



TORONTECH

PRECISION ANALYTICAL BALANCE



Precision Analytical Balance (1 mg) - ToronAB™ P Series

ToronAB™ P Series precision analytical balance delivers 1 mg readability using an electromagnetic force balance sensor, with capacities between 200 g and 1,200 g across external and auto-internal calibration variants. An aluminum anti-interference shell and large draft shield provide a stable, protected weighing environment, while the HD LCD display delivers a clear readout at various viewing angles. An operating temperature range of 15–30°C makes the P Series suited to production floors and sampling stations where tightly controlled ambient conditions are not always maintained.

Standard external calibration models use a separately supplied calibration weight placed on the pan by the operator, making them practical for environments where calibration occurs at defined intervals. Auto-internal calibration models deploy a built-in reference weight automatically when the balance detects drift, and support one-touch manual calibration for on-demand correction. Both variants share counting, percentage, unit conversion, and tare functions, with stability and speed settings allowing the operator to match the balance response to the sample being weighed.

All P Series models feature a dustproof design for use in environments where airborne particles are present during weighing operations. An RS232 interface connects the P Series to printers or data management systems, with an optional external printer for generating paper records. Larger capacity configurations at 1,000 g and 1,200 g use a $\phi 100$ mm pan to accommodate oversized vessels and bulk materials that the standard $\phi 80$ mm pan cannot support.

APPLICATIONS

Precision Analytical Balance (1 mg) - ToronAB™ P Series Applications

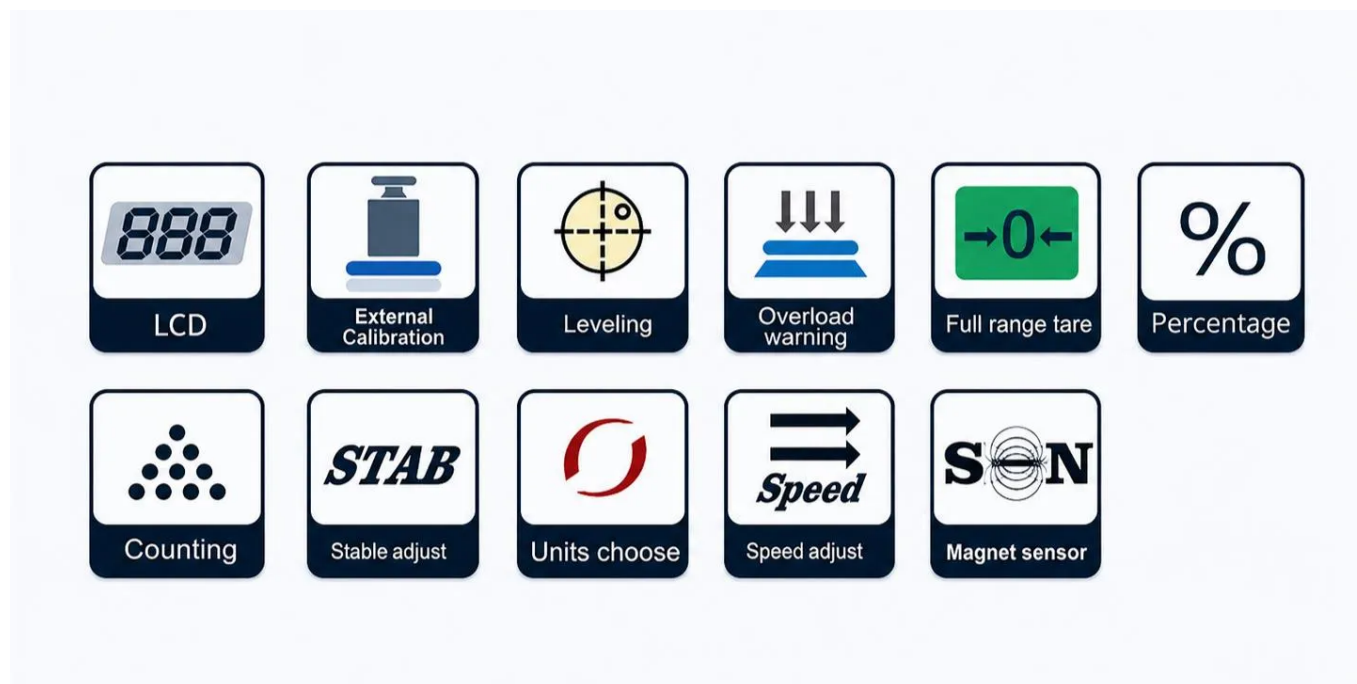
The ToronAB™ P Series suits weighing tasks that require milligram accuracy across a wider capacity range than 0.1 mg analytical balances typically cover, and in environments where ambient temperature stability cannot always be maintained.

- **Production-Floor QC:** milligram-precision mass verification of bulk materials, packaging components, and intermediate products at high capacities, with the 15–30°C operating range supporting use outside a dedicated lab room
- **Pharmaceutical Manufacturing:** weighing excipients, raw material batches, and granulation intermediates where 1 mg resolution meets formulation specifications
- **Chemical Analysis:** preparation of large-batch reagent solutions, gravimetric analysis of bulk samples, and standard material preparation at 1 mg accuracy
- **Food Science and Food Manufacturing:** multi-ingredient formulation weighing for large batches where 1 mg readability meets recipe precision requirements and capacity needs exceed 200 g
- **Environmental and Materials Testing:** mass determination of filter media, sediment samples, and larger specimens before and after extraction or treatment
- **Warehouse and Receiving Inspection:** rapid mass verification of incoming materials against purchase specifications, with the wide temperature tolerance removing the need for a climate-controlled weighing room
- **Educational and Shared Laboratories:** teaching labs and multi-user facilities where a wide capacity range and a durable, dustproof housing accommodate varied sample types and user experience levels
- **Precious Metals and Jewelry:** higher-capacity weighing of multiple items or full lots where 1 mg precision satisfies trade and assay accuracy requirements



FEATURES

Precision Analytical Balance (1 mg) - ToronAB™ P Series Key Features



The ToronAB™ P Series delivers milligram-precision weighing across a wide capacity and temperature range, with an optional auto-internal calibration variant for environments requiring unattended recalibration.

- **Electromagnetic Force Balance Sensor:** EMF sensing cell provides accurate 1 mg mass determination across the full capacity range, with ≤ 3 s stabilization time, ± 2 mg repeatability, and ± 3 mg linearity
- **Wide Operating Temperature Range (15–30°C):** the EMF sensor's broader thermal calibration makes the P Series suitable for production floors and sampling areas outside a dedicated climate-controlled laboratory
- **Dustproof Construction:** sealed design protects the internal electronics against airborne dust and particulates generated in production, processing, and industrial weighing environments

- **Auto Internal Calibration (N Models):** built-in reference weight deploys automatically when temperature drift is detected, maintaining measurement accuracy without operator involvement between sessions
- **One-Touch Manual Calibration (N Models):** a single keypress triggers on-demand calibration of the built-in reference weight, allowing immediate recalibration when environmental conditions change
- **Internal Calibration Time Setting (N Models):** the operator configures the automatic calibration trigger interval through the balance settings to match the thermal variability of the working environment
- **Aluminum Anti-Interference Shell:** rigid aluminum housing shields the EMF cell from electromagnetic disturbance and provides structural durability in production-environment conditions
- **Large Draft Shield:** enclosed windshield keeps the weighing chamber clear of air currents, supporting 1 mg accuracy in environments with moderate ambient air movement
- **HD LCD Display:** high-definition display delivers a clear, high-contrast readout of the mass reading and operational status
- **Full-Capacity Tare:** tare function operates across the entire weighing range, zeroing the display with any container before sample addition
- **Counting Function:** piece-count mode calculates quantity from a stored reference piece weight, supporting production counting and receiving inspection tasks
- **Percentage Function:** percentage mode compares each reading against a stored reference to display a percentage value, supporting fill-ratio and formula verification
- **Unit Conversion:** reading switches between g, mg, ct, and oz without hardware adjustment, supporting multi-discipline use across a single instrument
- **Stability and Speed Setting:** adjustable response characteristics allow the operator to trade readout speed for settling stability depending on the material being weighed
- **RS232 Serial Interface:** standard RS232 connection links the balance to printers or data management systems for direct result output
- **Optional External Printer:** an external printer connects via RS232 for generating paper records of each weighing session
- **Overload and Fault Alarm:** visual alerts for tare overload, weighing underload, and general fault conditions protect the sensor and prevent undetected measurement errors
- **Level Bubble:** built-in spirit level confirms correct horizontal positioning before use

THEORY & METHOD

Theory and Method

The ToronAB™ P Series uses an electromagnetic force balance (EMF) sensor to determine mass. A precision coil in a permanent magnetic field connects to the weighing pan; sample mass deflects the coil from its null position, and the control circuit supplies a restoring current proportional to the applied load. The processor converts this current to a mass reading stabilized at 1 mg resolution within three seconds, with ± 2 mg repeatability and ± 3 mg linearity across all capacity configurations.

Calibration removes any accumulated offset between the balance output and traceable mass, correcting for environmental drift between sessions. Standard models require the operator to place a known calibration weight on the pan and initiate the calibration sequence; the balance stores the correction factor for subsequent readings. Auto-internal calibration models monitor temperature and deploy a built-in reference weight automatically when drift exceeds the threshold; a one-touch manual calibration key allows on-demand recalibration without interrupting use.

The P Series expanded operating temperature range of 15–30°C reflects the EMF sensor's calibrated tolerance for wider ambient variation, allowing the balance to perform accurately in environments that cannot sustain the narrower window required by 0.1 mg analytical balances. The dustproof construction protects the internal electronics against airborne particulates generated in production and processing environments. Larger capacity models use a $\phi 100$ mm pan to accommodate oversized vessels and bulk materials that the standard $\phi 80$ mm pan cannot support.

TECHNICAL SPECIFICATIONS

Precision Analytical Balance (1 mg) - ToronAB™ P Series Technical Specifications

Standard Models (External Calibration)

Parameter	ToronAB™ P200	ToronAB™ P300	ToronAB™ P500	ToronAB™ P600	ToronAB™ P1000
Capacity	200 g	300 g	500 g	600 g	1,000 g
Readability	1 mg				
Calibration Weight	200 g				500 g
Pan Size	ø80 mm				ø100 mm
Calibration Mode	External				

Auto-Internal Calibration Models (N)

Parameter	ToronAB™ P200N	ToronAB™ P300N	ToronAB™ P500N	ToronAB™ P600N	ToronAB™ P1200N
Capacity	200 g	300 g	500 g	600 g	1,200 g
Readability	1 mg				
Calibration Weight	200 g				500 g
Pan Size	ø80 mm				ø100 mm
Calibration Mode	Internal (auto)				

Common Specifications

Parameter	Specification
Minimum Weight	20 mg
Repeatability	±2 mg

Parameter	Specification
Linearity	± 3 mg
Display	HD LCD
Stabilization Time	≤ 3 s
Working Temperature	15–30°C
Interface	RS232
Optional	External printer
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	9 kg



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