

## CALIBRATION CERTIFICATE

Customer : Naalvar diagnostics Neelakidangu Street, Karaikal-609602 PH-04368-224313	Date of Calibration : 10.01.2022 Due Date : 09.01.2023 Serial No : YX-79001078
Instrument : Fully Auto Chemistry Analyzer Model : BS240 Manufacturer: SHENZHEN MINDRAY BIO-MEDICAL ELECTRONICS CO., LTD	

Golden Harvest Industries is an organization dealing in MINDRAY Auto Hematology Analyzers. It has a Technically Qualified Technical Team to ensure trouble free operation. The Described instrument has been checked and calibrated under the ambient conditions stated above.

Power Supply			
UPS Supply	Expected reading	Measured reading	Remarks
Earth to Phase	230 ± 10 VAC	226 VAC	With in Limits
Neutral to Phase	230 ± 10 VAC	226 VAC	
Earth to Neutral	0 - 5 VAC	0 VAC	

Power Supply Unit	Expected reading	Measured reading	Remarks
5V Output	5VDC ± 0.25V	5.02	Values are with in Limits
12V Output	12 VDC ± 1.2V	12.04	
12V Reagent Refrig.	12 VDC ± 1.2V	12.08	
24V Output	24 VDC ± 2.4V	24.10	

Software Communication	Status	Remarks
Operation Software Initialization Check	Normal	Nil
Communication between PC and Analyzer	Normal	Nil
Shutdown Check	Normal	Nil

Optical System Check	AD value	AD value range	Remarks
340 nm	50709	48000 to 54000	AD values are with in limit
405 nm	50770		
450 nm	50765		
510 nm	50750		
546 nm	50745		
578 nm	50755		
630 nm	50841		
670 nm	50785		

Temperature Check	Range	Measured Value	Remarks
Reaction Carousel Temperature	36.7 ° - 37.3 °C	37.0 °C	Values are within Range
Cuvette cleaning Fluid Temperature	39.0 ° - 49.0 °C	43.9 °C	
Cuvette wash solution Temperature	39.0 ° - 49.0 °C	44.1 °C	
Reagent Preheating Temperature	40.0 ° - 50.0 °C	45.0 °C	

Robotic Check	Status	Remarks
Sample / Reagent Probe Check	Normal	Nil
Sample / Reagent Syringe Check	Normal	Nil
Wash Unit Movement	Normal	Nil
Mixer Unit Check	Normal	Nil
Interior Washing Probe	Normal	Nil
Exterior Washing Probe	Normal	Nil
Exterior Washing Mixer	Normal	Nil
Reagent Unit	Normal	Nil
Reaction Unit	Normal	Nil
Reagent Preheater	Normal	Nil
Dust Filters	Cleaned	Nil

Fluidic Check	Status	Remarks
Wash Unit Detergent & Water Dispense	Normal	Nil
Wash Unit Sample & Water Aspiration	Normal	Nil
Interior Washing Probe	Normal	Nil
Exterior Washing Probe	Normal	Nil
Exterior Washing Mixer	Normal	Nil
Liquid Level Detection	Normal	Nil
Distilled Water filter	OK	Nil

**The Calibration includes:**

**Adjustments:** Checked the alignments for Sample/Reagent probe, Washing Unit, Mixer, Reaction Disk, Reagent/Sample Disk and their respective home positions.

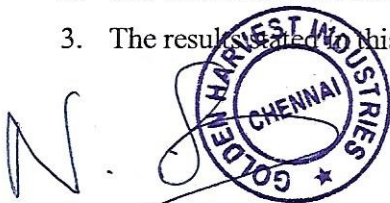
**Pneumatics:** Checked the functions of Sample/Reagent Syringe and Distilled Water Supply Unit Pump and Solenoid Valves.

**Temperature:** Checked the temperature monitor for Pre-Heater, Reagent disk and Reaction Disk.

The above mentioned values are found to be with in the standard specified by SHENZHEN MINDRAY BIO-MEDICAL ELECTRONICS CO., LTD - CHINA.

**REMARKS/DEVIATIONS IF ANY:**

1. The recalibration interval should be determined based on the user's requirements.
2. The user should determine the stability of the instrument for its intended use.
3. The results of this certificate relate only to the instrument calibrated.



Authorized By  
Mr. N. Ganesan  
Zonal Manager – Technical Support