

twilight

INSTRUMENTOS DE MEDICIÓN INDUSTRIAL

Balanza Digital para Pintura

BL-ESP10K

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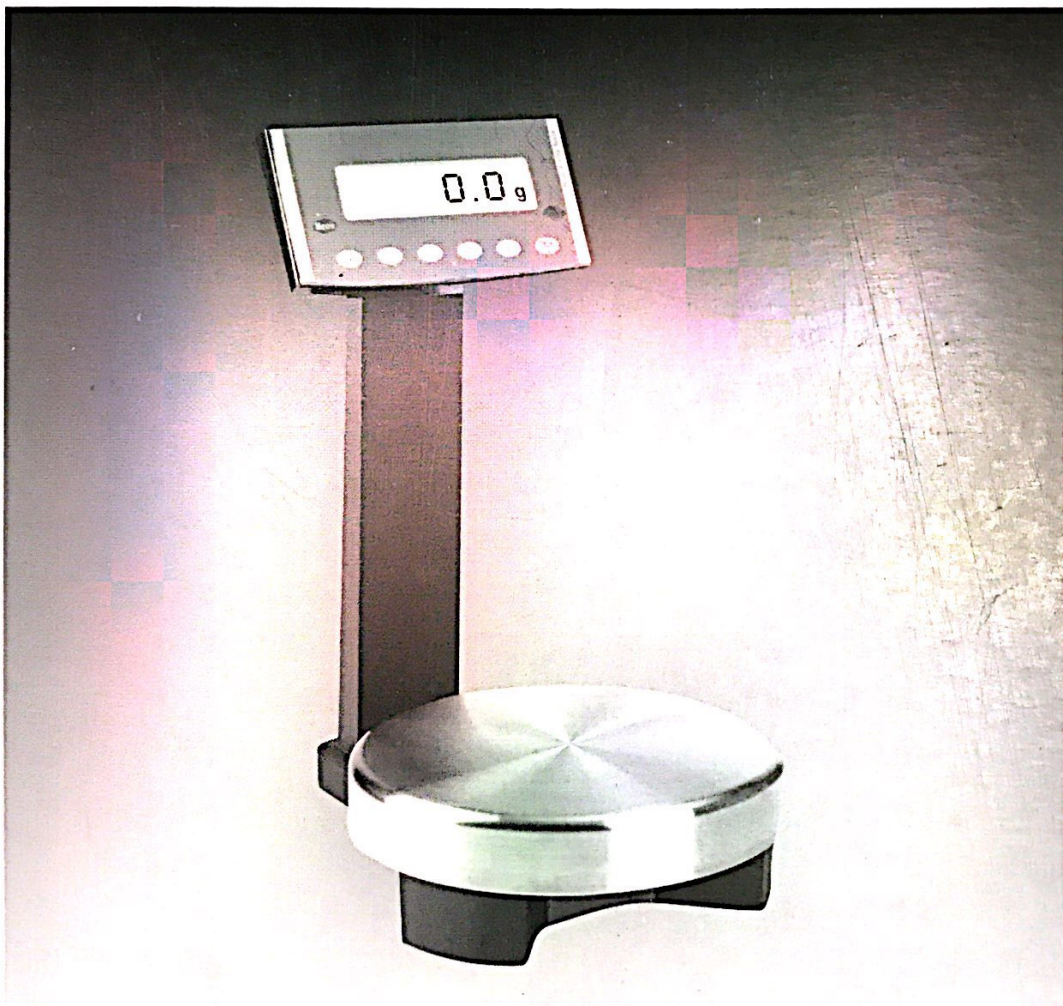
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Precision Paint Mixing Balance

Owner's Manual



Precision Industry Paint Electronic Balance Owner's Manual Table of Content

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1.Features of paint electronic balance

- High Accuracy
- Recalculation function
- Percentage weight
- Standard RS232 Communication Port
- Independent Console
- Multiple Weighing Unit
- Automatic Calibration
- Large LCD displayer
- Accessories displayer
- Counter percent weighing
- Stainless large pan,
- Over-weighing protect
- Monitor height angel adjustable

2.Key Board Function

CAL: Instruct the balance to accept calibration data

TARE: Assigns the pan and whatever is currently being weighed a value of zero.

POWER To turn the display off, To turn the display on press this key again.

UNIES Convert weighing unit (for example, change from grams to ounces).

PRINT Sends to a printer or other peripheral device the information on the display.

- PERCT** Instruct the balance to display percent weight
- COUNT** Determines a stable reference point and displays the preprogrammed. Sample sizes (10, 25, 50,100,500 ,1000).
- MENU** Instruct the balance to enter the MENU sys

3.Display Message

- Ok** Reading shown is stable.
- G** Reading shown is given in grams.
- Oz** Reading shown is given in ounces.
- Ct** Reading shown is given in carat.
- Dwt** Reading shown is given in pennyweight
- %** Reading shown is given in as a percent weight.
- PCS** Reading shown is given in as a counting
- The balance is developing a stable reading
- Unable** The balance is unable to perform your requested operation. Press the TARE key and select another operation.
- HHHHHH** The weight on the pan exceeds the capacity of the balance.
- LLLLLL** The pan is not properly seated or has been removed.

4.Basic Weighing

To weigh a sample on your balance, use the following

procedure:

1. Press the TARE key to zero the display.
2. Place the object to be weighed on the pan.
3. Wait for the “ok” indicator, and then read the weight from the display.

5. Weighing with a Container

To weigh object or liquids without including the weight of the container, use the following procedure:

1. Place the empty container on the pan. Press the TARE key, the balance will display “-----” and return to zero.
2. Wait for the “ok” indicator, place or pour object or liquids into the container.
3. Wait for the “ok” indicator, the net weight will be displayed.

6. Converting Weighing Units

Your balance is capable of weighing in any of the unit listed in the “LCD INDICATORS” portion of this manual. To convert from one unit to another, simply press the UNIT key. Each time you press the key, the display convert to the unit

7. Counter Mode

To count a number of like object on the balance, use

the following procedure:

1. Place a container on the balance, press the TARE key.
2. Press the COUNT key, each time the key is pressed requested sample size will increase(i.e.,10,25,50,100,500 PCS) .
3. Place the requested number of pieces in the container, press the UNIT key.
4. Fill the container to the desired number of pieces.
5. Remove the pieces from the container and press the UNIT key to return to the weight display.

8.Percent Deviation

To calculate the amount by which a weight varies from a reference, follow this procedure:

1. Press the TARE key to zero the display.
2. Place the reference weight on the pan.
3. Press the PERCT key. After acquiring a stable reading, the display will read “100.0” ,or “ 100.00” depending on the amount of weight applied and the % LCD will be lit.
4. Press the TARE key, after acquiring a stable reading, the display will read “0.00” or “0.0” depending on the amount of weight applied. This display now shows percent deviation.
5. Remove the reference weight.

-
6. Place the weight to be measured on the pan.
 7. Wait for the "ok" LCD to light, read the display, the display indicates percent deviation from the reference.
 8. Remove the weight.
 9. Repeat step 6-8 as many times as desired.
 10. Press unit to return to weighing.

Note: to display a % of a reference weight, skip step 4.

9.The RS232 Interface Hardware

Your balance can communicate with almost any RS232 device, the build-in interface does not include the complete protocol. Only the transmit and receive lines of the standard interface are used. This should not present any interfacing problems in most applications.

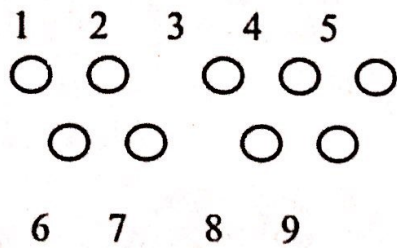
The data format is

- 1 start bit
- 8 data bit include parity
- 1 stop bit
- 10 bit per frame (framing errors ignored)

Note: the balance will transmit using the parity selected. However it does not check the parity it receives. Use an RS232 cable to connect the external device to the balance, or construct one following the instructions below.

Connect a high quality, shielded cable with a DB9S

following printout:



Note: “handshake” signals, such as “clear to send” (CES) are not used. The peripheral must have a minimum buffer (15 characters).

pin	description
2	TXD- scale transmit data
3	RXD-scale receives data
5	RRD- signal ground

10. Calibration

Perform a span calibration, use the following procedure:

1. Press the TARE key to zero the balance.
2. Press the CALIB key and the balance will display it's full scale capacity calibration point. To calibrate the balance at full scale go to step 3. To calibrate at one half of the full capacity, go to step 4.

3. Place the calibration weight on the pan and press the CALIB key. The display will read “ACAL” and then display the value of the weight on the pan. The balance is now in the normal weighing mode. Once the weight is removed from the pan, the display will return to zero. To restore the factory calibration, press the TARE

key twice in step 3 to display "USPAN" the press the COUNT Key, to escape, press the TARE key three times in step 3 to display "ESC" then press the COUNT Key.

4. Press the TARE key and the balance will display the capacity which is half of full scale. Go to step 3 to finish the calibration procedure.

Note: if the test weight varies by B 1% from the factory calibration, the span calibration will not be accepted and "NOCAL" will be displayed.

11.Setting the Print Function

The PRINT key can be setup to send readings to a printer or computer under different parameters via the RS232 port. The selectable print function is: stable print which will only print once a stable reading is attained. Instant print which will print immediately after the print key is pressed (note: the reading may not be stable) and interval print which may be programmed to print at predetermined time intervals. The number of line feeds also is set for label printing. The print function is separate from the line feed setup, i.e., set the print function first then re-enter the print MENU to program the number of line feeds. To set the print key function, use the following procedure: COUNT Key. The balance will then return to

the normal weighing mode.

To set the print key function, use the following procedure:

1. Press the MENU key, the display will read "PRINT" . Note: to escape anytime during this procedure, press the TARE key until "ESC" is displayed, and then presses the COUNT Key.

2. Press the COUNT Key to enter the print menu. The display will read "STABLE" for stable print.

a. For stable print

Press the COUNT Key to select the stable print mode. The balance will return to the normal weighing mode.

b. For instant print

Press the TARE key once to display "INSTAN" for instant and then press the COUNT Key. The balance will return to the normal weighing mode.

c. For interval print

Press the TARE key twice to display "INTER" for interval print and then press the COUNT Key, proceed to step 5.

d. For line feed.

Press the TARE key three times to display "LINEFD" for line feed and then press the COUNT Key. Proceed to step 6.

seconds) press the TARE key repeatedly. When the desired time interval is displayed, press the COUNT Key. (Select zero for continuous printing.) The balance will then return to the normal weighing mode. Pressing the PRINT key will print the displayed weight after each selected time interval (e.g., 90 seconds). To interrupt the interval printing presses the PRINT key again. To reactivate, press the PRINT key.

Note: Print intervals can vary up to 0.2 seconds depending on weight variations.

4. To view the preset number of line feeds available (0~18) press the TARE key repeatedly. When the desired number of line feeds is displayed, press the COUNT Key. The balance will then return to the normal weighing mode.

12.Setting the Baud Rate

The balance is capable of interfacing with a wide variety of computer devices. To set the baud rate (the rate at which the scale communications with a computer or printer) and parity, use the following procedure:

1. Press the MENU key, the display will read "print"
2. Press the TARE key, the display will read "baud" .

Note: to escape anytime during this procedure, press the TARE key until “ESC” is display and presses the COUNT Key.

3. Press the COUNT Key to enter the baud rate menu. The display will read 300. To view the other baud rates press the TARE key repeatedly.

4. When the desired baud rate is displayed, press the COUNT Key to select it. The display will then read “parity” .

5. Press the COUNT Key to enter the party menu. The display will read “NONE” for no parity. To view the parity menu press the TARE key.

6. When the desired parity (none, odd, even) is displayed, press the COUNT Key. The balance will then return to the normal weighing mode.

13.Enabling Unit of Measure

The unit function can be programmed to turn certain weighing unit on or off. To enable or disable certain unit of measure, perform the following procedure.

1.Press the MENU key, the display will read “PRINT”

2.Press the TARE key twice, to display the “UNIT” for the unit menu.

Note: to escape anytime during this procedure, press

the TARE key until “ESC”

is display and presses the COUNT Key.

3.Press the COUNT Key to enter the unit menu and the display will read “enable” .

4.Press the COUNT Key. The first selection display is “ g yes” which represent grams enabled. To enable grams press the COUNT Key. To disable grams, press the TARE key to display “ g no” , and then press the COUNT Key. These yes/no selections are also displayed for ounces (oz), carat(ct) and dwt.

Note: to enable or disable any unit of measure, the procedure outlined above must be completed for each unit. If you make a change and escape before finishing the.

14.Restoring the Factory Default Setups

The many features in this section allow the user to customize the balance to suit a particular application. However, in doing this it is possible to inadvertently set up the balance in such a way that it dose not operate as expected. To reset the factory default so that the :COUNT key will select display response rate, print key will print a stale reading, 2400 baud , no parity, all unit enabled. Perform the following steps:

1.Press the MENU key, the display will read

“PRINT”

2. Press the TARE key repeatedly until the display reads “INITIA” for factory default.

Note: to escape anytime during this procedure, press the TARE key until “ESC” is display and presses the COUNT Key.

3. Press the COUNT Key to restore the original factory default. The balance will display “BUSY” and then return to the normal weighing mode.

Note: restore the factory default will return your balance to the entire factory spans and temperature calibration settings. You must recalibrate (span) your balance after restoring the factory default. If you are experiencing a temperature included offset, you should also run the temperature compensation procedure.

15. Backlight Setups

The backlight function can be programmed to turn off after a certain interval seconds when there is no any operation. To enable or disable backlight, perform the following procedure.

1. Press the MENU key, the display will read “PRINT”

2. Press the TARE key repeatedly until the display reads “backlight” .

3. Press the COUNT Key, the display will be read "1 NIN" (after 1 minute will be off when there is no any operation)

4. Repeatedly press the TARE key until you select the desired time(1,2,3,5,10,30,60) , and then press the COUNT key. The balance will return to normal weighing mode.

Note: to escape anytime during this procedure, press the TARE key until "ESC" is display and presses the COUNT Key.

16. Weighing Using the Recalculation Mode

Let's suppose that you poured in too much of one color component for a given formula. The Recalculation Mode is a good way to correct the weight displayed to the same value you entered.

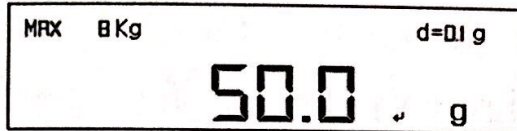
Follow the steps outlined below:

1. Press the MENU key, the display will read "PRINT" , press the TARE key repeatedly until the display read "REC OL" .

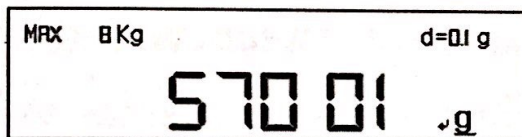
2. Press the COUNT key, press the TARE key repeatedly until the display read REC Y, press the COUNT key, access to the Weighting Using the Recalculation Mode.(REC N is exiting the Recalculation Mode; ESC is to keep default setting.)

3. Place an empty paint can on the weighing pan and press the TARE to zero the weight displayed.

4. Pour in the 1st component .50.0g.



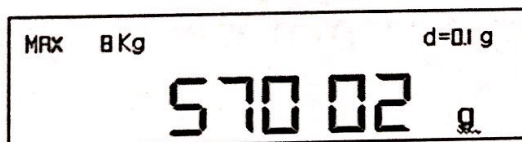
5. Press the PRINT key to reserve the weight displayed.



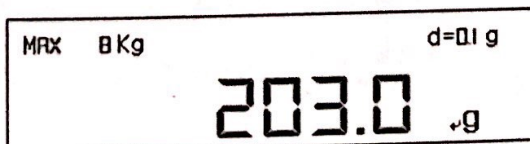
6. Pour in the 2nd component 60g. The screen display 110g.



7. Press the PRINT key to reserve the weight displayed. The screen display ST0 2.



8. Pour in the 3rd component. Suppose we decide to pour in 90g component.

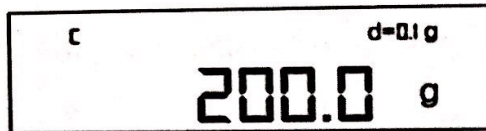


Oops! We poured in too much. The correct weight for the formula is 200.0g. But actually we poured in 93g.

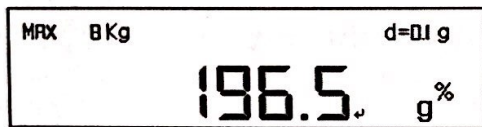
9. we need to adjust the factor. Press the % key. The screen display as below:



10. Repeatedly press the TARE Key will decreasing the display value and press the COUNT key will increasing it. Adjust display value to 200.0.

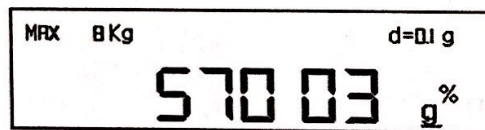


11. Press the CAL key, the screen will flash. Then press the COUNT Key. The screen will display as below:

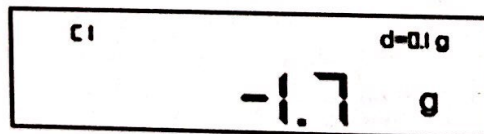


Note: the factor is : $93/90 \approx 1.033$ $203/1.033 \approx 196.5$

12. Press the PRINT key to reserve the value.

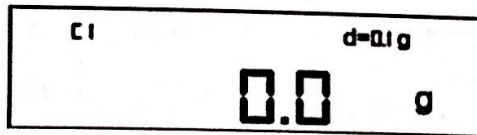


13. The screen display that Add the 1st component "1.7g" automatically. "C1" on the left of the screen will flash.



Formula: $50 * (1.033 - 1) \approx 1.7$

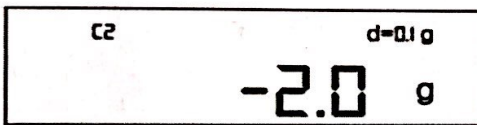
14. Re-Pour in the 1st component until 0.0g is displayed.



15. Press the PRINT key

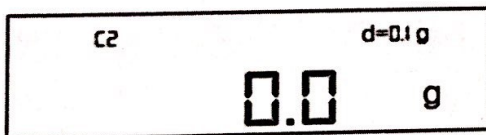


16. The screen display that Add the 2nd component "2.0g" automatically. "C2" on the left of the screen will flash.

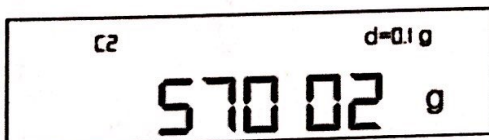


Formula: $60 \times (1.033 - 1) \approx 2.0$

17. Re-Pour in the 2nd component until 0.0g is displayed.



18. Press the PRINT key to reserve.

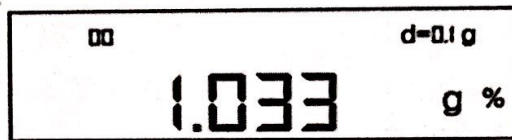


19. The screen automatically display the "200.0g" that we want to be. The value displayed is not the actual weight. Symbol is the "%" on the right of screen.



20. Press the MENU key, the display will

“ PRINT” , press the TARE key repeatedly until the display read “ DP RAT” .press COUNT key, the factor is displayed as below:



5 seconds later, factor displayed will back out.

21. Take the paint can off, press the TARE key will clear the factor. The screen will display normal weight.

Important note:

1. Each value reserved must larger 1g than previous one. If not, the screen will display “UNABLE” .

2. Reserve numbers must be less than 8. Otherwise, can lead to the Unknown Errors.

3. Only in the “%” displayed circumstances, could we inquiry the factor. Press the TARE Key, the factor will clear.

4. Press the TARE key, clear the reserve number. Restore, the number will be No1

6. If we want to restore the print function and percent deviation function. Please quit to Recalculation Mode .

17. Weighing Using the Percentage Mode

you Can adjust the formula coefficients to make the display Numbers reach expected effect, such as setting coefficient of 0.5, the screen shows the values for: the

quality of the actual value divided by 0.5.

1. Put the empty paint can on the scale, press Tare key to zero the weight displayed.

2. Press the MENU key, the display will read "PRINT", press the TARE key repeatedly until the display reads "CH RAT" and Press the COUNT key. Screen will display "SET DP." (to set the decimal position. Press Tare key repeatedly to choose the decimal position)

3. Press COUNT key to confirm the decimal position. The balance will display the initialization value. Press COUNT key to increase the value and press TARE key to decrease the value.

4 Set the desired value(for example setting 0.5),press CAL key then the choose value glitters. To continue the modification, press TARE key; Press COUNT KEY confirm the setting value.

5 Place the sample into the paint can., screen display value is 2 time than actual weight.

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