



LABORATORY ANALYTICAL BALANCE



Laboratory Analytical Balance (0.1 mg) - ToronAB™ L Series

ToronAB™ L Series laboratory analytical balance delivers 0.1 mg readability using electromagnetic force sensing technology, with capacities between 100 g and 300 g across externally and internally calibrated configurations. A cast aluminum shell provides structural stability and anti-interference shielding, while the large-space windshield keeps the weighing chamber clear of ambient air currents. The series offers two calibration variants: standard models with external calibration and auto-internal calibration models for workflows that require frequent recalibration or reduced operator involvement.

Both calibration variants share the same wide-view LCD HD display, which provides a clear, high-contrast readout in varying ambient lighting conditions. The full-capacity tare function zeroes the display at any point within the usable range, and counting and percentage functions handle common QC tasks without manual calculation. Unit conversion across g, mg, ct, and oz supports multi-discipline use without hardware changes, and the RS232 interface connects the balance to a printer, PC, or laboratory data management system.

Auto-internal calibration models use a built-in reference weight that deploys automatically, recalibrating the balance without interrupting workflows when temperature drift is detected. Stability and speed settings allow operators to balance readout response time against settling stability for the sample type being weighed. Both variants include overload and fault alarms and a level bubble for correct positioning on the bench, confirming that the balance is operating within its specified accuracy range.

APPLICATIONS

Laboratory Analytical Balance (0.1 mg) - ToronAB™ L Series Applications

The ToronAB™ L Series serves a wide range of laboratory, production, and research environments that require consistent 0.1 mg mass determination.

- **Pharmaceutical Manufacturing and QC:** precise weighing of active ingredients, excipients, and formulation components, with the auto-calibration variant supporting continuous-use environments where temperature fluctuations affect accuracy
- **Gold and Jewelry:** accurate mass measurement of precious metals and gemstones for trade, assay, and hallmarking applications where 0.1 mg resolution meets industry traceability requirements
- **Chemical Analysis Laboratories:** preparation of reagent solutions, gravimetric determinations, and standard solution formulation at sub-milligram resolution
- **Scientific Research:** high-precision sample weighing for quantitative chemistry, microchemistry experiments, and instrument calibration in university and research laboratory settings
- **Medical and Clinical Weighing:** precise mass determination for small sample quantities in clinical chemistry, pathology sample preparation, and diagnostic test formulation
- **Food Science and Nutraceuticals:** measuring minor ingredient quantities during product development, quality verification, and nutritional formulation
- **Environmental Analysis:** sample mass measurement before digestion, extraction, or spectrometric analysis, where accurate initial mass is a prerequisite for reported concentration
- **Quality Control and Production:** counting and percentage weighing functions support incoming material verification, batch fill monitoring, and component ratio checking



FEATURES

Laboratory Analytical Balance (0.1 mg) - ToronAB™ L Series Key Features



The ToronAB™ L Series delivers a complete feature set for general analytical laboratory work, with both calibration variants sharing the same core hardware and software functions.

- **Electromagnetic Force Restoration Sensor:** EMFR weighing cell provides fast, accurate mass determination at 0.1 mg resolution across the full capacity range of each model
- **Cast Aluminum Shell:** rigid anti-interference housing shields the weighing cell from electromagnetic disturbance and maintains structural stability under daily laboratory use
- **Large-Space Windshield:** enclosed draft shield provides a spacious, draft-free weighing area, reducing access difficulty for bulk containers and larger sample vessels

- **Wide-View LCD HD Display:** high-definition display delivers a clear, high-contrast readout of the mass reading and operational status from varying viewing angles
- **Auto Internal Calibration (N Models):** built-in reference weight deploys and calibrates the balance automatically when temperature drift is detected, removing the need for external calibration weights
- **External Calibration Support (Standard Models):** all standard models accommodate a calibration weight placed by the operator; calibration proceeds through a guided key sequence
- **Full-Capacity Tare:** tare function operates across the full capacity range, allowing the operator to zero the display with any container before weighing
- **Counting Function:** piece-counting mode calculates sample quantity based on a stored reference weight, reducing manual counting steps in production and QC applications
- **Percentage Function:** percentage weighing mode compares each reading against a stored reference, supporting fill-level verification and proportional formulation tasks
- **Unit Conversion:** displays readings in g, mg, ct, or oz without hardware adjustment, supporting multi-discipline use across a single instrument
- **Stability and Speed Settings:** adjustable response characteristics allow the operator to trade readout speed for settling stability to match the sample type being weighed
- **Print and Baud Rate Setting:** configurable baud rate supports RS232 output to printers or data management systems at the operator's selected transmission speed
- **RS232 Serial Interface:** standard RS232 connection links the balance to printers, laboratory information management systems, or industrial control equipment
- **Overload and Fault Alarm:** visual and audible alerts notify the operator of tare overload, weighing underload, and general faults before a measurement error occurs
- **Level Bubble:** built-in spirit level confirms correct horizontal positioning before use, a prerequisite for consistent EMFR measurement accuracy
- **Optional Under-Weighing Hook:** under-hook weighing capability supports density determination by immersion; available as a factory-installed option

Theory and Method

The ToronAB™ L Series uses the electromagnetic force restoration (EMFR) principle to determine mass. A stationary coil within a permanent magnetic field connects to the weighing pan through a mechanical linkage. Placing a sample on the pan transfers a force to the coil, displacing it from its reference position. The balance electronics detect this displacement and supply a correction current to restore the coil to the null point; the current magnitude is proportional to sample mass and converts directly to a digital readout.

Calibration corrects for any offset between the balance output and the true applied mass by recording a known reference value. External calibration requires the operator to place a separate calibration weight on the pan; the balance stores the correction factor and applies it to subsequent readings. Auto-internal calibration deploys a built-in reference weight automatically when the balance detects temperature drift, eliminating the need for external calibration weights and reducing the process to a background task.

The cast aluminum shell shields the weighing cell from electromagnetic interference generated by nearby laboratory equipment, and its rigidity prevents the mechanical deformation that can occur with lighter housings during transport or draft shield adjustment. The large-space windshield creates an enclosed environment around the pan, blocking air currents that would otherwise create asymmetric pressure on the sample. The level bubble guides the operator to confirm correct horizontal positioning before use, a prerequisite for repeatable EMFR-based mass measurement.

TECHNICAL SPECIFICATIONS

Laboratory Analytical Balance (0.1 mg) - ToronAB™ L Series Technical Specifications

Standard Models (External Calibration)

Parameter	ToronAB™ L 100	ToronAB™ L 120	ToronAB™ L 200	ToronAB™ L 220	ToronAB™ L 300
Capacity	100 g	120 g	200 g	220 g	300 g
Readability	0.1 mg				
Calibration Weight	100 g	100 g	200 g	200 g	200 g
Calibration Mode	External				

Auto-Internal Calibration Models (N)

Parameter	ToronAB™ L 100N	ToronAB™ L 120N	ToronAB™ L 200N	ToronAB™ L 220N
Capacity	100 g	120 g	200 g	220 g
Readability	0.1 mg			
Calibration Weight	100 g	100 g	200 g	200 g
Calibration Mode	Internal (automatic)			

Common Specifications

Parameter	Specification
Minimum Weight	10 mg
Repeatability	±0.2 mg
Linearity	±0.3 mg
Pan Size	φ80 mm

Parameter	Specification
Stabilization Time	≤3 s
Display	Wide-view LCD HD
Working Temperature	18-23°C
Interface	RS232
Windshield Inner Dimensions	175 × 165 × 230 mm
Product Dimensions (W × D × H)	365 × 210 × 355 mm
Outer Carton Dimensions	490 × 335 × 485 mm
Inner Carton Dimensions	440 × 295 × 430 mm
Gross Weight	11 kg



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