

UniBloc Analytical Balances

# AUW-D/AUW/AUX/AUY Series

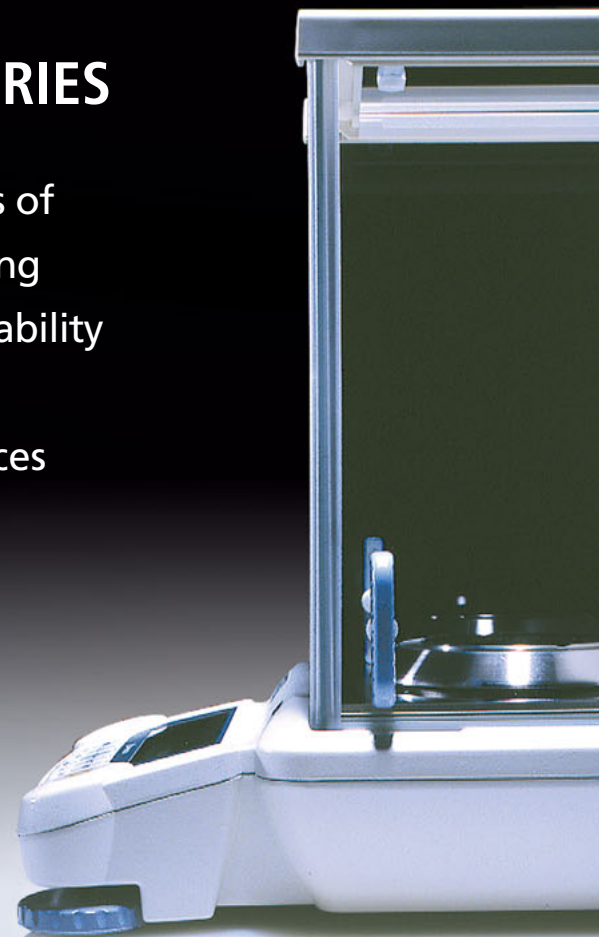




# AUW-D/AUW/AUX/AUY SERIES

Shimadzu's UniBloc technology and over 90 years of experience in precision weighing instruments bring analytical balances to a new level of stability, reliability and response.

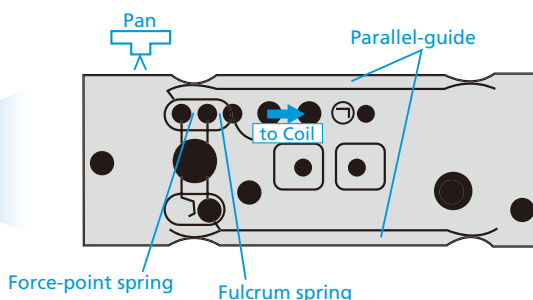
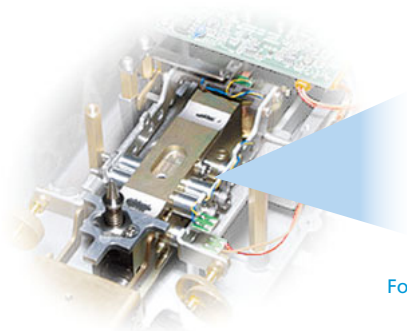
AUW-D models are the first five-decimal balances with this technology.



# Shimadzu UniBloc Technology



Shimadzu introduced one piece force cell technology for precision balances in 1989. The Today's UniBloc is created by high-precision electric discharge wire processing applied to a block of aluminum alloy, and replaces the conventional electro-magnetic balance sensor assembly. UniBloc's compact, uniform structure ensures stable temperature characteristics, excellent response time and stable corner-load performance. The UniBloc design permits a consistency of production that assures reliability and a long operational life. AUW-D dual range analytical balances are the first five-decimal balances with the advantages of UniBloc one-piece force cell technology.



## Excellent Weighing Performance

### Fast Response

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

### Environmental adjustment

Microprocessor digital control can be set to automatically provide the most suitable data processing for the installation environment and weighing application.

## Measurement Administration

### GLP/GMP/ISO9000 Conformance (AUW-D/AUW/AUX models)

If an optional printer is connected, data can be printed out with the date and time. Sample ID and counting up numbers can also be attached to the data with EP-90 printer. Calibration report can be automatically output, ensuring the measuring control and traceability required by GLP/GMP/ISO9000.

```

-----
CAL-INTERNAL
SHIMADZU CORP.

TYPE AUW220D
SN D450010218
ID 0000

DATE 2005-09-22
TIME 23.00.13

REF= 200.0000g
BFR= 200.0001g
AFT= 200.0000g

-COMplete-
--SIGNATURE-----
    
```

```

DATE 2006-08-31
TIME 14.45.37
ID: 780315
No.0010203001 0.07402g

DATE 2006-08-31
TIME 14.46.11
ID: 780315
No.0010203002 0.04953g

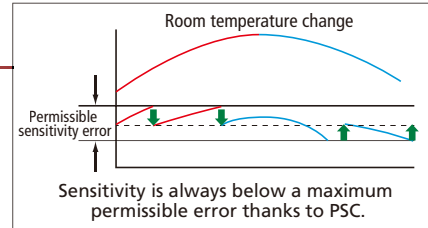
DATE 2006-08-31
TIME 14.46.39
ID: 780315
    
```

# Automatic Span Calibration

Span calibration is essential for accurate measurement in precision weighing to adjust for the effects of even small changes in ambient temperature. AUW-D/AUW/AUX models have a built-in motor driven calibration weight to automate this necessary operation. The balance can be set to take care of the calibration itself, leaving the operator to concentrate on measurement work.

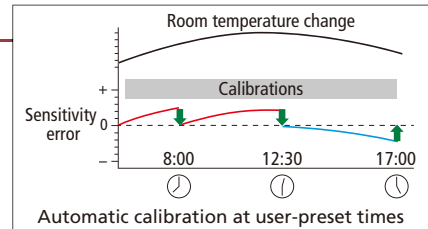
## Fully-automatic calibration by temperature detection: PSC

The balance detects variations in the ambient temperature that influence accuracy and automatically performs calibration to compensate it. (AUW-D/AUW/AUX models)  
This great feature has been provided by Shimadzu since as early as 1985.



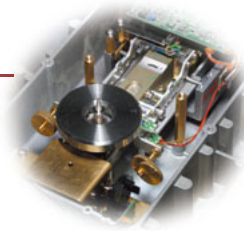
## Fully-automatic calibration at user pre-set times: Clock-CAL

The balance automatically performs calibration at selected times, up to three times a day (e.g., before starting work, during lunch-break, or after work). (AUW-D/AUW models)



## Span calibration at any time: Touch-key calibration

Automated calibration can be started by pressing keys. (AUW-D/AUW/AUX models)  
Also, your external calibration weights can be used for span calibration. (All models)



# Application Support

## Efficient filling or dosing work

"Pouring mode" brings very fast response with even a very small amount of sample added. Suitable for filling or dosing works.

## Formulation mode

Convenient for making many measurements of minute samples and seeking the total mass.

## Specific Gravity Measurement

Installing the optional SMK-401 specific gravity 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.



## Below-weigh Hook for Hanging Measurement

Measurement which cannot be performed within the weighing chamber is possible using the hook provided as a standard component.

## Piece Counting and Unit Conversion

In addition to piece counting, the balance can also perform weight measurement as percentages and in a variety of mass units, such as carat.



\* with optional AKB-301 Application Keyboard

## 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 also combined with WindowsDirect. (AUW-D/AUW/AUX models)





## User-friendly Features



### User-friendly Weighing Chamber

The large dimensions of the weighing chamber allow easy measurement of even tall flasks. Equalization in temperature before measurement is essential in precision weighing. This is easy with the extra space allowing samples to be kept inside the chamber. Weighing work is made easy by the smooth door movement. The doors can be detached to allow the chamber to be cleaned with ease and it is also possible to remove, clean or replace the door rail.



### Easy Level Adjustment

Level adjustment, particularly important in installing an analytical balance, can be performed with ease using an easy-to-view level gauge at the front of the balance and large level screws.



### Metal Housing

The aluminum die-cast housing offers lasting high quality exterior, protection of the core mechanism, and ease of cleaning.



### Backlit Display

Allows use under poor lighting conditions (AUW models)



### Comfortable Key Operation

The embossed key panel sheet provides clear clicking response when operated. If you choose, the key operations are confirmed with a gentle beeping sound, too.



### Analog Bar Graph Display

The analog display allows the operator to see at a glance how much more can be loaded before reaching the weighing capacity.

### In-use protective cover

Keeps dirt away from key panel and display.



## Data directly jumps to your Windows® application

Shimadzu's unique offer: the weighed result on the balance's display is "typed" at the cursor position or activated cell in any application on Windows. This advantage requires no software installation. A cable is all that you need.

**WindowsDirect Experience it!**

- Place the cursor at the desired position in your Windows application.
- Press the [PRINT] key on the balance.
- The weighed result will be directly typed there.
- Sent as if typed from the computer keyboard!
- Any application on Windows: e.g. Excel, Word etc.

**All that you need to add is just one cable!  
No communication software is required!**

If you'd like to use "WindowsDirect" with Windows 7, Windows Vista, or a USB port, please contact to our distributors.

## Expanding Possibilities with a Wide Range of Accessories (Optional)

| Name                                     | Specification   |
|--|---|
| 2-way Ionizer (Static Remover) STABLO-EX | Secure static removal; Air blower switched ON/OFF.  |
| Electronic Printer EP-80                 | Impact-dot print; Can be used with WindowsDirect.   |
| Electronic Printer EP-90                 | Impact-dot print; Can be used with WindowsDirect; Statistical calculation; Sample No. can be attached; Date/time can be attached. (except for AUJ)  |
| Specific Gravity Measurement Kit SMK-401 | This kit makes it possible to determine specific gravity or density of solids with the highly precise immersion method. Samples with weights up to the weight capacity of the balance can be measured.                              |
| RS-232C Cable                            | Required to connect to a PC.  |
| Application Keyboard AKB-301             | Enables unit weight settings for piece counting, unit weight display, recalculation of piece with new unit weight, taring and output of currently displayed value. Other numerical settings can also be performed more efficiently. |
| Foot switch FSB-102PK                    | For hands-free print command (key connector)  |
| Foot switch FSB-102TK                    | For hands-free tare command (key connector)   |



EP-80



EP-90



SMK-401



AKB-301

## Consumables and Replacement

| Name   | Specification   |
|--|---|
| In-use Protective Cover (standard accessory) | Cover for display (1 cover provided as standard accessory; 5 covers in a set) |
| Printer paper for EP-80 / EP-90              | (20 rolls)  |
| Ink ribbon cartridge for EP-80 / EP-90       | Standard type, black ink (5 pieces)   |
| Ink ribbon cartridge for EP-80 / EP-90       | Long life type, black ink (5 pieces)  |



## Specifications

| Series  | AUW-D (dual range semi-micro)                                    |   | AUW            |               |               | AUX            |               |               | AUY            |               |
|---|--|---|----------------|---------------|---------------|----------------|---------------|---------------|----------------|---------------|
| Model   | 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 / 0.01 mg  | 0.1 mg         | 0.1 mg        | 0.1 mg        | 0.1 mg         | 0.1 mg        | 0.1 mg        | 0.1 mg         | 0.1 mg        |
| Repeatability (Standard deviation, $\sigma$ )                                 | $\leq 0.1$ mg (large range)<br>$\leq 0.05$ mg (small range)      | $\leq 0.1$ mg (large range)<br>$\leq 0.02$ mg (small range) | $\leq 0.15$ mg | $\leq 0.1$ mg | $\leq 0.1$ mg | $\leq 0.15$ mg | $\leq 0.1$ mg | $\leq 0.1$ mg | $\leq 0.1$ mg  | $\leq 0.1$ mg |
| Linearity   | $\pm 0.2$ mg (large range)<br>$\pm 0.1$ mg (small range)         | $\pm 0.2$ mg (large range)<br>$\pm 0.03$ mg (small range)   | $\pm 0.3$ mg   | $\pm 0.2$ mg  | $\pm 0.2$ mg  | $\pm 0.3$ mg   | $\pm 0.3$ mg  | $\pm 0.2$ mg  | $\pm 0.2$ mg   | $\pm 0.2$ mg  |
| Response time (typical)   | 3 s (large range)<br>15 s (small range)                          | 3 s (large range)<br>12 s (small range)                     | 3 s            |               |               |                |               |               |                |               |
| Operating ambient temperature   | 5 to 40 °C   |   |                |               |               |                |               |               |                |               |
| Temperature coefficient of sensitivity (10 to 30°C)                           | $\pm 2$ ppm/°C (When PSC is Off)                                 |   |                |               |               |                |               |               | $\pm 2$ ppm/°C |               |
| Sensitivity stability against temperature change (When PSC is On, 10 to 30°C) | $\pm 2$ ppm  |   |                |               |               |                |               |               | —              |               |
| Pan size  | 80 mm dia approx.  |   |                |               |               |                |               |               |                |               |
| Body dimensions   | W220 mm × D330 mm × H310 mm approx.                              |   |                |               |               |                |               |               |                |               |
| Weight  | 7 kg approx.   |   |                |               |               |                |               |               |                |               |
| Power consumption   | 7 VA approx.   |   |                |               |               |                |               |               |                |               |
| Functions and features  | Backlighted display  |   |                | ●             | ●             | ●              |               |               |                |               |
|   | Built-in calibration weight                                      | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              |               |
|   | PSC  | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              |               |
|   | Clock-CAL  |   |                | ●             | ●             | ●              |               |               |                |               |
|   | Built-in clock   | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              |               |
|   | GLP/GMP/ISO calibration report                                   | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              |               |
|   | WindowsDirect  | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              | ●             |
|   | Formulation mode   | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              | ●             |
|   | Interval timer output  | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              |               |
|   | RS-232 I/F   | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              | ●             |
|   | Specific gravity measurement software, piece counting, % display | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              | ●             |
| Analog display  | ●  | ●   | ●              | ●             | ●             | ●              | ●             | ●             | ●              |               |

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