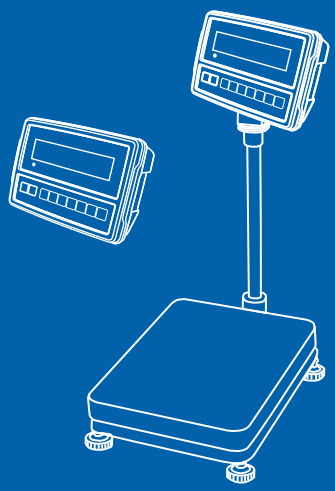
INDUSTRIAL WEIGHING SOLUTION™

HB/HBI

Bench Scale / Weighing Indicator



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OWNER'S MANUAL

CAS

CONTENTS

1. PRECAUTION BEFORE USING THE SCALE

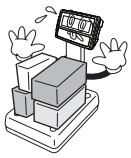
Warning

Precautions when installing the scale. To ensure that you get the most from your scale, please follow these instruction.

Do not disassemble the scale.

When any damage or defect occurs, contact your CAS authorized dealer immediately for proper repair.

Do not overload beyond the maximum weight limit.



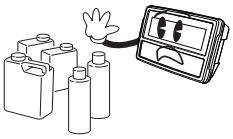
Scale must be grounded to minimize electricity static.

This will minimize defect or electric shock.

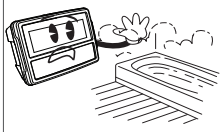
Do not pull the plug by its cord when unplugging.

Damaged cord could cause electric shock or fire.

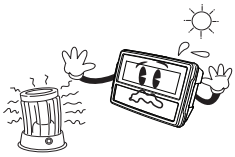
To prevent from fire occurring, Do not place or use the scale near flammable or corrosive gas.



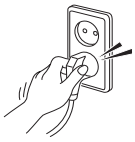
To reduce electric shock or incorrect reading, Do not spill water on the scale or place it in humid condition.



Avoid placing the scale near heater or in direct sunlight.

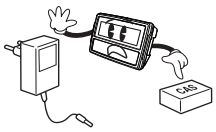


Insert plug firmly to wall outlet to prevent electric shock.



Use proper Adapter.

Incorrect adapter could damage the scale.

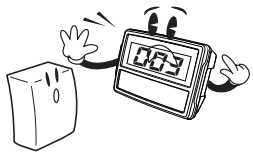


Do not step up on the scale with wet feet. Platter becomes slippery. Humid condition may cause incorrect reading.

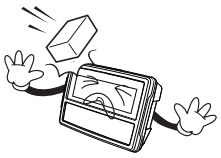
⚠ Attention

Make sure to plug your scal into the proper power outlet. For maximum performance, plug into a power outlet 30 minutes before the usage for warm up.

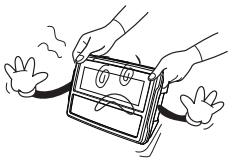
For consistent and accurate reading, maintain periodical check by your CAS authorized dealer.



Avoid sudden shock to the scale.

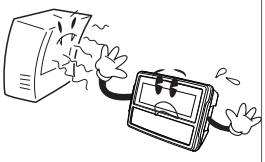


Grab on the bottom of the scale when moving.



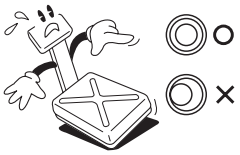
Keep the scale away from other electromagnetic enerating devices.

This may interfere with accurate reading.

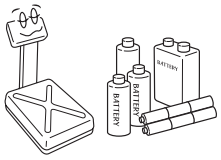


Place the scale on firm and temperature consistent environment.

By adjusting 4 comers of the scale, set the scale even using the built in scale leveling indicator.



Take the battery out when scale is not in use for long time. Leakage from the batteries is hazardous.



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Environment

The scale should always be used in an environment, which is free from excessive air currents, corrosives, vibration, and temperature or humidity extremes. These factors will affect displayed weight reading.

DO NOT install the scale:

*Next to open windows or doors causing drafts or rapid temperature changes
*Near air conditioning or heating vents
*Near vibrating, rotating or reciprocating equipment
*Near magnetic fields or equipment that generates magnetic fields
*On an unstable work surface
*In a dusty environment
*In direct sunlight

Leveling the scale

The scale is equipped with a level indicator on the right bottom side of the front panel and four adjustable leveling feet. Adjust the leveling feet until the bubble appears in the center circle of the indicator.

Turn on the scale

Do not turn on scale with anything on the platform. The switch is located at the bottom of the right side of the scale. The scale will start to count down from nine to zero. Then the scale is ready for use. Give a warm-up for 15~30 minutes before use.

2. INTRODUCTION

The precision electronic weighing scale offers a range of capacities from 30 kg to 250kg.

The scales are very simple to use and applicable for general weighing. The user can also use the parts counting and percent weighing functions for special applications. Special functions are available for weighing in up to 4 different units of weight. And the scale use grams as the default unit.

The standard RS-232 interface allows the data to be sent to a computer or printer. (Only for the scale with RS-232 interface)

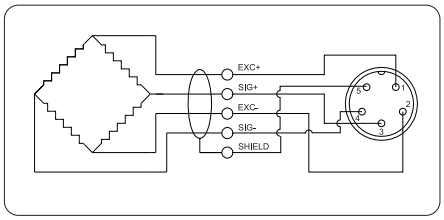
The scale is with large easy to read LCD display with backlight, and all the keypads are sealed membrane switches.

The scale includes audible alarm for pre-set weights, tare and an accumulation facility that allows the count to be stored and recalled as an accumulated total.

3. INSTALLATION & CONNECTION

Load cell connection

Connect load cell connector to load cell port which is in the backside of the indicator.
* Connecting method



IN	COLOR
1 (EXC+)	RED
2 (EXC-)	WHITE
3 (SIG+)	GREEN
4 (SIG-)	BLUE
5 (SHIELD)	SHIELD

Note. Wire color can be different depending on the loadcell's manufacturer or it's model.

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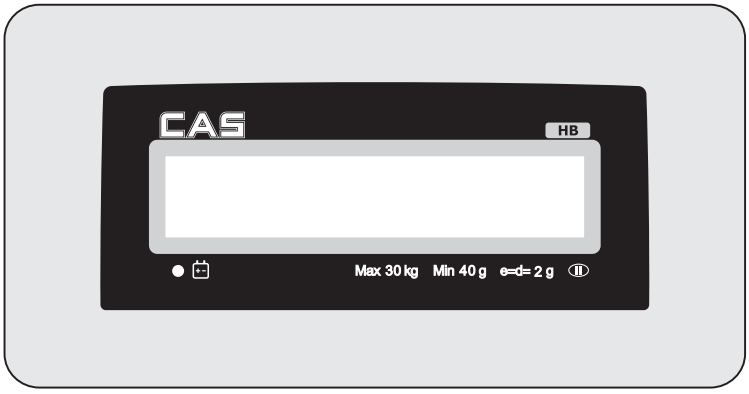
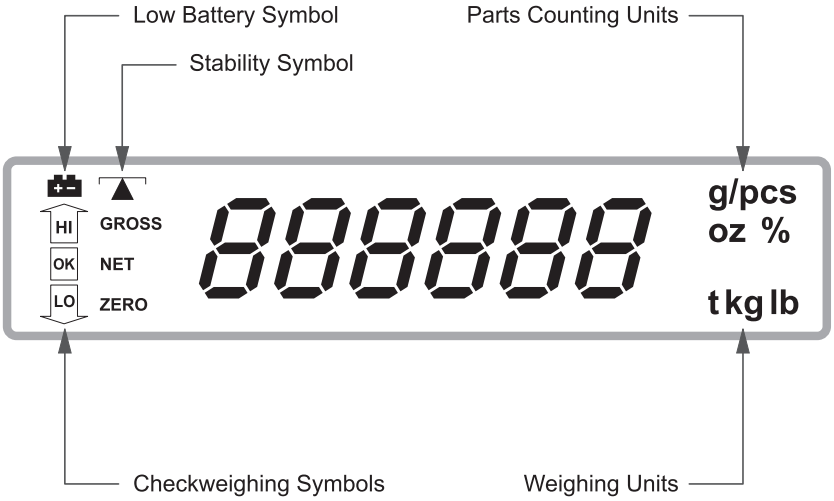
4. NAMES AND FUNCTIONS

4-1. Display

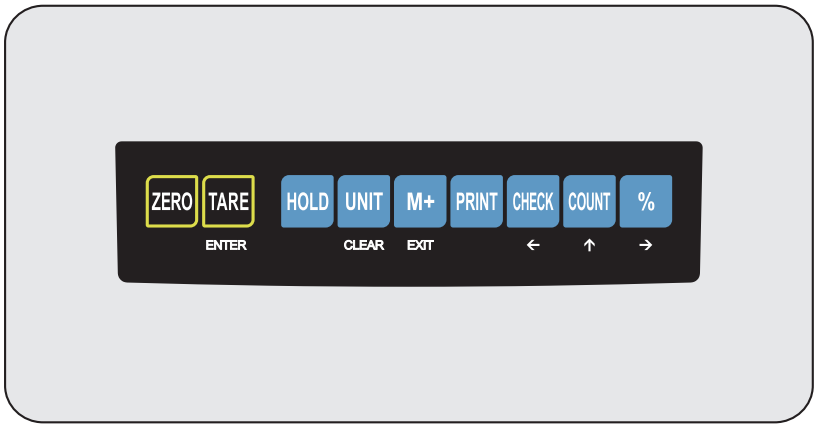
The LCD display will show a value and a unit to the right of the digits. Other labels are TARE, GROSS weight, ZERO, stable“ ▲ ” and for Low battery “ + − ”.



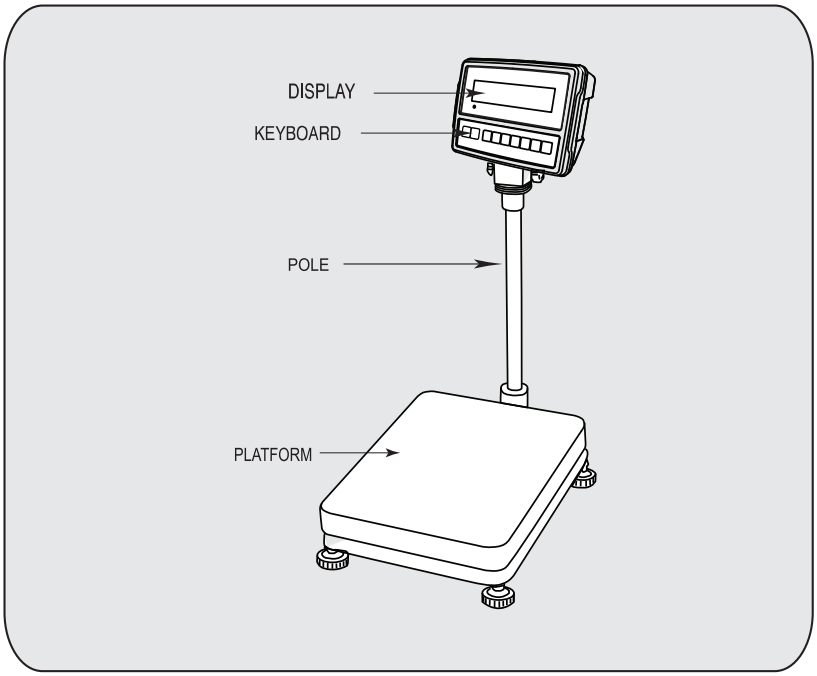


4-2. Key Descriptions

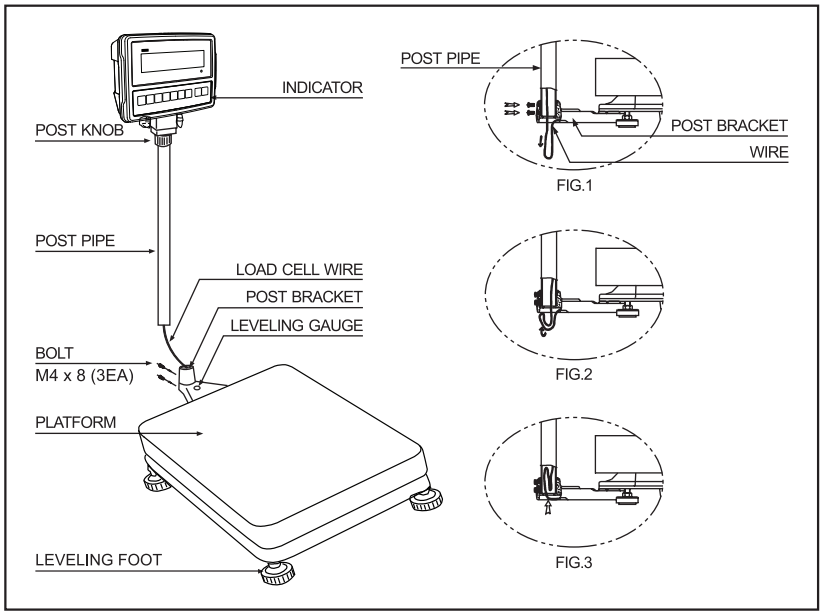
KEYS	FUNCTIONS
ZERO	Set the zero point for all subsequent weighing. The display shows zero.
TARE	Tare the scale. Stores the current weight in memory as a tare value, subtracts the tare value from the weight and shows results. This is the net weight. A secondary function " ↵ ", or " Enter " key when setting parameters or other functions.
CHECK	Set the limits for check weighing. Allow setting of either the low limit or the high limit or both. Secondary function "← ", is to move the active digit to the left when setting values for parameters or other functions.
%	Enter the percent weighing function. Allows the weight to be seen when parts counting. Secondary function "→ ", is to move the active digit to the right when setting values for parameters or other functions.
COUNT	Be used to select the functions of the scale. If the scale is in weighing mode, it will select parts counting. Of it is not in weighing mode it will return the user to weighing. A secondary function "↑", increment the active digit when setting values for parameters or other functions.
PRINT	Print the results to a PC or a printer by using the optional RS-232 interface. It also adds the value to the accumulation memory if the accumulation function is not automatic.
M+	Press this key to enter into accumulation function. The display will show Accumulation times and total weight. Secondary function (Exit), is to return to normal operation when the scale is in parameter setting mode.
HOLD	Press this key to hold the display when an active thing is weighted.
UNIT	Select weigh units(kg,lb) A secondary function (Clear), is used to clear values when setting values for parameters or other functions.



4-3. Overall View



4-4. Installation



MODEL : HB Series

1. Open the box with care because indicator is connected to the scale with load cell wire.
2. Turn the post knob so as to fix indicator.
3. Pull down the wire out of post pipe and insert the post pipe to the post bracket. (Refer to fig. 1)
4. Fasten the post pipe with two bolts. (Refer to fig. 1)
5. Insert the wire to the post pipe. (Refer to fig. 2, 3)
6. If the scale is not properly level, please adjust 4 leg(adjusting bolt) at the bottom of the scale so as to center the bubble of the leveling gauge.

※ Note : Place the scale on a flat and stable surface.
Inside the indicated circle.

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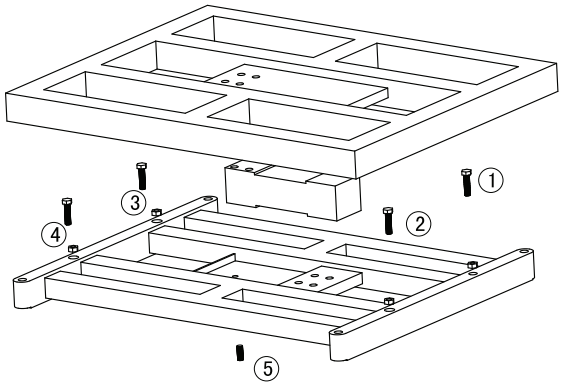
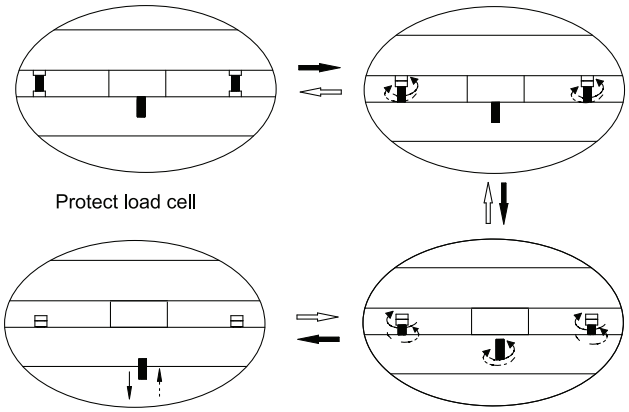
※ **Note: Before using the scale, unscrew the five shipping protection screws. If not, the weighing operation works wrong.**

1) Location of screws



2) Adjusting procedure



5. OPERATIONS

5.1 Zeroing the display

You can press the "**ZERO"** key to set the zero point from which all other weighing and counting is measured, within 4% of power up zero. This will usually only be necessary when the platform is empty. When the zero point is obtained the display will show the indicator for zero.

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 the "**ZERO"** key to re-zero the scale if small amounts of weight are shown when the platform is empty.
Note: Zeroing function is possible to operate only when the scale is stable with "▔▲▔"

5.2 Unit selection

(Only US Version)

You can choose the desired unit by pressing "**UNIT/Clear"** key. The display will cycle through the options: kg, lb and back to kg.

5.3 Taring

Before Tare function is used, if zeroing the scale is needed, press the "**ZERO"** key. Then the indicator of zero will be on.

- Place a container on the platform, a value for its weight will be displayed.

- Press the "**TARE/Enter"** key to tare the scale. The weight that was displayed is stored as the tare value and that value is subtracted from display, leaving zero on the display.

  The**"NET"** indicator will be on.

`


NET
0.00
kg

● Put a weight on the pan. Only the weight that is added after taring will be displayed. And

the value displayed is the net weight of the product

● Remove the container a negative value will be shown. If the scale was tared just before removing the container this value is the gross weight of the container plus all products that was removed.

● Press "TARE/Enter" key again to enter into the normal weighing mode, and the negative value will disappear.

Note: Taring function is possible to operate only when the scale is stable with "▲"

5.4 Percentage

This mode shows the proportion of standard weight.
A standard weight is selected whatever you want within max capacity of the scale. When you place a sample on the container, the display shows the percentage against the standard weight.

For example:

● Place a sample(7kg) on the Pan.

● Press " %/→" key. The display will show 100%.

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● Remove the 7kg weight

● Place a 2kg weight on the pan, the display will show 28.57% as 2kg is 28.57% of 7kg.

● Pressing the "**COUNT/↑**" key will return the scale to weighing.

Note : the scale may jump by large numbers unexpectedly if small weights are used to set the 100% level. For example if only 23.50kg is on a scale with 0.50kg increments and the scale is set to 100%, the display will show 100%, however a small change of weight will cause the display to jump to 100.13%.

5.5 Counting pieces

Before beginning, if you want to use any container, use Tare function first.

● Place samples (ex. 2kg as 10pcs) on the pan. The number of samples should match the options for parts counting: 10, 20, 50, 100, 200,500, or 1000 pieces

● Press the "COUNT/↑" key to begin. Then the display will show**"**SP 10".
To change the number of parts is possible as "COUNT/↑" key. It will cycle through the options : 10, 20, 50, 100, 200, 500,1000

● Press the "**TARE/Enter"** key when the number matches the number of parts.

● Place any other sample (ex. 5kg) on the pan which you want to know how many the sample is. The display will be show “25 pcs”. It means the sample as 5kg is consisted of 25 pieces.

Note : 1) Pressing “%/→” key is possible to show unit weight, Total weight and the count (pcs) by turns.
2) Press the “**COUNT /↑”** key to return to normal weighing.

5.6 Check-weighing/counting/percentage

Check-weighing is a procedure to cause an 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. Either limit can be used or both can be used. This function is available in weighing, counting pieces and percentage.

● Press the “**CHECK/←”** key. The display will show the current High Limit with the left most digit flashing and the “**HI”** symbol on the left of the display.

● **Input high limit value**
The location of flashing digit is possible to move as “**CHECK/←”** and “**%/→”** key. The real value from “0” to “9” is possible to change as “**COUNT/↑**” key(ex. 30kg). After set desired high limit value, press the “**TARE/Enter”** key to accept the value. if you want to reset the value to zero, press “**UNIT/Clear”** key to clear the value

● After set high limit value by pressing the “**TARE/Enter”** key, then the display will show “**LO”** symbol on the left side.

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● Input low limit value (ex. 1kg), the way is as same as high limit was set.

● After inputting low limit value, press "**TARE/Enter"** key to confirm it. Then the scale will return to weighing mode with the Check-weighing function enabled

When a weight is placed on the scale the arrows will show if the weight is above or below the limits and the beeper will sound as described below.

BOTH LIMITS SET

The display will show "**OK"** and the beeper will sound when the weight is between the limits.

LOW LIMIT SET

● HIGH LIMIT is set to zero

● The display will show "**OK"** and the beeper will sound when the weight is less than the Low Limit.

● Above the Low Limit the display will show **"HI"** and the beeper will be off.

`

HIGH LIMIT SET

● LOW LIMIT is set to zero

● The display will show "**LO"** and the beeper will be off when the weight is less than the High Limit.

● Above the High Limit the display will show "**OK"** and the beeper will be on.

Note :1) When you would like to use check-counting/percentage, sampling should be set before you set HI/LO limit values

2) The low limit is set greater than the high limit. In this situation, the display will show **E5** and you are supposed to reset the values.

3) The weight must be greater than 20 scale divisions for the check-weighing to operate.

4) To disable the Check-weighing function enter zero into both limits by pressing the "**CHECK/←"** key to recall the current settings. Pressing "**UNIT/Clear"** key when the current limits are shown to clear the settings, then pressing the "**TARE/Enter"** key to store the zero values.

5.7 Hold function

When weighing an active thing, press "**HOLD"** key to hold the display to read the value easily and clearly.

Place the load on the scale and press "**HOLD"** key. Both "hold" and the value will flicker for about 2 seconds. Then "Hold" disappears and the display window will show the weighing value.

Note : 1) When there is no load on the pan, hold function is unavailable.

2) Hold function is possible to operate only when the scale is stable with "▔▲"

5.8 Accumulation (summing)

● **How to operate**

1) Place the item to be weighed (or) counted on the pan (ex. 1.50kg) then press "**M+/Exit"** key.

2) " ACC×× " is displayed. (xx: the number of accumulated times)

3) After showing of "ACC×× " for a few seconds, the total weight is displayed for about 2 seconds. Then the scale returns to normal weighing mode.

4) Remove all weights from the pan in order to zero the scale. Place the second weight on the pan(ex. 5kg)

5) Press "**M+/Exit"** key to add the second weight, then " ACC×× " is displayed for a few seconds.

6) After showing of " ACC×× ", the total weight is displayed for about 2 seconds. Then the scale returns to normal weighing mode.

7) As soon as the total weight is disappeared, the display will show the new weight.

● **To view the total weight from memory**
Press the "**M+/Exit"** key with nothing on the pan when the scale is at zero. The display will show the total number of times as " ACC×× " and total weight/count value momentarily.

● **To delete Accumulated memory**
1) Press the "**UNIT/Clear"** key while " ACC×× " is displaying.
2) Accumulated memory will be deleted as soon as press "**PRINT**" key to print out "Total" value after accumulating all items.

Note : 1) Any of the accumulated items can be cleared by pressing "**UNIT/Clear"** key. Please refer to section " **5.9 SUBTRACTION FUNCTION**".
2) Accumulation memory can be added up to 99 times, or up to the total value exceeds in maximum capacity.
3) The display weight must be stable(▲) for **M+** register.
4) Display must return to zero in order to add next item.
5) Accumulation memory is not retained when the scale is turned off.
6) There are two options of RS-232 transmission method in accumulation mode (Please refer to section **6.5).**
7) When the present weight is less than 10d, and press "**M+/Exit"** key. The scale can't store this value in memory but only display total accumulated values and times.

5.9 Subtraction function

Use "**UNIT/Clear**" key to subtract accumulation values. This function is available only in accumulation mode.

● **Nothing on the pan.**
If you make a mistake or want to cancel the last value, press, "**UNIT/Clear"** key with nothing on the pan. Then the last value will be subtracted from total.

● **A weight on the pan.**
If you want to subtract any weight from total, just place any weight on the pan and press "**UNIT/Clear"** key.
Note : 1) When you press "**UNIT/Clear"** key to subtract a weight from total, the accumulation count will be reduced one by one.
2) No matter what way you choose, you can't continuously do the subtraction. It is possible only when new value has been accumulated.
Namely, User must use this function once at a time.
3) When subtraction value is larger than total accumulated value, the display window will show "E6", and the current operation is ineffective.

6. USER PROGRAMMING FUNCTIONS

The scale has 8 parameters that can be set by the user. Press the "**COUNT/↑"** key for approx. 2 seconds to enter into Parameters Setting mode.

6.1 Backlight type

There are 3 options for backlight type. You can select its options by pressing "**COUNT/↑"** key.

Options: EL on, EL Au, EL off
(Default setting: EL Au)

EL on	Backlight ON: Backlight always is ON
EL Au	Backlight auto: Backlight will be going on automatically whenever the scale is loaded by objects weigh greater than 9 display resolution or any of keys is pressed. And it will be going off also automatically approx. 5 seconds after the scale returns to zero.
EL off	Backlight OFF: Backlight always is OFF

Note : The maximum battery life is achieved with the backlight turned off.
Press the "**TARE /Enter"** key in order to confirm and move to next setting.

6.2 RS-232 transmission method

There are 6 options for output transmission method. You can select its options by pressing "**COUNT/↑"** key.

Options: AU on, AUL on , AU off, AUL off, P Cont, OFF

`

(Default setting: AUL off)

AU on	Place on the weight, and the stable mark shows on the left of the display, the scale prints all the data automatically. (ex. DEP-50 ticket printer)
AUL on	Place on the weight, and the stable mark shows on the left of the display, the scale prints all the data automatically. (ex. DLP-50 label printer)
AUd on	Place on the weight, and the stable mark shows on the left of the display, the scale prints all the data automatically. (ex. BP-DT-4 label printer)
AU off	Place on the weight, and the stable mark shows on the left of the display, Press the **PRINT** key to print the data. When nothing put on the scale, Press the PRINT key to print the total data. (ex. DEP-50 ticket printer)
AUL of	Place on the weight, and the stable mark shows on the left of the display, Press the **PRINT** key to print the data. When nothing is on the scale, Press the **PRINT** key to print the total data in bar code. (ex. DLP-50 label printer)
AUd of	Place on the weight, and the stable mark shows on the left of the display, Press the **PRINT** key to print the data. When nothing is on the scale, Press the **PRINT** key to print the total data in bar code. (ex. BP-DT-4 label printer)
P Cont1	Series transmit.
P Cont2	Series transmit.(CAS 22 bytes)
ID num	Device ID setting (0 ~ 9)
OFF	None data is transmitted. When the scale receives specific request from peripheral device, the scale will send weight data to peripheral device.

Note : 1) When Gross weight is Negative Value, Output is not be transmitted by pressing "**PRINT"** key. But in series transmission, negative value can be transmitted automatically.

Press the "**TARE /Enter"** key in order to confirm and move to next setting.
Press the "**COUNT**" key in order to increase number in ID num menu.

`

6.3 Label format setting (available when a label printer is connected)

When you want to use label printer, should store a label format to Label printer by using editor program on PC first.
The stored label format name should be “form 0 ~ form 9”.

1. Press “**COUNT/↑”** key to choose a format name.

Options: Form 0 - Form 9
(Default setting: Form0)

2. Press the **“TARE /Enter”** key in order to confirm and move to next setting.

6.4 Baud Rate setting

There are 4 options for baud rate option. You can select its options by pressing “**COUNT/↑”** key.

Options: 1200, 2400, 4800, 9600
(Default setting: 9600)

Press the “**TARE /Enter”** key in order to confirm and move to next setting.

6. 5 RS-232 transmission method in accumulation mode

For selecting output method through RS-232C during accumulating, there are 2 options. You can select its options by pressing "**COUNT/↑"** key.
(Please refer to section 6.3)

Options : ACp on, ACp of
(Default setting: ACp on)

ACP on	When pressing "**M+/Exit"** key in order to add a data, an each of added data (weight or count) will be transmitted and printed out. Also, when pressing "**PRINT"** key, the total value will be transmitted.
ACP of	When pressing "**M+/Exit"** key in order to add a data, an each of added data (weight or count) will not be transmitted and printed out. Also, when pressing "**PRINT"** key, only the total value will be transmitted.

Press the "**TARE /Enter"** key in order to confirm and move to next setting.

Options : PM on, PM of
(Default setting: PM on)

PM on	Allow to print under minimum weight
PM of	Not allow to print under minimum weight

`

6. 6 Zero tracking range

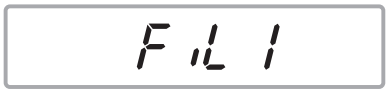
There are 4 options for zero tracking range. You can select its options by pressing "**COUNT/↑"** key.

Options: 0.5d, 1d, 2d, 4d
(Default setting: A2 1d)

Press the "**TARE /Enter**" key in order to confirm and move to next setting.

6. 7 Stable class range

There are 3 options for stable class range. You can select its options by pressing "**COUNT/↑"** key.



Options: 0 = 0
1 = 0.3d
2 = 0.6d
3 = 0.9d
(Default value: 1=0.3d)

Press the "**TARE /Enter"** key in order to confirm and move to next setting.

Note: The smaller number is the shorter time for display stability.

6.8 Selection of the available units

(Only US Version)

There are 2 kinds of unit: kg, lb

1. When the display show "**Unit**", press "**TARE/Enter"** key to enter into the available units selection setting.

2. The first unit is "kg".

"kg" can not be set OFF cause it is default unit in the scale.

3. The second unit is "lb".
   When you meet a unit, press "**COUNT/↑**" key to set ON or OFF.
   After set each of unit ON or OFF, press "**TARE/Enter"** key to go back to normal weighing mode.

NOTE: 1) A unit can not be exchanged in counting mode, or when tare function performed.
2) In accumulation mode or check-weighing setting is available, give a long press of "**UNIT/Clear**" key to exchange the unit. However the accumulation value or the check-weighing setting will be cleared automatically.

`

7. BATTERY OPERATION

The scale can be operated from the battery if desired. The battery life is approximately 80 hours.
When the battery needs charging a symbol "  " on the weight display will turn on. The battery should be charged when the symbol is on. The scale will still operate for about 10 hours after which it will automatically switch off to protect the battery.

To charge the battery, simply attach the power supply module to the scale and plug in. The scale does not need to be turned on.

The battery should be charged for 12 hours for full capacity.

There is an LED to indicate the status of battery charging on the right of display. When the scale is plugged into the mains power the internal battery will be charged.

Green: The battery has been charged.
Red: The battery is nearly discharged

As the battery is used it may fail to hold a full charge. If the battery life becomes unacceptable then contact your distributor.

Note: The battery should be recharged every 3 months if the scale is not used for long time.

8. RS-232 OUTPUT

The scale can be ordered with an optional RS-232 output.

8.1 Mode EIA-RS 232 C's UART signal
8. 2 Format(Au on/off)

Baud rate: 9600 BPS
Data bits: 8 BITS
Parity bit: No
Stop bit: 1 BIT
Data format: Code ASCII
Connector: 9 pin socket
Pin2 Input
Pin3 Output
Pin5 Signal Ground

8. 3 Transmit format (Au on/off)

DEP-50 form(Au off):

● ACP is set to be on, then press M+/Exit key to output each accumulated value. Press PRINT key to transmit total accumulated values and accumulated times. (Please refer to the section 7.5).

Weighing mode:

```
========WEIGHT========
    Weight:        10.00 kg
      Weight:       10.00 kg
      Weight:       10.00 kg
      Weight:       -9.90 kg
      Weight:       10 .00kg
      Weight:       - 1.4 0kg
      Weight:       10 .00kg
      Weight:       10 .00kg
……..……..……..……..……..
     Total:        48.70 kg
    Count:         4 times
```

`

Counting mode

```
========COUNT========
  Quantity:      20 pcs
  Quantity:      23 pcs
  Quantity:     -23 pcs
  Quantity:      23 pcs
  Quantity:      - 3 pcs
 ……..
    Total:      40 pcs
    Count:      1 times
```

Note: In accumulation mode, when the total weight/pcs is"0" and the count is not "0", the count of results will be "0". Take weighing mode for instance.

Weighing mode:

```
 ========WEIGHT========
 Weight:     1.50 kg
 Weight:      4.00 kg
 Weight:     -5.50kg
 ……..
  Total:     0.00 kg
  Count:     0 times
```

When total weight/pcs is more than "0" and real count times is "0", the results of count times won't be "0". For example:

Counting mode:

```
 ========WEIGHT========
  Quantity:      90 pcs
  Quantity:     -56 pcs
  Quantity:      90 pcs
  Quantity:     -56 pcs
 ……..
    Total:      68 pcs
    Count:      1 times
```

● ACP is set off, the scale is in accumulation mode, and limit values are not set. Press PRINT key to output the total accumulated value and times.

Weighing mode:

```
……..
Total:        48.70 kg
Count:        4 times
```

Counting mode:

```
……..
Total:        40 pcs
Count:        1 times
```

● When the accumulation is not used and limit values are not set, press PRINT key to transmit the value showing in display window.

Weighing mode:

```
-Weighing Function-

========WEIGHT========
Weight:        9.00 kg
Tare:          2.00 kg
Gross:         11.00 kg
```

Counting mode:

```
-Counting Function-

========COUNT========
Weight:        17.40 kg
U/Weight:        900 g
Quantity:        19 pcs
Tare:          2.90 kg
Gross:         20.50 kg
```

Percentage mode:

```
-Percentage Function-

========PERCENT========
Weight:        17.60 kg
Percent:        95.02 %
Tare:          2.80 kg
Gross:         20.40 kg
```

`

● When the Accumulation function is not used and the limit values are set. And transmit by pressing PRINT key:

Weighing mode:

```
          - Weighing Function -
   ========WEIGHT========
     Weight :          11.30 kg
     Tare   :           3.20 kg
     Gross  :          14.50 kg
+-------------------------------+
| - WEIGHT LIMIT SET VALUE -    |
|  Limit(H) :          30.00 kg |
|  Limit(L) :          10.00 kg |
+-------------------------------+
```

Counting mode:

```
          - Counting Function -
    ========COUNT========
     Weight   :          10.00 kg
     U/Weight :            500  g
     Quantity :             20 pcs
     Tare     :           0 00 kg
     Gross    :          10.00 kg
+-----------------------------+
| - COUNT LIMIT SET VALUE -   |
|  Limit(H) :           50 pcs |
|  Limit(L) :           10 pcs |
+-----------------------------+
```

Percentage mode:

```
          - Percentage Function -
   ========PERCENT========
     Weight  :          11 40 kg
     Percent :           26.02%
     Tare    :           0.90 kg
     Gross   :          20.40kg
+-------------------------------+
| - PERCENT LIMIT SET VALUE -   |
| Limit(H) :            50 pcs  |
| Limit(L) :            10 pcs  |
+-------------------------------+
```

`

DEP-50 form (Au on):

The scale transmits data automatically when it is stable. In this mode, press "**M+/Exit"** key to accumulate weight / pcs, but it doesn't transmit total weight / pcs and count by pressing "**PRINT"** key.

Weighing mode:

Weight: 0.90 kg
Weight: 12.00 kg
Weight: 0.90 kg

Counting mode:

Quantity: 10 pcs
Quantity: 34 pcs
Quantity: 50 pcs

Percentage mode:

Percent: 21.33 %
Percent: 51.04 %
Percent: 27.62 %

8.4 Format (PCont1 : series transmission)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HEAD1		,	HEAD2		,	DATA								UNITS				CR	

HEAD1 (2 BYTES) HEAD2 (2BYTES)

OL-Overload, NT-NET Mode

ST-Display is Stable GS-Gross Weight

US-Display is Unstable

DATA (8BYTES)

2D (HEX) ="-" (MINUS) 20(HEX) =" " (SPACE)

2E (HEX) =". "(DECIMALPOINT)

UNIT (4BYTE):

lb-20 (HEX); 6C (HEX); 62 (HEX); 20 (HEX)

kg-20 (HEX); 6B (HEX); 67 (HEX); 20 (HEX)

8.5 Transmit format(PCont1 : series transmission)

EX+0.876kg, when it is stable and gross weight as:

HEAD,	HEAD,	DATA	UNIT	CR
ST	, GS,	+ 0.876	kg	0D 0A

EX-1.568lb, when it is unstable and net value as:

HEAD,	HEAD,	DATA	UNIT	CR
US	, NT,	- 1.568	lb	0D 0A

EX, when it is overloaded and net value as:

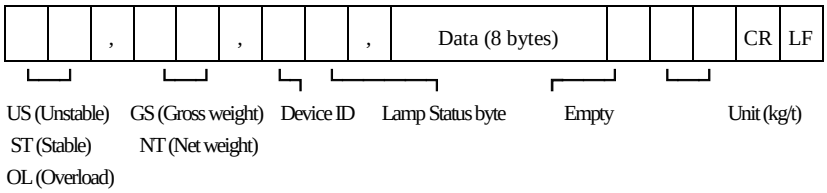
HEAD,	HEAD,	DATA	UNIT	CR
OL	, NT,	--------	kg	0D 0A

8.6 Transmit format(PCont2 : series transmission)

22 Bytes for CAS

(1) Baudrate : 1,200bps ~ 9,600bps
(2) Data bit: 8, Stop bit: 1, Parity bit: none
(3) Code: ASCII

(4) Transmission Data Format (22 bytes)



▣ Device ID: Send ing1 byte of device ID to selectively receive the information from the indicator to the receiver. (Device ID is set in PCont.2)

▣ Data (8 bytes): When the weight date including a decimal, for example, 13.5 kg, 8 bytes of ASCII code corresponding to ' ', ' ', ' ', ' ', '1', '3', '.' and '5' are sent.

▣ Lamp Status Byte

Bt7	Bt6	Bt5	Bt4	Bt3	Bt2	Bt1	Bt0
1	Stable	0	Hold	Printer	Gross Weight	Tare	Zero Point

8.7 Format (OFF)

When the scale receives specific request from peripheral device, the scale will send weight data to peripheral device.

"ENQ" -> 05H "EOT" -> 04H
"ACK" -> 06H "DC1" -> 11H
"NAK" -> 15H "SOH" -> 01H
"STX" -> 02H "ETX" -> 03H
"DC1" ->11H

SOH	STX	STA	SIGN	W6	W5	W4	W3	W2	W1	W0	UN1	UN0	BCC	ETX	EOT
COMMANDS		DATA BLOCKS												COMMANDS	

REMARKS:

STA → A weigh status of the scale

Scale is stable → " S ", not stable → " U "

SIGN → Sign of the weight data

Zero and positive weight → " ", negative weight → " - "

Overload → " F "

W6 through W0 → weight data

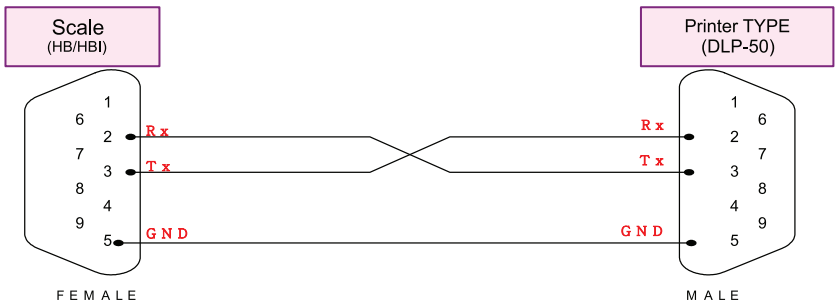
But all " F "s when the scale is put on overload.

UN1 through UN0 → unit of weight (kg or Ib)

8.8 DLP-50 Print-out Format

(* with EAN13 barcode)

8.9 The wire connections



`

8. 10 key Command (PC → Scale)

Command(1byte)		Weighing Mode
Char.	Hex	
L (l)	0x4C	Same as **CHECK/←** key
	0x6C	
C (c)	0x43	Same as **COUNT/↑** Key
	0x63	
R (r)	0x52	Same as **%/→** Key
	0x72	
U (u)	0x55	Same as **UNIT/CLEAR** Key
	0x75	
M (m)	0x4D	Same as **M+/Exit** key
	0x6D	
P (p)	0x50	Same as **PRINT** Key
	0x70	
Z (z)	0x5A	Same as **ZERO** Key
	0x7A	
T (t)	0x54	Same as **TARE/ENTER** Key
	0x74	
H (h)	0x48	Same as **HOLD** Key
	0x68	

9. AUTO CALIBRATION (can be done in kg, lb)

Give a long press of TARE/Enter key in normal weighing mode without performing Tare function. When the display is flashing and showing the weight value, put on the mass. While the scale is stable, the display will be back to zero automatically.
Please take away the mass while scale is counting backward. The auto calibration is finished.
By pressing the "**COUNT/↑"** key the weight value can be selected (1/3 Full weight, 2/3 Full weight and 3/3 Full weight).

★ **This calibration instruction is NOT for US market.**

10. RECOVERY OF THE DEFAULT CALIBRATION VALUE FROM MEMORY

When a mistake is happened during calibration or parameter is set incorrectly, this function should be useful.

Operation:
Turning on the scale, press the "**TARE+TARE+COUNT+COUNT+COUNT"** keys orderly during self-check. Then, the scale will begin the self-check again. It means that the scale will come back with a default calibration value.

`

11. Variables (The prompt character) used in scale also in label printer

(DLP-50)

Variable name	Effective Qualification	Specifications	Size
SER	Weighing/counting	Accumulated times	2 byte
NWA	Weighing/counting/percent	Net weight	7 byte
NWB	Weighing/counting/percent	Net weight(no dot)	6 byte
NWP	Weighing	Right shifting digit of NWB	1 byte
TWA	Weighing/counting/percent	Tare weight	7 byte
TWB	Weighing/counting/percent	Tare weight (no dot)	6 byte
TWP	Weighing	Right shifting digit of TWB	1 byte
GWA	Weighing/counting/percent	Gross weight	7 byte
GWB	Weighing/counting/percent	Gross weight (no dot)	6 byte
GWP	Weighing	Right shifting digit of GWB	1 byte
TNA	Weighing	Total net weight	7 byte
TNB	Weighing	Total net weight(no dot)	6 byte
TNP	Weighing	Right shifting digit of TNB	1 byte
TTA	Weighing	Total Tare weight	7 byte
TTB	Weighing	Total Tare weight(no dot)	6 byte
TTP	Weighing	Right shifting digit of TTB	1 byte
TGA	Weighing	Total Gross weight	7 byte
TGB	Weighing	Total Gross weight(no dot)	6 byte
TGP	Weighing	Right shifting digit of TGB	1 byte

Variable name	Effective Qualification	Specifications	Size
UWA	Counting	Unit weight	7 byte
UWB	Counting	Unit weight (no dot)	6 byte
QUA	Counting /percent	Quantity	7 byte
QUB	Counting /percent	Quantity (no dot)	6 byte
TQA	Counting	Total Quantity	7 byte
TQB	Counting	Total Quantity (no dot)	6 byte
CHA	Weighing/counting/percent	High Limit	7 byte
CHB	Weighing/counting/percent	High Limit(no dot)	6 byte
CLA	Weighing/counting/percent	Low Limit	7 byte
CLB	Weighing/counting/percent	Low Limit(no dot)	6 byte
UNT	Weighing/counting/percent	Weighing Unit	2 byte
UWU	Weighing/counting/percent	Weighing unit in counting mode	2 byte

Note: 1) ** P variable: The weight accumulation value exceeds 6 digits, but it can achieve 6-digit display through righting decimal point. (One or two digits behinds the decimal point won't display after being rounded)
** B variable: It would be wrong if not considering the decimal point.
2) The variable can't be less than 0.
Moreover, the negative value will not be transmitted

`

(BP-DT-4)

Variable name	Effective Qualification	Specifications	Size
V0	Weighing/counting	Accumulated times	2 byte
V1	Weighing/counting/percent	Net weight	7 byte
V2	Weighing/counting/percent	Net weight(no dot)	6 byte
V3	Weighing/counting/percent	Tare weight	7 byte
V4	Weighing/counting/percent	Gross weight	7 byte
V5	Weighing	Total net weight	7 byte
V6	Weighing	Total net weight(no dot)	6 byte
V7	Counting	Unit weight	7 byte
V8	Counting /percent	Quantity (no dot)	6 byte
V9	Counting /percent	Quantity (comma)	7 byte
V10	Counting	Total Quantity	7 byte
V11	Weighing/counting/percent	Weighing Unit	2 byte
V12	Weighing/counting/percent	Weighing unit in counting mode	2 byte
V13	Weighing/counting/percent	High Limit	7 byte
V14	Weighing/counting/percent	Low Limit	7 byte

Note: All variable will be transmitted when BP-DT-4 prints out.

12. ERROR CODES

During the initial power-on testing or during operation it is possible the scale may show an error message. The meaning of the error messages is described below.

If an error message is shown repeat the procedure that caused the message, turning the scale on, calibration or other functions. If the error message still is shown then contact your dealer for further support.

ERROR CODE	POSSIBLE CAUSES	HANDLING
E1	EPROM data lose.	Re-calibrate the scale
E2	1.Load cell damaged.	1.Replace the load cell.
	2.Turn on the scale with something on the pan.	2.Correct the operation.
E3	The sample weight for setting up Percent weighing is much less than the weight on the pan.	Correct the operation.
E4	The sample weight is less than 10d.	Increase the weight on the pan.
E5	Wrong values are inputted. (when Hi is less then LO)	Reset the limit values.
E6	The subtraction value is larger than the total accumulated value	Correct the operation.

`

13. TECHNICAL DATA_HB

kg Version	Capacity	**30kg**	**75kg**	**150kg**	**250kg**
	Readability(e=d)	0.002kg	0.005kg	0.01kg	0.02kg
	Resolution	1/15,000	1/15,000	1/15,000	1/12,500
lb Version	Capacity	**60lb**	**150lb**	**300lb**	**500lb**
	Readability(e=d)	0.005lb	0.01lb	0.02lb	0.05lb
	Resolution	1/12,000	1/15,000	1/15,000	1/10,000
Internal Resolution		1/600,000			
Display Type		LCD			
Display Indicators		Stability, Center of Zero, Gross, Net, Battery status, Hi-Ok-Lo, Units			
Hi-Lo Check Indicators		Display with Alert beeper			
Weight Units		kg, lb			
Zero Range		±2%			
Tare Range		Full Capacity by Subtraction			
Stabilization Time		≤2 seconds			
Operation Temperature		0℃ ~ 40℃ / 32℉ ~ 104 ℉			
Humidity Range		≤90% relative humidity, non-condensing			
Power		AC Adaptor 12V/800mA Internal rechargeable sealed acid battery			
Battery Life		80 hours continuous use with 12 hour recharge time			
Calibration		Automatic external with kg/lb mass, factory calibration recovery			
Safe Overload Capacity		120% of capacity			
Product Weight		Approx. 15kg			
Dimension(mm)		400(W) x 630(D) x 750(H)			
Pan Size(mm)		400(W) x 500(D)			

Loadcell Excitation	DC 5~12V
Loadcell connection(350 Ω)	1ea
Zero Input Range	2.0%F.S
Input Sensitivity	2.0 (±0.1mV/V)
Class of accuracy	Class II, n=15,000
Capacity	Any value
Internal Resilution	1/600,000
Display	LCD(6 digitis)
Weight Units	2 available units(kg, lb)
Power	DC 12V adaptor, 6V/5Ah rechargeable battery
Operating Temp.	0℃ ~ 40℃
Product size / Weight	220(W) x 159(D) x 107(H) / Approx. 1.5kg
Interface	RS-232C

TECHNICAL DATA_HBI

`

MEMO

HB/HBI

Bench Scale / **Weighing** Indicator

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