

**TOSHIBA
MEDICAL**

TBA-120FR

TBA-120FR

Pearl Edition

TOSHIBA MEDICAL SYSTEMS CORPORATION

<http://www.toshibamedicalsystems.com>


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Made For life





Streamlined system with enhanced performance

“Pearl” in the name “Pearl Edition™” represents purity and a long healthy life. This advanced system facilitates speedy and versatile measurement workflows and has both an attractive design and extremely reliable system performance. The system adapts to advancing clinical demands with flexibility and accuracy. It is compact and easy to use, and provides an especially comfortable measurement environment.

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Compactness and Safety

This compact system is designed to provide increased safety.

The transparent top covers allow system operation to be viewed without opening the covers. The arms for the monitor and keyboard can be positioned flexibly and can be installed on the left or right of the system.

High Reliability

Final reaction volume of as low as 70 µL*

The cuvette manufacturing process has been improved, producing hard-glass reaction cuvettes with high washing efficiency and minimized distortion. Measurement with a final reaction volume of as low as 70 µL is now possible.

* Depending on the characteristics of the reagent, photometry may sometimes not be possible with this volume

Minimum sample volume of as low as 1.0 µL

The minimum sample volume has been reduced to 1.0 µL, which lowers the patient burden.

Exceptional Efficiency

The HbA1c measurement unit* automates the complicated manual operations required for HbA1c measurement.

The sample (whole blood or blood cells) can simply be set in the system, and the pretreatment step (hemolysis) is performed automatically, making the procedure easy and efficient.

* Option

Sample carry-over of 0.1 ppm or less

The improved sampling probe washing efficacy enables increased efficiency in the measurement environment. Division of samples is no longer necessary because the same sample can also be used in the immunoassay system.

Swift and flexible measurement workflow through elegant and smooth operation

Simple “Set and Go” operation permits a rapid processing speed of maximum 1200 tests/hour for up to 100 different types of tests. All the tests can be entrusted to the system with confidence.



Dual-disk double-circle sampler for increased measurement efficiency

A dual-disk double-circle universal sampler, which can accept up to 100 sample containers of various types, is employed. The inner disk and outer disk can be scanned separately, allowing urgent sample processing and urgent rerun to be performed efficiently. Samples with and without barcodes can be set together for measurement.



Selection of optimal scan timing according to run environment

The standard configuration includes the sample ID unit, enabling the support of two scan modes: Scan on Scan and Sampling-End Scan. Processing for additional samples can be started immediately during measurement, without requiring operation from the console, reducing the processing time.

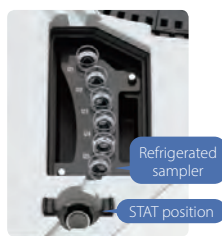
Scan on Scan	Scanning is started immediately after the instruction for scanning is issued.
Sampling-End Scan	Scanning is started after the end of sampling.

STAT position for measurement with top priority

The STAT position is given higher priority than the urgent sample positions on the disk sampler, and other measurements are interrupted for this measurement. The dedicated STAT position control screen simplifies operation.

Refrigerated sampler for control measurement at desired timing

The refrigerated sampler provides dedicated positions for calibrators and controls, facilitating interval control measurement.



Dedicated adapters and cups for accurate measurement using the microvolume sampling function*

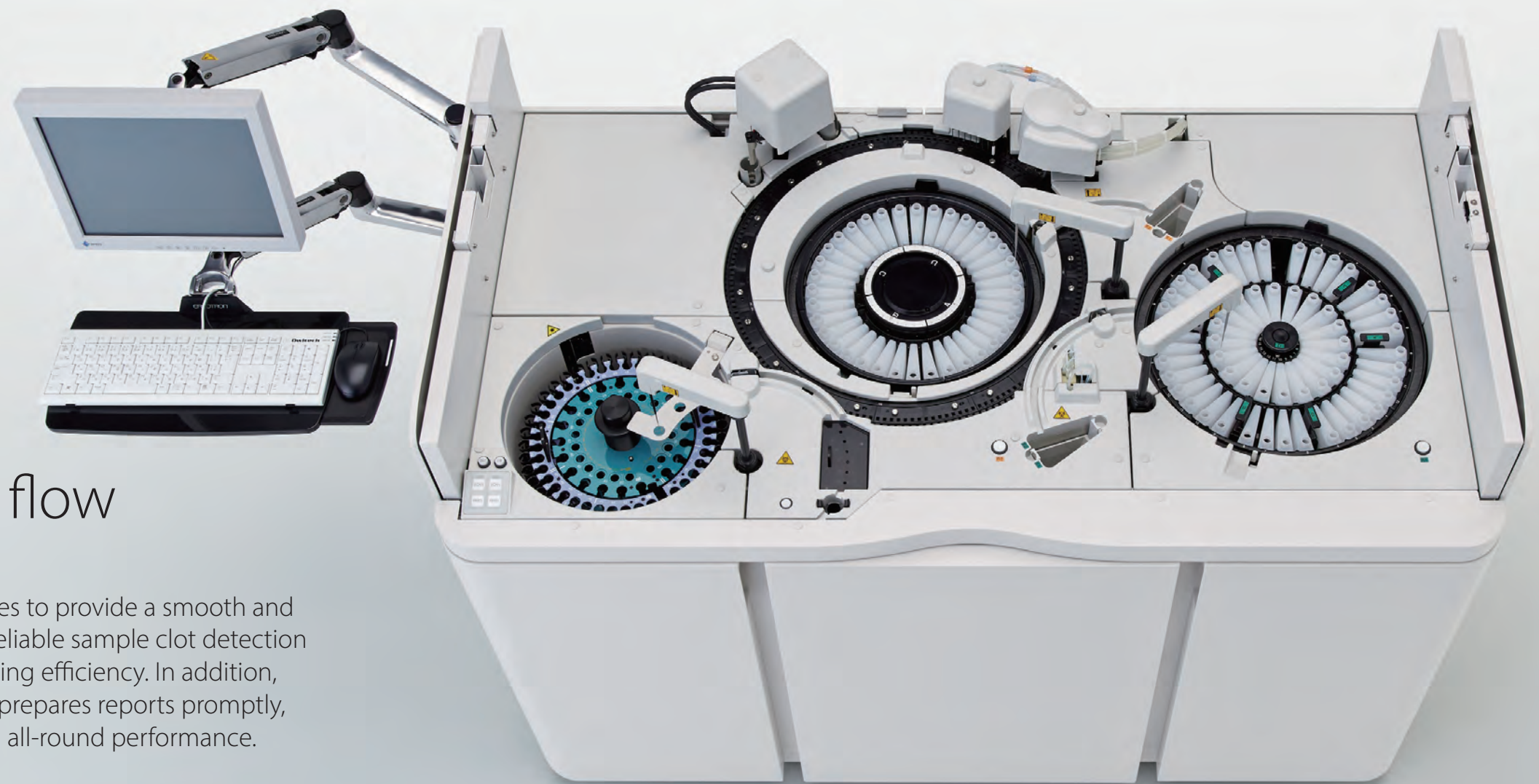
The sampling reliability for microvolume samples can be improved by the use of dedicated adapters and cups.



Easy-to-use inner disk cup holder plates

Inner disk cup holder plates are provided, allowing sample cups to be set directly, improving the operability for calibration.





Smooth and efficient operational flow

The system incorporates advanced technologies to provide a smooth and efficient operational flow. It includes a highly reliable sample clot detection unit and reaction cuvettes with excellent washing efficiency. In addition, it provides extremely accurate test results and prepares reports promptly, making it a complete system with outstanding all-round performance.

Minimum sample volume of 1.0 μL

The low sample volume required for measurement reduces the patient burden.



Highly flexible reagent compartments that support various bottle sizes

The system supports bottle sizes of 20 mL, 50 mL, 55 mL, 70 mL, 90 mL, and 100 mL, and the use of mixed bottle sizes is possible. The reagent 1 carousel accepts up to 65 reagent bottles* and the reagent 2 carousel accepts up to 56 reagent bottles*. Reagents from various manufacturers can be used.

*When the 55-mL reagent bottle racks are used



Durable hard-glass cuvettes that can be washed effectively

Hard-glass reaction cuvettes manufactured by casting are used. These cuvettes can be washed effectively and their need for periodic replacement is reduced. During analysis, the reaction cuvettes are automatically washed with deionized water and two types of detergents (acidic and alkaline) in preparation for the next measurement.



Electrolyte measurement unit provided in the standard configuration

The installed electrolyte measurement unit can simultaneously measure three electrolytes (Na^+ , K^+ , Cl^-) in serum or urine. It uses our unique integrated multi-ion sensor, which has excellent maintainability with easy replacement procedures.



Piezoelectric stirrers for effective mixing of the reaction liquid

The vibration-type stirrers use piezoelectric elements and mix the reaction liquid effectively. Mixing and washing is completed in a measurement cycle time of 4.5 seconds. The simple structure of the stirrer allows easy maintenance.



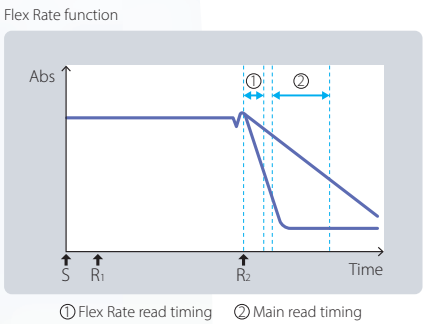
Sophisticated and flexible Versatile and adaptable measurement functions serving a wide range of clinical needs

Advanced functions have been incorporated to improve measurement efficiency. Reruns can be performed automatically and smoothly, enabling prompt reporting of the highly accurate results obtained.



OSS* function for improved processing efficiency
The OSS function optimizes the measurement order automatically based on the information set for each measurement assay. Reagent carry-over is minimized and processing efficiency is improved significantly.
* OSS: Optimized Sampling Sequence

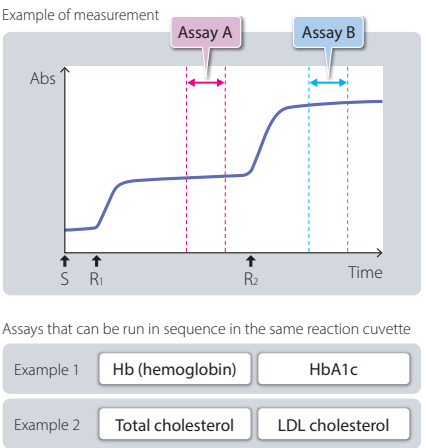
Flex Rate function for decreasing the retest ratio
For high-concentration samples that normally require retesting after dilution, the Flex Rate function calculates the concentration based on the data acquired during the Flex Rate read timing and reports the result. This reduces the need for retesting after dilution and allows prompt result reporting.



Recalculation function for calculation using different measurement conditions
Recalculation of the measurement results based on different calibration curves and assay parameters is possible. This is particularly useful when evaluating new assays.

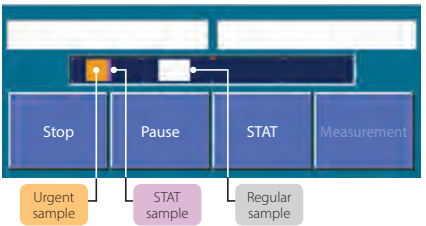
Cuvette Analyzer function for statistical analysis of measurements for research
The mean value, coefficient of variation, standard deviation, and range can be calculated automatically for test replicates. This is particularly useful when conducting research.

MultiAssay function for running multiple assays in the same reaction cuvette
Multiple wavelengths and read timings can be set for each sample. With the MultiAssay function, two or more assays can be run sequentially in the same reaction cuvette to improve measurement efficiency.



Automatic rerun function for retesting of the sample with the sample volume increased or decreased or with the sample diluted
Urgent rerun or standard rerun is performed based on the rerun logic check. The rerun sample volume is increased or decreased or the sample is diluted for rerun automatically according to the setting. An urgent rerun can be ordered by an external host computer.

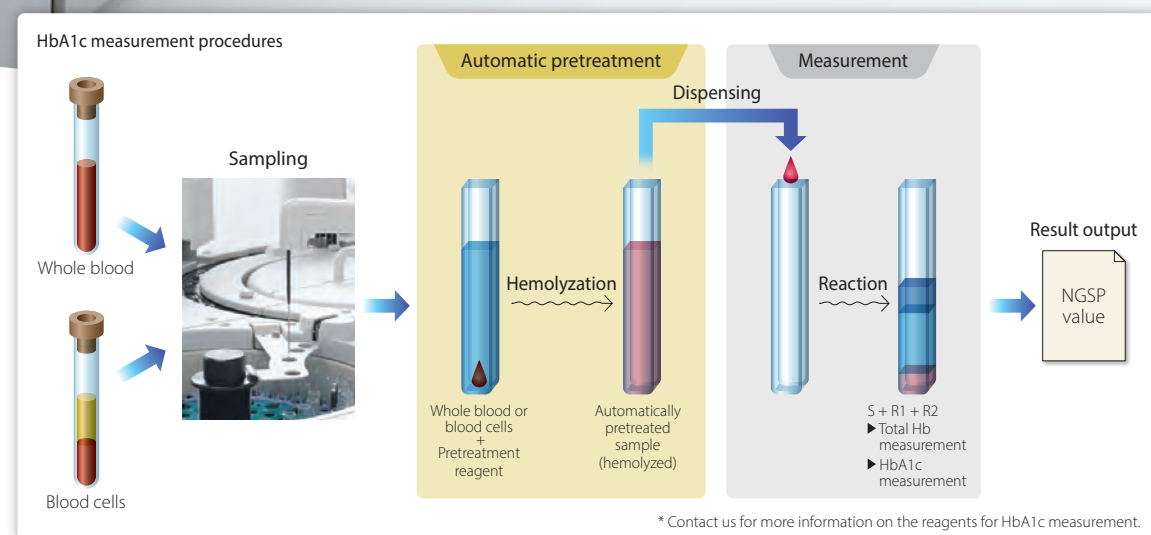
Process monitor for display of the status of the tests currently being run
The real-time status of the processes from sampling to result reporting are displayed clearly on the screen. The operator can estimate the reporting time for urgent samples by just glancing at the display.





Improved operational ease and efficiency with the HbA1c measurement option

The HbA1c measurement option has been provided to meet advanced clinical requirements. In addition, a sample clot detection function is provided, enabling the highest level of measurement reliability to be maintained.



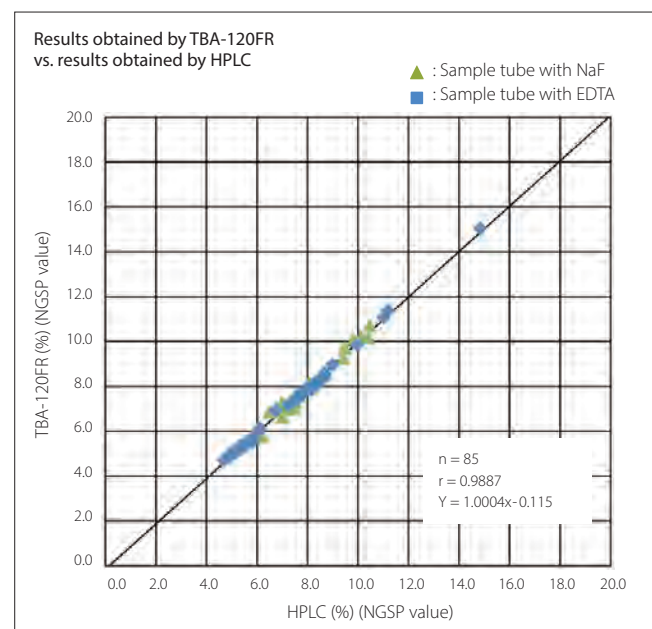
HbA1c measurement unit (option) featuring automatic pretreatment of the sample

In the HbA1c measurement unit, the sample is pretreated (hemolyzed) automatically. HbA1c, photometric, and ISE assays can be performed in succession for a particular sample. Sample clot detection can be performed when the whole blood or blood cell sample is dispensed and when washing is performed, allowing the highest level of measurement accuracy to be maintained.

Specifications for the HbA1c measurement unit

Maximum throughput	Up to 200 tests/hour (when only HbA1c tests are performed)
Final reaction volume	70 to 360 μ L
Anticoagulant used	EDTA or NaF
Sample type	Whole blood (uncentrifuged sample) or blood cells (obtained by centrifugation)
Sample dispensing volume for HbA1c assay	3.0 to 3.6 μ L (selectable in 0.2- μ L steps)
Reagent dispensing volume	20 to 354 μ L (selectable in 5- μ L steps)
Reaction time	Approx. 10 minutes
Reaction temperature	37°C
Method for maintaining isothermal conditions	Isothermal water bath

* The other specifications are the same as for the former TBA-120FR.



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Specifications

Number of tests performed simultaneously	Up to 100 tests
Maximum throughput	Photometric tests: 800 tests/hour Electrolyte tests: 600 tests/hour
Measurement methods	End assay, rate assay, ISE
Sample dispensing volume	1.0 to 35.0 μ L (selectable in 0.1- μ L steps) Sample clot detection function: Provided in the standard configuration
Carry-over between samples	0.1 ppm or less
Reagent dispensing volume	20 to 345 μ L/reagent (selectable in 1- μ L steps)
Final reaction volume	70 to 360 μ L
Sampler	Dual-disk double-circle sampler (with independently driven disks) Outer disk: 80 positions; Inner disk: 40 positions; Cup sensors: Provided in the standard configuration Sample ID unit: Provided in the standard configuration
STAT position	1 position
Refrigerated sampler	6 positions
Sample containers	Blood collection tubes, sample cups
Reagent compartments	R1: 56 bottles (65 bottles maximum*) R2: 36 bottles (56 bottles maximum*)
Reagent containers	20-mL, 50-mL, 55-mL, 70-mL, 90-mL, and 100-mL bottles
Reaction disk	Discrete type
Reaction cuvettes	Hard glass (light-path length: 5 mm)
Reaction time	Approx. 10 minutes
Thermostatic control	Isothermal water bath
Reaction temperature	37°C
Stirring	Piezoelectric stirrers (two)
Wavelengths	340 nm to 804 nm (16 fixed wavelengths)
Photometric technique	Reaction cuvette direct photometry, monochromatic or bichromatic measurement
Online interface	RS232C
Data processing functions	OSS, Smart Sampling, reaction time course (33 points), recalculation, Flex Rate, sheet form, calibration sheet, automatic rerun, process monitor, skipping of insufficient sample, skipping of insufficient reagent, display of remaining reagent volumes, reagent bottle changeover, reagent bottle sharing, multipoint calibration curve, calibration curve log, automatic calibration, reaction test, carry-over pairs, extrapolation, QC level selection, quality control (daily QC, monthly QC, real-time QC), automatic startup, automatic shutdown, color correction, skipping of inappropriate cuvette, multisample measurement, automatic sample dilution, Smart Report, user ID registration, Cuvette Analyzer, MultiAssay, online absorbance data transfer, online calibration data transfer

* When the reagent racks for 55-mL bottles are used

Options

Microvolume sampling function support kit
55-mL reagent bottle rack
Reagent bottle adapters (for 20-mL and 55-mL)
Reagent barcode unit
HbA1c measurement unit

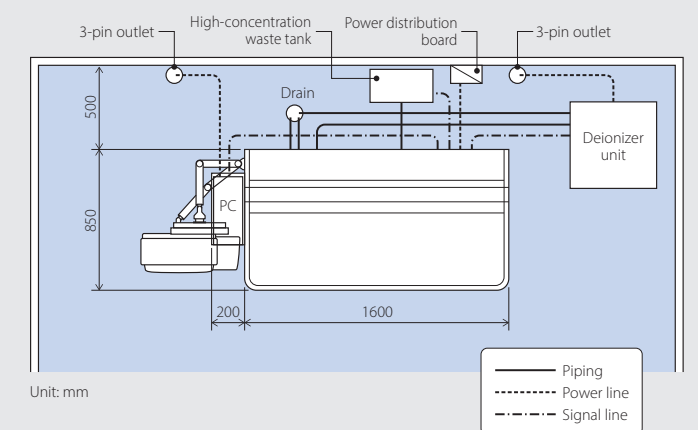
Dimensions and mass

External dimensions	Analyzer	1600 (W) × 850 (D) × 1220 (H) mm
	Console	*
	PC	200 (W) × 400 (D) × 360 (H) mm
Mass	Analyzer	Approx. 570 kg
	Console	Approx. 50 kg**
Power supply	Analyzer	200 VAC
	Console	100 VAC
Power consumption	Analyzer	3 kVA
	Console	0.6 kVA

* The monitor and the keyboard are installed on movable arms. The positions of the monitor and the keyboard can be adjusted as desired within the movement ranges of the arms.

** The console mass shown is the estimated mass when the platform for the PC, the arms for the monitor and keyboard, and the printer are included.

Example layout



- Use only the specified detergents and ISE solution (all items should be genuine). The use of detergents or an ISE solution other than those specified may lead to system malfunction or abnormal data.
- The specifications and appearance are subject to change when improvements are made to the system.

