SHIMADZU
Excellence in Science

Shimadzu Electronic Balances General Catalog

Supporting laboratories in the future, utilizing and building on 100 plus years of experience and knowledge

Shimadzu began manufacturing balances in 1918. For more than 100 years, we have been at the forefront of providing precision, quality solutions for the most challenging R&D and QA/QC requirements. Our steadfast customer-focused commitment and unwavering dedication to technical excellence are both hallmarks of our history and the principles that guide us into the future.

SHIMADZU ELECTRONIC BALANCES

A Tradition of Weighing Expertise

Established in 1875 in Kyoto, Japan, Shimadzu Corporation is one of the pioneers of scientific precision instruments.

Top-pan and torsion balance production started in 1918, and equal-beam analytical balances were introduced in 1925. Since their release, the continuous improvement of Shimadzu balances has contributed to research and development across all industries.

Around the turn of the 20th century, precision weighing was a time-consuming practice performed only by experienced operators. Placing the sample and small masses on pans hung from a beam scale with a moving indicator was a tedious process. Shimadzu strove continuously to streamline weighing procedures. The introduction of the direct reading analytical balance (patented in Japan in 1948) signified a new era in weighing technology. In the Type L balance, the sensitive mass-loading work was replaced by

convenient dial operations. This reduced weighing time by 66% and, subsequently, reduced demand for conventional balances.

Shimadzu then added the top-loading direct reading balance with Roberval's mechanism in 1959. Until recently, many of these instruments were still utilized in modern laboratories. Shimadzu continued to pioneer technologies, releasing its first electronic balance in 1971—the Digibalance. This release marked a milestone in precision weighing, introducing simplicity and ease of use to analytical weighing.

Six years later (1977), the application of microprocessors in electronic balances further enhanced weighing performance. The compact ED Series provided substantial improvements in sensitivity, resolution, and stability.

Contents
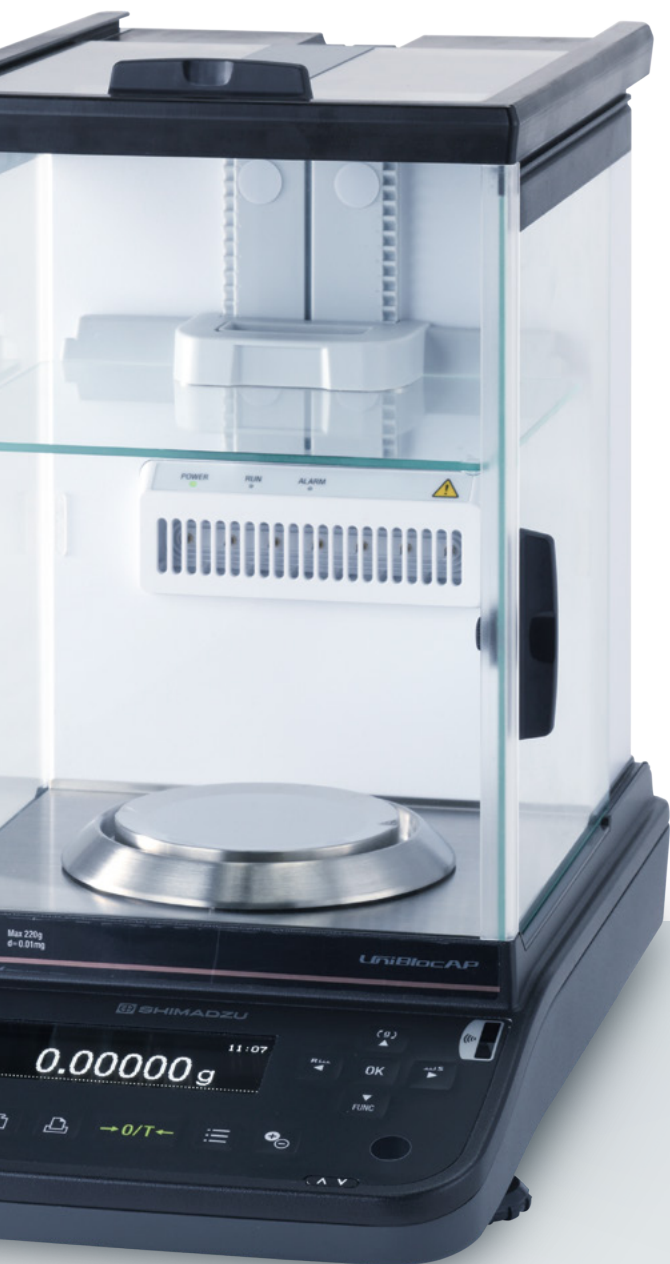
More recently, Shimadzu has introduced user-friendly instruments and features to the market, such as:

- Temperature-based fully-automatic calibration in 1985, the first one-piece force cell (OPF, later renamed UniBloc™) in 1989
- The high-sensitivity AEM-5200 Micro Balance in 1993
- The unique Windows® Direct feature perfectly suited for the computerized laboratory of the 21st Century.

Its most recent achievement is the AP Series, advanced performance balances featuring UniBloc and a high response speed, and which are applicable for a wide range of applications.

Moving forward, Shimadzu is committed to providing innovative products for the analytical marketplace.

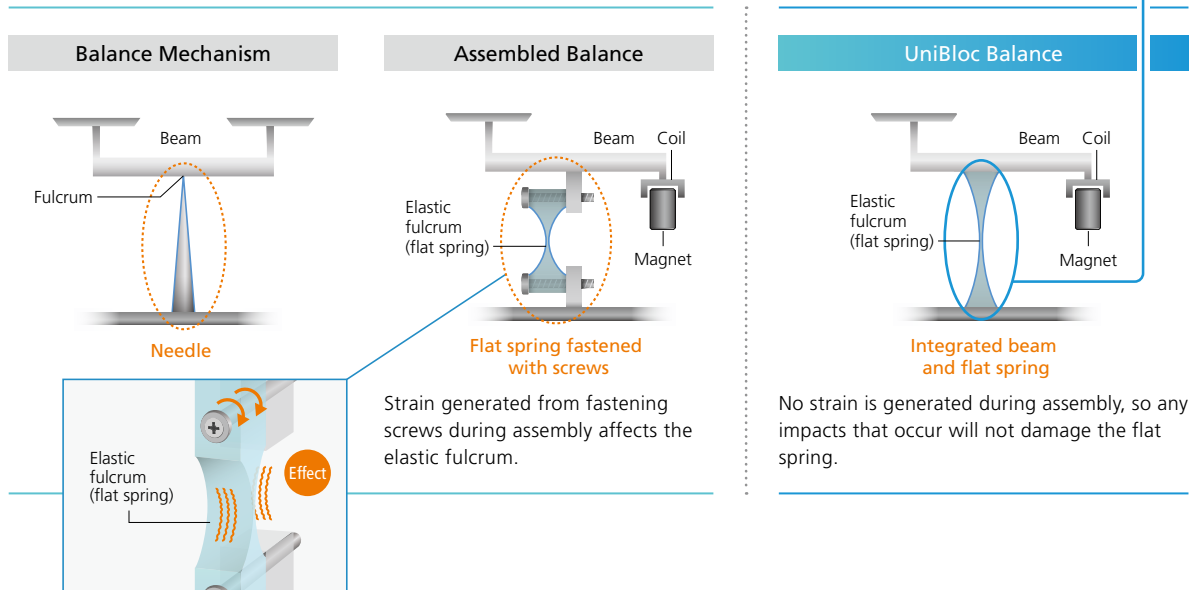# UniBloc Goes Beyond the Concept of Precision Balances

The aluminum UniBloc integrated sensor mechanism is precisely machined from a single block of aluminum alloy.

Because it integrates all the components used in the previous sensor unit without the need for any fastening screws, it is fastened without deflecting the elastic fulcrum, resulting in an exceptionally impact-resistant sensor that is unlikely to ever fail.
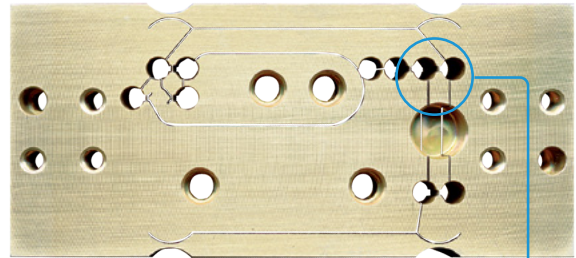
UniBloc

Illustrations of Balance Mechanism, Assembled Balance, and UniBloc Balance

Balance Mechanism

Beam

Fulcrum

Needle

Elastic fulcrum (flat spring)

Effect

Assembled Balance

Beam   Coil

Elastic fulcrum (flat spring)

Magnet

Flat spring fastened with screws

Strain generated from fastening screws during assembly affects the elastic fulcrum.

UniBloc Balance

Beam   Coil

Elastic fulcrum (flat spring)

Magnet

Integrated beam and flat spring

No strain is generated during assembly, so any impacts that occur will not damage the flat spring.

High responsiveness

Control speed has been improved and the fastest high-speed response is realized by reducing the mass of the lever system. (Comparison with previous model)

High temperature resistance

As a result of the integral block structure, the humidity in the whole cell is more uniform, which improves the temperature characteristics.

High impact resistance

The shock resistance is significantly improved by the compact aluminum integrally formed cell.

Responsiveness

Temperature resistance
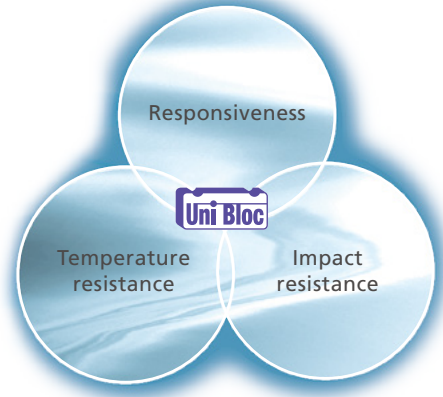
Impact resistance

One Million-Cycle Endurance Testing

Engineered with the impact-resistant UniBloc sensor, they pass endurance testing with one million cycles.*

Appearance of Endurance Testing

* Endurance Testing
Method: A 1-kg weight is moved on and off the pan at 1.5-second cycles.
Pass/fail criterion: Satisfies Shimadzu standards for routine inspections after the on-off cycles.
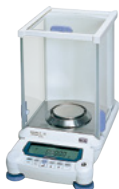**Note**: Japan's Measurement Act specifies endurance testing to 100,000 cycles. UP series balances are tested to over ten times that level.

UniBloc family of balances
Experience for yourself the performance of UniBloc.

AP series

AU series

AT-R series

UP series

UW/UX series

TW/TX series

BW-K/BX-K series

MOC-120H

MOC63u

Shimadzu Balances Offer a Diverse Range of Functions

01
High Level Functionality

Easy Setting

During operation, if you want to make the display slightly more stable, or alternatively, want to improve the response speed, you can make one-touch adjustments without interrupting measurement. A special indicator is provided that instantly shows the adjustment status.

Menu Operation Key

Keys exclusively for menu operations are arranged separately from the measurement keys. Menus can be operated intuitively using the cross-shaped key layout.
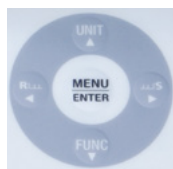
Perfect Self Calibration (PSC)

Electronic balances are precision instruments very susceptible to changes in room temperature. Sensitivity must be calibrated every time the balance is used since changes in room temperature influence mass measurement values, which are not supposed to change. The balance detects changes in room temperature that affect sensitivity, and automatically starts calibration using built-in weights. As a result, sensitivity errors are always kept within a constant range.
   This allows the operator to concentrate on measurement tasks without having to worry about sensitivity calibration.
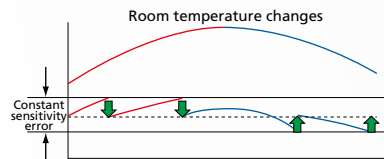
The perfect self calibration (PSC) function keeps the sensitivity error within a constant range at all times.

Clock-CAL

The balance starts calibration using built-in weights at preset times. If you set calibration times before important measurements (e.g. before starting work in the morning or during the lunch or evening break), the balance will automatically start calibration when the preset time is reached.
This lets you take stable, reliable measurements without worrying about sensitivity calibration.
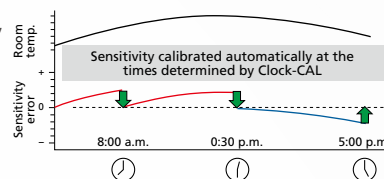
02
Durability

UniBloc

Developed by Shimadzu, UniBloc is created by high-precision electric discharge wire processing applied to a block of aluminum alloy and replaces the conventional sensor block assembly. As such, it uses no springs or screws. This uniform structure dramatically improves response and temperature characteristics, and the simple yet compact design enhances impact resistance. Balances equipped with UniBloc provide highly reliable mass measurement even during prolonged use.

03
Convenient Functions

Internal Calibration

The balance has built-in motor-driven calibration weights. Sensitivity can be calibrated as needed with a single key press.

Dry Battery Operation

The balance can also run on dry cell batteries, enabling use when no power is available.

Formulation Mode

This is convenient when formulating (preparing) multiple substances.

Interval Timer

Data can be automatically output at time intervals set in the range from 1 second to 99 minutes 59 seconds. This function can be combined with Balance Keys.

Checkweighing

When upper and lower thresholds are set, the balance indicates if the sample weight is within the range (GO), over (HI) or under (LO).

Backlight LCD

The backlight LCD display can be clearly read in the darkest of environments.

Analog Bar Display

Remaining weighing capacity can be seen by the analog bar graph at a glance.
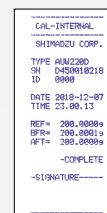
04

ISO / GLP / GMP

Built-in Clock

With the optional printer connected, data can be recorded with date and time stamps. Calibration reports can also be date- and time-stamped, which is ideal for establishing measurement and traceability requirements specified by GLP, GMP and ISO 9001.

ISO Calibration Report

Simply connect an optional printer to automatically print out which balance was calibrated when, and the calibration results. No difficult settings are required. Furthermore, the current date and time can be printed at any time during measurement.

```
CAL-INTERNAL
  SHIMADZU CORP.
TYPE AUW220D
SN   D450010218
ID   0000
DATE 2018-12-07
TIME 23.00.13
REF=  200.0000g
BFR=  200.0001g
AFT=  200.0000g
      -COMPLETE
-SIGNATURE------
```

(AUW Series Printout Sample)

05

PC Connection

RS-232C Interface

Equipped with an RS-232C interface for easy integration with other devices and computers.

Computer Connection Function

Systems can be connected to a computer via an optional cable/adapter kit. For more details, visit the Shimadzu website.

Balance Keys   Multi-Balance Collect

Multi-Balance Collect and Balance Keys software run on Windows®. Directly importing balance data into a PC using these free wares eliminates transcription errors, improves work efficiency, and increases data reliability. Multi-Balance Collect can also collect data continuously at fixed intervals. It is recommended when you want to record changes over time, such as weight changes due to evaporation, on multiple balances.

06

Network

LabSolutions™ Balance

Connecting with LabSolutions lets you save data from balances, HPLC and other analytical instruments to a database and create reports automatically. Uniform data management means no transcription errors and is perfect for security.

07

Applications

Standard Below-weigh Hook

Also compatible with suspension measurements.

Piece Counting

A built-in piece counting function enables balances to be used as parts counters (piece scales).

Specific Gravity Measurement

A specific gravity calculation function based on the immersion method is built in. Just attach the optional Specific Gravity Measurement Kit to use a balance as a specific gravity meter.
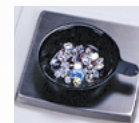

Built-in Animal Measurement Mode

The weight of mice, rats, rabbits, and other small animals can be measured. Stable measurements are obtained even if the animal moves.

Carat Measurement

Results can be displayed in carats when measuring precious stones. Change among many weighing units and functions with a single touch.
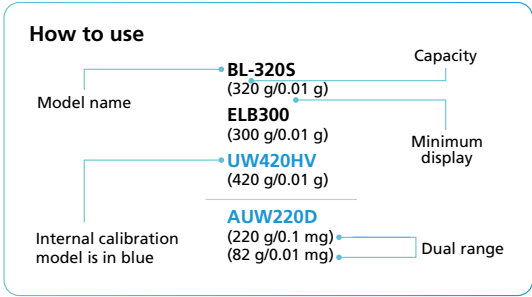

08

Printer

Printer

Using an optional printer can enhance support for ISO/GLP/GMP.

Product Lineup

	Up to 100 g	More than 100 g	More than 300 g	More than 500 g	More than 1 kg	More than 3 kg
0.01 mg	AP125WD-AD (120 g/0.1 mg) (52 g/0.01 mg) AP125WD (120 g/0.1 mg) (52 g/0.01 mg) AUW220D (220 g/0.1 mg) (82 g/0.01 mg) AUW120D (120 g/0.1 mg) (42 g/0.01 mg)	AP225W-AD (220 g/0.01 mg) AP135W-AD (135 g/0.01 mg) AP225WD-AD (220 g/0.1 mg) (102 g/0.01 mg) AP225W (220 g/0.01 mg) AP135W (135 g/0.01 mg) AP225WD (220 g/0.1 mg) (102 g/0.01 mg)				
0.1 mg	ATX84R (82 g/0.1 mg) ATY64R (62 g/0.1 mg)	AP124W AP124X AP124Y (120 g/0.1 mg) AP224W-AD AP224W AP224X AP224Y (220 g/0.1 mg) AUW220 AUX220 AUY220 (220 g/0.1 mg) ATX124R ATY124R (120 g/0.1 mg) ATX224R ATY224R (220 g/0.1 mg) AUW120 AUX120 AUY120 (120 g/0.1 mg) TWC623L TXC623L (620 ct/0.001 ct)	AP324W-AD AP324W AP324X AP324Y (320 g/0.1 mg) AUX320 AUW320 (320 g/0.1 mg) ATX324R ATY324R (320 g/0.1 mg)			
0.001 g (1 mg)		UP223X UP223Y (220 g/0.001 g) UW220H UX220H (220 g/0.001 g) TW223L TX223L (220 g/0.001 g) BL-220H (220 g/0.001 g)	UP423X UP423Y (420 g/0.001 g) UW420H UX420H (420 g/0.001 g) TW423L TX423L (420 g/0.001 g) TW323L TX323L (320 g/0.001 g) BL-320H (320 g/0.001 g)	UP623X UP623Y (620 g/0.001 g) UP823X UP823Y (820 g/0.001 g) UW820H UX820H (820 g/0.001 g) UW620H UX620H (620 g/0.001 g)	UP1023X UP1023Y (1020 g/0.001 g) UW1020H UX1020H (1020 g/0.001 g)	

How to use

Model name ──→ **BL-320S**
(320 g/0.01 g)
ELB300
(300 g/0.01 g)

Capacity

Minimum display

Internal calibration model is in blue ──→ **UW420HV**
(420 g/0.01 g)

AUW220D
(220 g/0.1 mg)
(82 g/0.01 mg) ── Dual range
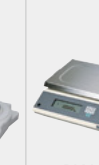
* The UW/UX series, TXB series and ELB series will be discontinued when the stocks are sold out.

	Up to 100 g	More than 100 g	More than 300 g	More than 500 g	More than 1 kg	More than 3 kg
0.01 g (10 mg)		ELB200 (200 g/0.01 g) ELB120 (120 g/0.01 g) UW220HV (220 g/0.01 g)	UP422X UP422Y (420 g/0.01 g) UW420S UX420S (420 g/0.01 g) TXB422L (420 g/0.01 g) BL-320S (320 g/0.01 g) ELB300 (300 g/0.01 g) UW420HV (420 g/0.01 g)	UP822X UP822Y (820 g/0.01 g) UW820S UX820S (820 g/0.01 g) TXB622L (620 g/0.01 g) BL-620S (620 g/0.01 g) ELB600 (600 g/0.05 g) UW620HV (620 g/0.01 g)	UP2202X UP2202Y (2200 g/0.01 g) UW2200H UX2200H (2200 g/0.01 g) TX2202L (2200 g/0.01 g) BL-2200L (2200 g/0.01 g)	UP4202X UP4202Y (4200 g/0.01 g) UP6202X UP6202Y (6200 g/0.01 g) UW4200H UX4200H (4200 g/0.01 g) UW6200H UX6200H (6200 g/0.01 g) TX4202L (4200 g/0.01 g) TX3202L (3200 g/0.01 g) BL-3200H (3200 g/0.01 g)
0.1 g (100 mg)				ELB600S (600 g/0.1 g) UW820SV (820 g/0.1 g)	ELB2000 (2000 g/0.1 g) ELB1200 (1200 g/0.1 g) UW2200HV (2200 g/0.1 g)	UP4201X UP4201Y (4200 g/0.1 g) UW4200S UX4200S (4200 g/0.1 g) TXB4201L (4200 g/0.1 g) BL-3200S (3200 g/0.1 g) ELB3000 (3000 g/0.1 g) UW4200HV (4200 g/0.1 g)
0.1 g (100 mg)	UP8201X UP8201Y (8200 g/0.1 g) UW8200S UX8200S (8200 g/0.1 g) TXB6201L (6200 g/0.1 g) UW6200HV (6200 g/0.1 g)	BW22KH BX22KH (22 kg/0.1 g) BW12KH BX12KH (12 kg/0.1 g)	BW32KH BX32KH (32 kg/0.1 g)			
1 g	ELB6000S (6000 g/1 g) UW8200SV (8200 g/1 g)	ELB12K (12 kg/1 g)	BW32KS BX32KS (32 kg/1 g)	BW52KS BX52KS (52 kg/1 g)		

	AP-WDAD AP-WAD	AP-WD AP-W	AP-X	AP-Y	AUW-D AUW	AUX	AUY	ATX-R ATY-R
UniBloc	✓	✓	✓	✓	✓	✓	✓	✓
Perfect Self Calibration	✓	✓	✓		✓	✓		✓ (ATX-R only)
Clock-CAL	✓	✓	✓		✓			
Internal Calibration	✓	✓	✓		✓	✓		✓ (ATX-R only)
Single-Lever CAL								
Built-in Clock	✓	✓	✓	✓	✓	✓		
ISO Calibration Report	✓	✓	✓	✓	✓	✓		
Printer*1	✓	✓	✓	✓	✓	✓	✓	✓
Computer Connection Function	✓	✓	✓	✓	✓	✓	✓	✓
Multi-Balance Collect	✓	✓	✓	✓	✓	✓	✓	✓
Balance Keys	✓	✓	✓	✓	✓	✓	✓	✓
Built-in RS-232C Interface	✓	✓	✓	✓	✓	✓	✓	✓
Built-in USB Interface	✓	✓	✓	✓				✓
Touchless Sensor	✓							
Smart Auto Door	✓							
Menu Operation Key	✓	✓	✓	✓				
Easy Setting	✓	✓	✓	✓				✓
Backlight					✓ (AUW only)			
Organic EL Display	✓	✓	✓	✓				
Analog Bar Display	✓	✓	✓	✓	✓	✓	✓	
Checkweighing	✓	✓	✓	✓				✓
Comparator Output								
Piece Counting	✓	✓	✓	✓	✓	✓	✓	✓
Carat Measurement	✓	✓	✓	✓	✓	✓	✓	✓
Specific Gravity Measurement	✓	✓	✓	✓	✓	✓	✓	✓
Dry Battery Operation								
Standard Below-weigh Hook	✓	✓	✓	✓	✓	✓	✓	
Built-in Animal Measurement Mode								
Formulation Mode	✓	✓	✓	✓	✓	✓	✓	✓
Interval Timer	✓	✓	✓	✓	✓	✓		

	UP-X UW[2][3]	UP-Y UX[3][4]	TW TX	TXB[3]	BW-K BX-K	ELB[3]	BL	UW-V	MOC63u MOC-120H
Uni Bloc	✓	✓	✓		✓			✓	✓
PSC	✓							✓	
Clock-CAL	✓							✓	
Molar-CAL	✓		✓ (TW-N only)					✓	
(pink icon)					✓ (BW-K only)				
Built-in	✓	✓			✓			✓	✓
ISO	✓	✓			✓			✓	✓
(printer)	✓	✓	✓	✓	✓	✓	✓	✓	✓*5
PC	✓	✓	✓	✓	✓	✓*6	✓*6	✓	✓
Multi-Balance Collect	✓	✓	✓	✓	✓	✓	✓	✓	✓ (MOC63u only)
Balance Keys	✓	✓	✓	✓	✓	✓	✓	✓	✓
RS-232C INTERFACE	✓	✓	✓	✓	✓	✓*6	✓*6	✓	✓
USB INTERFACE									✓ (MOC63u only)
(icon)									
Smart AutoDoor									
(icon)			✓	✓					
(icon)			✓	✓					
Back Light	✓	✓		✓				✓	✓
(icon)									
Analog display	✓	✓			✓		✓	✓	
HI GO LO	✓	✓	✓	✓	✓			✓	
(icon)	✓	✓						✓	
PCS	✓	✓	✓	✓	✓	✓	✓	✓	
CARAT	✓	✓	✓	✓	✓		✓	✓	
Specific Gravity	✓	✓			✓	✓		✓	
DRY Battery				✓		✓			
(hook)	✓	✓			✓*7	✓*7		✓	
(icon)	✓	✓			✓				
(icon)	✓	✓	✓	✓	✓			✓	
(timer)	✓	✓			✓				✓

*1 Option   *2 The pictures show the UP-X.   *3 The UW/UX series, TXB series and ELB series will be discontinued when the stocks are sold out.   *4 The pictures show the UP-Y.
*5 A dedicated printer is available for the MOC-120H.   *6 Requires optional I/O–RS conversion cable or interface IFB-102A.   *7 Requires an optional below-weigh hook.

AP W-AD

AP with Automatic Door

AP W-AD Series
Advanced Performance UniBloc Balances

Provides high-speed response and high stability

New automatic door functionality makes

weighing operations even more convenient

01 Touchless sensors and a Smart Auto Door improve hygiene and lower contamination risk to provide a superior operating environment.

02 An ionizer and adjustable windbreak plate reduce static electricity and convection effects to provide highly stable and reliable measurements.

03 LabSolutions Balance supports weighing data integrity.

Visit our website for more information.

Product

Advanced Performance UniBloc Balances

AP Series

Provides High-Speed Response and High Stability

New automatic door functionality makes weighing operations even more convenient

Minimum display 0.1 mg model

AP324W	AP324X	AP324Y
AP224W	AP224X	AP224Y
AP124W	AP124X	AP124Y

Minimum display 0.01 mg model	Minimum display 0.01 mg/0.1 mg model
AP225W	AP225WD
AP135W	AP125WD

Minimum display 0.1 mg model

AP324W-AD
AP224W-AD

Minimum display 0.01 mg model	Minimum display 0.01 mg/0.1 mg model
AP225W-AD	AP225WD-AD
AP135W-AD	AP125WD-AD

AP W-AD Series	Uni Bloc PSC Clock-CAL Motor-CAL Built-in ISO PC Multi-Balance Collect Balance Keys RS-232C INTERFACE USB INTERFACE Smart AutoDoor ... Analog display HI GO LO PCS CARAT Specific Gravity ...
AP W Series	Uni Bloc PSC Clock-CAL Motor-CAL Built-in ISO PC Multi-Balance Collect Balance Keys RS-232C INTERFACE USB INTERFACE ... Analog display HI GO LO PCS CARAT Specific Gravity ...
AP X Series	Uni Bloc PSC Clock-CAL Built-in ISO PC Multi-Balance Collect Balance Keys RS-232C INTERFACE USB INTERFACE ... Analog display HI GO LO PCS CARAT Specific Gravity ...
AP Y Series	Uni Bloc Built-in ISO PC Multi-Balance Collect Balance Keys RS-232C INTERFACE USB INTERFACE ... Analog display HI GO LO PCS CARAT Specific Gravity ...

Uni Bloc — Aluminum integrated mass sensor

Excellent response time and stable temperature characteristics.

Built-in Clock

If a printer (optional) is connected, then data can be marked with the date and time. Calibration results can also be marked with date and time, which is perfect for managing measurements or establishing traceability as required by GLP/GMP/ISO 9001 standards.

ISO Calibration Report

Simply connect an optional printer to automatically print out which balance was calibrated when, and the calibration results. No difficult settings are required. Furthermore, the current date and time can be printed at any time during measurement.

USB Interface

A USB connector is built in for connecting to a PC.

Organic EL Display

Adopts an "Organic EL Display" that is clear even in dark places.

AP W-AD Series

Model Name	W-AD Series					
	AP225W-AD	AP135W-AD	AP225WD-AD	AP125WD-AD	AP324W-AD	AP224W-AD
Capacity	220 g	135 g	220 g / 102 g	120 g / 52 g	320 g	220 g
Minimum Display	0.01 mg		0.1 mg / 0.01 mg		0.1 mg	
Pan Size	Approx. 91 mm dia.					
Dimensions	Approx. W215 × D411 × H346 mm (power supply unit included)				Approx. W215 × D367 × H346 mm	
Weight	Approx. 9.7 kg				Approx. 8.6 kg	
Calibration Weight	Built-in					
External Calibration Weight Range for Span Calibration (recommended weight value)	95 to 220.00090 g (200 g)	45 to 135.00090 g (100 g)	95 to 220.00090 g (200 g)	45 to 120.00090 g (100 g)	95 to 320.0090 g (300 g)	95 to 220.0090 g (200 g)
Repeatability (at weighing capacity) *1	0.015 mg (to 20 g) 0.03 mg (to 100 g) 0.05 mg (to weighing capacity)	0.05 mg	0.1 mg / 0.05 mg	0.1 mg / 0.02 mg	0.15 mg	0.1 mg
Repeatability (for Low Loads)	0.01 mg (for 5 g load) *1				0.1mg (for 20 g load)	0.1mg (for 10 g load)
Minimum Weight	20 mg *1				200 mg	
Linearity *1	±0.1 mg		±0.2 mg / ±0.1 mg	±0.2 mg / ±0.05 mg	±0.3 mg	±0.2 mg
Response Time for Trace Measurements *2,3	2 sec.					
Response Time *3	8 sec.		2 sec. / 8 sec.		2 sec.	
Operational Temperature/ Humidity Range	5 to 40 °C at 20 to 85 % RH *4					
Sensitivity Stability Against Temperature Range	±2 ppm/°C (10 to 30 °C)					
Display	OEL display (dot matrix)					
Rated Electric Power Supply	DC 12 V 1.5 A					
Power Supply Input (AC Adapter) *5	AC 100 to 240V 480 mA 50/60 Hz					
Input/Output Terminal	RS-232C (D-sub 9P plug), USB Host (Type A), USB device (Type B), Ionizer					
Functions, Options	USB Host (Type A),USB Device (Type B),Recipe Compounding, HPLC Buffer Solution Preparation,mol Conversion Function,Sample (Concentration) Preparation, Inspection Support Function,Clock-CAL,Automatic Doors,Touchless Sensors,Ionizer *6					
	Adjustable Internal Windbreak Plate			✓		

*1 Measurement conditions of W-AD series (0.01 mg models only) are as follows:
    • Set the adjustable windbreak plate in the lowest position
    • With a shield plate configured around the pan
*2 The response time for displaying 90 % of the added sample amount value in trace measurements (from 1 mg).

*3 The response time value is typical.
*4 Non-condensing.
*5 Depending on the attached AC adapter.
*6 See more details of ionizer on page 18.

Touchless Sensors
(AP W-AD series only)
Doors open/close by waving a hand over the left and right infrared sensors that enables door operation without touching the balance.

Smart Auto Door
(AP W-AD series only)
The automatic doors include automatic learning functionality that enables freely setting how far to open/close each glass door. That minimizes external air effects and increases operational efficiency.

Computer Connection Function
Systems can be connected to a computer via an RS-232C cable or using a USB–serial adapter kit. For more details, visit the Shimadzu website.

AP W/X/Y Series

Model name	W Series						
	AP225W	AP135W	AP225WD	AP125WD	AP324W	AP224W	AP124W
Capacity	220 g	135 g	220 g / 102 g	120 g / 52 g	320 g	220 g	120 g
Minimum Display	0.01 mg		0.1 mg / 0.01 mg		0.1 mg		
Pan Size	Approx. 91 mm dia.						
Dimensions	Approx. W213 × D411 × H345 mm (power supply unit included)				Approx. W213 × D367 × H345 mm		
Weight	Approx. 7.9 kg				Approx. 7.0kg		
Calibration Weight	Built-in						
External Calibration Weight Range for Span Calibration (recommended weight value)	95 to 220.00090 g (200 g)	45 to 135.00090 g (100 g)	95 to 220.00090 g (200 g)	45 to 120.00090 g (100 g)	95 to 320.0090 g (300 g)	95 to 220.0090 g (200 g)	45 to 120.0090g (100 g)
Repeatability (at weighing capacity)	0.015 mg (to 20 g) 0.03 mg (to 100 g) 0.05 mg (to weighing capacity)	0.05 mg	0.1 mg / 0.05 mg	0.1 mg / 0.02 mg	0.15 mg	0.1 mg	
Repeatability (for Low Loads)	0.01 mg (for 5 g load)				0.1 mg (for 20 g load)	0.1 mg (for 10 g load)	0.1 mg (for 5 g load)
Minimum Weight	20 mg				200 mg		
Linearity	±0.1 mg		±0.2 mg /±0.1 mg	±0.2 mg /±0.05 mg	±0.3 mg	±0.2 mg	
Response Time for Trace Measurements [1,2]	2 sec.						
Response Time [2]	8 sec.		2 sec./8 sec.		2 sec.		
Operational Temperature/Humidity Range	5 to 40 °C at 20 to 85 % RH [3]						
Sensitivity Stability Against Temperature Range	±2 ppm/°C (10 to 30 °C)						
Display	OEL display (dot matrix)						
Rated Electric Power Supply	DC 12 V 1.0A						
Power Supply Input (AC Adapter) [4]	AC100 to 240V 320 mA 50/60 Hz						
Input/Output Terminal	RS-232C (D-sub 9P plug) USB host (Type A) USB device (Type B) Ionizer						
Functions, Options — USB Host (Type A)	✓						
USB Device (Type B)	✓						
Recipe Compounding	✓						
HPLC Buffer Solution Preparation	✓						
mol Conversion Function	✓						
Sample (Concentration) Preparation	✓						
Inspection Support Function	✓						
Clock-CAL	✓						
Internal Windbreak Plate	✓				✓ (optional)		
Ionizer	✓ (optional)						

Model name	X Series			Y Series		
	AP324X	AP224X	AP124X	AP324Y	AP224Y	AP124Y
Capacity	320 g	220 g	120 g	320 g	220 g	120 g
Minimum Display	0.1mg					
Pan Size	Approx. 91 mm dia.					
Dimensions	Approx. W213 × D367 × H345 mm					
Weight	Approx. 7.0 kg			Approx. 6.5 kg		
Calibration Weight	Built-in			None		
External Calibration Weight Range for Span Calibration (recommended weight value)	95 to 320.0090 g (300 g)	95 to 220.0090 g (200 g)	45 to 120.0090 g (100 g)	95 to 320.0090 g (300 g)	95 to 220.0090 g (200 g)	45 to 120.0090 g (100 g)
Repeatability (at weighing capacity)	0.15 mg	0.1 mg		0.15 mg	0.1 mg	
Repeatability (for Low Loads)	0.1 mg (for 20 g load)	0.1 mg (for 10 g load)	0.1 mg (for 5 g load)	0.1 mg (for 20 g load)	0.1 mg (for 10 g load)	0.1 mg (for 5 g load)
Minimum Weight	200 mg					
Linearity	±0.3 mg	±0.2 mg		±0.3 mg	±0.2 mg	
Response Time for Trace Measurements [1,2]	2 sec.					
Response Time [2]	2 sec.					
Operational Temperature/ Humidity Range	5 to 40°C at 20 to 85% RH [3]					
Sensitivity Stability Against Temperature Range	±2 ppm/°C (10 to 30°C)					
Display	OEL display (dot matrix)					
Rated Electric Power Supply	DC 12 V 1.0 A					
Power Supply Input (AC Adapter) [4]	AC100 to 240V 320 mA 50/60 Hz					
Input/Output Terminal	RS-232C (D-sub 9P plug) USB host (Type A) USB device (Type B) Ionizer					
Functions, Options — USB Host (Type A)						
USB Device (Type B)	✓					
Recipe Compounding						
HPLC Buffer Solution Preparation						
mol Conversion Function	✓					
Sample (Concentration) Preparation						
Inspection Support Function	✓					
Clock-CAL	✓					
Internal Windbreak Plate	✓ (optional)					
Ionizer	✓ (optional)					

*1   The response time for displaying 90 % of the added sample amount value in trace measurements (from 1 mg).

*2   The response time value is typical.

*3   Non-condensing.

*4   Depends on the attached AC adapter.

Various accessories and options suitable for semi-micro measurement are available.

Multi-Stand
(included standard with 0.01 mg models of W-AD series only)

If placing weighing paper, microtubes, or other containers that exceed the pan diameter, or when weighing long rod-like samples, attach a specialized multi-stand to easily weigh samples.

• Example Using a Multi-Stand

Weighing Paper

Microtubes

Rod-Like Samples

Internal Windbreak Plate
(included standard with 0.01 mg models of W series only)

The plate suppresses the influence of convection and airflow within the weighing chamber to improve the stability and response of measurement values.

Internal Windbreak Plate (for W/X/Y series models)

Static Electricity Remover (Ionizer)

STABLO AP

Use as an external stand configuration or install it inside the balance unit.

When using a stand

Built-in

Other Optional Products

SMK-601
Specific Gravity Measurement Kit

AP Holder

EP-100

EP-110

Optional Accessories

Description
STABLO™-AP Ionizer Static Electricity Remover
EP-100 Electronic Printer
EP-110 Electronic Printer
Label Roll Paper for EP-100/110 (10 Rolls)
Internal Windbreak Plate (for W/X/Y Series) *1
SMK-601 Specific Gravity Measurement Kit
AP Holder *2
Multi-Stand *3

Description
Shield plate
AC Adapter (for W/X/Y Series)
AC Adapter (for W-AD Series Balances)
AC Adapter (for W-AD Series STABLO-AP Ionizers)
Display Protective Cover (Set of 5)
USB Cable Assembly (2 m) with Core
RS–IO Adapter Cable (for Connecting EP-80/90)

*1 Included standard with 0.01 mg models of W series only
*2 Included standard with AP225W-AD/AP225W models
*3 Included standard with 0.01 mg models of W-AD series only

Static Remover (Ionizer)

STABLO AP

Product

An excellent solution against static electricity.

STABLO-AP provides reliable measurement by removing static electricity.

1 On Stand

2 Hand-held

3 Built-in Balance
(AP series)

Easily install
in the balance

Features of STABLO AP

Static Electricity Removal by Ion Irradiation

With the high-frequency AC corona discharge method, Shimadzu's STABLO-AP ionizer provides a stable ion balance and excellent static removal performance on samples and containers. Precision weighing work becomes remarkably efficient.
Electrodes are safely housed inside the unit.

Concept of static removal

1

Example: negatively charged sample

2

AC corona discharge

Well-balanced mixture of positive/negative ions are emitted in rapid alternation.

3 Ions are applied to sample.

4 Only the opposite charge ions are attracted.

5 Negative static charge is neutralized by positive ions.
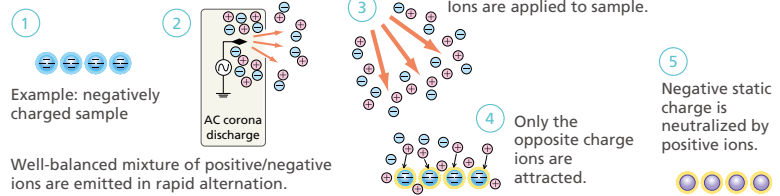
AC Method Produces Excellent Ion Balance

AC method: AC voltage is applied on the discharge needle and a well-balanced mixture of positive/negative ions is emitted in rapid alternation from one electrode.

DC method: DC voltage is applied to a couple of electrodes. One is positive and the other is negative. Each electrode emits ions of one polarity only. An effective static removal angle is limited if the two electrodes are distanced. As electrodes deteriorate, the initial ion balance is lost.

AC method

Electrode STABLO AP

DC method

Electrodes

◄ : Effective area
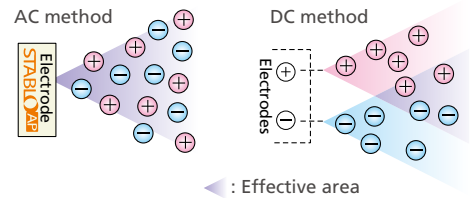
What is "ion balance"?

Ion balance is the balance of positive and negative ions that are supplied by an ionizer. If ion balance is poor, static electricity is not removed or inverse charging may result.

If ion balance is poor……

Sample

Not neutralized
(negative charge remains)

Sample

Inversely charged
(results in positive charge)
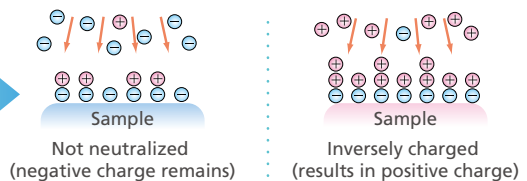
Applications

Static electricity keeps the sample out of the ampoule

BAD!

STABLO-AP removes the charge from the ampoule.

GOOD!
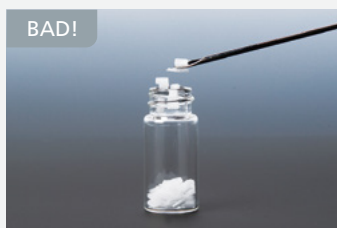
The sample is hard to handle because it adheres to the ampoule inlet and sides.
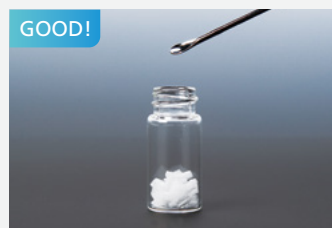
The static charge is gone in seconds. This improves productivity.

Plastic wrap sticks to rubber gloves

BAD!

Fasten STABLO-AP to the stand, and remove the static from the gloves.

GOOD!

Plastic wrap adheres to rubber gloves, making it difficult to work with them.
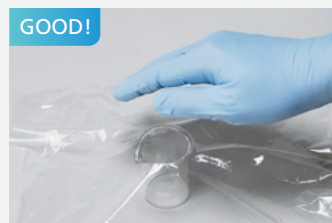
The static is removed in about 10 seconds, and the plastic wrap no longer sticks.

STABLO-AP is convenient when using an electronic balance

When the powder in the Petri dish is electrically charged, and the numerical value fluctuates

When the powdered medicine paper is electrically charged, and the numerical value is unstable

When the measurement spoon is electrically charged, and bringing it near the pan affects the numerical value

Specifications

Ion Generation Method	AC corona discharge method
Ion Balance	±10 V
Effective Static Removal Range	Approx. 400 mm from the outlet
Static Elimination Time	Approx. 1 second (typical value) (from ±1000 V to ±100 V)
Ozone Concentration	0.06 ppm
Electrode Probes	Tungsten (durability: 30,000 hours)
Weight	Approx. 710 g (Main unit: 395 g, Stand: 315 g)
Operating Temperature and Humidity	0 °C to + 40 °C, 25 % RH to 85 % RH (non-condensing)
Rated Electric Power Supply	DC 24 V, 1.0 A

Multi Functional Analytical Balances

AU Series

UniBloc Analytical Balances

AUW-D series dual-range semi-micro balances
AUW/AUX/AUY series analytical balances

Excellent Weighing Performance

• Compact UniBloc mechanism and digital processing technology produce fast response and stability at the same time.

• Measurement results can be transmitted to Excel® or other Windows® applications.

• Piece counting, various mass units, below-weigh hook, and specific gravity measurement software are all standard features.

Series																			
AUW-D Series	Uni Bloc	PSC	Clock-CAL	Motor-CAL	Built-in	ISO		PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE		Analog display	PCS	CARAT	Specific Gravity			
AUW Series	Uni Bloc	PSC	Clock-CAL	Motor-CAL	Built-in	ISO		PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE	Back Light	Analog display	PCS	CARAT	Specific Gravity			
AUX Series	Uni Bloc	PSC		Motor-CAL	Built-in	ISO		PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE		Analog display	PCS	CARAT	Specific Gravity			
AUY Series	Uni Bloc							PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE		Analog display	PCS	CARAT	Specific Gravity			

Model Name	AUW-D Series		AUW Series			AUX Series			AUY Series	
	AUW220D	AUW120D	AUW320	AUW220	AUW120	AUX320	AUX220	AUX120	AUY220	AUY120
Capacity	220 g / 82 g	120 g / 42 g	320 g	220 g	120 g	320 g	220 g	120 g	220 g	120 g
Minimum Display	0.1 mg / 0.01 mg		0.1 mg							
Pan Size	Approx. 80 mm dia.									
Dimensions	Approx. W217 × D356 × H338 mm									
Weight	Approx. 7.0 kg									

PSC (Perfect Self-Calibration)
(AUW-D/AUW/AUX series only)

Automatically calibrates the balance if an ambient temperature change occurs that could affect sensitivity.
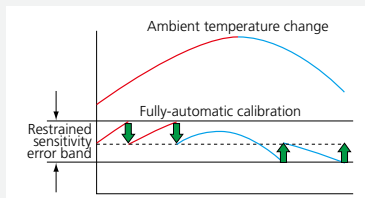
Clock-CAL

This automatically calibrates the balance at pre-specified times (such as before starting work, during lunch, or after work hours).
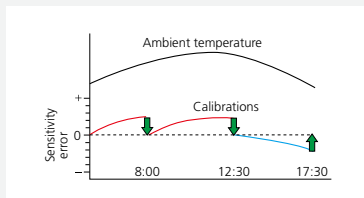
Internal Calibration
(AUW-D/AUW/AUX series only)

The balance has built-in motor-driven calibration weights. Sensitivity can be calibrated as needed with a single key press.

ISO Calibration Report

Simply connect an optional printer to automatically print out which balance was calibrated when, and the calibration results. No difficult settings are required. Furthermore, the current date and time can be printed at any time during measurement.

Interval Timer
(AUW-D/AUW/AUX series only)

Data can be automatically output at time intervals set in the range from 1 second to 99 minutes 59 seconds. This function can be combined with Balance Keys.

Piece Counting

A built-in piece counting function enables balances to be used as parts counters (piece scales).

RS-232C Interface

Equipped with an RS-232C interface for easy integration with other devices and computers.

Specific Gravity Measurement

Installing the optional SMK-401 specific gravity measurement kit transforms the balance into a dedicated instrument for measuring specific gravity or density. Specific gravity measurement software is already installed in the Shimadzu balance (refer to page 38).

Carat Measurement

Results can be displayed in carats when measuring precious stones.
Change among many weighing units and functions with a single touch.

Printer

By adding an optional printer, the measurement results can be automatically printed (refer to page 33).

Optional Accessories

Description
STABLO-AP Ionizer Static Electricity Remover
EP-100 Electronic Printer
EP-110 Electronic Printer
SMK-401 Specific Gravity Measurement Kit
AP Holder
In-use Protective Cover
RS-232C Cable
USB Conversion Cable
AKB-301 Application Keyboard
FSB-102PK Foot Switch
FSB-102TK Foot Switch
AC Adapter (Provided with the main unit)

AKB-301
Application Keyboard

AP Holder

STABLO™-AP
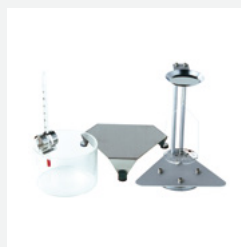
SMK-401
Specific Gravity Measurement Kit

Basic Models of Analytical Balances

AT-R Series

Product

Basic Model with Improved Convenience

- Freely set responsiveness or stability

- Perform stable measurements in combination with an ionizer

- Connect with a computer via USB or RS-232C

RS232C   USB DEVICE

ATX-R Series	Uni Bloc	PSC	Motor-CAL		PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE	USB INTERFACE		HI GO LO	PCS	CARAT	Specific Gravity	%	
ATY-R Series	Uni Bloc				PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE	USB INTERFACE		HI GO LO	PCS	CARAT	Specific Gravity	%	

Model Name	ATX-R Series				ATY-R Series			
	ATX324R	**ATX224R**	**ATX124R**	**ATX84R**	**ATY324R**	**ATY224R**	**ATY124R**	**ATY64R**
Capacity	320 g	220 g	120 g	82 g	320 g	220 g	120 g	62 g
Minimum Display	0.1 mg							
Pan Size	Approx. 91 mm dia.							
Dimensions	Approx. W213 × D356 × H338 mm							
Weight	Approx. 6.2 kg				Approx. 6.0 kg			

PSC (Perfect Self-Calibration)
(ATX-R only)

Automatically calibrates the balance if an ambient temperature change occurs that could affect sensitivity.

Ambient temperature change

Restrained sensitivity error band

Fully-automatic calibration
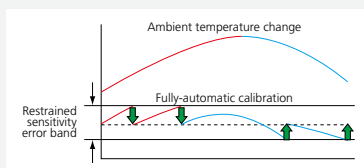
Internal Calibration
(ATX-R only)

The balance has built-in motor-driven calibration weights. Sensitivity can be calibrated as needed by a single key press.

Checkweighing

When upper and lower thresholds are set, the balance indicates if the sample weight is within the range (GO), over (HI) or under (LO).

Computer Connection Function

Systems can be connected to a computer via an optional cable/adapter kit. For more details, visit the Shimadzu website.

RS-232C Interface

Equipped with an RS-232C interface for easy integration with other devices and computers.

USB Interface

A USB connector is built in for connecting to a PC.

Piece Counting

A built-in piece counting function enables balances to be used as parts counters (piece scales).

Carat Measurement

Results can be displayed in carats when measuring precious stones.
Change among many weighing units and functions with a single touch.

Percentage Measurement

Measures a percentage value with respect to a preset reference.

Formulation Mode

This is convenient when formulating (preparing) multiple substances.

Easy Setting

During operation, if you want to make the display slightly more stable, or alternatively, want to improve the response speed, you can make one-touch adjustments without interrupting measurement. A special indicator is provided that instantly shows the adjustment status.

Response-focused (R) for weighing process

Stability-focused (S) when vibrations become a concern

0.0000 g
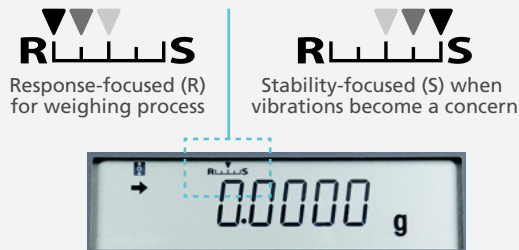
Optional Accessories

Description
STABLO-AP Ionizer Static Electricity Remover
EP-100 Electronic Printer
EP-110 Electronic Printer
USB Cable Set
SMK-501 Specific Gravity Measurement Kit
AP Holder
Protective Cover (5 pc set)
AC Adapter (Provided with the main unit)

STABLO™-AP

SMK-501
Specific Gravity Measurement Kit

AP Holder

Multi Functional Top-Loading Balances

UP Series

Top-loading Balances with the Fastest Response Performance in Their Class

Large Pan with 0.1 g Minimum Display Value

UP4201X UP4201Y
UP8201X UP8201Y

Small Pan with 0.01 g Minimum Display Value

UP422X UP422Y
UP822X UP822Y

Small Pan with 0.001 g Minimum Display Value

UP223X   UP223Y   UP423X   UP423Y
UP623X   UP623Y   UP823X   UP823Y
UP1023X UP1023Y

* Windbreak can be removed.

Large Pan with 0.01 g Minimum Display Value

UP2202X   UP2202Y   UP4202X   UP4202Y   UP6202X   UP6202Y

UP-X Series

UP-Y Series

UP-X Series

Model name	UP223X	UP423X	UP623X	UP823X	UP1023X	UP2202X	UP4202X	UP6202X	UP422X	UP822X	UP4201X	UP8201X
Capacity	220 g	420 g	620 g	820 g	1020 g	2200 g	4200 g	6200 g	420 g	820 g	4200 g	8200 g
Minimum Display	0.001 g					0.01 g					0.1 g	
Pan Size	Approx. W113 × D110 mm					Approx. W176 × D189 mm			Approx. W113 × D110 mm		Approx. W176 × D189 mm	
Dimensions	Approx. W191 × D317 × H79 mm					Approx. W191 × D317 × H82 mm			Approx. W191 × D317 × H79 mm			
Weight	Approx. 3.3 kg					Approx. 4.7 kg			Approx. 3.3 kg		Approx. 4.7 kg	

UP-Y Series

Model name	UP223Y	UP423Y	UP623Y	UP823Y	UP1023Y	UP2202Y	UP4202Y	UP6202Y	UP422Y	UP822Y	UP4201Y	UP8201Y
Capacity	220 g	420 g	620 g	820 g	1020 g	2200 g	4200 g	6200 g	420 g	820 g	4200 g	8200 g
Minimum Display	0.001 g					0.01 g					0.1 g	
Pan Size	Approx. W113 × D110 mm					Approx. W176 × D189 mm			Approx. W113 × D110 mm		Approx. W176 × D189 mm	
Dimensions	Approx. W191 × D317 × H79 mm					Approx. W191 × D317 × H82 mm			Approx. W191 × D317 × H79 mm			
Weight	Approx. 2.5 kg					Approx. 2.9 kg			Approx. 2.5 kg		Approx. 2.9 kg	

PSC (Perfect Self-Calibration)
(UP-X series only)

Automatically calibrates the balance if an ambient temperature change occurs that could affect sensitivity.

Clock-CAL
(UP-X series only)

This automatically calibrates the balance at pre-specified times (such as before starting work, during lunch, or after work hours).

Internal Calibration
(UP-X series only)

The balance has built-in motor-driven calibration weights. Sensitivity can be calibrated as needed by a single key press.

Built-in Clock

If a printer (optional) is connected, then data can be marked with the date and time.
Calibration results can also be marked with date and time, which is perfect for measurement and traceability requirements specified by GLP/GMP/ISO 9001 standards.

ISO Calibration Report

Simply connect an optional printer to automatically print out which balance was calibrated when, and the calibration results. No difficult settings are required. Furthermore, the current date and time can be printed at any time during measurement.

Backlight LCD

The backlight LCD display can be clearly read in the darkest of environments.

Checkweighing

When upper and lower thresholds are set, the balance indicates if the sample weight is within the range (GO), over (HI) or under (LO).

Comparator Output

Acceptable, high, or low weight results or other pass/fail results can be indicated by an audible sound or output externally as a contact signal. (Optional comparator audible indicator or relay output interface required.)

Carat Measurement

Results can be displayed in carats when measuring precious stones.
Change among many weighing units and functions with a single touch.

Piece Counting

A built-in piece counting function enables the balance to be used as a parts counter (counting balance).

Computer Connection Function

Systems can be connected to a computer via an RS-232C cable or using a USB–serial adapter kit. For more details, visit the Shimadzu website.

Specific Gravity Measurement

The built-in specific gravity measurement function is based on the liquid immersion method. By installing the specific gravity measurement kit (optional), the balance can be used as a hydrometer (refer to page 40).

Response for Weighing Minute Quantities

Large-pan model with 0.01 g minimum display value
Small-pan model with 0.001 g minimum display value

Measurement Conditions:
Large-pan model with 0.01 g minimum display value and 0.1 g load
Small-pan model with 0.001 g minimum display value and 0.01 g load

Previous model: 9

UP: 1

Speedy

9× Faster Response (vs. previous Shimadzu model)

Time (sec.)
0 2 4 6 8 10

Optional Accessories

Description
STABLO-AP Ionizer Static Electricity Remover
EP-100 Electronic Printer
EP-110 Electronic Printer
RS-232C Cable 25P–9P (1.5 m)
USB–Serial Replacement Kit
AKB-301 Application Keyboard
Windbreak Set *1
Windbreak Set (For large pan) *2
WBC-102 Glass Windbreak
WBC-502 Large Size Windbreak
In-use Protective Cover (3 pcs) (For large-pan models with 0.01 g min. display value)
In-use Protective Cover (5 pcs) (For large-pan models with 0.1 g min. display value)

Description
In-use Protective Cover (5 pcs) (For small-pan model)
In-use Protective Cover (5 pcs) (For display and key part)
Animal Bucket Set (For large-pan models with 0.01 g minimum display value)
Animal Bucket Set (For large-pan models with 0.1 g minimum display value)
SMK-101A Specific Gravity Measurement Kit (For large-pan model) (Up to approximately 2 kg for weighing capacity)
SMK-102 Specific Gravity Measurement Kit (For small-pan model)
IFB-RY1 Relay Output Interface
RY1 Connection Cable
AC Adapter *3

*1 Included standard with small pan models with 0.001 g minimum display value.
*2 Included standard with large pan models with 0.01 g minimum display value.
*3 Included standard with main unit.

Multi Functional Top-Loading Balances
UW/UX Series

Top-loading Balances with UniBloc Technology

UW420S   UX420S
UW820S   UX820S

UW220H   UW620H   UW1020H
UW420H   UW820H
UX220H   UX620H   UX1020H
UX420H   UX820H

Windbreak can be removed.

UW4200S   UW8200S   UW2200H   UW4200H   UW6200H
UX4200S   UX8200S   UX2200H   UX4200H   UX6200H

UW Series

UX Series

UW Series

Model Name	UW220H	UW420H	UW620H	UW820H	UW1020H	UW420S	UW820S	UW2200H	UW4200H	UW6200H	UW4200S	UW8200S
Capacity	220 g	420 g	620 g	820 g	1020 g	420 g	820 g	2200 g	4200 g	6200 g	4200 g	8200 g
Minimum Display	0.001 g					0.01 g					0.1 g	
Pan Size	Approx. W113 × D110 mm					Approx. W176 × D189 mm						
Dimensions	Approx. W191 × D317 × H79 mm											
Weight	Approx. 3.4 kg					Approx. 4.6 kg						

UX Series

| Model Name	UX220H	UX420H	UX620H	UX820H	UX1020H	UX420S	UX820S	UX2200H	UX4200H	UX6200H	UX4200S	UX8200S
Capacity	220 g	420 g	620 g	820 g	1020 g	420 g	820 g	2200 g	4200 g	6200 g	4200 g	8200 g
Minimum Display	0.001 g					0.01 g					0.1 g	
Pan Size	Approx. W113 × D110 mm					Approx. W176 × D189 mm						
Dimensions	Approx. W191 × D317 × H79 mm											
Weight	Approx. 2.7 kg					Approx. 2.9 kg						

PSC (Perfect Self-Calibration) (UW only)

Automatically calibrates the balance if an ambient temperature change occurs that could affect sensitivity.
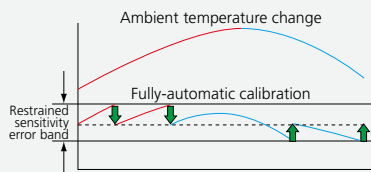
Clock-CAL (UW only)

This automatically calibrates the balance at pre-specified times (such as before starting work, during lunch, or after work hours).
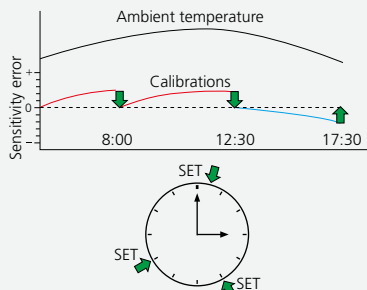
Internal Calibration (UW only)

The balance has built-in motor-driven calibration weights. Sensitivity can be calibrated as needed by a single key press.

ISO Calibration Report

Simply connect an optional printer to automatically print out which balance was calibrated when, and the calibration results. No difficult settings are required. Furthermore, the current date and time can be printed any time during measurement.

Carat Measurement

Results can be displayed in carats when measuring precious stones. Change among many weighing units and functions with a single touch.

Backlight LCD

The backlight LCD display can be clearly read in the darkest of environments.

Checkweighing

When upper and lower thresholds are set, the balance indicates if the sample weight is within the range (GO), over (HI) or under (LO).

Computer Connection Function

Systems can be connected to a computer via an RS-232C cable or using a USB–serial adapter kit. For more details, visit the Shimadzu website.

Piece Counting

A built-in piece counting function enables balances to be used as parts counters (piece scales).

Specific Gravity Measurement

The built-in specific gravity measurement function is based on the liquid immersion method. By installing the specific gravity measurement kit (optional), the balance can be used as a hydrometer (refer to page 41).

Data transfer port of UW/UX Series

Optional Accessories

Description
STABLO-AP Ionizer Static Electricity Remover
EP-100 Electronic Printer
EP-110 Electronic Printer
IFB-102A RS-232C Interface (Needed only for multiple connection)
Small Size Windbreak (For models with capacity of 220 g to 1020 g only) (Std. acc. for models with readability of 0.001 g)
Glass Windbreak (For models with capacity of 220 g to 1020 g only)
Large Size Windbreak (For all models)
SMK-101 Specific Gravity Measurement Kit (For large pan 170 × 180 mm)
SMK-102 Specific Gravity Measurement Kit (For small pan 108 × 105 mm)
Protective In-use Cover for Key Panel and Display (5 pcs)
Small Animal Bucket Set (For large-pan models only)
FSB-102PK Foot Switch (For printing)
FSB-102PK Foot Switch (For taring)
RS-232C Cable, for IBM PC/AT Compatibles (25P–9P, Null modem, 1.5 m)
RS-232C Cable, for Multiple Connections (25P–25P, Null modem, 1.5 m)
AKB-301 Application Keyboard

WBC-102
Glass Windbreak

WBC-502
Large Size Windbreak

STABLO™-AP

AKB-301
Application Keyboard

TW/TX/TXB Series

The beginning of the standard.
Extremely capable,
but easy to operate.

TX3202L

TW Series	Uni Bloc	Motor-CAL	PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE	HIGOLO	PCS	CARAT	
TX Series	Uni Bloc		PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE	HIGOLO	PCS	CARAT	
TXB Series			PC	Multi-Balance Collect	Balance Keys	RS-232C INTERFACE	Back Light	HIGOLO	PCS	CARAT	DRY Battery

TW Series

Model Name	TW223L	TW323L	TW423L	TWC623L
Capacity	220 g	320 g	420 g	620 ct (124 g)
Minimum Display	0.001 g			0.001 ct (0.0002 g)
Pan Size	Approx. 110 mm dia.			Approx. 80 mm dia.
Dimensions	Approx. W206 × D291 × H241 mm			
Weight	Approx. 4.2 kg			Approx. 4.1 kg

TW223L TW323L TW423L
TX223L TX323L TX423L

TX2202L TX3202L
TX4202L

TWC623L TXC623L

TX Series

Model Name	TX223L	TX323L	TX423L	TX2202L	TX3202L	TX4202L	TXC623L
Capacity	220 g	320 g	420 g	2200 g	3200 g	4200 g	620 ct (124 g)
Minimum Display	0.001 g			0.01 g			0.001 ct (0.0002 g)
Pan Size	Approx. 110 mm dia.			Approx. W167 × D181			Approx. 80 mm dia.
Dimensions	Approx. W206 × D291 × H241 mm			Approx. W200 × D291 × H80 mm			Approx. W206 × D291 × H241 mm
Weight	Approx. 3.8 kg			Approx. 2.8 kg			Approx. 3.8 kg

TXB Series (This series will be discontinued when the stocks are sold out.)

Model Name	TXB422L	TXB622L	TXB4201L	TXB6201L
Capacity	420 g	620 g	4200 g	6200 g
Minimum Display	0.01 g		0.1 g	
Pan Size	Approx. 110 mm dia.		Approx. 160 mm dia.	
Dimensions	Approx. W199 × D260 × H77 mm			
Weight	Approx. 1.5 kg			

TXB6201L TXB4201L

TXB622L TXB422L

Internal Calibration

The balance has built-in motor-driven calibration weights. Sensitivity can be calibrated as needed by a single key press. (TW only)

Easy Setting

During operation, if you want to make the display slightly more stable, or alternatively, want to improve the response speed, you can make one-touch adjustments without interrupting measurement. A special indicator is provided that instantly shows the adjustment status.

Piece Counting

A built-in piece counting function enables balances to be used as parts counters (piece scales).

Carat Measurement

Results can be displayed in carats when measuring precious stones.
Change among many weighing units and functions with a single touch.

Checkweighing

When upper and lower thresholds are set, the balance indicates if the sample weight is within the range (GO), over (HI) or under (LO).

Dry Battery Operation

The balance can also run on dry cell batteries, enabling use when no power is available.

Menu Operation Key

Keys exclusively for menu operations are arranged separately from the measurement keys. Menus can be operated intuitively using the cross-shaped key layout.
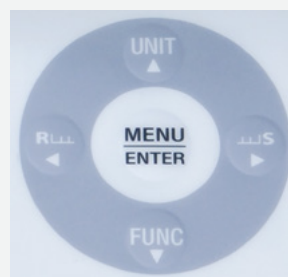
Optional Accessories

Description
EP-100 Electronic Printer
EP-110 Electronic Printer
RS-232C Cable

Description
In-use Protective Cover (5 pcs)
In-use Protective Cover for Display
USB Conversion Kit
AC Adapter (Included standard with main unit)

Basic Top-Loading Balances

BL Series

Product

High-Resolution Balances Made Affordable

BL-320S

BL-220H
BL-320H

BL-620S
BL-3200S
BL-2200H
BL-3200H

PCS Piece Counting

A built-in piece counting function enables balances to be used as parts counters (piece scales).

Analog display Analog Bar Display

Remaining weighing capacity can be seen by the analog bar graph at a glance.

BL Series

Multi-Balance Collect | Balance Keys | Analog display | PCS | CARAT

Model Name	BL-220H	BL-320H	BL-320S	BL-620S	BL-2200H	BL-3200H	BL-3200S
Capacity	220 g	320 g		620 g	2200 g	3200 g	
Minimum Display	0.001 g			0.01 g			0.1 g
Pan Size	Approx. W100 × D100 mm			Approx. W159 × D126 mm			
Dimensions	Approx. W171 × D243 × H77 mm			Approx. W171 × D243 × H78 mm			
Weight	Approx. 2.2 kg						

Optional Accessories

Description
EP-100 Electronic Printer
EP-110 Electronic Printer
In-use Protective Cover
I/O-RS Cable
USB Serial Adapter
Simplified Windshield (Main) *1
Simplified Windshield (Lid) *1
AC Adapter (Included standard with main unit)

*1: Simplified windshield can be used for BL-220H, 320H, 320S. Also, it is included as standard for BL-220H and 320H.

Data transfer port of BL Series

Basic Portable Electronic Balances

ELB Series

Product

Precision without Compromise

ELB120
ELB200
ELB300

ELB600S
ELB6000S
ELB600
ELB1200
ELB2000
ELB3000
ELB12K

Dry Battery Operation

The balance can also run on dry cell batteries, enabling use when no power is available.

Specific Gravity Measurement

The built-in specific gravity measurement function is based on the liquid immersion method. By installing the specific gravity measurement kit (optional), the balance can be used as a hydrometer.

Piece Counting

A built-in piece counting function enables balances to be used as parts counters (piece scales).

ELB Series

Model Name	ELB120	ELB200	ELB300	ELB600	ELB600S	ELB1200	ELB2000	ELB3000	ELB6000S	ELB12K
Capacity	120 g	200 g	300 g	600 g		1200 g	2000 g	3000 g	6000 g	12 kg
Minimum Display	0.01 g			0.05 g		0.1 g				1 g
Pan Size	Approx. 110 mm dia.			Approx. W170 × D130 mm						
Dimensions	Approx. W188 × D216 × H58 mm									
Weight	Approx. 1.3 kg									

Optional Accessories

Description
EP-100 Electronic Printer
EP-110 Electronic Printer
SMK-201 Specific Gravity Measurement Kit (Except for ELB120, 200, 300 for rectangular-pan models only)
Carrying Case
In-use Protective Cover
Below-weigh Hook (Except for ELB12K)
I/O-RS Cable
USB Serial Adapter
AC Adapter (Included standard with main unit)

Data transfer port of ELB Series

Precision Balances for Heavy Samples
BW-K/BX-K Series

Product

The Shimadzu precision platform balances have been engineered with the innovative UniBloc mechanism since 1989. Powerful features support any imaginable weighing application. The BW-K Series includes internal calibration weight.

BW12KH

Single-Lever CAL

The balance has built-in calibration weights. Sensitivity is calibrated with a simple lever operation. Sensitivity can be calibrated easily, whenever needed.

BW-K Series	Uni Bloc	
BX-K Series	Uni Bloc	

Model Name	BW-K Series					BX-K Series				
	BW12KH	BW22KH	BW32KH	BW32KS	BW52KS	BX12KH	BX22KH	BX32KH	BX32KS	BX52KS
Capacity	12 kg	22 kg	32 kg		52 kg	12 kg	22 kg	32 kg		52 kg
Minimum Display	0.1 g			1 g		0.1 g			1 g	
Pan Size	Approx. W347 × D248 mm									
Dimensions	Approx. W382 × D366 × H125 mm					Approx. W360 × D366 × H115 mm				
Weight	Approx. 16.5 kg					Approx. 10.5 kg				

Optional Accessories

Description
EP-100 Electronic Printer
EP-110 Electronic Printer
FSB-102PK Foot Switch (For printing)
AKB-301 Application Keyboard
USB–Serial Conversion Kit
RS-232C Cable
Below-weigh Hook
AC Adapter (Included standard with main unit)

AKB-301 Application Keyboard
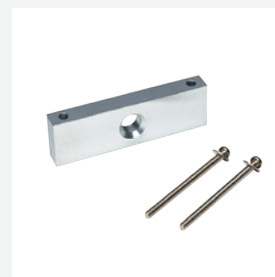
Hook assy for below weighing

32

Enhanced Support for ISO/GLP/GMP

EP-100/EP-110

Product

EP-100   EP-110

- Built-In clock
- Customized printing
- Easy communication settings

Compatible Balance Models

AP, AU, AT-R, AT, UP, UW/UX, TX, TXB, BX/BW-K, BL, and ELB series, and MOC63u moisture analyzers.

Note: The automatic setting function cannot be used with models that do not include the PRINT key, such as ELB series balances and MOC63u moisture analyzers.

Specifications

Model Name	EP-100	EP-110
Display		OLED 128 × 64 Dot Matrix Display Easy-to-understand fluorescent dot matrix display
Protected Date Setting		Password protectable (six-character)
Printing	Paper for printing: Regular paper (does not fade with age) Method: 8-pin reciprocating impact dot matrix Speed: Approx. 1.7 lines/sec. Printer head life: 1 million lines Character size: Approx. W1.7 × H2.6 mm	
Interface	USB B-Type female, RS-232 (D-sub 9-pin male)	
Power Supply	AC adapter: Input 100 to 240 V AC, 50/60 Hz; Output 12 V DC/1500 mA Power consumption: 8 W (while printing) Standby power: 0.5 W (when not printing)	
Battery		1500 to 2500 mAh capacity rechargeable nickel–metal hydride (NiMH) batteries can be used (four AA cells). Note: Dry cell batteries cannot be used.
Installation Environment	Temperature: 5 to 45 °C; Humidity: 10 to 80 % No condensation	

Printout Samples

Normal Mode

```
Shimadzu Corporation
Model:          AP225W
S/N:       0000000000
Device ID:        0000
Date:       2022/12/28
Start Time:   13:52:52
----------------------
001:       100.00029g
002:       100.00036g
003:       100.00037g
----------------------
End Time:     13:53:04

Signature:
----------------------
```

Manufacturer Information → Shimadzu Corporation
Device Name → Model
Serial No. → S/N
Sample Name (ID) → Device ID
Date → Date
Measurement Start Time → Start Time
Measurement Values
Measurement End Time → End Time
Signature Field → Signature

Statistical Calculation Mode

```
Shimadzu Corporation
Model:          AP225W
S/N:       0000000000
Device ID:        0000
Date:       2022/12/28
Start Time:   15:33:35
---------<STAT>--------
001:       100.00035g
002:       100.00032g
003:       100.00032g
--------<RESULT>-------
N=                   3
T=         300.00099 g
MAX=       100.00035 g
MIN=       100.00032 g
RNG=         0.00003 g
MEAN=     100.000330 g
SD=         0.000017 g
CV%=            0.00 %
----------------------
End Time:     15:33:45

Signature:
----------------------
```

Output Items

Item	Symbol	Remarks
Title (Header)		Manufacturer information, device name, serial number (S/N), date, and measurement start time
Number of samples	N	
Total value	T	
Maximum value	MAX	
Minimum value	MIN	
Range	RNG	= MAX – MIN
Mean value	MEAN	= T / N
Standard deviation	SD	$\sqrt{\Sigma(Xi-MEAN)^2/(N-1)}$
Coefficient of variation	CV	(SD / MEAN x 100)%
Data suffix (footer)		Measurement end time and signature field

Maintenance Parts

Description
Recording Paper
Labeling Paper Rolls
Ink Ribbon
AC Adapter
Connection Cable

Features unique to EP-110

- Supports GLP/GMP using password protection-based date/time alternation prevention
- Enhanced visibility for OLED display
- Powered by rechargeable batteries

Moisture Analyzer

MOC63u

Product

Makes Moisture Content Measurements Quick and Easy

- The moisture ratio is found by heating the sample with the built-in halogen heater to drive out the moisture.
- The measurement procedure is simple. Just close the heater cover to start the measurement (automatic starting mode).
- Measurements are faster than the loss on drying method using a dryer.
- A USB connector makes connecting to a PC easy (built-in Balance Keys function).
- Equipped with the UniBloc aluminum block mass sensor.

MOC63u

Uni Bloc | Built-in | ISO | PC | Multi-Balance Collect | Balance Keys | RS-232C INTERFACE | USB INTERFACE | Back Light

Model Name		MOC63u
Capacity	Max. Sample Quantity	60 g
	Min. Sample Quantity	0.02 g
Minimum Display	Mass	0.001 g
	Moisture Ratio	0.01 %
Repeatability *1		0.15 % (2 g), 0.05 % (5 g), 0.02 % (10 g)
Heat Source	Method	Halogen (straight tube)
	Power	Rated at 400 W
Temperature Settings		50 to 200 °C (1 °C interval) (up to 1 hour for settings over 180 °C)
Display		Backlit LCD
Pan Size		Approx. 95 mm dia.
Dimensions		Approx. W202 × D336 × H157 mm
Weight		4.2 kg
Rated Power		430 VA
Ambient Temperature		5 to 40 °C, relative humidity of 85 % max.
Measurement Modes		Standard drying mode (Automatic ending/timed ending) Rapid drying mode (Automatic ending/timed ending) Slow drying mode (Automatic ending/timed ending) Step (3-stage) drying mode (Automatic ending/timed ending)
Time Settings		1 to 240 min, or continuous (up to 12 hours)
External Output		USB Data I/O printer (EP-100/EP-110) output RS-232C (D-sub 9P)
Storage of Measurement Conditions		10 sets
Data Memory		100 items
Standard Accessories		Sample pans (3 aluminum pans), pan holder, windbreak, board, aluminum sheets (50), pan handler, power cable, spare fuses (2), protective display cover, hexagonal wrench

*1 The repeatability (standard deviation) value is from a standard measurement (sample: sodium tartrate dihydrate). This value is not guaranteed for all samples, environments, and measurement conditions.

Optional Accessories

Description
EP-100 Electronic Printer
EP-110 Electronic Printer
Protective Display Cover (5 pcs)
Aluminum Pans (Disposable) (50 pcs)
Fiberglass Sheets (For liquid sample measurements) (100 pcs)
Temperature Calibration Kit
Sample Pan (Stainless steel) (5 pcs)
Sample Pan (Aluminum) (5 pcs)
RS-232C Cable
USB Cable Set
Sample Pan Handler (Stainless steel)
Halogen Heater (For replacement) *2
Power Cable

*2 The halogen heater can be removed and replaced by the user.

Note: For delivery related matters, contact your Shimadzu representative.

⚠ Warning

- Use this balance to heat samples to evaporate moisture for measurement.
- The built-in heater will be hotter than the set temperature.
- Samples must not be measured if there is a risk of an explosion or fire, or a dangerous chemical reaction from heating.

eco

This product is certified as Shimadzu's Eco-Products Plus. Energy savings: Power consumption reduced by 30% as compared to a conventional Shimadzu product.

A Total of Five Modes Makes This Balance Compatible with a Variety of Sample Measurements

Ending Modes

Automatic Ending Mode
This automatically ends measurement when the moisture change (% margin) over 30 seconds drops below a set value.
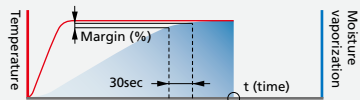
Timed Ending Mode
This automatically ends measurement after a preset amount of time (t1).
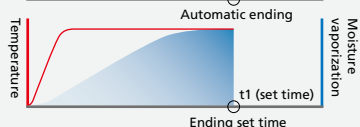
The sample is easy to see! Wide observation window

Alternate Drying Modes

Rapid Drying Mode
The sample is dried at the highest temperature for the initial drying stage, and when the moisture has been reduced, it returns to the set temperature, shortening the measurement time.
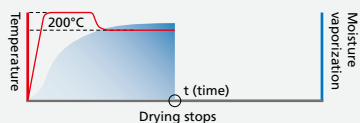
Slow Drying Mode
This gently heats samples that might form a surface film or are prone to degrading at high temperatures.
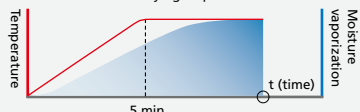
Step Drying Mode
Drying conditions are changed step by step for samples that contain a lot of moisture, such as surface water or crystallization water.
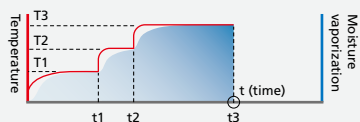
A Wealth of PC Connection Functions

A built-in USB connector allows connecting to a PC. It can be used in conjunction with the Balance Keys function.
For USB port connections, check the Shimadzu website or contact your Shimadzu representative.

Compatible with printers (EP-100/EP-110). Equipped with I/O port.

Built-in RS-232C interface is standard.

Equipped with USB interface. Importing data to a PC is easy.

Printout Sample
• Sample Measurement Results Output

```
SHIMADZU CORP.
TYPE MOC63u          •——— Model
  SN D209400009      •——— Serial no.
  ID 0000            •——— Instrument ID
CODE 0040            •——— Sample code
DATE 18-12-17        •——— Date
TIME 16:27           •——— Time
PNO. 0               •——— Program no.
UNIT M/W             •——— Measurement reference
MODE AUTO            •——— Measurement conditions
TEMP 160C            •——— Drying temperature
STOP 0.05 %          •——— Ending conditions

Wet W(g)     5.161   •——— Mass before measurement

  TIME     M/W(%)    •——— Progressive measurements
00:00:00    0.00     •——— Elapsed measurement time
00:02:00    4.40
00:04:00    7.39
*00:05:35    8.02

Dry W(g)     4.747   •——— Mass after measurement
```

Using the EP-100/EP-110

Moisture Analyzer

MOC-120H

Product

Measure the Moisture Ratio of Even Large, or Large Amounts of, Samples

- The moisture ratio is found by heating the sample with the built-in infrared heater.
- The sample pan measures 130 mm in diameter, which is optimal for both large samples and large amounts of samples.
- Importing results to a PC is easy (equipped with the Balance Keys function).
- Equipped with the UniBloc aluminum block mass sensor.

MOC-120H | Uni Bloc | Built-in | ISO | | PC | Balance Keys | RS-232C INTERFACE | Back Light DOP |

Measurement Method	Infrared heating/dry mass measurement
Pan Size	Approx. 130 mm dia.
Minimum Weight Displayed	0.001 g
Moisture Ratio Measurement Range	0.01 to 100.00 %
Minimum Moisture Ratio Displayed	0.01 %
Maximum Sample Quantity	120 g
Measurement Modes	Automatic operation mode, Timed operation mode, High-speed drying mode, Low-speed drying mode
Drying Heat Source	Medium wave infrared quartz heater
Temperature Settings Range	30 to 200 °C (1 °C steps)
Dimensions and Weight	Approx. W220 × D415 × H190 mm, 4.5 kg
Operational Temperature and Humidity Range	5 to 40 °C, relative humidity of 85 % max.
Required Power Supply	100 to 120/220 to 240 VAC, 640 W max.
Accessories	Sample pan × 2, pan holder, windbreak, sample pan tongs, aluminum sheet × 20, spatula

Optional Accessories

Description
Printer *1 (Includes a connection cord and 1 roll of thermal printer paper.)
Printer Paper (10 rolls)
RS-232C Cable
Sample Pan
Aluminum Sheets (500 pcs)
Temperature Calibration Kit *2
Protective Display Cover (5 pcs)

Printer

Drying conditions during measurement and the final measurement value can be graphed and printed.

*1 The dedicated printer will be discontinued when the stocks are sold out.
*2 Temperature calibration may be necessary depending on the measurement sample and the measurement conditions. Temperature calibration makes it possible to more accurately control the drying temperature of the measurement sample.

⚠ Warning

- Use this balance to heat samples to evaporate moisture for measurement.
- The built-in heater will be hotter than the set temperature.
- Samples must not be measured if there is a risk of an explosion or fire, or a dangerous chemical reaction from heating.

Printout Sample from Optional Printer

[Graph Format (GRP)]

```
Maker : SHIMADZU CORP
Model : MOC-120H
S/N : D207300000
ID : ABCD-123
Sample Code : B-20
Date/Time : 2007.08.08/15:07
Condition No : 0
Unit : Dry Base Moist.
Mode : Compare
Setting Temp. : 110C
Auto Stop Cond. : 0.05%
Pred. Tol. : 0.5

Wet-Mass :   5.6892

Time  Temp. Moist.
(min) (C)  (%) 0      4     8    12
 0.0   25   0.00 ▶
 0.5   60   0.58 ▮*
 1.0  106   5.65 ▮
 1.5  110   7.64 ▮
 2.0  110   9.09 ▮
 2.5  110  10.31 ▮
 3.0  110  11.25 ▮
 3.5  110  11.73 ▮
 4.0  110  12.17 ▮
 4.5  110  12.53 ▮
 5.0  110  12.94 ▮
 5.5  110  13.21 ▮
 6.0  110  13.41 ▮
 6.5  110  13.54 ▮
 7.0  110  13.77 ▮
 7.5  110  13.90 ▮
Predicted :  14.59 ▮
 8.0  110  14.06 ▮
 8.5  110  14.14 ▮
 9.0  110  14.22 ▮
 9.5  110  14.30 ▮
10.0  110  14.43 ▮
X 10.5 110  14.48 ▮

Dry-Mass :   4.8637
```

Company name
Model
Serial no.
Instrument ID
Sample code
Measurement date/time
Measurement conditions storage area
Measurement reference
Measurement mode
Drying temperature
Automatic ending conditions
Predictive convergence range

Un-dried mass

Measurement time
Drying temperature
Measurement value (%)

Predicted measurement value

Dried mass : 4.8637 g

AP Series

Product

When combined with an optional specific gravity measurement kit, balances can be used to measure specific gravity. Operations are simplified by a text-based navigation function. By using sinkers, the specific gravity of liquid can be measured as well. This allows easily measuring the specific gravity of metals, rubbers, plastics, and other materials.

SMK-601 Specific Gravity Measurement kit

Model Name	W-AD Series					
	AP225W-AD	AP135W-AD	AP225WD-AD	AP125WD-AD	AP324W-AD	AP224W-AD
Capacity	220 g	135 g	220 g / 102 g	120 g / 52 g	320 g	220 g
Minimum Display	0.01 mg		0.1 mg / 0.01 mg		0.1 mg	
Pan Size	Approx. 91 mm dia.					
Dimensions	Approx. W215 × D411 × H346 mm (incl. power supply unit)				Approx. W215 × D367 × H346 mm	
Weight	Approx. 9.7 kg				Approx. 8.6 kg	

Model Name	W Series							X Series			Y Series		
	AP225W	AP135W	AP125WD	AP225WD	AP124W	AP224W	AP324W	AP124X	AP224X	AP324X	AP124Y	AP224Y	AP324Y
Capacity	220 g	135 g	120 g / 52 g	220 g / 102 g	120 g	220 g	320 g	120 g	220 g	320 g	120 g	220 g	320 g
Minimum Display	0.01 mg		0.1 mg / 0.01 mg		0.1 mg								
Pan Size	Approx. 91 mm dia.												
Dimensions	Approx. W213 × D411 × H345 mm (incl. power supply unit)				Approx. W213 × D367 × H345 mm								
Weight	Approx. 7.9 kg				Approx. 7.0 kg						Approx. 6.5 kg		

Specific Gravity Measurement Kit

Model	SMK-601

Note: The optional liquid density sinker is required for liquid density measurements.

Optional Accessories

Description
Liquid Density Sinker
Petri Dish, Square

P. 37–41 common

What's a Specific Gravity Analyzer?

1/ 3 Weighing in air   16:04
88.9176 g

2/ 3 Weighing in water   16:05
72.9549 g

3/ 3 S.G. value   16:05
5.5639 d
[OK] Next.

1. First measure the in-air weight.
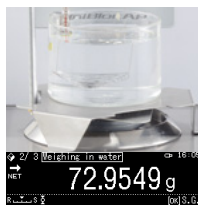
2. Then place it in the container filled with water, as instructed on the screen.
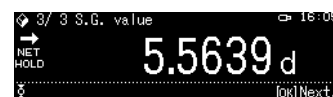
3. The specific gravity value is displayed using simple steps.

AU Series

Attach the optional SMK-401 Specific Gravity Measurement Kit to a balance in the AU series, and set the balance to specific gravity measurement mode. You can then use the balance as a specific gravity analyzer, capable of automatically calculating and displaying specific gravity values.
Liquid density can also be measured by using an optional sinker.

Various balances are available, including a semi-micro (0.01 mg) model. Choose the model best suited to the sample amount and required precision for your application.

Two kinds of weighing pans as standard.

For standard sample   For floating sample

AUW Series + SMK-401

Model Name	AUW-D Series		AUW Series			AUX Series			AUY Series	
	AUW220D	AUW120D	AUW320	AUW220	AUW120	AUX320	AUX220	AUX120	AUY220	AUY120
Capacity	220 g / 82 g	120 g / 42 g	320 g	220 g	120 g	320 g	220 g	120 g	220 g	120 g
Minimum Display	0.1 mg / 0.01 mg		0.1 mg							
Pan Size	Approx. 80 mm dia.									
Dimensions	Approx. W217 × D356 × H338 mm									
Weight	Approx. 7 kg									

Specific Gravity Measurement Kit

Model	SMK-401

Optional Accessories

Description
Liquid Density Sinker
Petri Dish, Square

AT-R Series

Attach the optional SMK-501 Specific Gravity Measurement Kit to a balance in the AT-R series, and set the balance to specific gravity measurement mode. You can then use the balance as a specific gravity analyzer, capable of automatically calculating and displaying specific gravity values.
Liquid density can also be measured by using an optional sinker.

Various balances are available. Choose the model best suited to the sample amount and required precision for your application.

SMK-501 Specific Gravity Measurement Kit

AT-R Series + SMK-501

Model Name	ATX-R Series				ATY-R Series			
	ATX324R	ATX224R	ATX124R	ATX84R	ATY324R	ATY224R	ATY124R	ATY64R
Capacity	320 g	220 g	120 g	82 g	320 g	220 g	120 g	62 g
Minimum Display	0.1 mg							
Pan Size	Approx. 91 mm dia.							
Dimensions	Approx. W213 × D356 × H338 mm							
Weight	Approx. 6.2 kg				Approx. 6.0 kg			

Specific Gravity Measurement Kit

Model	SMK-501

Optional Accessories

Description
Liquid Density Sinker
Petri Dish, Square

UP Series

Product

Attach the optional SMK-101A/102 Specific Gravity Measurement Kit to a balance in the UP series, and set the balance to specific gravity measurement mode. You can then use the balance as a specific gravity analyzer, capable of automatically calculating and displaying specific gravity values. Liquid density can also be measured by using an optional sinker.

Various balances are available. Choose the model best suited to the sample amount and required precision for your application.

The large submersible pan makes it easy to measure bulky samples.

UP Series + SMK-101A

Large-pan Models

| Model Name | UP2202Y | UP4202Y | UP6202Y | UP4201Y | UP8201Y | Models with built-in calibration weights | | | | |
						UP2202X	UP4202X	UP6202X	UP4201X	UP8201X
Capacity	2200 g	4200 g	6200 g	4200 g	8200 g	2200 g	4200 g	6200 g	4200 g	8200 g
Minimum Display	0.01 g			0.1 g		0.01 g			0.1 g	
Pan Size	Approx. 176 × 189 mm					Approx. 176 × 189 mm				

Small-pan Models

| Model Name | UP223Y | UP423Y | UP623Y | UP823Y | UP1023Y | UP422Y | UP822Y | Models with built-in calibration weights | | | | | | |
								UP223X	UP423X	UP623X	UP823X	UP1023X	UP422X	UP822X
Capacity		420 g	620 g	820 g	1020 g	420 g	820 g		420 g	620 g	820 g	1020 g	420 g	820 g
Minimum Display		0.001 g				0.01 g			0.001 g				0.01 g	
Pan Size	Approx. 113 × 110 mm							Approx. 113 × 110 mm						

Specific Gravity Measurement Kit

Model	SMK-101A *1*2	SMK-102 *1*3
	for large pan type	for small pan type

Optional Accessories

Description
Liquid Density Sinker for SMK-101A/102

*1 The optional liquid density sinker is required for liquid density measurements.
*2 For UP-X/UP-Y series large-pan (176 × 189 mm) models. The actual capacity is 100 g less than the capacity of the balance.
*3 For UP-X/UP-Y series small-pan (113 × 110 mm) models. The actual capacity is 290 g less than the capacity of the balance. Cannot be attached to the UP223X/UP223Y.

In addition, balances with the [Specific Gravity] mark are equipped with a specific gravity calculation function, so they can be used for specific gravity measurement.

UW/UX Series

Product

Attach the optional SMK-101/102 Specific Gravity Measurement Kit to a balance in the UW/UX series, and set the balance to specific gravity measurement mode. You can then use the balance as a specific gravity analyzer, capable of automatically calculating and displaying specific gravity values.
Liquid density can also be measured by using an optional sinker.

Various balances are available. Choose the model best suited to the sample amount and required precision for your application.

The large submersible pan makes it easy to measure bulky samples.

UW/UX Series + SMK-101

UW Series

Model Name	UW220H	UW420H	UW620H	UW820H	UW1020H	UW420S	UW820S	UW2200H	UW4200H	UW6200H	UW4200S	UW8200S
								Models with built-in calibration weights				
Capacity		420 g	620 g	820 g	1020 g	420 g	820 g	2200 g	4200 g	6200 g	4200 g	8200 g
Minimum Display		0.001 g	0.001 g	0.001 g	0.001 g	0.01 g	0.01 g	0.01 g	0.01 g	0.01 g	0.1 g	0.1 g
Pan Size		Approx. 113 × 110 mm						Approx. 176 ×189 mm				

UX Series

Model Name	UX220H	UX420H	UX620H	UX820H	UX1020H	UX420S	UX820S	UX2200H	UX4200H	UX6200H	UX4200S	UX8200S
								Models with built-in calibration weights				
Capacity		420 g	620 g	820 g	1020 g	420 g	820 g	2200 g	4200 g	6200 g	4200 g	8200 g
Minimum Display		0.001 g	0.001 g	0.001 g	0.001 g	0.01 g	0.01 g	0.01 g	0.01 g	0.01 g	0.1 g	0.1 g
Pan Size		Approx. 113 ×110 mm						Approx. 176 × 189 mm				

Specific Gravity Measurement Kit

Model	SMK-101 *1*2	SMK-102 *1*3
	for large pan type	for small pan type

Optional Accessories

Description
Liquid Density Sinker for SMK-101/102

*1 The optional liquid density sinker is required for liquid density measurements.
*2 For UW/UX series large-pan (176 ×189 mm) models. The actual capacity is 100 g less than the capacity of the balance.
*3 For UW/UX series small-pan (113 ×110 mm) models. The actual capacity is 290 g less than the capacity of the balance. Cannot be attached to the UW/UX 220H.

In addition, balances with the [Specific Gravity] mark are equipped with a specific gravity calculation function, so they can be used for specific gravity measurement.

Quick, Stable Measurements of Animal Weight

UP Series

Product

Attach an optional animal bucket to a UP series balance and set the unit to animal mode. The balance can now be used as a user-friendly animal balance.

Bucket for small animals   Deep round bucket   Rectangular bucket

Clock-CAL

This automatically calibrates the balance at pre-specified times (such as before starting work, during lunch, or after work hours).

Internal Calibration

The balance has built-in motor-driven calibration weights. Sensitivity can be calibrated as needed with a single key press.

Built-in Animal Measurement Mode

• When the animal is unloaded, residual weight from excretions and other materials is automatically subtracted and the display is set to zero. The next animal can be loaded without pressing the TARE button, which increases efficiency.

• Specially developed software allows quick, stable measurement of the weight of moving animals.

UP-X Series

UP-Y Series

UP-X/UP-Y Series

Model Name	Models with built-in calibration weights					Standard models				
	UP2202X	UP4202X	UP6202X	UP4201X	UP8201X	UP2202Y	UP4202Y	UP6202Y	UP4201Y	UP8201Y
Capacity	2200 g	4200 g	6200 g	4200 g	8200 g	2200 g	4200 g	6200 g	4200 g	8200 g
Minimum Display	0.01 g			0.1 g		0.01 g			0.1 g	
Dimensions	Approx. W191 × D317 × H82 mm			Approx. W191 × D317 × H79 mm		Approx. W191 × D317 × H82 mm			Approx. W191 × D317 × H79 mm	
Weight	Approx. 4.6 kg					Approx. 2.9 kg			Approx. 2.9 kg	

Bucket

Small Animal Bucket	Shape: round / Size: bottom 110 dia. × top 200 dia. × height 130 mm
Deep Round Bucket	Shape: round / Size: bottom 155 dia. × top 195 dia. × height 200 mm
Rectangular Bucket *1	Shape: rectangular / Size: bottom 250 × 210 mm; top 290 × 250 mm; height 150 mm

*1 The rectangular bucket can only be attached to the UP8201X and UP8201Y.
Note: The rectangular bucket can also be used with the UW/UX series.

Three movement levels can be selected corresponding to the animal movement.
Animals can be measured whether they are docile or extremely active.

When the animal is loaded and the stability mark is displayed, the weight is output automatically.
Increases efficiency by eliminating needless operations.

When the animal is unloaded, residual weight from excretions and other materials is automatically subtracted and the display is set to zero.
The next animal can be loaded without pressing the TARE button, which increases efficiency.

Quick, Stable Measurements of Animal Weight

BW-K/BX-K Series

Product

Attach an optional animal bucket to a BW-K/BX-K series balance and set the unit to animal mode. The balance can now be used as a user-friendly animal balance.

Built-in Animal Measurement Mode

- Models with a range of capacities are available. Ideal for medium weight measurements of rabbits and small dogs.

- Specially developed software allows quick, stable measurement of the weight of moving animals.

- When the animal is unloaded, residual weight from excretions and other materials is automatically subtracted and the display is set to zero. The next animal can be loaded without pressing the TARE button, which increases efficiency.

Medium bucket set

Small bucket set

| BW-K Series | Uni Bloc SINCE 1987 | | | | | | | | | | | | | | |
| BX-K Series | Uni Bloc SINCE 1987 | | | | | | | | | | | | | | |

BW-K/BX-K Series

| Model Name | Models with built-in calibration weights | | | | | Standard models | | | | |
	BW12KH	BW22KH	BW32KH	BW32KS	BW52KS	BX12KH	BX22KH	BX32KH	BX32KS	BX52KS
Capacity*1 *2	12 kg	22 kg	32 kg		52 kg	12 kg	22 kg	32 kg		52 kg
Minimum Display	0.1 g			1 g		0.1 g			1 g	
Dimensions	Approx. W382 × D366 × H125 mm					Approx. W382 × D366 × H115 mm				
Weight	Approx. 16.5 kg					Approx. 10.5 kg				

*1 When an animal small bucket is attached, the capacity will be reduced about 2 kg from the value indicated.
*2 When an animal medium bucket is attached, the capacity will be reduced about 6 kg from the value indicated.

Bucket

Small Bucket (mainly suited to rabbits)	Shape: rectangular / Size: bottom 305 × 215 mm; top 335 × 245 mm; height 215 mm
Medium Bucket (mainly suited to small dogs)*3	Shape: rectangular / Size: bottom 335 × 245 mm; top 445 × 295 mm; height 345 mm

*3 The bucket cannot be attached to the BW12KH or BX12KH.

Optional Accessories for the UP-X/UP-Y & UW/UX & BW-K/BX-K

Description
EP-100 Electronic Printer
EP-110 Electronic Printer
RS-232C Cable
USB–Serial Conversion Kit

For Customers at Pharmaceutical Companies — ER/ES Regulatory Compliance —

LabSolutions Balance

Product

In recent years, data tampering has caused a decline in the reliability of measurement data. To ensure the reliability of measurement data, as data integrity, it is important to retain not only numeric measurement results, but also other measurement information, such as who measured the data, when, using which instruments, and under what conditions. Information about the operations involved is also important, including information about transcribing measurement values. Such information about measurements is referred to as metadata, such that measurement results are considered reliable (with data integrity ensured) only if they include corresponding metadata. The same applies to data measured using an analytical balance. LabSolutions Balance is software designed for customers that need to ensure the integrity of analytical balance data in the same manner as it pertains to data from LC, GC, and other analytical instruments.
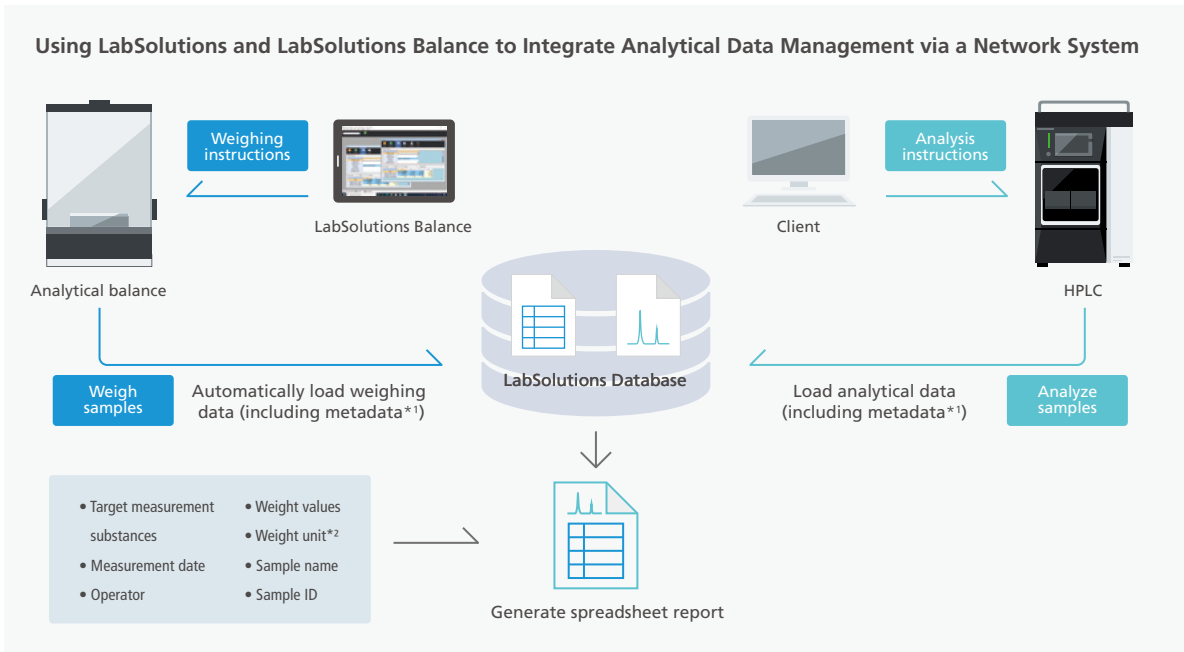
LabSolutions Balance Functionality

- LabSolutions Balance eliminates the need to enter weighing data manually and the risk of transcription errors. All weighing data is saved in a safe database.
- A spreadsheet report of tamper-proof weighing data and analytical data is automatically created.
- Spreadsheet reports can be customized to customer requirements, such as by combining weighing data with HPLC or other analytical results for system suitability tests, content uniformity tests, or elution tests.

Using LabSolutions and LabSolutions Balance to Integrate Analytical Data Management via a Network System

Weighing instructions

LabSolutions Balance

Analytical balance

Weigh samples — Automatically load weighing data (including metadata*1)

LabSolutions Database

Analysis instructions

Client

HPLC

Load analytical data (including metadata*1) — Analyze samples

- Target measurement substances
- Measurement date
- Operator
- Weight values
- Weight unit*2
- Sample name
- Sample ID

Generate spreadsheet report

Integrated Report Creation Function*3 Combines Analysis Results from HPLC and Weighing Results from a Balance

Creation of Report Template

Enables creating the report by reading sample data and confirming the sample report at the same time.

Batch Analysis Window

Select Report Template

After Analysis

Report template formats can be freely customized.

Automatically print reports.

PDF
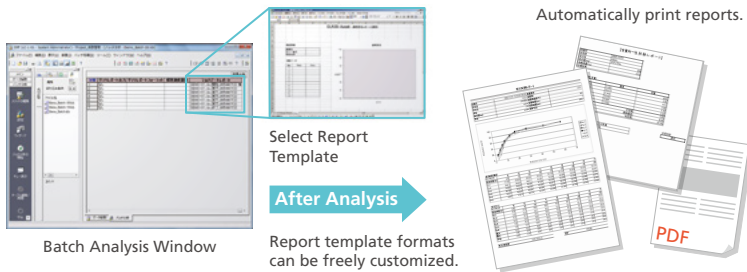
*1 Metadata refers to information about corresponding data, such as measurement date/time and sample information.
*2 LabSolutions Balance Ver. 1.0.5 or later
*3 Multi-data report creation (optional) is necessary to use this function.

Weighing Process Flow Using LabSolutions Balance

STEP 1
Preparation

☑ Log in to LabSolutions Balance
- An operation log is automatically recorded by LabSolutions Balance.
- The analytical balance is locked to prevent balance operating errors (AP series only).
- The analytical balance clock is synchronized with the computer clock.

STEP 2
Weighing

☑ Use LabSolutions Balance to calibrate measurements and adjust sensitivity (AP, AU, and AT series only)
- Register sensitivity adjustment results from using internal weights in the LabSolutions application log file.

☑ Weighing
- Register weight values with corresponding metadata, such as sample name, sample ID, and sample information, in LabSolutions Balance.

STEP 3
Report Creation

☑ Automatically create spreadsheet report

Wireless Networking Capability and Tablet Computer Support Enable Convenient Operation in Confined Spaces

Tablet computer compatibility (with wireless networking*4) is convenient for weighing rooms or other locations with limited space.
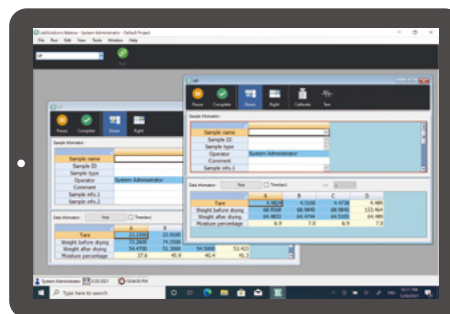Weighing data can be transmitted or saved via the wireless network. Of course, it also supports desktop computers.

Key Specifications

OS	Windows® 10 Pro / 11 Pro
Compatible Analytical Balance Models	Shimadzu AP, AU, AT-R, AT, UP, UW/UX, and BW-K/BX-K series
Other Functionality	Simultaneous connection of up to two analytical balances, PDF file creation, and optional LIMS interface supported

*4   A wireless router and serial device server are required for using wireless networking functionality.

Windows® tablet computer (functionality verified using Surface Pro7+)

Multi-Balance Collect / Balance Keys

[Features]

Multi-Balance Collect and Balance Keys software run on Windows®. Directly importing balance data into a PC using these free wares eliminates transcription errors, improves work efficiency, and increases data reliability.
Multi-Balance Collect can also collect data continuously at fixed intervals. It is recommended when you want to record changes over time, such as weight changes due to evaporation, on multiple balances.

Accessories for Shimadzu Balances

		Analytical Balances			Electronic Balances		Basic Top-Loading Balances	Precision Platform Balances	Certified Scales and Balances	Moisture Analyzer		Specific Gravity Analyzer			Animal Balances	
		AP ATX-R ATY-R	AU	ATX ATY	UP-X UP-Y UW UX	TW-N TX-N TXB	BL ELB	BW-K BX-K	UW-V	MOC-120H	MOC 63u	AP ATX-R ATY-R	AU UP-X UP-Y UW UX	ELB	UP-X UP-Y UW UX	BW-K BX-K
Printer	**EP-100**	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
	EP-110															
	Printer for MOC-120H AC adapter is included.									✓						
RS-232C Interface	**IFB-102A-UNC**		✓	✓ *1	✓	✓	✓ *1	✓	✓		✓		✓	✓ *1	✓	✓
	I/O–RS cable	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓
Application keyboard	**AKB-301** For single-point calibration, quantity measurement, threshold setting for pass/fail judgment, and other numerical configurations	✓			✓			✓	✓				✓		✓	✓
Windbreak	**WBC-102 Windbreak** Designed for UP-X/UP-Y and UX/UW series models with a maximum capacity of 1020g				✓				✓							
	WBC-502 Large windbreak For UP-X/UP-Y and UX/UW Series				✓				✓							
	USB conversion kit with RS-232C cable	✓	✓	✓	✓		✓	✓	✓	*2	✓		✓		✓	✓

			Analytical Balances				Electronic Balances			Basic Top-Loading Balances		Precision Platform Balances	Certified Scales and Balances	Moisture Analyzer		Specific Gravity Analyzer						Animal Balances		
			AP	AU	ATX-R ATY-R	ATX ATY	UP-X UP-Y	UW UX	TW-N TX-N TXB	BL	ELB	BW-K BX-K	UW-V	MOC-120H	MOC 63u	AP	AU	ATX-R ATY-R	UP-X UP-Y	UW UX	ELB	UP-X UP-Y	UW UX	BW-K BX-K
Foot switch	for TARE	**FSB-102PK**		✓			✓	✓				✓				✓			✓	✓		✓	✓	✓
	for print	**FSB-102TK**		✓			✓	✓				✓				✓			✓	✓		✓	✓	✓
Specific gravity measurement kit	**SMK-101A**						✓												✓			✓		
	SMK-101							✓					✓							✓			✓	
	SMK-102						✓	✓					✓						✓	✓		✓	✓	
	SMK-201										✓										✓			
	SMK-401			✓													✓							
	SMK-501				✓																✓			
	SMK-601		✓													✓								

*1 To connect to a computer, a separate RS-232C cable is required.   *2 USB serial adapter and RS-232C cable for MOC are needed.

IFB-102A-UNC   I/O–RS cable

Optional Accessories List

Balances	Optional accessories
AP W-AD / AP W / AP X / AP Y	STABLO-AP Ionizer Static Electricity Remover
	EP-100 / EP-110 Electronic Printer
	Label Roll Paper for EP-100/110 (10 Rolls)
	Internal Windbreak Plate (for W/X/Y Series) *1
	SMK-601 Specific Gravity Measurement Kit
	AP Holder *2
	Multi-Stand *3
	Shield plate
	AC Adapter (for W/X/Y Series)
	AC Adapter (for W-AD Series Balances)
	AC Adapter (for W-AD Series STABLO-AP Ionizers)
	Display Protective Cover (Set of 5)
	USB Cable Assembly (2 m) with Core
	I/O-RS Adapter Cable (for Connecting EP-80/90)
AUW-D / AUW / AUX / AUY Series	STABLO-AP Ionizer Static Electricity Remover
	EP-100 / EP-110 Electronic Printer
	SMK-401 Specific Gravity Measurement Kit
	AP Holder
	In-use Protective Cover
	RS-232C Cable
	USB Conversion Cable
	AKB-301 Application Keyboard
	FSB-102PK Foot Switch
	FSB-102TK Foot Switch
	AC Adapter *4
ATX-R / ATY-R Series	STABLO-AP Ionizer Static Electricity Remover
	EP-100 / EP-110 Electronic Printer
	USB Cable Set
	SMK-501 Specific Gravity Measurement Kit
	AP Holder
	Protective Cover (5 pc set)
	AC Adapter *4
ATX / ATY Series	EP-100 / EP-110 Electronic Printer
	IFB-102A-UNC
	USB Conversion Kit
	In-use Protective Cover (5 pcs)
	I/O-RS Cable
TX / TW / TXB / TXC / TWC Series	EP-100 / EP-110 Electronic Printer
	RS-232C Cable
	In-use Protective Cover (5 pcs)
	In-use Protective Cover for Display
	USB Conversion Kit
	AC Adapter *4
UP Series	STABLO-AP Ionizer Static Electricity Remover
	EP-100 / EP-110 Electronic Printer
	RS-232C Cable 25P–9P (1.5 m)
	USB–Serial Replacement Kit
	AKB-301 Application Keyboard
	Windbreak Set *5
	Windbreak Set (for large pan) *6
	WBC-102 Glass Windbreak
	WBC-502 Large Size Windbreak
	In-use Protective Cover (3 pcs) (For Large-Pan Models with 0.01 g Min. Display Value)
	In-use Protective Cover (5 pcs) (For Large-Pan Models with 0.1 g Min. Display Value)
	In-use Protective Cover (5 pcs) (For Small-Pan Model)
	In-use Protective Cover (5 pcs) (For Display and Key Part)
	Animal Bucket Set (for Large-Pan Models with 0.01 g Minimum Display Value)
	Animal Bucket Set (for Large-Pan Models with 0.1 g Minimum Display Value)
	SMK-101A Specific Gravity Measurement Kit (For Large-Pan Model) (Up to approximately 2 kg for weighing capacity)
	SMK-102 Specific Gravity Measurement Kit (For Small-Pan Model)
	AC Adapter *4

Balances	Optional accessories
UW / UX Series	STABLO-AP Ionizer Static Electricity Remover
	EP-100 / EP-110 Electronic Printer
	RS-232C Interface IFB-102A (for multiple connections)
	Small Size Windbreak (for models with capacity of 220 to 1020 g only) *7
	Glass Windbreak (for models with capacity of 220 to 1020 g only)
	Large Size Windbreak (for all models)
	SMK-101 Specific Gravity Measurement Kit (For large pan 170 × 180 mm)
	SMK-102 Specific Gravity Measurement Kit (For small pan 108 × 105 mm)
	Protective In-use Cover for Key Panel and Display (5 pcs)
	Small Animal Bucket Set (For large-pan models only)
	Angle Adjuster and Wall Hook for Remote Display
	Stand for Remote Display (1 m high)
	FSB-102PK Foot Switch (For printing)
	FSB-102PK Foot Switch (For taring)
	RS-232C Cable, for IBM PC/AT Compatibles (25P–9P, Null modem, 1.5 m)
	RS-232C Cable, for Multiple Connections (25P–25P, Null modem, 1.5 m)
	AKB-301 Application Keyboard
BL Series	EP-100 / EP-110 Electronic Printer
	In-use Protective Cover (5 pcs)
	I/O–RS Cable
	USB Serial Adapter
	Simplified Windshield (Main) *8
	Simplified Windshield (Lid) *8
	AC Adapter *4
ELB Series	EP-100 / EP-110 Electronic Printer
	In-use Protective Cover (5 pcs)
	SMK-201 Specific Gravity Measurement Kit (Cannot be used with small-pan models)
	Carrying Case
	Below-weigh Hook (Except for ELB12K)
	I/O–RS Cable
	USB Serial Adapter
	AC Adapter *4
BW-K / BX-K Series	EP-100 / EP-110 Electronic Printer
	FSB-102PK Foot Switch (For printing)
	AKB-301 Application Keyboard
	USB–Serial Conversion Kit
	RS-232C Cable
	Below-weigh Hook
	AC Adapter *4
MOC63u	EP-100 / EP-110 Electronic Printer
	Protective Display Cover (5 pcs)
	Aluminum Pans (Disposable) (50 pcs)
	Fiberglass Sheets (For liquid sample measurements) (100 pcs)
	Temperature Calibration Kit
	Sample Pan (Stainless steel) (5 pcs)
	Sample Pan (Aluminum) (5 pcs)
	RS-232C Cable
	USB Cable Set
	Sample Pan Handler (Stainless steel)
	Halogen Heater (For replacement) *9
	Power Cable
MOC-120H	Printer (Includes a connection cord and 1 roll of thermal printer paper.) *10
	Printer Paper (10 rolls)
	RS-232C Cable
	Sample Pan
	Aluminum Sheets (500 pcs)
	Temperature Calibration Kit *11
	Protective Display Cover (5 pcs)

*1   Included standard with 0.01 mg models of W series only.
*2   Included standard with AP225W-AD/AP225W models.
*3   Included standard with 0.01 mg models of W-AD series only.
*4   Included standard with main unit.
*5   Included standard with small-pan models with 0.001 g minimum display value.
*6   Included standard with large-pan models with 0.01 g minimum display value.
*7   Std Acc. for models with readability of 1 mg.
*8   Simplified windshield can be used for BL-220H, 320H, 320S. Also, it is included as standard for BL-220H and 320H.

*9   The halogen heater can be removed and replaced by the user. For delivery related matters, contact your Shimadzu representative.
*10 The dedicated printer will be discontinued when the stocks are sold out.
*11 Temperature calibration may be necessary depending on the measurement sample and the measurement conditions. Temperature calibration makes it possible to more accurately control the drying temperature of the measurement sample.
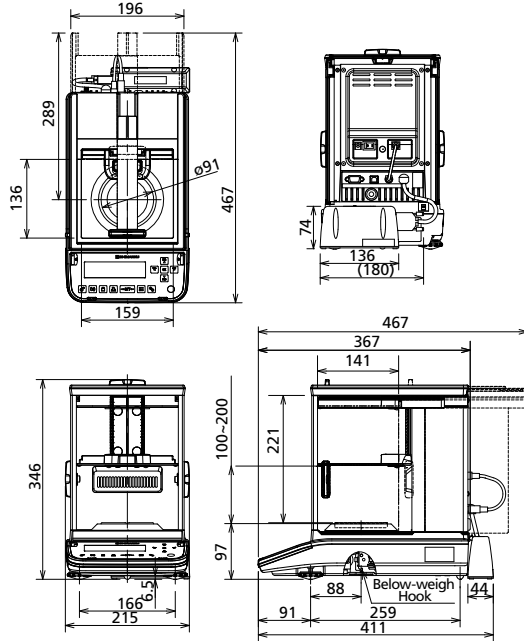
Physical Dimensions

Dimensions (unit: mm) and weight are approximate.
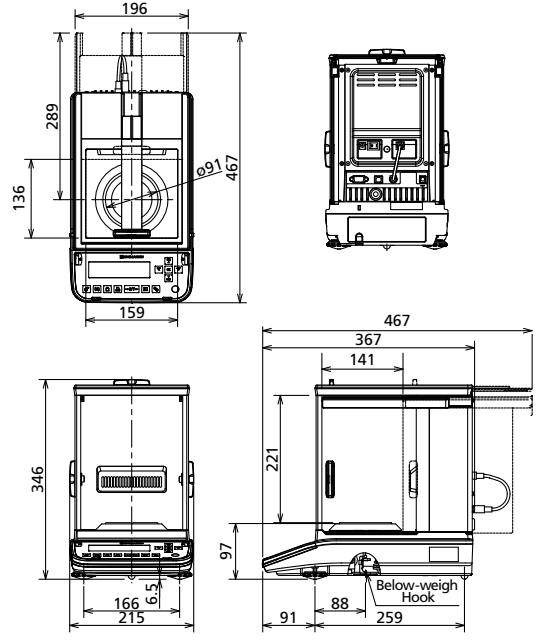Appearance and specifications are subject to change without prior notice.

AP Series

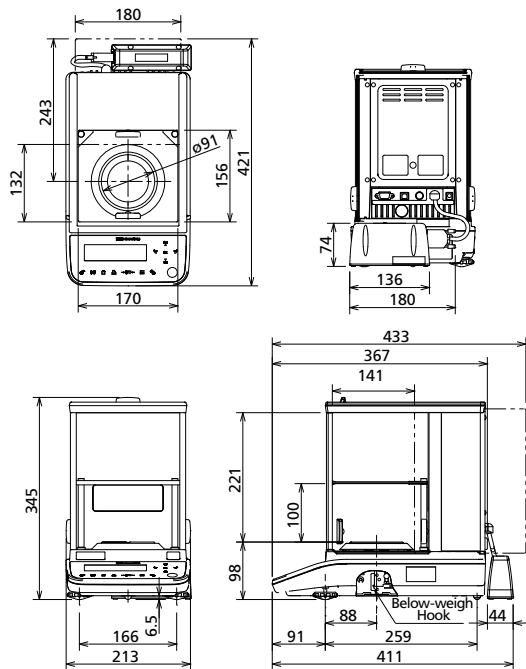Note: For functions, features, and specifications, please refer to pages 12 to 17.

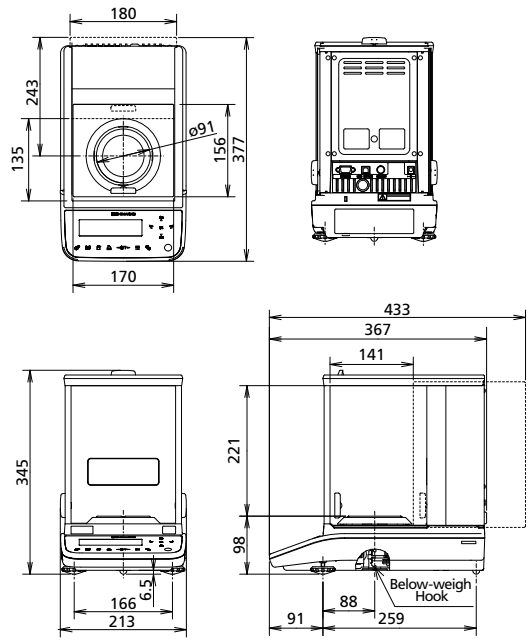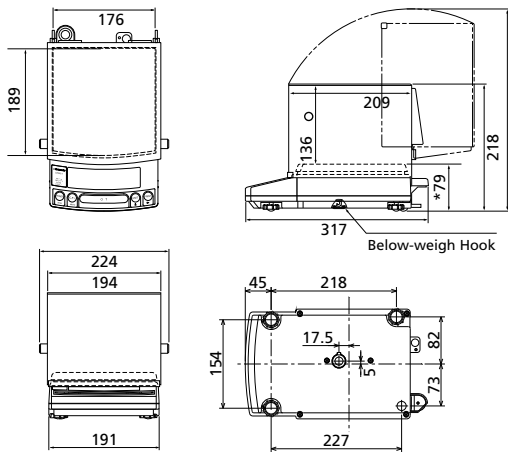**AP W-AD Series** (Minimum display 0.01 mg model)

AP W-AD Series (Minimum display 0.1 mg model)

AP W Series (Minimum display 0.01 mg model)

AP W Series (Minimum display 0.1 mg model)
AP X Series, AP-Y Series

UP and UW/UX Series

Note: For functions, features, and specifications, please refer to pages 24 to 27.

Small-pan model with glass windbreak (optional accessory) (Types with a capacity of 1,020 g or less.)
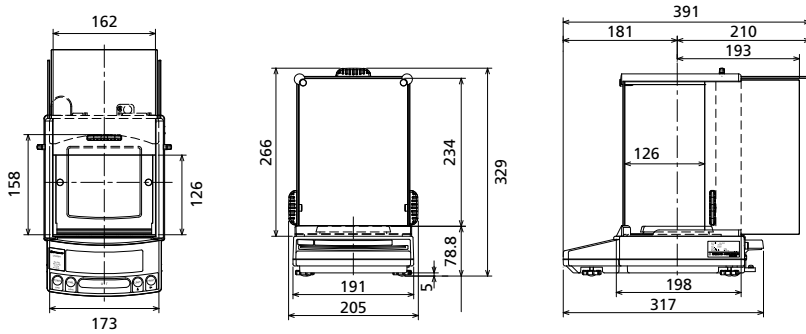
Large-pan model with large windbreak (optional accessory) (Types with a capacity of 2,200 g or less.)
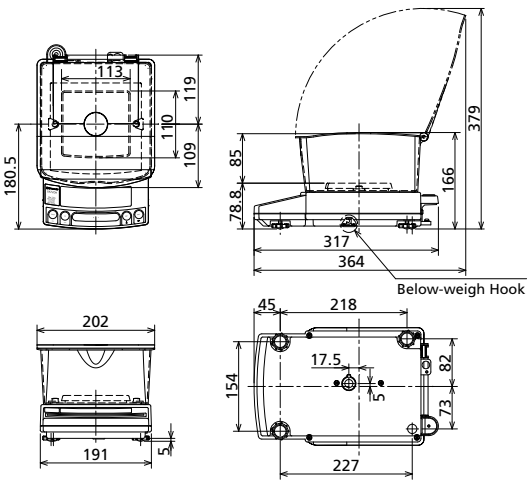
* The 0.1 g minimum display model is 79, while the 0.01 g minimum display model is 82.

Small-pan model (Types with a capacity of 1,020 g or less.)

* Figure shows combination with simple windbreak (standard only for models with minimum display of 0.001 g). The delivered windbreak may differ slightly in size and shape.

Below-weigh Hook

AP Series

Hook for under pan
Sensor
Case bottom
Hole ⌀20

AU Series

Hook for under pan
Sensor
Case bottom
Hole ⌀20

UP Series UW/UX Series

Hook for under pan
⌀20
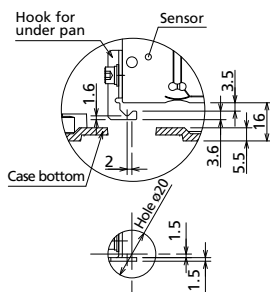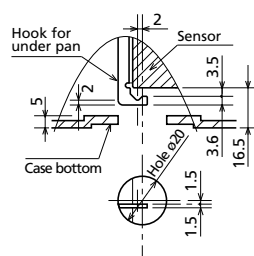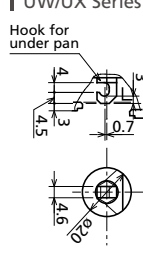
STABLO-AP

Note: For functions, features, and specifications, please refer to pages 18, 19.
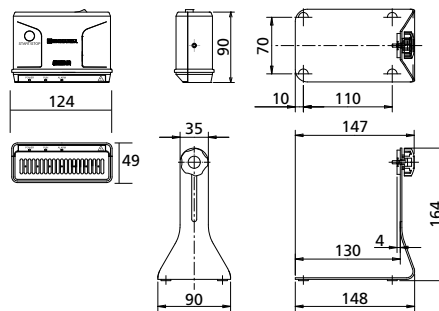
Dimensions (unit: mm) and weight are approximate.
Appearance and specifications are subject to change without prior notice.

AU Series

Note: For functions, features, and specifications, please refer to pages 20, 21.

Below-weigh Hook
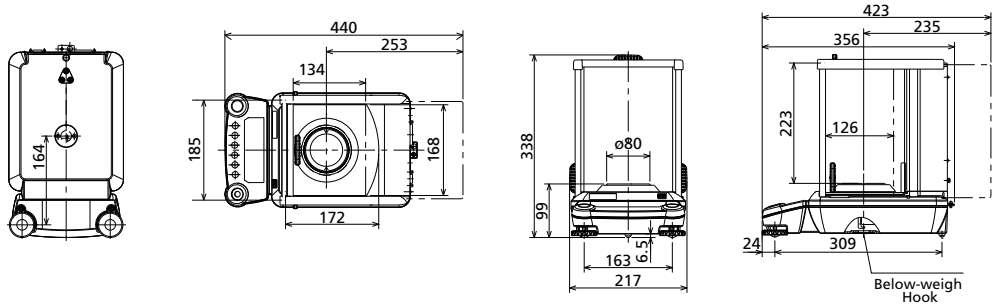
AT-R Series

Note: For functions, features, and specifications, please refer to pages 22, 23.
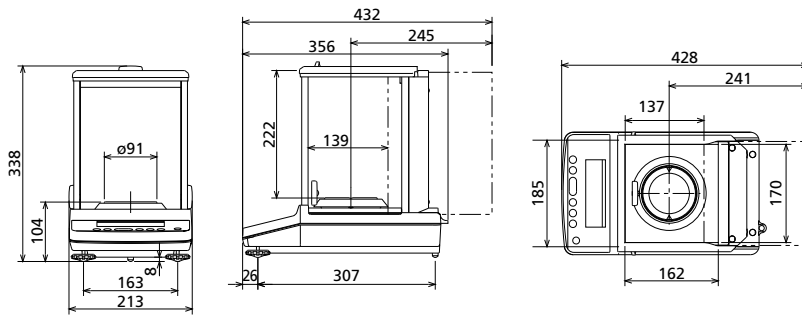
AP Series + Specific gravity measurement kit

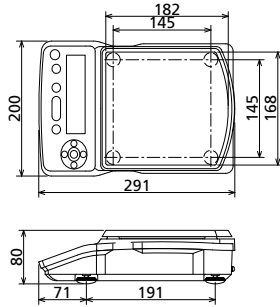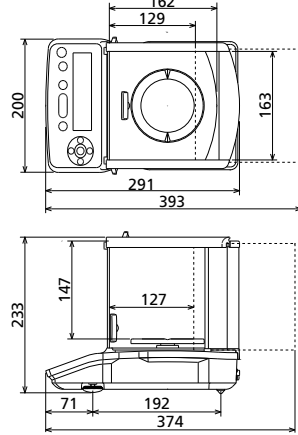Note: For functions, features, and specifications, please refer to page 37.
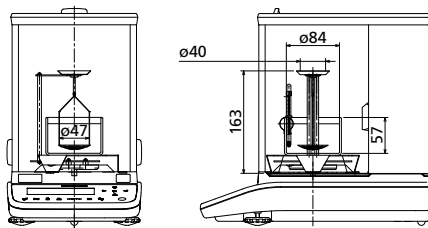
AU Series + Specific gravity measurement kit

Note: For functions, features, and specifications, please refer to page 38.
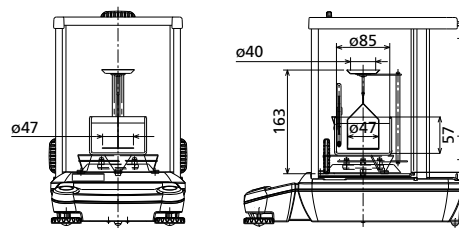
AT-R Series + Specific gravity measurement kit

Note: For functions, features, and specifications, please refer to page 39.
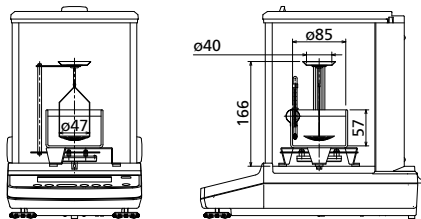
UP Series + Specific gravity measurement kit

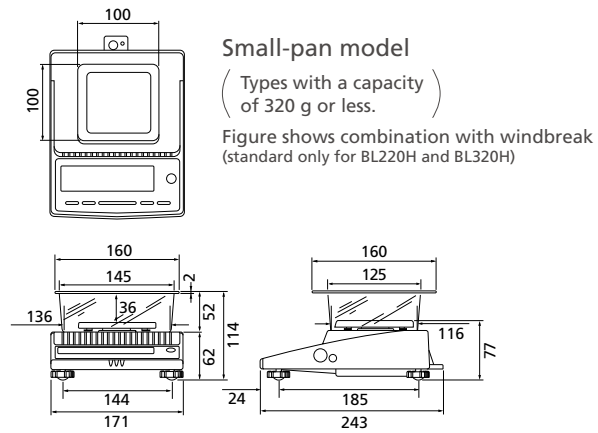Note: For functions, features, and specifications, please refer to page 40.
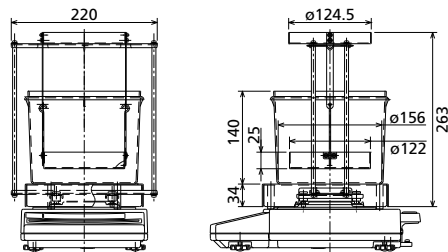
TX-N Series

For functions, features, and specifications, please refer to pages 28, 29.

Large-pan model

(Types with a capacity of 2,200 g or less.)

TW-N/TX-N Series

For functions, features, and specifications, please refer to pages 28, 29.

Small-pan model

(Types with a capacity of 420 g or less.)

TWC-N/TXC-N Series

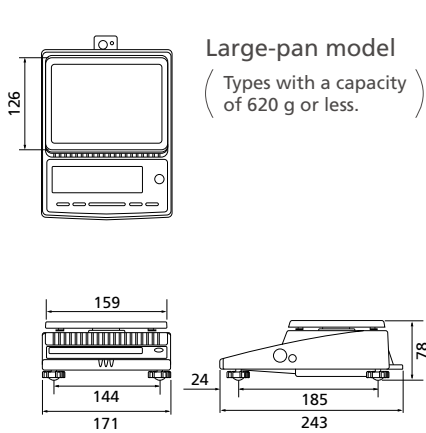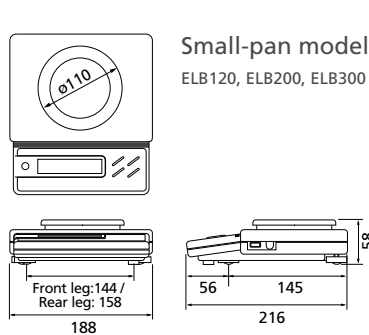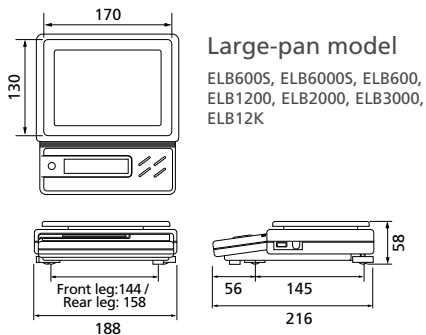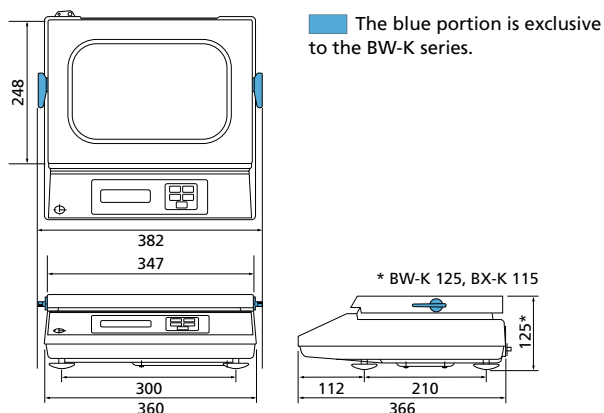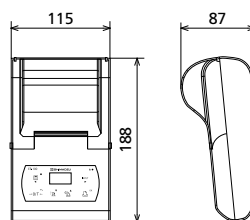For functions, features, and specifications, please refer to pages 28, 29.
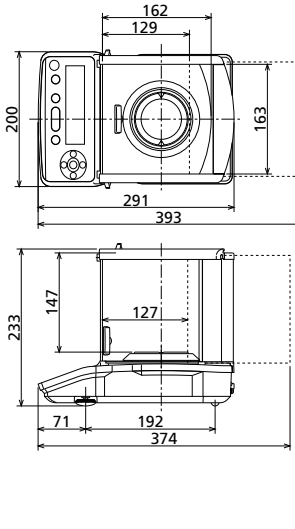
TXB Series

For functions, features, and specifications, please refer to pages 28, 29.
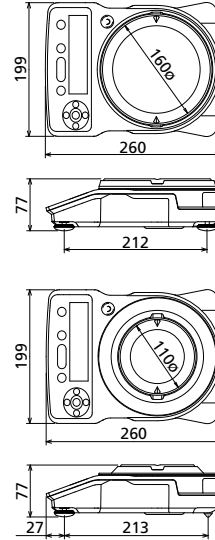
BL Series

Note: For functions, features, and specifications, please refer to page 30.

### Large-pan model

(Types with a capacity of 620 g or less.)

Small-pan model

(Types with a capacity of 320 g or less.)

Figure shows combination with windbreak
(standard only for BL220H and BL320H)

ELB Series

Note: For functions, features, and specifications, please refer to page 31.

Large-pan model

ELB600S, ELB6000S, ELB600, ELB1200, ELB2000, ELB3000, ELB12K

Small-pan model

ELB120, ELB200, ELB300

BW-K/BX-K Series

Note: For functions, features, and specifications, please refer to page 32.

The blue portion is exclusive to the BW-K series.

248
382
347
300
360
112 210
366
125*
* BW-K 125, BX-K 115

EP-100/EP-110

Note: For functions, features, and specifications, please refer to page 33.

115
87
188

MOC63u

Note: For functions, features, and specifications, please refer to pages 34, 35.

202
202
160
157
144
84
25
65 130
ø95
70 250
174 162
336
4
14
144
291
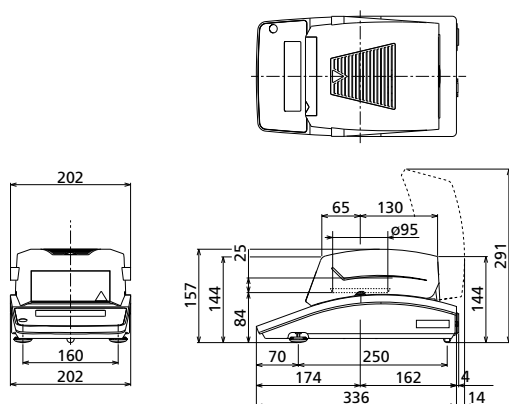
MOC-120H

Note: For functions, features, and specifications, please refer to page 36.

220
415
190
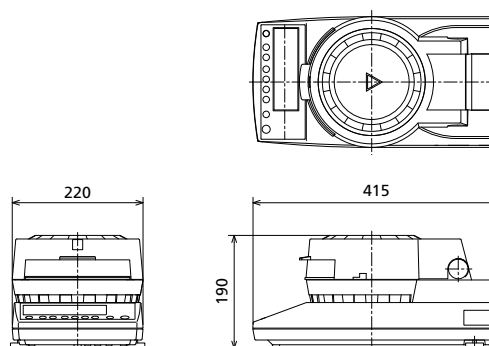
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Movie

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