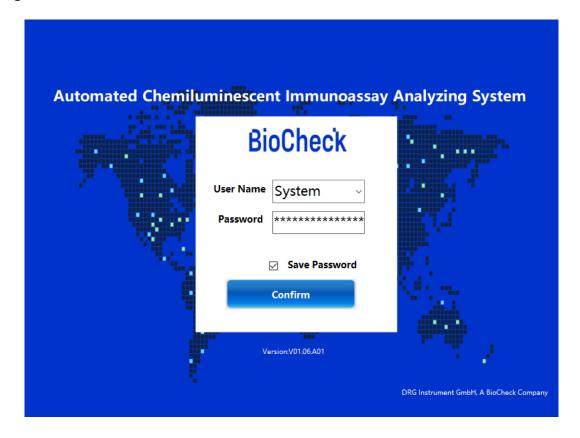
5.2 System startup

Power on the system using the power switch on the back of the instrument.



If the software does not automatically start, double-click the desktop shortcut "DxDATA".

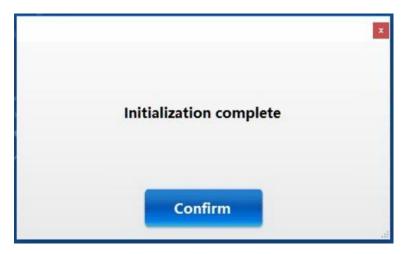
5.3 Log in



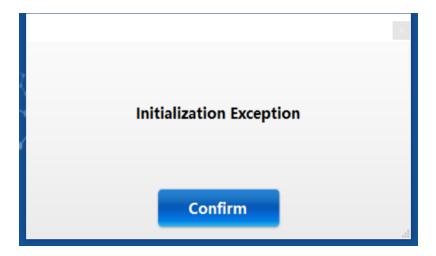
- 1) To log in, enter the username and password, you can select option to save the password. When the "Confirm" button is clicked, the system checks the username and password, and then login to the system is completed after meeting the system requirements.
- 2) Usernames are used to distinguish system permissions: user permissions are divided into four levels: A, B, C and D.
 - Permission A and B: for manufacturing or distributor use only
 - Permission C: administrative permissions (user permissions, user settings, re-collection of calibration curves, etc.)
 - Permission D: user permission (sample detection, calibration, quality control, result query, report printing, adding new batch of reagents)

5.4 Initialization check

1) After login the system will initialize. A dialogue box will show "Initialization complete" and click on the "Confirm" button will provide access the main window.



2) If an error, like the ones below, is encountered contact our Technical Support or your local representative.



5.5 Main window



- 1) Click "Run" to enter the device running window
- 2) Click "Samples" to go to the samples management window
- 3) Click "Results" to enter the results query window
- 4) Click "Settings" to proceed to the settings window

5.6 Run window

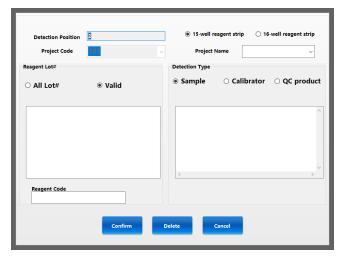
The "Run" window is the core part of the normal operation and shows the status of the instrument. The whole operation process is carried out in this window.



5.6.1 Routine detection settings

All the applicable information such as project, sample and batch number can be manually added on a channel-by-channel basis in the "Run" window.

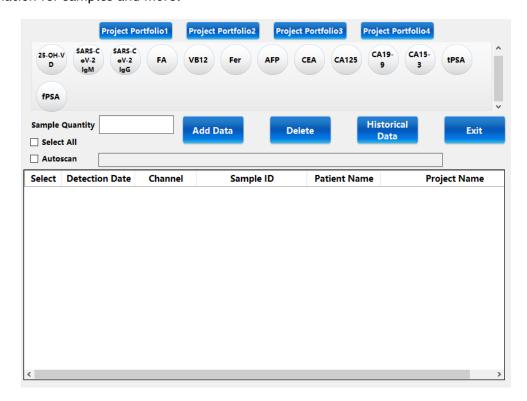
1) Double-click a "Project" or "Sample" position to pop up a window for editing.



2) Confirm the correct detection position, select project name, batch number and sample type (Sample, Calibrator or QC).

5.7 Sample window

The "Sample" window allows you to add sample and project information for the cartridges as well as display sample and project information that has been set previously, edit patient information for samples and more.



5.7.1 Scan Accession number

- Select the project(s) for the cartridges and scan the accession number into the "Autoscan" toolbar.
- 2) If you do not want to add an accession number, the cartridge QR code can be scanned instead or click Sample Quantity "Add Data" button shown below.
- 3) Add data

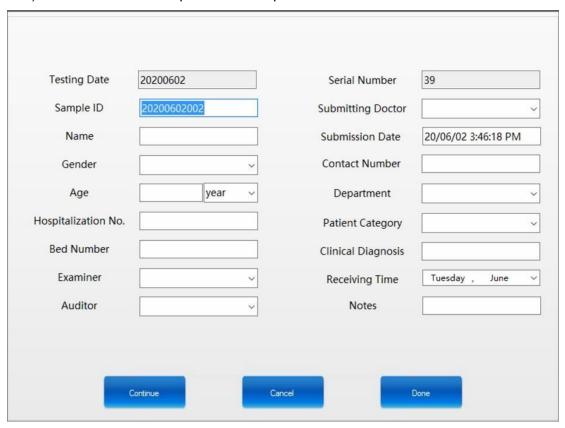


Select the project and enter the number of samples. Click "Add Data" to automatically fill in "Detection Date", "Channel", "Sample ID" data.

NOTE: Date of testing and results follow the Year-Month-Day format.

5.7.2 Edit record

1) Double-click the sample record to open information edit interface.



- 2) Fill in the corresponding data, click the "Continue" button in order to save the current data and load data for the next cartridge slot.
- 3) Click the "Cancel" button to cancel the current operation.
- 4) Click the "Done" button to close the current interface and return to the "Sample" window.

5.7.3 Set up project portfolio

1) Double-click the "Project portfolio" button at the top to open the portfolio settings window.



2) Enter the portfolio name and select or deselect the reagents. Blue is selected, white is deselected. Click the "Confirm" button to save the current item information.



5.7.4 Delete

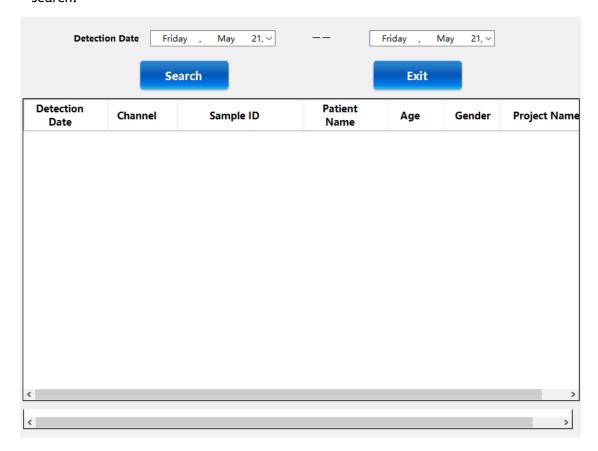
1) In the "Sample" window select a row sample record and click "Delete" button in order to delete the sample record.



5.7.5 Historical data



 In the "Sample" window click "Historical Data" to enter the history interface for sample information. 2) Select the testing date range and click "Search" button to display the results of the samples search.



Double-click the sample record to go to the information edit screen.

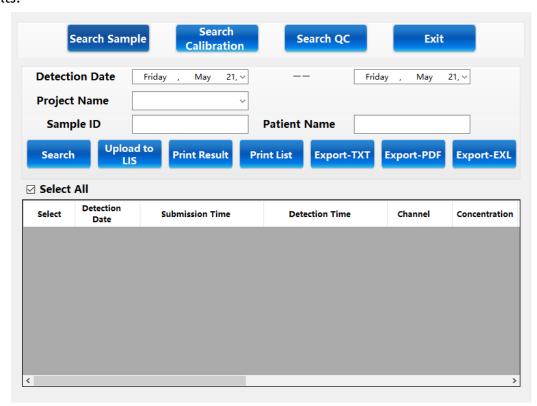
5.7.6 Exit



In the "Sample" window click "Exit" button to exit the current interface.

5.8 Results window

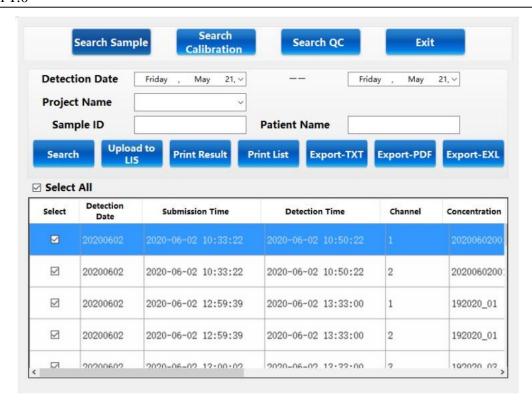
In the "Results" window, you can search for test results, calibration results and quality control results.



5.8.1 Search Sample

Search Sample

 After entering the "Results" window, the software automatically displays "Search Sample" interface.

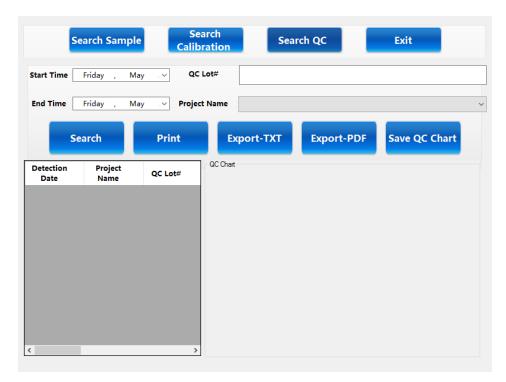


- 2) Under this interface, you can select "Detection Date", "Project Name", "Sample ID" and "Patient Name" for your search. The "Detection Date" is mandatory to see the results, while all other search criteria is optional. If you do not enter information, you do not select the condition.
- 3) Click the "Search" button to retrieve the experimental results of all samples under the current selection condition and display them in the data area below.
- 4) Click "Upload to LIS" to upload the results of the current search to the LIS system.
- 5) Click "Print List" to print the current search records by list.
- 6) Click "Export-TXT" to export data and save as a text document.
- 7) Click "Export-EXL" to export data and save as an Excel document.

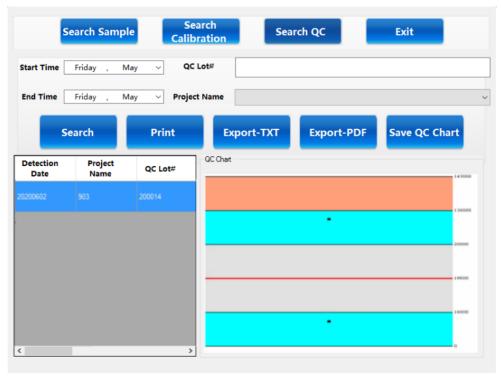
5.8.2 Search QC



1) Click "Search QC" button to enter the "Search QC" window.



- 2) Select "Project Name", "Start Time", and "End Time" as required items, the rest are optional.
- 3) Click the "Search" button to retrieve all the quality control results for the selected conditions.



- 4) Click "Save QC chart" to save the currently displayed quality control charts.
- 5) Click "Print" to print list format.
- 6) Click "Export PDF" to save as PDF document.
- 7) Click "Export-TXT" to export data and save as a text document.

5.9 Settings window

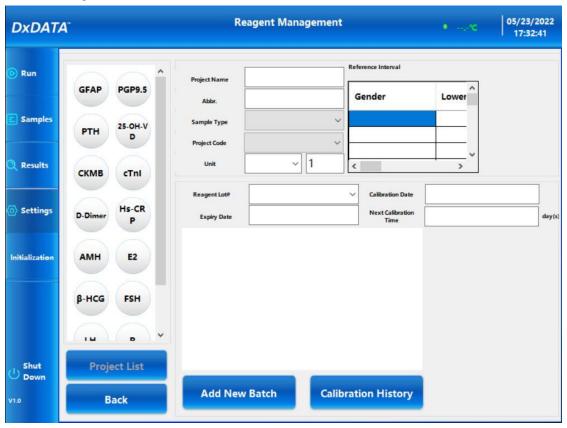
The "Settings" window includes Reagent Management, Port setting, Hospital Information Setting, Alarm record and Switch user options.



Click the corresponding button to enter the corresponding window.

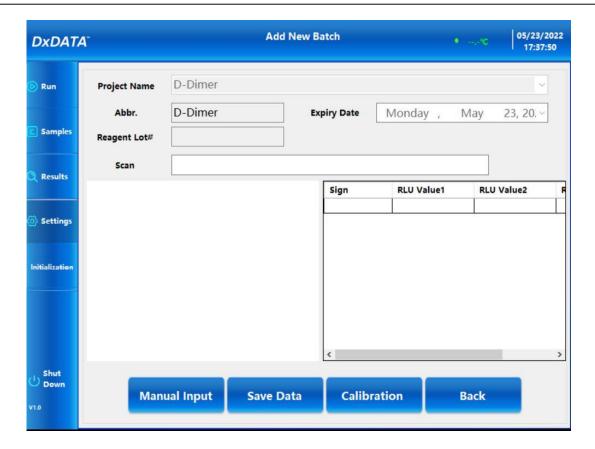
5.9.1 Reagent Management

In the "Parameter setting" click "Reagent Management" button to go to reagent management interface where you can enable and disable projects, select project parameters and add new batch of reagents.



1) To Add a new batch of reagents

- Select the "Project List" on the left side of the screen and detailed information of the currently selected projects will be automatically displayed.
- Click the "Add New Batch" button to select a new batch of the currently selected project.



- Scan: with the handheld external bar code scanner, scan the QR code on the kit box. After
 the scan is successful, confirmation is window displayed, the current scan information is
 automatically added.
- Manual Input: If unable to be scanned, the information can be manually added via the "Manual Input" button.

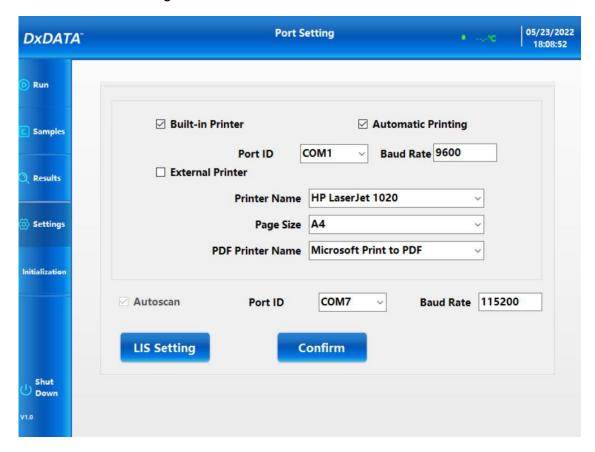
NOTE: After scanning or manually inputting the batch information, the "Reagent Lot#" and "Expiry Date" values are unable to be changed.

- After inputting, click the "Save Data" button to save the current batch data.
- You can also add multiple batches of information at once. Repeat the above operation.
- Click the "Back" button to exit the current interface and return to the reagent management interface.
- Click the "Calibration" button to proceed with reagent calibration in the "Run" menu.

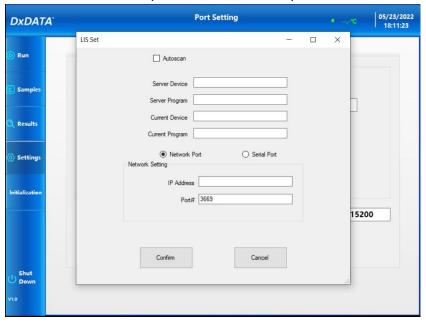
5.9.2 Port Setting

Click "Port Setting" button for printer and LIS settings

- Select or deselect "Built-in printer" option for internal printer use.
- Select or deselect "Automatic Printing"
- Enter the settings data for Port ID, Baud Rate.
- Select or deselect "External printer" and enter the settings data: Printer name, Page Size.
- Define PDF printer name.
- Confirm the settings



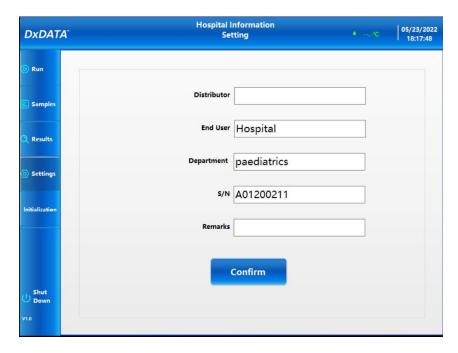
• Click the "LIS Setting" button to enter the LIS setting menu. In the LIS setting menu fill in all the information required for the LIS set up. Click "Confirm".



5.9.3 Hospital Information Setting

Click "Hospital Information Setting" button for end-user settings

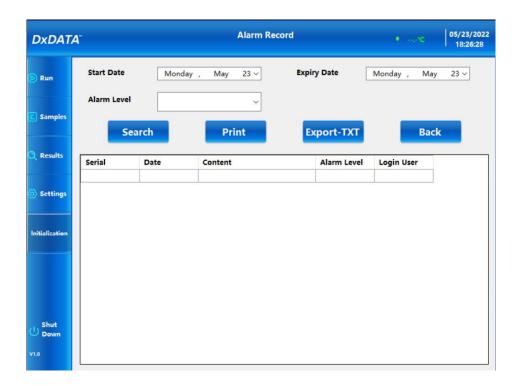
• Click on the corresponding box to update Distributor, End User, Department, Instrument S/N information and add Remarks. Confirm the changes.



5.9.4 Alarm Record

Click "Alarm Record" button for instrument alarm records history

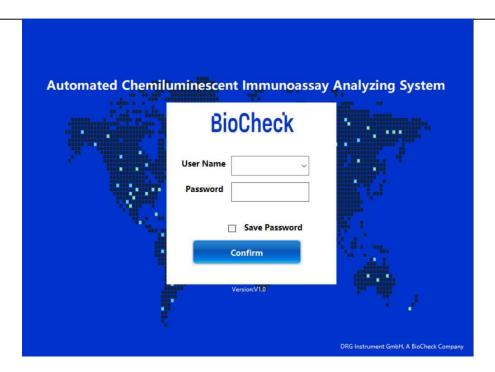
- Select the alarm record Start and Expiry dates and Alarm Level in the drop-down menus.
- Click the "Search" button in order to display all the alarm records for selected time and alarm level.
- Click "Print" button to print the results.
- Click "Export-TXT" button to save results as .txt file



5.9.5 Switch User

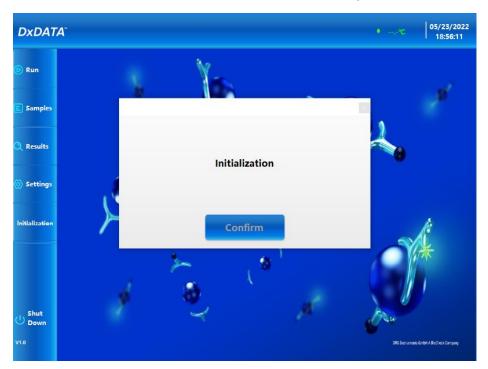
Click "Switch User" button to log in with a different user name

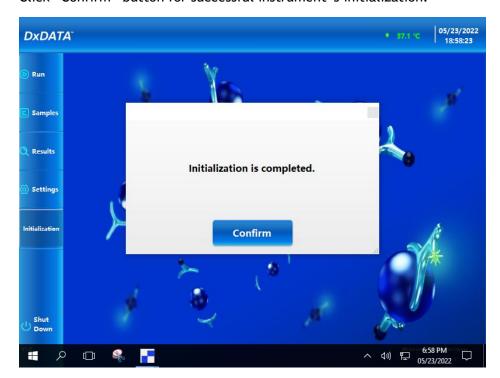
• Select User Name and enter the Password in the log in window.



5.10 Start initialization

• Click the "Initialization "button in the main window. System will be re-initialized.





Click "Confirm" button for successful instrument's initialization.

5.11 Shut down

- Click the "Shut Down" button in the main window to access the instrument's shutdown options.
- Click the "Shut Down" button to directly close the display interface.
- Click the "Back Windows" button to return directly to Windows, this will only close the current system.
- Click the "Cancel" button to cancel the current operation.



6. Instrument warnings and precautions

6.1 Precautions

- 1) Only trained, qualified laboratory personnel are authorized to use the instrument. Authorized personnel must wear appropriate protective gear (gloves, lab coat, safety goggles) and exercise standard precautions for handling and disposing of infectious or potentially infectious materials (e.g. patient samples or consumables).
- 2) The test cartridges provided by the manufacturer will not release toxic and harmful gases during the use of the instrument. The test sample is potentially infectious. Used test cartridges are treated according to the Medical Waste Management Regulations to avoid biohazard. If hazardous materials leak into the surface or inside the equipment, proper cleaning should be carried out (see Section 8).
- 3) During cleaning of the instrument ensure that the instrument is turned off.
- 4) Operator must follow the instructions in this manual in order to ensure safe operation.
- 5) DxDATA TM is a medical analytical instrument for testing serum. Do not use the device for other purposes.
- 6) Do not use solvents, abrasive cleaning fluids or rough cloth to clean any parts. Do not use cleaning agents or disinfectants that are not approved for cleaning or disinfections as specified in Section 8.
- 7) The door should not be opened during the operation of the instrument to avoid injury caused by touching moving parts.
- 8) The user must not open service door or remove any covers from the instrument.

7. Troubleshooting

Issue	Causes of Issue	Solution	
Z motion abnormality	Magnetic rod motor or magnetic sleeve magnetic sleeve motor movement abnormal	 The operator turns the machine on and off once, so that the instrument is reset again to see if the fault persists. If the fault persists, please contact the factory after-sales engineer or an authorized technical service representative. 	
TIP movement abnormality	TIP motor motion abnormality	 The operator turns the machine on and off once, so that the instrument is reset again to see if the fault persists. If the fault persists, please contact the factory after-sales engineer or an authorized technical service representative. 	
Abnormal pump motor movement is abnormal		 The operator turns the machine on and off once, so that the instrument is reset again to see if the fault persists. If the fault persists, please contact the factory after-sales engineer or 	

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Issue	Causes of Issue	Solution	
			authorized technical service
			representative.
		1.	The operator turns the machine on and off
			once, so that the instrument is reset again to
PMT	PMT motor		see if the fault persists.
movement		2.	If the fault persists, please contact the
abnormality			factory after-sales engineer or an
	abnormality		authorized technical service
			representative.
		1.	The operator turns the machine on and off
			once, so that the instrument is reset again to
Y-axis motion	Y-axis		see if the fault persists.
anomaly	motor	2.	If the fault persists, please contact the
anomaty	movement		factory after-sales engineer or an
	is abnormal		authorized technical service
			representative.
		1.	The operator turns the machine on and off
			once, so that the instrument is reset again to
X-axis motion	X-axis		see if the fault persists.
abnormality	motor	2.	If the fault persists, please contact the
abnormaticy	movement		factory after-sales engineer or an
	is abnormal		authorized technical service
			representative.
		1.	The operator turns the machine on and off
Fitting exception,	Reagent related data processing exception		once, so that the instrument is reset again to
data processing is			see if the fault persists.
unsuccessful		2.	If the fault persists, please contact the
			factory after-sales engineer or an
			authorized technical service
		<u> </u>	representative.
Open the serial	Thermal printer	1.	Contact the manufacturer's after-sales
port exception	communication		engineer or an authorized technical
	is abnormal		service representative

8. Instrument maintenance

When servicing the instrument, turn off the power and wear appropriate safety equipment (gloves, lab coats, goggles, etc.) to ensure the safety of the lab personnel.

a. Weekly maintenance

- 1) Clean the Reagent Rack
 - Gently clean the surface of the reagent rack with a lint free wipe soaked with disinfectant
 70% alcohol.
 - Ensure all channels are disinfected with 70% alcohol when cleaning the channels of the reagent rack.

b. Monthly maintenance

1) Clean the surface of the device with 70% alcohol.

c. Recommended regular maintenance

To ensure proper operation and reliability of DxDATA TM instrument, follow recommendations for periodic maintenance by the manufacturer's after-sales engineer or an authorized DxDATA TM technical service representative.

d. Replacing the internal printer paper

- 1) Power off the instrument before replacing printer paper.
- 2) Pull the printer cover located at the lower left front of the unit.
- 3) Open the printer cover of the device and pull open the printer cover.
- 4) Remove the used paper roll and install new paper roll.
- 5) Push the retaining plate back into place and use the paper cutter to cut off the excess of paper.