

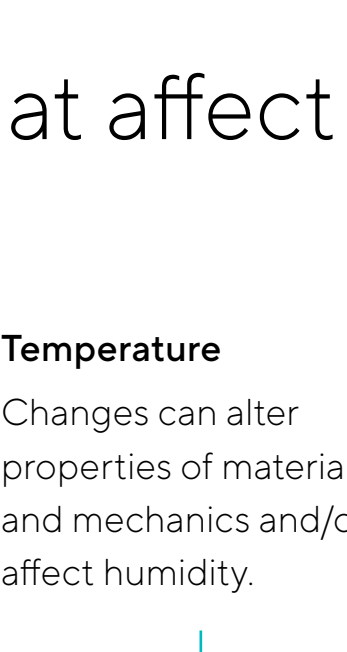
How to Ensure Accurate Weighing Results in Challenging Conditions

Best practices for achieving reliable data from high-capacity analytical balances

Lab balances play a critical role in workflows, due to the foundational data for downstream analytics.

Accurate weighing results depend on:

- Selecting the right balance for your lab, due to its highly sensitive mechanisms impacted by the environmental factors.
- Cleaning and maintaining the balance to rid of debris and sample spills/leakages that affect weighing accuracy.
- Securing data integration to support data integrity and compliance.
- Ensuring hardware and software configurations are modular for changing needs and to future-proof purchases.



Environmental factors that affect accuracy

Vibration

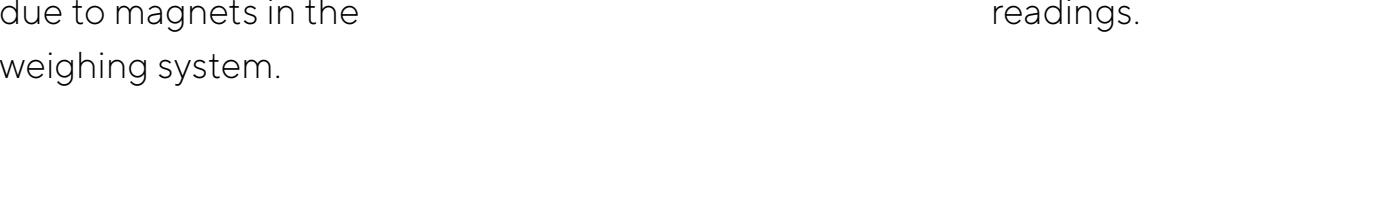
From other equipment or systems can change sample distribution or disrupt mechanics.

Drafts

Can interfere with balance mechanisms or cause subtle air pressure changes.

Temperature

Changes can alter properties of materials and mechanics and/or affect humidity.



Magnetic interference

From nearby equipment or magnetic samples can cause inaccurate readings due to magnets in the weighing system.

Humidity

Changes can cause evaporative water loss or condensation in the sample or vessel.

Static electricity

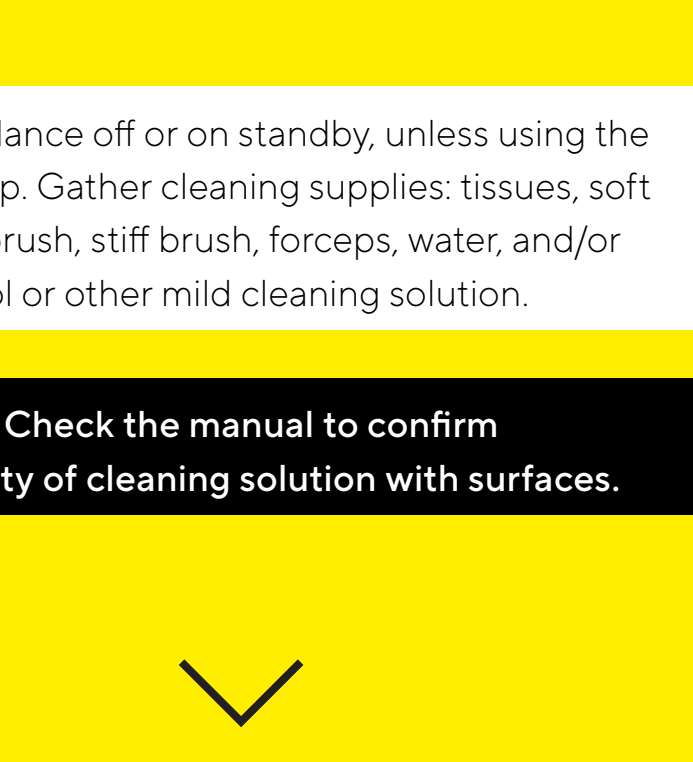
Can contribute positive or negative forces leading to inaccurate and/or unstable readings.

How to clean balances and why

Proper cleaning and maintenance is crucial in order to protect performance and lengthen the instrument's lifespan.

Balances must be cleaned regularly due to:

- Small debris particles, like dust and hair.
- Spills, whether liquid or particles, affect accuracy and pose a contamination risk.



Daily Cleaning Steps:

To remove particulates and residues.

Extensive Cleaning Steps:

Performed quarterly or whenever larger spills occur.



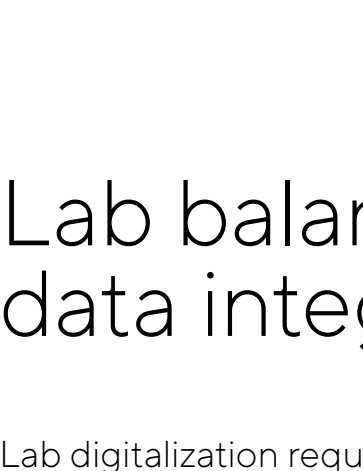
Turn the balance off or on standby, unless using the cleaning app. Gather cleaning supplies: tissues, soft cloth, soft brush, stiff brush, forceps, water, and/or 70% ethanol or other mild cleaning solution.

Important! Check the manual to confirm compatibility of cleaning solution with surfaces.



Remove weighing pan or sample holder.

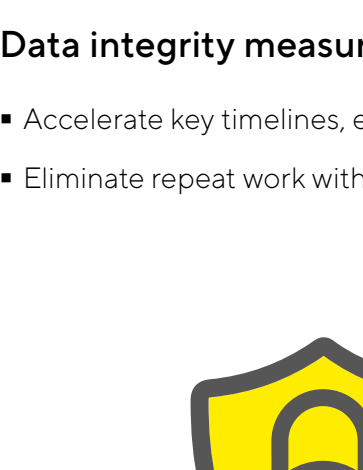
Remove components as the instrument permits: display, draft shields, weighing pan or sample holder, and base plate.



Wipe base plate and weighing pan with a soft brush or tissue wet with water or cleaning solution.

Wipe the balance and disassembled components with brushes, wet tissue, and other cleaning supplies as needed.

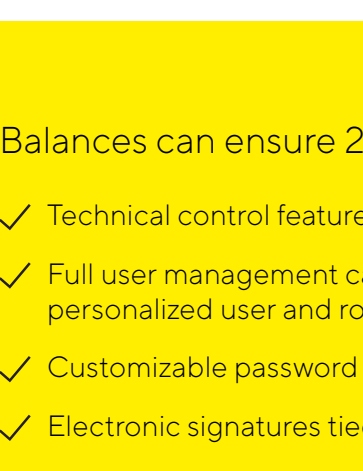
Important! Use caution to prevent particulates or liquid from entering any opening. Avoid compressed air, as it can lodge suspended particles within the mechanisms.



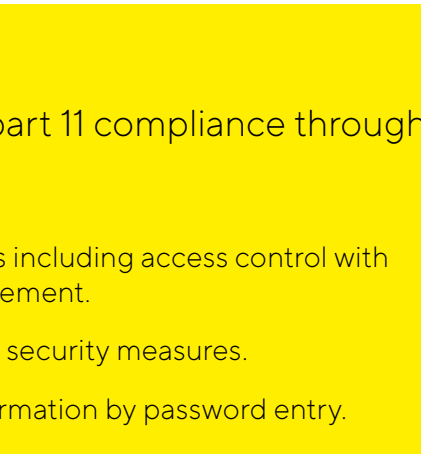
Reassemble pieces once they are thoroughly dry.

When dry, reassemble order: base plate, weighing pan, draft shields and display.

Important! Reassembling damp components can lead to instrument damage or drift from evaporation.



isoCAL

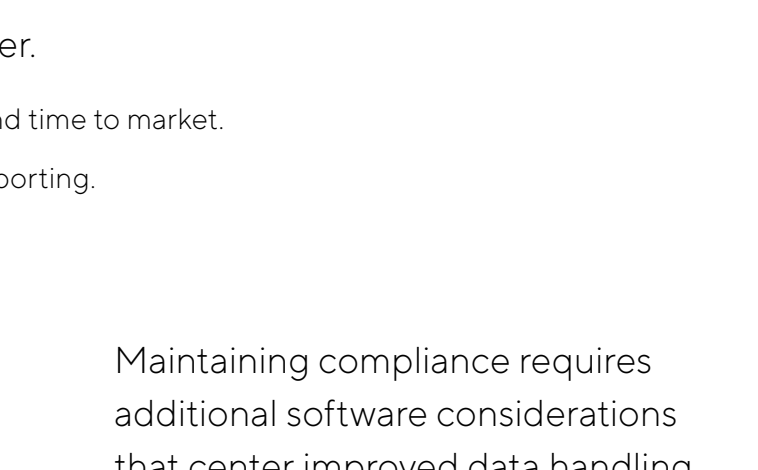


Run appropriate checks and tests to confirm function, including draft shield operation, leveling, and calibration.

Lab balance connectivity and data integrity

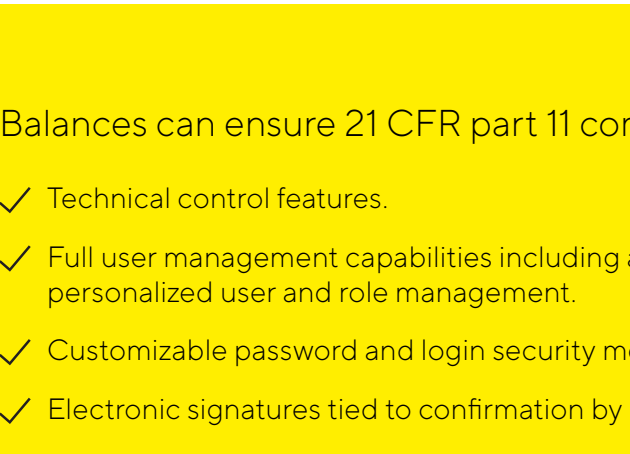
Lab digitalization requires full connectivity between analytical equipment and systems to realize the benefits:

- Paper-free workflows that eliminate manual data entry, transcription, transfer errors, and data falsification.
- Improved data security with fully electronic data handling.
- Streamlined workflows and operational efficiencies.
- Increased workflow automation, removing data breaks.



Data integrity measures work to further.

- Accelerate key timelines, e.g. discovery time and time to market.
- Eliminate repeat work with reliable data and reporting.

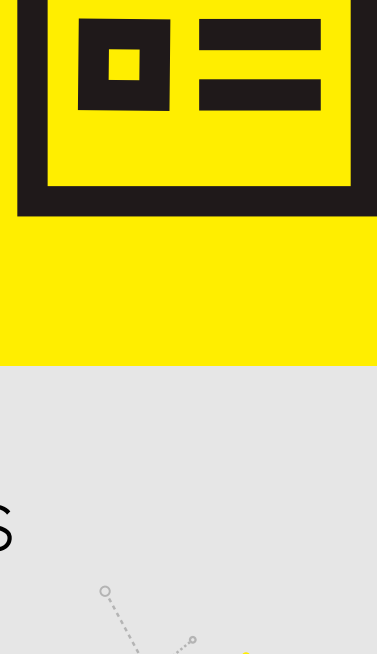


Maintaining compliance requires additional software considerations that center improved data handling and traceability:

- Audit trail.
- Access control with personalized user and role management.
- Electronic signatures.
- Data backup.
- Secure data transfer options for laboratory system integrations like LIMS and ELN.

Balances can ensure 21 CFR part 11 compliance through:

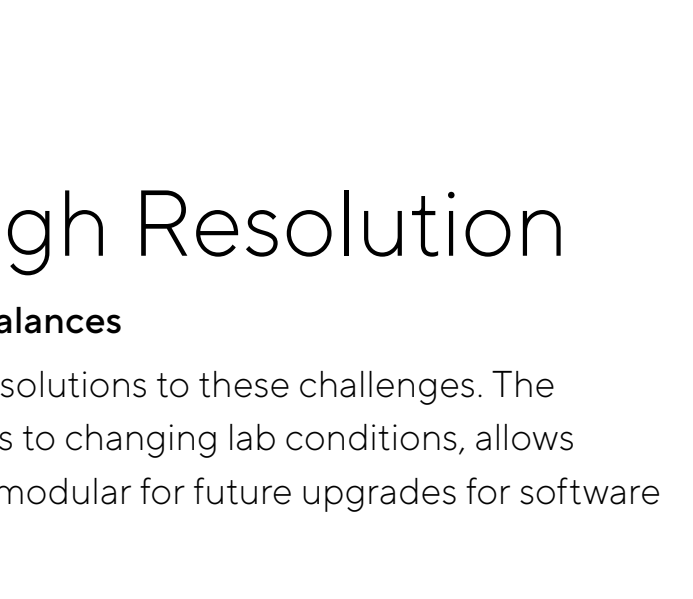
- ✓ Technical control features.
- ✓ Full user management capabilities including access control with personalized user and role management.
- ✓ Customizable password and login security measures.
- ✓ Electronic signatures tied to confirmation by password entry.
- ✓ Comprehensive audit trail features.
- ✓ Full traceability to tamper-protected raw data saved on the balance in immutable records.
- ✓ Effective, secure connections to IT systems.
- ✓ Maintains integrity of exported data, verifiable with software-integrated mechanisms.



Planning for future needs

Lab workflows and processes evolve over time as throughput changes, new workflows are developed, or protocols are retired. Needing new features often means having to purchase a new balance.

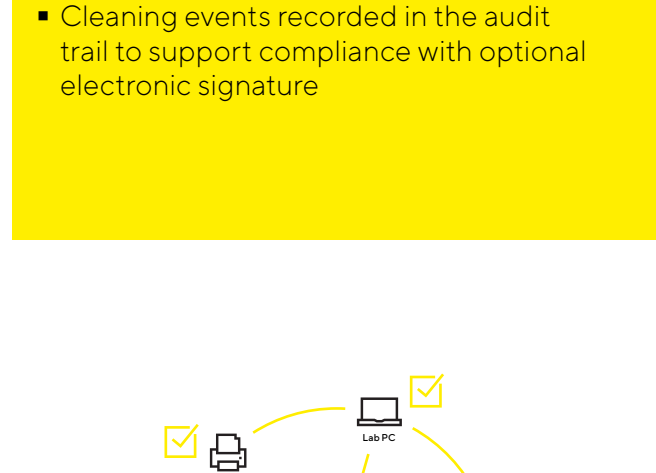
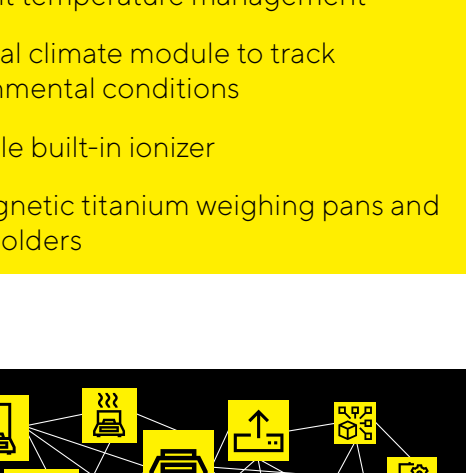
Upgradeable or modular hardware and software for balances allow more flexible use, providing investment security.



Cubis® II Ultra-High Resolution

A new generation of premium modular balances

The modern balance design offers flexible solutions to these challenges. The new Cubis® II Ultra-High Resolution adapts to changing lab conditions, allows disassembly for simplified cleaning, and is modular for future upgrades for software and hardware.



Engineering upgrades compensate for changes in temperature, humidity, and air flow, as well as static and magnetic interference to ensure measurement stability.

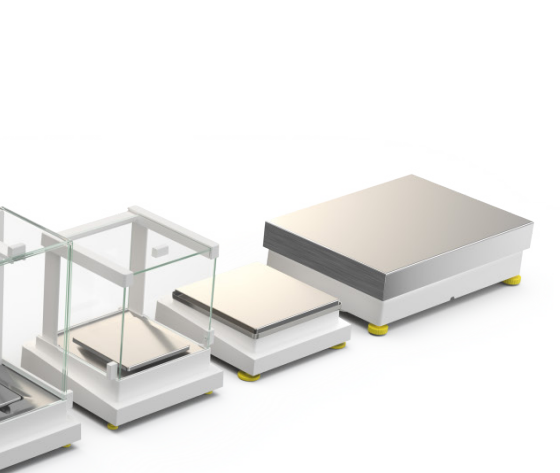
- Draft shield designs minimize electrostatic and disturbances by drafts
 - Optional inner draft shield
 - Conductive glass coating
- Next-generation monolithic weighing system
- Intelligent temperature management
 - Optional climate module to track environmental conditions
- Licensable built-in ionizer
- Non-magnetic titanium weighing pans and sample holders

Software-guided cleaning processes simplify cleaning with both basic and advanced options.

- Intuitive, tool-free disassembly and assembly
- Removable display, baseplate, weighing pan, draft shields, and front glass panel
- Cleaning kit with helpful tools
- Detailed guides walk users through each step with clear illustrations
- Built-in contamination prevention design, e.g., base plate with 50 mL retention volume
- Cleaning events recorded in the audit trail to support compliance with optional electronic signature



Full integration with LIMS and IT systems via connectors facilitates fully connected workflows.



Data integrity compliance is supported directly from the balance, which ensures correct recording, archival, and sharing of data.

