



# PRECISION BALANCE **BLB**

## User Manual

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**HiWEIGH**  
Weighing system & solution

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Value Each Gram

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## SECTION 1 INTRODUCTIONS

### 1.1 Introduction

- The BLB precision scale provides an accurate, fast and versatile series of general purpose weighing scales with weighing and check-weighing functions.
- They all have stainless steel weighing platforms on an ABS base assembly.
- All the keypads are sealed, color coded membrane switches and the displays are large easy to read LCD. The LCD's are supplied with backlight.
- All units include automatic zero tracking, audible alarm for pre-set weights, automatic tare, pre-set tare and an accumulation facility that allows the count to be stored and recalled as an accumulated total.

## SECTION 2 SPECIFICATIONS

Model#	BLB6	BLB15	BLB20	BLB30
Max Capacity	6kg	15kg	20kg	30kg
Readability	0.1g	0.1g	0.1g	0.2g

### Common Specification

Interface	RS232
Stabilisation time	2 second typical
Operating temperature	0°C - 40°C / 32°F - 104°F
Power supply	220~240V AC (110V optional) 50/60Hz built-in rechargeable battery 6V4AH.
Display	6 digits 1'LCD display. and 21 status indication
Zero range	0mV~8mV
Housing	ABS housing and Stainless steel pan(230*290mm)
ADC	$\Sigma$ - $\Delta$
External Resolution	1/60,000 – 1/200,000
Interface	RS-232 Output
Other function	Real-time clock and units conversion (kg,lb,oz,g)

## SECTION 3 INSTALLATION

### 3.1 GENERAL INSTALLATION

The scales should be sited in a location that will not degrade the accuracy.

Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning.

Avoid unsuitable tables. The tables or floor must be rigid and not vibrate. Do not place near vibrating machinery.

Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.

Avoid high humidity that might cause condensation. Avoid direct contact with water.

Do not spray or immerse the scales in water.

Avoid air movement such as from fans or opening doors. Do not place near open windows.

Keep the scales clean.

Do not stack material on the scales when they are not in use.

### **3.2 INSTALLATION of the scale**

The scale comes with a stainless steel platform packed separately. Place the platform in the locating holes on the top cover. Do not press with excessive force as this could damage the load cell inside.

Level the scale by adjusting the four feet. The scale should be adjusted such that the bubble in the spirit level is in the centre of the level and the scale is supported by all four feet. If the scale rocks readjust the feet.

The power switch is located under the base

## **SECTION 4 KEY DESCRIPTIONS**

### **Number: 0-9 Keys**

To enter the numbers when setting parameter

#### **M+ key**

Add the current weight to memory which use for accurate function.

#### **MR Key**

Read out the weight in memory which use for accurate function

#### **CE key**

To clear all number when parameters settings and back to zero

### **ZERO /ESC Key**

1) When self-checking, Press ZERO Key to enter weighing state

- 2) Set the zero point for all-subsequent weighing;
- 3) Cancel or quit from the operations when parameter setting

#### **TARE /Enter Key**

- 1) When self-checking, Press TARE Key to enter parameter setting;
- 2) Tare the scale. Store the current weight in memory as a tare value, subtract the tare value from the weight and shows the net weight. Entering a value using the keypad will store that value as the tare value;
- 3) Save and quit the current parameter setting

#### **FUN ↑ Key**

- 1) When setting parameter , Cycle through the parameters or options as up way
- 2) When weighing ,press FUN to enter function option: counting, Percent weighing and animal function

#### **Print ▼ key**

- 1) When setting parameter , Cycle through the parameter or options as down way
- 2) When weighing status, print out the weight.

#### **Check key**

Enter check weighing function

#### **UNIT Key**

- 1) Unit conversion when weighing: kg, g, lb, oz

### **SECTION 5 OPERATIONS**

#### **5.1 Power on/off**

Press ON/OFF switch which under the scale and near front panel to power on the Indicator and the indicator self-checks, then goes into the weighing state.

#### **5.2 Functions and parameters setting**

When self-checking, press TARE Key to enter parameter setting. Then display shows "F1 Adc". Press FUN(Up) and Print(Down) Key to move functions cycle. Press TARE(Enter) Key to enter the desire function or ZERO(ESC) Key to cancel or quite.

#### **5.3 Zero the scale**

Press ZERO Key to set the zero point from which all other weighing and counting is

measured. Usually this will only be necessary when the platform is empty. When the zero point is obtained the ZERO indication is ON.

The scale has an automatic re-zeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press ZERO Key to re-zero the scale if small amounts of weight are shown when the platform is empty.

#### **5.4 Tare the scale**

When a container is applied it needs to tare off and obtains a net weight. Remove all weights from the platform and make the platform empty. Make sure that the ZERO indicator is on. Place a container on the platform and the container's weight will be displayed. Press TARE Key to tare the scale. The container's weight will be stored as a tare value and the value will be subtracted from the display, leaving a zero value on the display. The TARE indicator will be on to show the indicator is now under tare operation. A product is placed in the container and it will show only the weight of the added product. The scale should be tare a second time if another is added to the first one. Again only the weight added after tare will be displayed.

When the container is removed a negative value will be shown. If the scale was tare just before removing the container this value is the gross weight of the container plus all products that were removed. The ZERO indicator will also be on because the platform is back to the same condition it was when the ZERO Key was last pressed.

To clear the tare value, empty the platform and press TARE Key again, TARE indicator will be goes off.

**“P12 tr”: TARE mode .**

Model 1: Only can tare for one time;

Model 2: Can tare more then one time

#### **5.5 Presetting tare value**

When weighing status, enter the weight value need to tare and press TARE to enter. The display value will reduce the tare value.

#### **5.6 Parts counting (KEY=1)**

Tare the weight of any container that is used, leaving the empty container on the scale. press “FUN” and display “Count” to display “000000” enter parts counting function.

Place samples on the scale and enter the sample pieces .For eg. There are 50pcs samples, then press "000050". Press TARE key it will show the quantity on scale.

**Counting:** Press TARE Key when the number matches the sample size. Remove samples from the container and place the desire parts for counting purpose. Display will show the number of parts (pcs).

**Viewing the Unit Weight, Nos. of Counts & Total Weight:**

Press Unit Key to cycle through Unit Weight, Total Weight and Nos. of Counts .

Press FUN Key and ZERO to return to quit parts counting function

### **5.7 Accumulation**

**Accumulate the weight:**

When weighing, press M+ Key for accumulation.

Place the products that to be weighed, when the STABLE indicator is on, press M+ Key and the weight value will be stored in the memory. The display will show nos. of accumulation. After that it goes to normal weight display. Do other subsequent weighing by the similar procedure as described above. Note: This Indicator can store 200 Nos. of accumulation.

**View the accumulated total weight:**

Empty the scale by removing the weights. Press MR Key it will display the Nos. of weights, and then total weight.

**Clear the accumulated weight from memory:**

Press ZERO Key during display of the nos. of weights and total weight, accumulated weights are cleared from memory.

### **5.8 Percent weight :**

press "FUN" and display "Count", Press FUN(Up) key to display "PERCnt" to enter percent weight .

The scale will allow a sample weight to be shown as 100%. Then any other weight placed on the scale will be displayed as a percentage of the original sample. For example is 350g is placed on the scale and the % key is pressed the display will show 100.00%.

Removing the 350g weight and putting a 300g weight on the scale the display will show 85.71% as 300g is 85.71% of 350g.

Note: the scale may jump by large numbers unexpectedly if small weights are used to set the 100% level. For example if only 23.5g is on a scale with 0.5g increments



and the scale is set to 100%, the display will show 100.00%, however a small change of weight will cause the display to jump to 102.13% as one scale division (0.5g) increase to 24.0g will be equivalent to a 2.13% increase.

Removing the 350g weight and putting a 300g weight on the scale the display will show 85.71% as 300g is 85.71% of 350g.

Pressing the FUN key and ZERO will return the scale to weighing.

### **5.9 Animal weighing**

press "FUN" and display "Count", Press FUN(Up) key to cycle to "Ani" to enter animal weighing function

1) Stable time "Fil n". Options: 1/2/3/4/5. 1 is the fastest and 5 is **lowest**. The longer of stable time, the harder to lock.

2) Display range "Re". Options: off/ 2/5/10/20. Option 2 is recommended.

3) Leaving lock range. If the change of weight exceeds the value, the indicator will get a new display.

Pressing the FUN key and ZERO will return the scale to weighing.

### **3.10 Check-Weighing**

Check-weighing is a procedure to cause alarm to sound when the weight on the scale meets or exceeds values stored in memory. The memory holds values for a high limit and a low limit.

#### **Check range:**

Set hi-limit and low-limit as different values, and hi-limit value is larger than low-limit value.

#### **Check key point:**

Set hi-limit and low-limit as same value.

#### **Check mode:**

Setting the parameter: Press CHECK key to enter check weighing mode. display "000000" and "Hi" indication is on ,input the hi limit value; press TARE to save and display "000000" and "Lo" indication is on ,input the low limit value. Press TARE and setting done.

"F5 CbP": beeping setting when checking function.

"In" Beep when the weight is in the Hi and Low limit range

"Out" Beep when the weight is out of the Hi and Low limit range

“Off” never beep whether it is eligible or not, but the indicator HI or LO will be on or off to show the result. When the weight is higher than the high-limit, indicator HI will be on, while lower than the low-limit indicator LO will be on. Otherwise indicator HI & LO will be both on.

Note: The weight must be greater than 9 scale divisions for the check weighing to operate.

### 5.11 Print (KEY=2)

Set “F8 RS”: “RS Prt” is selected for the Serial Printer.

When weighing, press MOD Key to print.

## SECTION 6 FUNCTIONS AND PARAMETERS

### “F1 Adc”: Display the internal counts

Press TARE (/ENTER) to enter to check the connection of loadcell and working status of ADC circuit.

Press “ZERO” to exit.

### “F2 ti”: Time setting

When “F2 ti” is showed, press Tare Key. It will display the time.

Time setting: enter hh :mm :ss by number keys

### “F3 dA”: Date setting

Select date setting mode by pressing print<sup>▼</sup> or FUN<sup>▲</sup> Key. “YY-MM-DD”, “MM-DD-YY” or “DD-MM-YY”

Date setting: Same as time setting.

### “F4 KbP”: Keypad sound ;

When “on”, keyboard is pressed with sound.

### “F5 CbP”: beeping setting when checking function.

“In” Beep when the weight is in the Hi and Low limit range

“Out ” Beep when the weight is out of the Hi and Low limit range

“Off” No beep when in or out of weight

### “F6 Bk” : back light setting:

“On”: backlight always on; “Off”: backlight always off

“Auto” backlight only on when acting to scale

### “F7 AU” :Sleep function

SLP off: Set to “SLP off” means the indicator will never sleep.

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SLP 1: Set the time span 1 minutes for the sleep. SLP 1/5/10/20: Same as SLP 1

**“F8 RS”:** Communication mode.

Press TARE to Enter ,it will display Baud rate optional:1200/2400/4800/9600/19200

This option is used for the RS232C serial port mode setup.

Options: “RS Cont” is continuous Data Transmission for using Remote Display or External Display; Press print or FUN Key to select 0/0.5/1.0/1.5;

When Press TARE to enter , will display on and off: “on” means only can print when stable; “off” means can print when stable.

“RS Prt” is used for the Serial Printer. Press TARE to enter option of Copy 1-8;

For eg. “3” means when press “Print” once ,scale will print out “3” copy documents ;

Press TARE to save and enter Fr 1-20d optional. Means from how many deviation can print out

“RS Aut” is used for “transmission after every weighing”. Option is same as Prt

**“F9 Un”:** Unit setting.

Press TARE to enter unit options: Cycle from kg, g, oz, lb.

Press print ▼ or FUN ▲ Key to select on/off the unit

When weighing status ,cannot show convert the unit which is switch off

**“F10 CA”:** Calibration

Press TARE to enter parameter setting: Initial password is 1234

**“P1 CAP”:** Set the capacity. 3/6/15/30

**“P2 INC”:** Set division increment. Options: 1/2/3/4;

“1” stands for 1/3000 resolution; “2”stands for 1/6000 resolution

“3” stands for 1/15000 resolution; “4” stands for 1/30000 resolution

**“P3 AZ”:** Select the auto zero maintenance, Options: 0.5d/1d/1.5d/2d/off

“d” means division.

**“P4 bZ”:** Select the “Power on “ zero maintenance,

Options: 0/2/5/10/20/50/100% of the capacity.

**“P5 kZ”:** Select the manually zero maintenance,

Options: 2/ 4/10/20/50/100% of the capacity.

**“P6 Ft”:** 1/2/3/4 1 is the smallest filter and 4 is the biggest filter

**“P7 G1”:**manufacture gravity

**“P8 G2”:**user gravity

**“P9 UC”:**User calibration; Press Tare to enter optional of kg and lb calibration

Press TARE, it display “Unload”; Press TARE ,it display 000000; enter the weight need to load; Press TARE, display “Ld1 ”, add the weight and press TARE. Calibration done.

**“P10 LC”:** linear calibration; Press Tare to enter optional of kg and lb calibration

Press TARE, it display “Unload”; Press TARE ,it display 000000; enter the weight need to load; Press TARE, display “Ld1 ”, add the weight and press TARE, display “Ld2 ”;add

the weight and press TARE. Calibration done.

**Attention: Ld2 must be larger then Ld1**

**“P11 PS”:** Password setting.

Press TARE, display “P1- - - -”: enter password and press TARE ,display “P2 - - - -”

Enter password again and press TARE . Password setting done

**“P12 tr”:** TARE mode .

Model 1: Only can tare for one time;

Model 2: Can tare more then one time

**“P13 oP”:** Calibration mode.

Press TARE to select “Count” (increase 1 when making calibration and will show when scale self-checking); “JUMP” (use jumper to get calibration ability )

**SECTION7 RS-232 OUTPUT**

Specifications: RS-232 output of weighing data, 1200/2400/4800/9600/19200 bps,1 stop bit, 8 data bits, No Parity.

**Mode 1: Continue output**

**Mode 2: Automatic output**

Automatic output mode is same as continue output. The only difference is:

After weighing, when take away the goods display returns to zero, then transfers.

Data Format for normal weighing operations.

**Mode 3: Print**

On/off : “On” means print only when scale is stable ; “Off” means can print when unstable

Format is as below

DATE 2000/02/11

TIME 21:26:56

NO. 001

TARE 0.000kg

NET 0.076kg

GROSS 0.076kg

DATE 2000/02/11

TIME 21:27:41

NO. 002

TARE 0.125kg

NET 0.035kg

GROSS 0.160kg

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**SECTION 8 ERROR CODES**

<b>Error Code No</b>	<b>Description</b>
Err 1	Date value error
Err 2	Time value error
Err 3	Exceed maximum manual zero range
Err 4	Offset out of range / unstable during power on
Err 5	No load cell signal detected
Err 6	Tare operation error
Err 7	Logic error. HI limit set is lower than LO limit(and HI is not = 0)
Err 8	Logic error. LO limit is higher than HI limit(and HI is not = 0)
Err 9	ERROR IN PERCENTAGE FUNCTION. INPUT VALUE = 0 or less than 50e
--OL--	Overload (Gross weight is more than Max plus 9d)
UndEr	Under load (Gross weight is less than minus 20d)

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