Precision Balance **FKC**

User Manual

v.201602

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1. LCD display with backlight or LED display with 7 digits.

2. Counting function.

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4. Four "AA" size batteries, outfit AC/DC adaptor.

5. With windbreak cover.

II. <u>Attentions</u>

1. Prevent it from getting wet.

2. Do not place the balance in an environment with extreme temperature or humidity.

3. Do not shock the balance and do not exceed the capacity.

III. <u>Preparations</u>

1. Before using the Balance, please take out the protection screw from the left of the balance, then plug up with the circular plastic cap. Otherwise, the balance will not work.

2. The balance must be in an exactly horizontal position in order to achieve accurate measurement results. The windbreak cover is necessary for high precision balance. Re-calibration before each use is preferable.
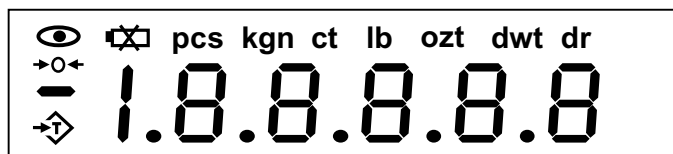
Please don't turn the balance on to work before the above items are well prepared.

IV. Display

LED display :

→0← →⬦̂⃗ 👁 ⊞ **pcs   g   ct   oz   ozt**

LCD display :

👁 ⟨☓⟩ **pcs kgn ct lb ozt dwt dr**
→0←
─
→⬦̂⃗ **1.8.8.8.8.8**
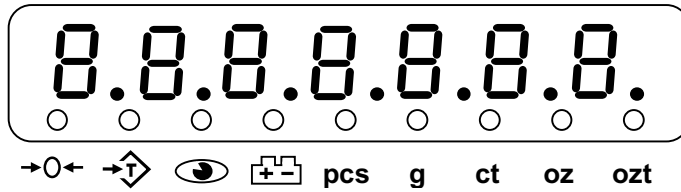
→0←   : " Zero" indicator.

→⬦̂⃗   : " Tare" indicator.

👁   : Indicate that the reading is Stable.

⊞   : "Power-Low" indicator.

pcs : Indicate that the balance is in counting mode.

ct   : Indicate that the unit is ct.

ozt : Indicate that the unit is ozt.

g   : Indicate that the unit is g

oz : Indicate that the unit is oz

gn : Indicate that the unit is gn (only for LCD).

lb : Indicate that the unit is lb (only for LCD).

t   : Indicate that the unit is t (only for LCD).

dwt : Indicate that the unit is dwt (only for LCD).

dr : Indicate that the unit is dr (only for LCD).

V. <u>Keypad functions</u>

⌨ : ON/OFF power switch.

⌨ : Sample key, used for sampling (for calculating the unit weight) in counting mode.

⌨ : For weight unit selection.

⌨ : Tare key, used to subtract the weight of an item or container. Press tare key again to exit the tare mode (when empty).

⌨ : Zero key, press this key to return the display to zero if a small weight reading is left while unloaded.

VI. <u>Operations</u>

Press ⌨ key to turn the balance on, the default mode is weighing mode.

Weighing mode

Weight units

Press ⌨ key to choose the needed unit.

Tare function

Put a container on the pan and press ⌨ when the display reading is stable. The tare weight will be stored into memory and display will be brought to zero. Tare indicator in the display will appear. The weight added here afterwards will be displayed as net weight. Remove both the container and the objects, the display will show the weight of the container companied by a negative sign. To cancel the tare mode, Press the Tare key again to cancel Tare mode**.**

※ Tare range : Up to balance's maximum capacity.

Zero function

Press ⎡→0←⎤ key to return the display to the center of zero if the zero Shifts during operation.

Counting mode

Sampling

1. Press ⎡∴∴⎤ key, the display will show " **Cnr 10 ".** Press the key

⎡ ↻ ⎤ again and again, 10、20、50、100 (pcs) will appear in succession. Stop at the one you

want to use.

2. Put the exact quantity of samples as desired on the pan and press ⎡∴∴⎤, the determined

sample size will be shown. After sampling, it's ready to count.

3. If the unit weight is too small (less than 0.8d) for the counting resolution, " **Err** " will be

shown.

4. In counting mode, press ⎡∴∴⎤ key will turn to weighing mode.

VII. <u>Error messages</u>

When the display shows " ━ ━ ━ ━ ━ ━ " and beep out a warning, it means that the balance

is overloaded. Please remove the object from the pan immediately so as to avoid damage to

the load sensor inside the balance.

VIII. <u>Instructions of RS-232 communication</u>(optional)

1. Model EIA-RS232 C's UART signal

2. Format

    (1) Baud rate : 1200 bps、2400 bps、4800 bps、9600 bps

    (2) Data bits :   8 bits

    (3) Parity bit :   none

    (4) Stop bit :   1 bit

    (5) Code ASCII

DATA FORMAT：

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

HEAD1 (2BYTES)   **HEAD2 (2BYTES)**

  US – unstable   **NT** – net weight mode

  ST – stable   **GS –** gross weight mode

  OL – overload

DATA (8BYTES)

  2D (HEX) =" - "(negative sign)   20 (HEX) ="   "(blank)

  2E (HEX) =". "(decimal point)

UNIT (4 BYTES)

  g   =20(HEX)；20(HEX)；20(HEX)；67(HEX)

  ct =20(HEX)；20(HEX)；63(HEX)；74(HEX)

Transmission example

  Ex. :   stable net + 0.168 g

 HEAD1，   HEAD2，   DATA   UNIT   CR

  ST ,   NT ,   + 0.168   g   0D 0A

IX. <u>Power supply</u>

Alternative Power Supplies

  1. Four "AA" size ALKALINE batteries(1.5V＊4)

  2. 5V / 0.6A AC/DC power adaptor

Low voltage indication

   When the voltage of the batteries is lower than a certain voltage the Power-LOW Indication

will be lighted up. the batteries should be replaced. Or else, the displayed reading will be

unstable and the balance will auto power-off when the voltage of the batteries is too lower.

X. <u>Calibration</u>

①Press and hold ➍0➍ key when power on, it will display "CAL.".

②After the stable indicator LED lighted, press ➍0➍ key, the screen will show "000000".

③To key in the value of the weight to be placed on the pan, press ⟳ key to shift the twinkling number; Press ⬚ to increase the value of twinkling number. (Decimal fraction is invalid.)

④Place a weight which value equal to the value just entered and after the reading is stable, press ➍0➍ key to complete external calibration, and the screen shown the value of the weight.

Note: The weight placed on the pan is not correct if the display shows " Err 1 ".

XI. <u>Setting filter parameters</u>

1. Press and hold the key ⬚ until display "**nb x**"(X is the smaller the speed slower).

2. Select the applicable parameter by pressing ⬚ key, and confirm the setting by pressing ➍0➍ key.

3. If the balance is LED display, it will show **"LED x"**(x-optional brightness parameters) after confirming filter parameters.

4. Select the applicable parameter by pressing ⬚ key, and confirm the setting by pressing ➍0➍ key. The parameters " **LED 0**" → "**LED 7**" means that the brightness is dark → bright.

XII. <u>Settings of Zero parameters and communication parameters</u>

1. Press and hold the key ⬚ to enter the setting of zero tracking range. The display will show "**0.0d**" or "**0.5d**" or "**1.0d**" or "**1.5d**" or

"**2.0d**" or "**3.0d**" after self-test.

2. Press ⬚ key to select and press ➍0➍ key to confirm and go to the setting of zero display range. The display on the screen is "**Zer-S**"

(invalid) or "**Zer-L**" (displays "0" while the weight within the range of ±3d).

3. Press ⬚ key to select and press ➍0➍ key to confirm and go to the setting of baud rate.

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The baud rate is 1200bps or 2400bps or 4800bps or 9600bps.

4. Press [⟷T⟲] key to select and press [→0←] key to confirm and go to

the setting of communication mode. The display on the screen is " **St** " (output when the reading

is stable) or " **Co** " (continue output).

5. Same as above, Press [⟷T⟲] key to select and press [→0←] key to confirm.

XIII. <u>Table of unit conversions</u>

1	ct	[MET.CARAT]	=	0.2	g
1	lb	[AVOIRDUPOIS POUND]	=	453.59237	g
1	oz	[AVOIRDUPOIS OUNCE]	=	28.349523125	g
1	dr	[AVOIRDUPOIS DRAM]	=	1.7718451	g
1	gn	[GRAIN](U.K)	=	0.06479891	g
1	ozt	[TROY OUNTCE]	=	31.1034768	g
1	dwt	[PENNY WEIGHT]	=	1.55517384	g
1	t	[TOLA](INDIA)	=	11.6638038	g

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Hi WEIGH
Weighing system & solution