

Canon



TBA-1500FR

Class-leading technologies for laboratories

In its constant pursuit of new possibilities for automated biochemical analyzers, Canon has developed the TBA-1500FR, which achieves a throughput of up to 1300 tests/hour for photometric assays.

The TBA-1500FR shares the wide range of functions and outstanding analytical precision of high-end models. With simple operations, users can perform efficient analysis with high reliability.

The TBA-1500FR also features excellent safety and maintainability, making it a complete, well-balanced system for supporting analysis.

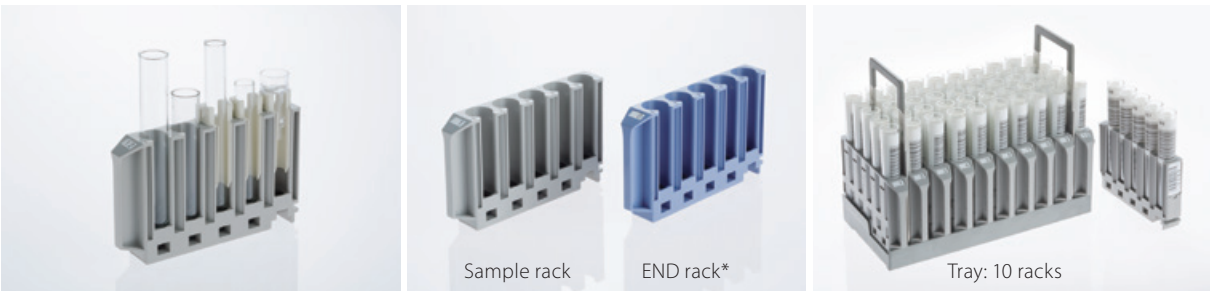


Flexible and efficient measurement

The TBA-1500FR offers flexibility to meet a wide range of needs in the laboratory. Measurement of additional or urgent samples can be started with a simple operation.

Racks and trays for setting up to 200 samples

Up to 10 racks (each holding up to 5 samples) can be placed on a tray, and up to 4 trays (200 samples) can be set on the sampler. Sample tubes of various sizes and sample cups can be used in combination.



* The END rack is set at the final position of the racks and allows quick measurement of additional samples.

Measurement of additional samples

The END rack that indicates the final position of the racks and the RESTART switch allow additional samples to be set with ease. Measurement of additional samples can be started with one-touch operation, so that even users who are not familiar with the operation of the equipment can do it with ease.



Rack loading is interrupted when the system detects the END rack.

Set the rack containing additional samples and move the END rack to the right of the newly added rack.

Press the RESTART switch to resume measurement.

STAT position for urgent samples

A STAT position for measurement with top priority is provided. Sample barcode reading is possible at this position, and measurement is performed immediately for the sample set at the STAT position, interrupting sampling of the routine samples in the other racks.



The rack sampler on the front of the system allows unrestricted addition of samples.

The user can open the sampler cover and add samples even while measurement is being performed. Samples can be set safely with no danger of being hit by the sampling arm or other moving parts. Measurement of additional samples can be started by pressing a single button, without requiring operation on the screen.

Transparent covers ensure safe and secure measurement.

The top cover and the rack sampler cover are transparent, allowing the user to check the operation of the equipment with the covers closed. Racks for which sampling has been completed are moved to the left end of the sampler. This allows the user to easily confirm that sampling has been completed before removing the samples.



Easy measurement with high reliability

With simple operation, automatic control, and enhanced quality control features, the TBA-1500FR provides highly reliable results while saving time and effort.

Sample carryover is reduced to 0.1 ppm or less

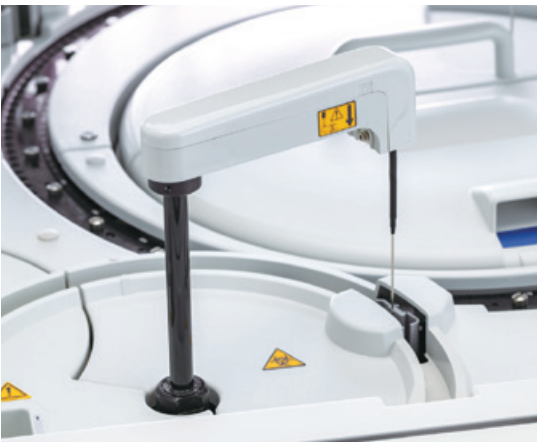
With enhanced sample probe washing performance, sample carryover is reduced to 0.1 ppm (1/10,000,000)*¹ or less. Because it is no longer necessary to divide a sample into smaller portions for use in an immunoassay system*², measurement can be performed with improved efficiency and accuracy.

* 1: For example, even when a sample containing 100,000 IU/mL of HBs antigen is measured followed by a negative sample containing 0 IU/mL of HBs antigen, the result of the negative sample will be 0.01 IU/mL of HBs antigen or less.

* 2: Consult with the manufacturer of each immunoassay system for the level of sample carryover considered to be clinically acceptable.

Photometry with a minimum final reaction volume of 80 µL

The minimum required reaction volume for undiluted samples is reduced, which also reduces the amount of reagent required. In addition, this feature provides improved data precision, extending the range of applications.



Calibration and control measurement using barcodes

Calibrators and controls can be measured using barcodes. This minimizes screen operations and increases efficiency in daily operation.

Universal reagent bottles are supported

It is possible to set universal reagent bottles of various sizes in combination*¹. The double-turntable reagent carousels ensure highly efficient reagent dispensing. Two reagent lines (lines A and B) are available to minimize reagent interference between assays. The reagent carousel cover open/close sensor prevents the reagent probes from hitting the cover.

Each of the two reagent carousels can accept up to 73 reagent bottles*²

All reagent bottle positions are refrigerated, and universal reagents are supported.

*1: 100, 90, 70, 55, 50, 20 mL (round type, 70-mL type, 55-mL type)

*2: When the rack for 55-mL bottles is used



Designed with carefully selected technologies

The TBA-1500FR uses the ISE sensor, stirrers, reaction cuvettes, and washing unit that have proven themselves in previous models, in order to achieve a high level of perfection to provide the best possible measurement environment.

Piezoelectric stirrers for effective mixing of the reaction liquid

High-performance vibration-type stirrers with piezoelectric elements are used to mix the reaction liquid effectively. The stirrers cause the reaction liquid to move up and down in the reaction cuvette, ensuring that it is thoroughly mixed. The simple structure of the stirrers allows easy maintenance.



Thorough reaction cuvette washing with two types of detergents

After measurement, the reaction cuvettes are washed thoroughly with two different types of detergents (alkaline and acidic). The detergent bottles can be set directly in the system because the detergents are diluted automatically.



OSS* function to minimize reduction in the processing speed

The carryover pair program includes additional washing processes and consequently reduces the effective processing speed. To minimize this effect, the OSS function automatically rearranges the sampling sequence to reduce the number of times the carryover pair program needs to be executed.

* OSS: Optimized Sampling Sequence

Hard-glass reaction cuvettes do not require periodic replacement

The TBA-1500FR uses molded hard-glass reaction cuvettes that can be washed effectively. After measurement, the reaction cuvettes are washed thoroughly with two different types of detergents and deionized water. In addition, a cuvette blank is measured and cuvettes with a cuvette blank value higher than the specified value are skipped automatically, with a beep to indicate an error. The high durability of the reaction cuvettes reduces the need for periodic replacement and the time required for maintenance.



Recalculation using different conditions

The system stores the absorbance data for all 16 wavelengths, and the measurement results can therefore be recalculated after the assay parameters or calibration curve are changed. This is also useful when evaluating a new assay.

Easily replaceable ISE sensor

The integrated multi-ion sensor can simultaneously measure three electrolytes (Na⁺, K⁺, Cl⁻) in serum or urine. It is also designed for easy replacement and maintenance.

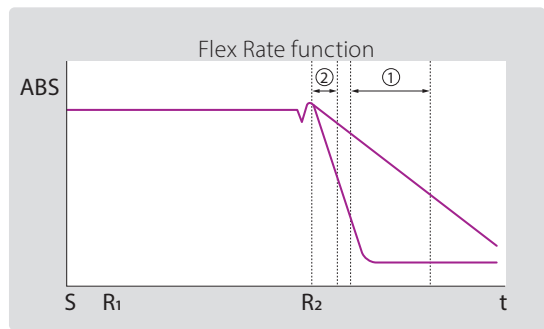


Ever-expanding possibilities

A wide range of functions have been incorporated to enable efficient reporting of results with higher accuracy. The TBA-1500FR ensures stress-free and comfortable analysis.

Flex Rate function for reducing the retest ratio

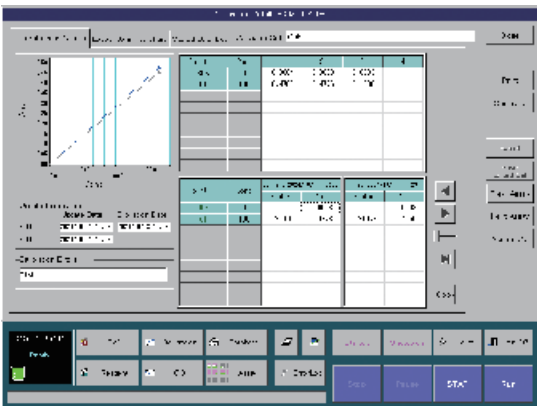
For high-concentration samples that normally require retesting after dilution, the Flex Rate function automatically calculates the concentration based on the data acquired during the Flex Rate read timing and reports the result. This minimizes the retest ratio and consequently reduces the reporting time and operating costs.



① Main read timing ② Flex Rate read timing

Assay View screen for comparison with previous calibration curves

The system can store calibration curves for the last 31 days. This allows the user to compare the current calibration curves with the previous curves on the same screen. In addition, the data for each calibration curve point can be displayed in graphical form, which is useful for checking for variations in reagent blank data or calibrator data.



Cuvette Analyzer function for statistical analysis of measurements for research

The mean value, standard deviation, coefficient of variation, and range can be calculated for test replicates in each assay. This is particularly useful when conducting research. In addition, the data for the specified cuvette number or assay can be retrieved easily, which is useful for early determination of the causes of an error.



Automated Biochemical Analyzer **TBA-1500FR**

Specifications

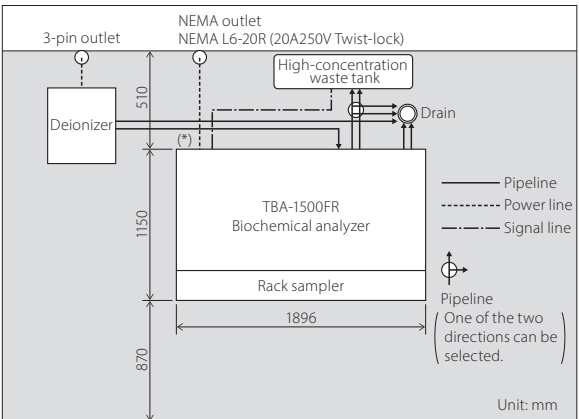
Maximum number of simultaneous assays	100
Maximum throughput	Photometric assays: 1300 tests/hour ISE assays: 600 tests/hour
Analysis methods	Endpoint, Rate, and ISE
Sample dispensing volume	1.5 to 35.0 μ L/test (in 0.1- μ L increments) The sample clot detection function is provided in the standard configuration.
Sample carryover	0.1 ppm or less
Reagent dispensing volume	Reagent 1: 20 to 278 μ L (in 1- μ L increments) Reagent 2: 20 to 200 μ L (in 1- μ L increments)
Final reaction volume	80 to 280 μ L
Sampler	Rack sampler Up to 200 samples The cup sensor and sample ID unit are provided in the standard configuration.
STAT position	1 position
Reagent carousels	R1: maximum 73 bottles* R2: maximum 73 bottles*
Reagent bottles	100 mL, 90 mL, 70 mL, 55 mL, 50 mL, 20 mL
Reaction cuvettes	Hard glass (optical path length: 5 mm)
Reaction time	Approx. 10 min
Method for maintaining isothermal conditions	Water bath
Stirring	Piezoelectric stirrers (at two positions)
Wavelengths	16 wavelengths ranging from 340 to 804 nm
Data processing functions	Multipoint calibration curve, display of calibration curve expiration date, calibration curve log, automatic calibration, reaction time course (33 points), display of remaining reagent volumes, reagent bottle changeover, reagent bottle sharing, skipping of insufficient reagent, skipping of insufficient sample, obstacle detection, quality control (daily QC, monthly QC, real-time QC), carryover pair, reaction test, Flex Rate, Smart Sampling, skipping of inappropriate cuvette, multiple measurement, automatic sample dilution, automatic retest, Smart Report, lamp intensity monitor, registration of user IDs, OSS, recalculation, process monitor, automatic startup, automatic shutdown, cuvette analyzer, registration of passwords

* When the reagent rack for 55-mL bottles is used

External dimensions**	1896 (W) $\times$ 1150 (D) $\times$ 1437 (H) mm
Mass**	Approx. 760 kg
Power supply	Analyzer module 220, 230 VAC
Power consumption	Analyzer module 3 kVA
Options	Reagent rack for 55-mL bottles High-concentration waste tank

** The console is included in the analyzer module.

Installation layout example



*: A circuit breaker is provided on the back of the system. Sufficient clearance should be provided behind the system to allow access to the circuit breaker.

Only Canon Medical Systems specified detergents and ISE solutions should be used. The use of detergents or ISE solutions other than those specified may lead to system malfunction or abnormal data.





CANON MEDICAL SYSTEMS CORPORATION

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