



KILOTECH

KWS 2200

Weighing scale

Operation Manual

V5.13

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Need Help with Installation?

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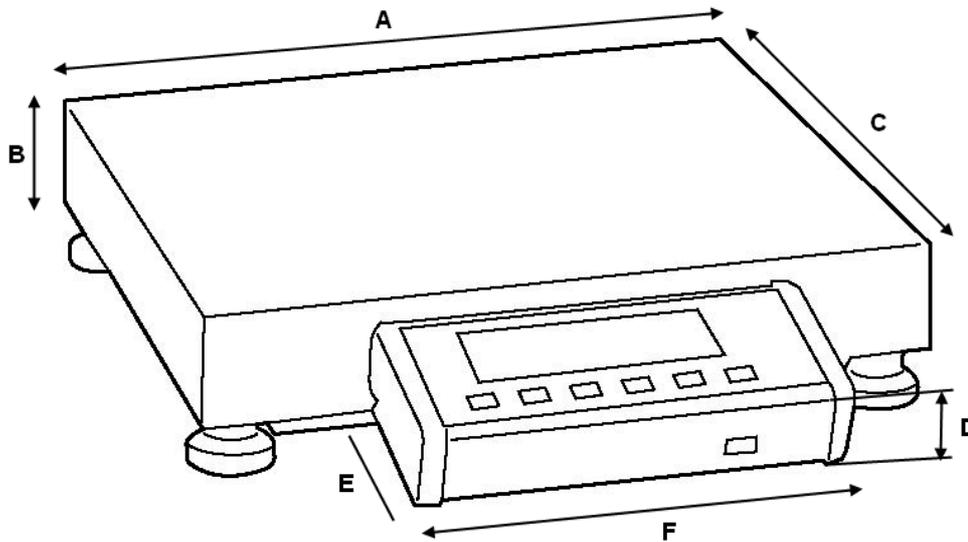
KWS 2200 weighing scale Operation Manual

Thank you for purchasing the KWS 2200 weighing scale. Please read all operating instructions carefully before use and keep the following points in mind:

- * Avoid lengthy exposure to extreme heat or cold, your scale works best when operated at normal room temperature. Always allow the scale to acclimate to a normal room temperature before use
- * Allow sufficient warm up time. Turn the scale on and wait for a few minutes if possible, to give the internal components a chance to stabilize before weighing.
- * These electronic scales are precision instruments. Do not operate near an in-use cell phone, radio, computer or other electronic device. These devices emit RF and can cause unstable scale readings. If your scale ever performs poorly, try moving the scale to a different room or location.
- * Avoid using in condition of heavy vibration and airflow.
- * Read the weight reading in short time after loading. The output signature of load cell and electronic circuit may be little influenced after weighing for a long time.

1. Specifications

1.1 Housing and Outline Dimension:



A	B	C	D	E	F
355mm (14")	82mm 3 (1/4")	305mm (12")	44mm (1 3/4")	89mm (3 1/2")	203mm (8")

1.2 Power Source options:

- AA Batteries (4x): The display segments will flash when the batteries are almost empty. When "Lo.bAt" is displayed, you must replace the batteries immediately and the indicator will turn off automatically after 10s.
- AC Adapter: 6-9V_{DC}, ≥500mA, central positive: 
- USB power supply

1.3 Real Clock:

built-in nonvolatile real time & date

1.4 Programmable settings:

- 1.4.1 pre-set tare weight
- 1.4.2 motion detection window
- 1.4.3 auto-power off time,
- 1.4.4 backlight working mode
- 1.4.5 hold function: (peak weight, dynamic weighing)
- 1.4.6 Check Weighing Mode;
Counting Mode;
Percentage Working Mode
- 1.4.7 Data Comparison and indicator of High, OK and Low is available in Weighing mode, Parts Counting mode and Percentage Working mode.
- 1.4.8 Battery voltage is low and charging indicator

-
- 1.4.9 Programmable what content will be output and when they are output on serial port.
 - 1.4.10 BMI function
 - 1.4.11 Available Measure Unit: kg, lb, lb:oz, PCS, %,

1.5 Display:

6-digit, 7-segment , 1"(25mm) LCDs with 16 annunciators and blue backlight

1.6 Keypad:

6 push buttons

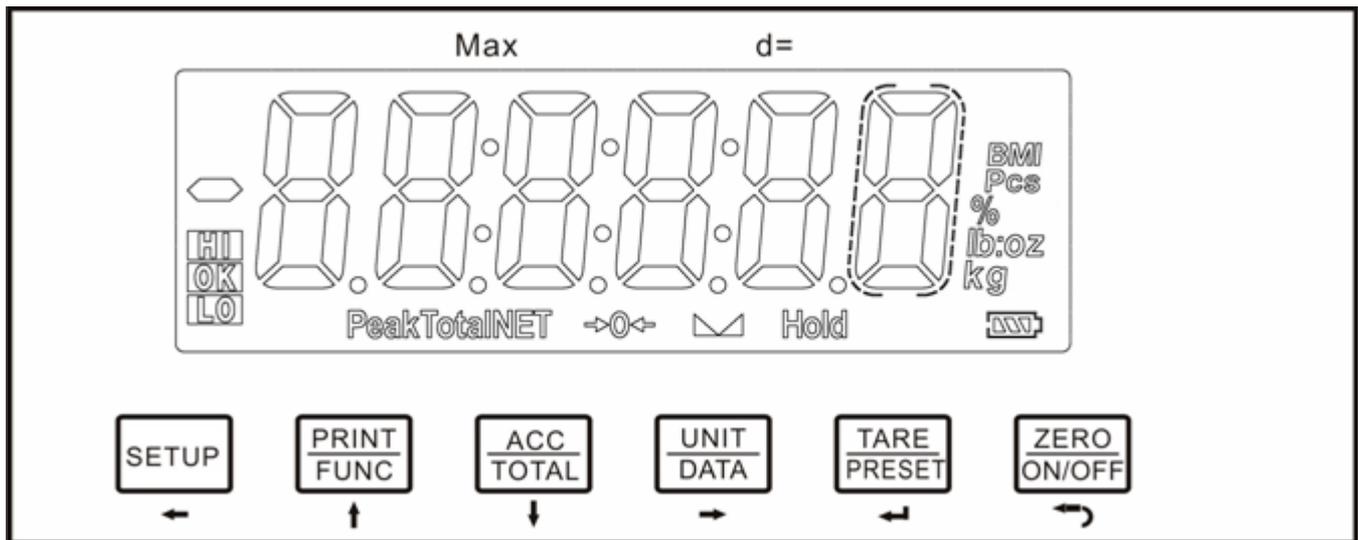
1.7 Environment:

- 1.7.1 Working temperature: -10°C to 40°C
- 1.7.2 Storage temperature: -20°C to 70°C
- 1.7.3 Humidity: 10 to 80% RH without condensation

1.8 Communication:

- 1.8.1 Serial port0: Full-duplex RS232
- 1.8.2 Serial port1: USB (Virtual RS232)
- 1.8.3 Baud Rate: Selectable: 1200-2400-4800-9600-19200-38400 bps
- 1.8.4 Data Output Format: 8N1, 7O1, 7E1
- 1.8.5 Protocol: programmable

2. Faceplate



Meaning of symbol on faceplate:

- 2.1  lights up when scale is stable
- 2.2  lights up when scale is at zero point and the gross weight is 0
- 2.3 **NET** lights up when net weight is displayed, and the tare weight is not 0
- 2.4 **TOTAL** lights up when display data is total times or total of weight, pieces or percentage
- 2.5 **lb** lights up when measure unit is lb or lb:oz
- 2.6 **oz** lights up when measure unit is oz or lb:oz
- 2.7 **kg** lights up when measure unit is kg
- 2.8 **%** lights up when in percentage weighing mode, measure unit is %
- 2.9 **Pcs** lights up when in counting mode, measure unit is pieces
- 2.11 **PEAK** lights up when PEAK-HOLD is active
- 2.12 **HOLD** lights up when HOLD mode is active
- 2.13 **HI** lights up when data compare is activated and current data (weight, pieces or percent) is over the upper setting limitation.
- 2.14 **OK** lights up when data compare is activated and current data (weight, pieces or percent) is within the set limits
- 2.15 **LO** lights up when data compare is activated and current data (weight, pieces or percent) is below the set limit
- 2.16  lights up when battery is used or charged

3. Summary of Key function

Key	Condition	Function
SETUP	Weighing/Counting/Percent, press down > 3s	To enter setup mode
	Input data mode, press down >3s	to input decimal point
←	Input data mode, press down <3s	Return to last sub-menu
	Menu selection mode	Return to last sub-menu
PRINT FUNC ↑	Weighing/Counting/Percent, press down <3s	Output data to serial communication port
	Weighing/Counting/Percent , press down > 3s	select working mode: weighing ,counting or percent
	Input data mode	The digit on flashed position add 1
	Menu selection mode	To last item of current menu
ACC TOTAL ↓	Weighing/Counting/Percent/BMI, press down <3s	ACCUMULATION function is enabled in configuration menu : To add up current weight/pieces/percentage to memory, display times and total of accumulation; in BMI working mode, to input height
	Weighing/Counting/Percent, press down >3s	ACCUMULATION function is enabled in configuration menu, To display times and total of accumulation
	Input data mode	the digit on flashed position subtract 1
	Menu selection mode	To Next item of current menu
UINT DATA →	Weighing mode, press down<3s	Change weighing units: kg->lb
	Counting/Percent mode, press down < 3s	To enter getting piece weight or unit-percentage-weight mode (by way of sample or input directly).
	Weighing /Counting/Percent mode, press down> 3s	To input compare data (for weight , pieces or percentage) of high and low limitation
	Display date or time mode, press down >3s	To set current date or time
	Display voltage mode, press down >3s	To calibrate input voltage value
	Display ADC code	Select displaying code from no-filter, filter1, filter2

	Input data mode	Rotate the flashed position from left to right
TARE PRESET ←	Weighing/Counting/Percent , press down <3s	Tare function
	Weighing/Counting/Percent , press down > 3s	To input pre-set tare weight at selected weight unit
	input data mode or Menu selection mode	To confirm input data or current item selection, and go to next item of current menu, or next operation
	Display ADC code	Set or clear “tare” code
ZERO ON/OFF →	Power off mode	Power on
	Weighing/Counting/Percent, press down <3s	Zero function
	Weighing/Counting/Percent, press down > 3s	Power off
	Input data mode	ignore modification
	Menu selection mode	Prepare to exit from current working mode

Note:

To access the secondary key function, you must press it for more than 3s.

4. Switch between operation mode:

Long press **FUNC** key, then use ↑ ↓ ← to choose and confirm to switch into weighing mode, counting mode or percentage mode

5. Normal Weighing mode

5.1 **Power on scale:** when scale is off, short press **ON/OFF** key to turn on;

Power off scale: when scale is on, long press **ON/OFF** key to turn off the scale.

5.2 **Switch units:**

Short press **UNIT** key

5.3 **ZERO:**

The ZERO key is used to return the scale to zero. The scale will display and error message when the scale is beyond zero range. When using a tare, the ZERO key is inactive.

5.4 **TARE:**

Place the item to tare on the platter and press the **TARE** key, the indicator will show zero, the NET annunciator will be lighted. Please refer the ZERO and TARE limitations in 4.9 sections.

5.5 **Preset tare weight:** long press **PRESET** key, Pr.Tare will show, and the TARE annunciator flashes, it means it is in preset TARE weight mode, use ← ↑ ↓ → ↶ to input tare weight. There's no limitation to preset tare weight, but must be greater than zero. Once you complete the setting of the tare weight, the "NET" annunciator will be lighted.

Note: you can only store one tare weight; the new tare weight will automatically replace the old one

5.6 **Clear tare weight:** remove all weight from the scale and short press **TARE** key.

5.7 **Limitation to ZERO and TARE** operation under different conditions:

Standard	Weight on platform	Data in TARE memory unit	key function	
			Tare key	Zero key
USA	≤0	no	No action	Zero
		yes	Clear the tared weight	
	>0	No	Tare	
		Yes		
Canada	≤0	no	No action	Zero
		Yes	Clear the tared weight	
	>0	No	Tare	
		Yes	No action	

NOTE: (1) ZERO only be active when scale is stable and weight is in SAZSM setting range.

(2) TARE only be active when scale is stable

(3) Clear TARE weight or ZERO scale, make indicator to enter displaying GROSS mode

(4) TARE weight, make indicator to enter displaying NET mode

6. Accumulation Mode:

Press ACC key to add current weight to accumulation memory, the accumulation time's counter will increase by 1 and display total accumulative weight.

7. Check Weight

Check weight in weighing mode:

7.1 To use the check weight function, **CONFIG-FUNC-COMPAR** item should set to **YES**, and high and low limitation of weight should be set correctly according to following steps:

7.2 In weighing mode, Press down **DATA** key more than 3s to input compare data of high and low.

7.3 After **HIGH** being shown, 000000 will be displayed, use **PRINT, ACC, UNIT** key to input high weight number and press **TARE** key to confirm. Annunciator of **Hi** will be shown in this step or press **ZERO** key to exit and back to weighing mode.

7.4 After **Low** being shown, 000000 will be displayed, use **PRINT, ACC, UNIT** key to input low weight number and press **TARE** key to confirm. Annunciator of **Lo** will be shown in this step or press **ZERO** key to exit and back to weighing mode.

NOTE: If High number is 0, equal or less than the low number, the comparison will be disabled, and the input data has no limitation.

7.5 After the limitations have been set and check weight function is be active, one of annunciators **HI, OK, LO** will light up, and the beeper will sound according to its setting in **USER-BEEP**.

8. Count Weighing Mode

8.1 In this mode, scale will weigh goods weight on scale, calculate and display its counts after the piece weight of goods is obtained

8.2 To make counting function be available, **CONFIG-FUNC-COUNT** item should be set to **YES** in **CONFIG** menu.

8.3 To enter counting working mode, in normal weighing or percent-weighing mode, long press **FUNC** key, **WEIGH/PERCEN** will be shown, use **ACC** or **PRINT** key to select **COUNT**, then press **TARE** to confirm go to parts counting mode. Before new piece weight is got, the last piece weight will be used.

8.4 In counting working mode, the function of **ZERO, TARE, PRINT, SETUP, PRESET TARE, ACC, SETUP, ON/OFF** are available.

8.5 There're two ways to obtain the piece weight: (1) input piece weight directly, refer operations of step 8.5.1 (2) weigh samples weight which quantity is known, refer operation of step 8.5.2

8.5.1 Input piece weight from keypad: in counting mode, press **UNIT** key, When **InP.PWt** is shown, press **TARE** key to enter input piece weight mode.

8.5.1.1 When **UNIT.KG** is shown, use **PRINT** or **ACC** key to select the unit of piece weight, use **TARE** key to

confirm and go to next, or press **ZERO** key to exit getting piece weight mode and back to counting mode.

- 8.5.1.2 When last stored piece weight is shown, use **PRINT, ACC, UNIT** key to input new piece weight, press **SETUP** key more than 3s to input decimal point. Press **TARE** key to confirm and save it, then go back to counting mode. If the input piece weight is less than 0.5d, the indicator will display **PWt.Er** and go back to counting mode.
- 8.5.2 Obtain piece weight by weighing samples weight which quantity: in counting mode, press **UNIT** key, When **InP.PWt** is shown, use **PRINT** or **ACC** key to select **SPL.PWT**, press **TARE** key to weigh samples (which quantity is known) weight, calculate piece weight. Press **ZERO** key to exit getting piece weight mode and back to counting mode.
- 8.5.2.1 When **SPL.Lo** is shown, move away any sample on scale and press **TARE** key to confirm, before scale is stable, **SPL.Lo** will be flashed. After it is stable, it will go to next step. Press **ZERO** key to exit getting piece weight mode and back to counting mode.
- 8.5.2.2 When **SPL.Hi** is shown, put samples (its quantity is known) onto the scale, Press **TARE** key to confirm reading weight. Before scale is stable, **SPL.Hi** will be flashed. After it is stable, it will go to next step. Press **ZERO** key to exit getting piece weight mode and back to counting mode.
- 8.5.2.3 After **INP.PCS** being shown, 000000 will be displayed, use **PRINT, ACC, UNIT** key to input the quantity of samples and Press **TARE** key to confirm. If the calculated piece weight is less than 0.5d, the indicator will display **PWt.Er** and go back to counting mode. If successful, the scale will go back to counting mode and you can start counting. The piece weight will be saved after the power off and can be used next time.

9. Check Counts (counts compare) in Counting mode:

- 9.1 To make counts compare function be available, **CONFIG-FUNC-COMPAR** item should set to **YES**, and high and low limitation of pieces should be set correctly according to following steps:
- 9.2 In counting working mode, Press down **DATA** key more than 3s to input compare data of high and low.
- 9.3 After **HIGH** being shown, 000000 will be displayed, use **PRINT, ACC, UNIT** key to input high quantity number and press **TARE** key to confirm. Annunciator of **Hi** will be shown in this step. Press **ZERO** key to exit getting piece weight mode and back to counting mode.
- 9.4 After **Low** being shown, 000000 will be displayed, use **PRINT, ACC, UNIT** key to input low quantity number and press **TARE** key to confirm. Annunciator of **Lo** will be shown in this step. Press **ZERO** key to exit getting piece weight mode and back to counting mode.
- NOTE:** If High number is 0 or is equal or less than low number, the comparison will be disabled.
- 9.5 After the limitations have been set and check weight function is be active, one of annunciators **HI, OK, LO** will light up, and the beeper will sound according to its setting in **USER-BEEP**.

10. Percent Weighing Mode

10.1 In this mode, scale will weigh goods weight on it, calculate and display its percentage after the unit-percentage-weight of goods is obtained.

(NOTE: If % display format is set to 100%, 100.0% or 100.00% in CONFIG-FUNC-PERCEN menu item, then, the unit-percentage-weight is the weight of 1%, 0.1% or 0.01%)

10.2 To make percent weighing function be available, **CONFIG-FUNC-PERCEN** menu item shouldn't be set to **NONE**.

10.3 To enter percent weighing mode, in normal weighing or counting mode, long press **FUNC** key, **WEIGH/COUNT** will be shown, use **ACC** or **PRINT** key to select **PERCEN**, then press **TARE** to confirm go to percent weighing mode. The last set unit-percentage-weight will be used.

10.4 In percent weighing mode, the function of **ZERO**, **TARE**, **PRINT**, **SETUP**, **PRESET TARE**, **ACC**, **SETUP**, **ON/OFF** are available.

10.5 There're two ways to obtain the unit-percentage-weight: (1) input weight and its percentage, then scale calculates the unit-percentage-weight, refer operation of step 10.5.1 (2) weigh samples weight which percentage is known, refer operation of step 10.5.2

10.5.1 Input weight and its percentage from keypad, and calculate unit-percentage-weight: in percent weighing mode, press **UNIT** key, When **InP.Pct** is shown, press **TARE** key to enter this mode: Before input weight, use **PRINT** or **ACC** key to select the percentage from 1%, 2%, 5%, 10%, 20%, 50% and 100%, this percentage is corresponding to the weight you will input in following steps

10.5.1.2 When **UNIT.KG** is shown, use **PRINT** or **ACC** key to select the unit of input weight, use **TARE** key to confirm and go to next. Press **ZERO** key to exit and back to percent weighing mode.

10.5.1.3 When last stored unit-percentage-weight data is shown, use **PRINT**, **ACC**, **UNIT** key to input new unit-percentage-weight, press **SETUP** key more than 3s to input decimal point. Press **TARE** key to confirm and save it, then go back to percent weighing mode. If the calculated unit-percentage-weight is less than 0.5d, the indicator will display **Pct.Er** and go back to percent weighing mode.

10.5.2 Obtain unit-percentage-weight by weighing samples weight which percentage is known: in percent weighing mode, press **UNIT** key, When **InP.Pct** is shown, use **PRINT** or **ACC** key to select **SPL.Pct**, press **TARE** key to weigh samples (which percentage is known) weight, calculate piece weight. Press **ZERO** key to exit and back to percent weighing mode.

10.5.2.1 When **SPL.Lo** is shown, remove everything from the platter and press **TARE** key to confirm, before scale is stable, **SPL.Lo** will be flashed. After it is stable, it will go to next step. Press **ZERO** key to exit and back to percent weighing mode.

10.5.2.2 When **SPL.Hi** is shown, put samples (its percentage is known) onto the scale, Press **TARE** key to confirm reading weight. Before scale is stable, **SPL.Hi** will be flashed. After it is stable, it will go to next step. Press **ZERO** key to exit and back to percent weighing mode.

10.5.2.3 After **INP.PCT** being shown, 000000(position of decimal point is determined by

CONFIG-FUNC-PERCEN setting) will be displayed, use **PRINT, ACC, UNIT** key to input the percentage of samples and Press **TARE** key to confirm. If the calculated unit-percentage-weight is less than 0.5d, the indicator will display **Pct.Er** and go back to percent weighing mode, otherwise, after the reasonable unit-percentage-weight being got, the scale will go back to percent weighing mode. The got unit-percentage-weight can be saved after the power off and can be used next time.

11. Check Percent (percentage compare) in Percent weighing mode:

- 11.1 To make percentage compare function be available, **CONFIG-FUNC-COMPAR** menu item should set to **YES**, and high and low limitation of percentage should be set correctly according to following steps:
- 11.2 In percent weighing mode, Press down **DATA** key more than 3s to input compare data of high and low.
- 11.3 After **HIGH** being shown, 000000 will be displayed, use **PRINT, ACC, UNIT** key to input high percentage number and press **TARE** key to confirm. Annunciator of **Hi** will be shown in this step. Press **ZERO** key to exit and back to percent weighing mode.
- 11.4 After **Low** being shown, 000000 will be displayed, use **PRINT, ACC, UNIT** key to input low percentage number and press **TARE** key to confirm. Annunciator of **Lo** will be shown in this step. Press **ZERO** key to exit and back to counting mode.

NOTE: If High number is 0 or is equal or less than low number, the comparison will be disabled.

- 11.5 After the limitations have been set and check weight function is be active, one of annunciators **HI, OK, LO** will light up, and the beeper will sound according to its setting in **USER-BEEP**.

12. BMI Working Mode

- 12.1 To use the BMI mode. **CONFIG-FUNC-BMI** menu item should be set to **YES**.
- 12.2 To enter BMI Working mode:
 - 8.2.1 Long press **FUNC** key, one of **WEIGH/COUNT/PERCEN** will be shown, use **ACC** or **PRINT** key to select **BMI**, then press **TARE** to confirm go to BMI mode. When **CONFIG-FUNC-ACCUMU** is set to **no**: press **BMI (ACC)** key, go to BMI mode.
- 12.3 Scale will show: "CM.xxx" (means: last input height is xxx cm) or "IN.xx.x" (means: last input height is xx.x inch) will be displayed, and to wait for input height: (1)to change height unit to cm or inch by pressing **DATA** key; (2) to change height number by using **PRINT, ACC(BMI)** keys (3)Press and hold down **PRINT or ACC(BMI)** key will increase or decrease number fast, (4) Press **TARE** key to confirm the input. Press **ON/OFF** key to exit input data mode and back to BMI working mode. The range of height is 50-250cm(19.7-98.4inch) and default is 170cm(66.9inch)
- 12.4 Press **ACC** key to select weight or BMI number to be displayed, when weight is displayed, the weight unit can be selected by pressing **UNIT** key, and BMI and weight unit will be displayed at same time.
- 12.5 When current net weight is less than **NLD.RNG**, the indicator will go to display weight number if **CONFIG-FUNC-ACCUMU**= No; or the indicator will back to original working mode if **CONFIG-FUNC-ACCUMU**= Yes.

13. HOLD Function

13.1 **HOLD** function can be used to freeze display number. In this mode, scale can catch a dynamic number, hold a stable number, or average a unstable number, then HOLD(freeze) this number temporary for user to watch or record. This function can be used in normal weighing mode, counting mode and percent weighing mode. After entering **HOLD** mode, the speed of A/D converter can be increased to 80Hz (if **USER-HOLD-AD.H.SPD** is set to YES) from original 10Hz for some dynamic weighing applications. With the hold function, it is possible to weigh restless weighing samples such as live animals, moving objects. The indicator provides special mode settings to accommodate sample's movements.

13.2 To make **HOLD** function be active, the **CONFIG-FUNC-HOLD** menu item must be set to **YES**; menu items of **USER-HOLD-HLD.MOD** **/-AVG.TIM** **/-HLD.TIM** **/-DYN.RNG** **/-STB.TIM**, **USER-OTHER-NLD.RNG** need be set to a value within limits.

To speedup sampling of weight, set **USER-HOLD-AD.H.SPD** menu item to YES.

To enter **HOLD** working mode, press down **HOLD** key when scale works in normal weighing mode, counting mode or percent weighing mode.

13.3 There're several **HOLD** mode to freeze display data:

- (1) Positive Peak Number HOLD mode
- (2) Negative Peak Number HOLD mode
- (3) Toggle HOLD mode
- (4) Average HOLD mode
- (5) Auto HOLD mode

The following are details of these HOLD modes:

13.3.1 Positive Peak HOLD:

When **USER-HOLD-HLD.MOD** is set to **PS.PEAK**, the hold mode is positive peak hold mode. When scale first enters this working mode, it will display the largest positive number that is from the time of zero-point set. After entering this working mode, scale will always catches and refresh positive larger number and display it. To exit **HOLD** mode, press **HOLD** key again.

13.3.2 Negative Peak HOLD:

When **USER-HOLD-HLD.MOD** is set to **NG.PEAK**, the hold mode is negative peak hold mode. When scale first enters this working mode, it will display the largest negative number that is from the time of zero-point set. After entering this working mode, scale will always catches negative larger number and display it. To exit **HOLD** mode, press **HOLD** key again.

13.3.3 Toggle HOLD:

When **USER-HOLD-HLD.MOD** is set to **TOGGLE**, the hold mode is toggle hold mode ---a manual Hold function. After entering this working mode, scale will freeze and display number if scale is stable. Only the weight that is over **USER-OTHER-NLD.RNG** (zero 'dead' band) can be held. To exit **HOLD** mode, press **HOLD** key again. If the time of scale being unstable is more than **USER-HOLD-STB.TIM**, **STB.ER** will be shown, press **TARE** key to start averaging again, or press **HOLD** key to exit.

13.3.4 Average HOLD:

When **USER-HOLD-HLD.MOD** is set to **AVERAG**, the hold mode is average hold mode. After entering this working mode, scale will freeze and display number if scale is stable. If scale is not stable, but the variation is less than **USER-HOLD-DYN.RNG**, scale will average data in **USER-HOLD-AVG.TIM**, then freeze and display the number. Only the weight that is over **USER-OTHER-NLD.RNG** can be frozen. Scale will exit HOLD mode according to the setting of **USER-HOLD-HLD.TIM**. If the time of scale variation being over **USER-OTHER-NLD.RNG** is more than **USER-HOLD-STB.TIM**, **STB.ER** will be shown, press **TARE,UNIT,ACC** or **PRINT** to start averaging again, or press **HOLD** key to exit.

13.3.5 Auto HOLD:

When **USER-HOLD-HLD.MOD** is set to **AUTO**, the hold mode is auto hold mode--- different subjects can be weighed one after another without pressing any buttons. After entering this working mode, scale will freeze and display number if scale is stable. If scale is not stable, but the variation is less than **USER-HOLD-DYN.RNG**, scale will average data in **USER-HOLD-AVG.TIM**, then freeze and display the number. Only the weight that is over **USER-OTHER-NLD.RNG** can be frozen. If the held weight is moved away, and a new load put on the scale, scale will automatically hold new number of load. Scale will exit HOLD mode according to the setting of **USER-HOLD-HLD.TIM**. If the time of scale variation being over **USER-OTHER-NLD.RNG** is more than **USER-HOLD-STB.TIM**, **STB.ER** will be shown, press **TARE** to start averaging again, or press **HOLD** key to exit.

- 13.4 In Positive or Negative Peak HOLD mode, the red HOLD (for LED version) or PEAK and HOLD (for LCD version) annunciator will be lighted, in other HOLD mode, green HOLD (for LED version) or HOLD (for LCD version) annunciator will be lighted. When HOLD annunciator flash, the displayed number is live, When HOLD annunciator become steady, the displayed number is frozen.

14. Data Compare Function

14.1 Data compare function can be used in normal weighing mode, counting mode and percent weighing mode, and call it as Check Weight, Check Counts and Check Percentage. When this function is enabled, you can set a higher and a lower limitation of weight, counts or percentage independently, and these limits can be saved permanently. Then, the current data of weight, counts or percentage will be compared with the setting limitation, and corresponding annunciator will be lighted.

14.2 To make data compare function be available, **CONFIG-FUNC-COMPAR** menu item should set to **YES**, and high and low limitation should be set correctly according to following steps:

14.3 In normal weighing mode, counting mode or percent weighing mode, Press down **DATA** key more than 3s to enter input compare data of high and low mode.

14.4 After **HIGH** being shown, last setting data of high will be displayed, use **PRINT, ACC, UNIT** key to input new number of high and press **TARE** key to confirm. Annunciator of **Hi** will be shown in this step. Press **ZERO** key to exit and back to original working mode.

14.5 After **Low** being shown, last setting of low will be displayed, use **PRINT, ACC, UNIT** key to input new number of low and press **TARE** key to confirm. Annunciator of **Lo** will be shown in this step. Press **ZERO**

key to exit and back to original working mode.

NOTE: If High number is 0 or is equal or less than low number, the comparison will be disabled.

14.6 After a reasonable limitation is set and compare function is be active, one of annunciators **HI**, **OK**, **LO** will be lighted, and the beeper will sound according to its setting in **USER-BEEP**.

14.7 For details, please refer to section of section 5.13, 6.6 and 7.6

15. Accumulation

15.1 Accumulation function can be used in normal weighing mode, counting mode and percent weighing mode, when this function is enabled, you can accumulate current net weight, piece, and percentage. Note, only the load on scale is larger than **USER-OTHER-NLD.RNG**, the displayed positive number can be added up. The accumulation times and total can be displayed or printed.

15.2 To make data accumulation function be available, **CONFIG-FUNC-ACCUMU** menu item should set to **MANUAL** or **AUTO**, Following are details.

15.3 When **CONFIG-FUNC-ACCUMU** is set to **MANUAL**, the stable and positive displayed net weight (must be larger than **USER-OTHER-NLD.RNG**), piece or percentage can be accumulated by long pressing **TOTAL** key, and indicator will display accumulation times first, and then display total of number. To avoid repeating accumulation for same load, one load only can be accumulated once. So, before a new load put onto the scale, the original load should be removed and let load on scale be smaller than **USER-OTHER-NLD.RNG**.

15.4 When **CONFIG-FUNC-ACCUMU** is set to **AUTO**, the stable and positive displayed net weight (must be larger than **USER-OTHER-NLD.RNG**), piece or percentage can be accumulated automatically, and indicator will display accumulation times first, and then display total of number. To avoid repeating accumulation for same load, one load only can be accumulated once. So, before a new load put onto the scale, the original load should be removed and let load on scale be smaller than **USER-OTHER-NLD.RNG**.

15.5 To view total, when display number is zero, long pressing **TOTAL** key, and indicator will display accumulation times first, and then display total of number.

NOTE: When HOLD function is enable, and scale is working in PEAK HOLD mode(**CONFIG-HOLD=YES**, **USER-HOLD-HLD.MOD=PS.PEAK/NG.PEAK**), Accumulation function will be automatically disabled!!!

16. View or Set Time

- 16.1 After entering **SETUP** mode (by press down **SETUP** key more than 3s), using **PRINT** or **ACC** key to select **MISC-TIME** item, press **TARE** to display current time.
- 16.2 Time display Format is: xx:xx:xx(hh-mm-ss) , 24h format
- 16.3 Press down **UNIT** more than 3s to enter modification time mode. Use the: **SETUP**, **PRINT**, **ACC**, **UNIT**, **TARE** keys to modify current time. The indicator will return to normal mode after 5 sec of inactivity.
- 16.4 Press **SETUP** key to return to last menu item, press **ON/OFF** key to prepare to exit this mode

17. View or Set Date

- 17.1 After entering **SETUP** mode (by press down **SETUP** key more than 3s), using **PRINT** or **ACC** key to select **MISC-DATE** item, press **TARE** to display current time.
- 17.2 Date display Format is: xx.xx.xx(yy-mm-dd)
- 17.3 Press down **UNIT** more than 3s to enter modification date mode. Use the **SETUP**, **PRINT**, **ACC**, **UNIT**, **TARE** keys to modify current date. If time of no operation is more than 5s, it will automatically exit modification mode.
- 17.4 Press **SETUP** key to return to last menu item, press **ON/OFF** key to prepare to exit this mode

18. View Firmware Version

- 18.1 Press down **SETUP** until **CONFIG** is shown, using **PRINT** or **ACC** key to select **MISC-VER** item, press **TARE** to display current Version.
- 18.2 Firmware Version display Format is: Vxx.yy, xx is hardware version, yy is software version
- 18.3 Press **SETUP** key to return to last menu item, press **ON/OFF** key to prepare to exit this mode

19. Display Test

- 19.1 Press down **SETUP** more than 3s to enter **SETUP** mode, using **PRINT** or **ACC** key to select **TEST-DISP.TST** item, press **TARE** to enter test display mode and all segments will be lighted first.
- 19.2 In this mode, every pressing of **ACC** key will light next segment, every pressing of **UNIT** will light next digit, press **PRINT** will automatically light all segments and all digits.
- 19.3 Press **SETUP** key to return to last menu item, press **ON/OFF** key to prepare to exit this mode

20. Keyboard and Buzzer Test

- 20.1 Press down **SETUP** more than 3s to enter **SETUP** mode, using **PRINT** or **ACC** key to select **TEST-key.tst** item, press **TARE** to enter test keypad mode, and **key. --** will be displayed.
- 20.2 In this mode, press a key, the value of this key will be displayed on -- position and buzzer will beep whatever **USER-BEEP-KEY** item is set.
- 20.3 Press **SETUP** key to return to last menu item, press **ON/OFF** key to prepare to exit this mode

21. Enter Setup Mode:

- 21.1 If need to set configuration parameters, set user parameters, calibrate the scale, set current date or time, test some hardware... It's need to long press **SETUP** key to enter setup mode
- 21.2 After Entering Setup Mode, the main menu item **CONFIG** will be shown first.
- 21.3 In Setup mode, use ← ↑ ↓ → ⏪ ⏩ to select wanted submenu and wanted menu item, select wanted choice, set wanted number, confirm and save data, or exit this mode. Please refer the “4.Operation Menu Structure”.

22. UPS world ship:

- 22.1. To interface the scale with UPS world ship set the following parameters:
Enter USER menu, set following parameters, if RS232 is used, set these on COM1, if USB is used, set these on COM2:
USER-COM1(or COM2)-BAUD.RT = 4800
USER-COM1(or COM2)-BYT.FMT = 7E1
USER-COM1(or COM2)-LAYOUT = SCP-12
- 22.2. Set scale port to NCI3835 in UPS WorldShip:

23. Error codes and Troubleshooting

25.1 Meaning of Symbols:

- 25.1.1 **0**----- Zero is over the setting range
- 25.1.2 **0**----- Zero point is below the setting range
- 25.1.3 **Ad**----- Signal to ADC is over max. range)
- 25.1.4 **Ad**----- Signal to ADC is below min. range
- 25.1.5 ----- Weight is over upper limitation, or display data is over limitation
- 25.1.6 ----- Weight is below lower limitation
- 25.1.7 **EEP.E1** ----- CONFIG or CAL parameters are not correctly set
- 25.1.8 **EEP.E2** ----- USER parameter is not correctly set
- 25.1.9 **Lo.bAt** ----- Battery voltage is lower than setting.
- 25.1.10 **CAP.- - -** ---- Next displaying content is Capacity
- 25.1.11 **CAP.ER** ----- Parameters about Capacity is not correct
- 25.1.12 **CAL.Px** ----- Calibration on point(x)
- 25.1.13 **CAL.OFF** ----- Calibration Seal Switch is on OFF position
- 25.1.14 **CAL.ON** ----- Calibration Seal Switch is on ON position
- 25.1.15 **CAL.Er** ----- Calibration error, maybe input data or loaded weight is incorrect, unstable, un-linear
- 25.1.16 **CAL.End** ----- Calibration is end
- 25.1.17 **OFF** ----- Power OFF the indicator
- 25.1.18 **STB.ER** ----- Unstable time is lager than setting of USER-OTHER-NLD.RNG
- 25.1.19 **AC.xxxx** ----- Accumulation times is xxxx

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- 25.1.20 **PR.TARE** ----- To Preset TARE weight
 - 25.1.21 **COMP** ----- To go to input COMPARE data mode
 - 25.1.22 **HIGH** ----- To input HIGH limitation data of Comparison
 - 25.1.23 **LOW** ----- To input LOW limitation data of Comparison
 - 25.1.24 **SPL.Lo** ----- Sample load weight of low point.
 - 25.1.25 **SPL.HI** ----- Sample load weight of high point.
 - 25.1.26 **SPL.PWT** ----- Sample goods weight to calculate piece weight
 - 25.1.27 **INP.PCS** ----- input pieces number of weighted goods
 - 25.1.28 **UNIT.KG** ----- Unit kg is selected
 - 25.1.29 **UNIT.LB** ----- Unit lb is selected
 - 25.1.30 **PWT.ER** ----- Piece weight is error, it's too small (<0.5d).
 - 25.1.31 **SPL.PCT** ----- Sample goods weight to calculate
 - 25.1.32 **INP.PCT** ----- input percentage of weighted goods
 - 25.1.33 **PCT.ER** ----- Unit-Percentage -Weight is too small (<0.5d).

24. Troubleshooting

SYMPTOM	PROBABLE CAUSE	REMEDY
Ad-----	Load cell wires to indicator are incorrectly connected, or shorted, or opened; or ADC, load cell are damaged	Make sure wires are ok and correctly connected. Replace load cell or ADC chip, Service required.
Ad_____		
0-----	Weight reading exceeds Power On Zero limit.	Make sure scale platform is empty. Perform zero calibration.
0_____	Weight reading below Power On Zero limit.	Install platform on scale. Perform zero calibration.
-----	Weight reading exceeds Overload limit, or The weight value cannot be displayed in the current unit of measure because it exceeds 6 digits..	Reduce load on scale until weight value can be displayed. Use a more appropriate unit of measure. Re-set some parameters of CONFIG or UAER.
-----	Weight reading below Under load limit.	Install platform on scale. Perform zero calibration
EEP.E1	CONFIG or CAL parameters are not correctly set	Re-set items in CONFIG, do calibration
EEP.E2	USER parameter is not correctly set	Re-set items in USER
CAP.ER	Capacity parameters are not correct	Set PRIM.N/PRIM.d/SECND.n to correct number, make sure capacity not more than 6 digit
CAL.ER	Calibration error, maybe input data or loaded weight is too small, too big, unstable, un-linear	Input correct data, load correct weight onto platform, Service required
PWT.ER	Piece weight is error, it's too small (<0.5d), The weight on the platform is too small to define a valid reference weight.	Use a greater weight for the sample.
PCT.ER	<u>Unit-Percentage -Weight</u> is error, it's too small (the weight of 1%, 0.1%, or 0.01%-determined by CONFIG-FUNC-PERCNT is less than 0.5d)	Use a greater weight for the sample.

STB.ER	USER-HOLD-STB.TIM is too short, USER-HOLD-HLD.RNG is too small, other failure	Set USER-HOLD-STB.TIM longer, or set USER-HOLD-HLD.RNG bigger. Service required
Not turn on.	Power cord not plugged in or properly connected. Power outlet not supplying electricity. Battery discharged. Other failure.	Check power cord connections. Make sure power cord is plugged into the power outlet. Check power source. Replace batteries. Service required.
Cannot zero the display or will not zero when turned on.	Load on scale exceeds allowable limits. Load on scale is not stable. Load cell damage.	Remove load on scale. Wait for load to become stable. Service required.
Cannot display weight in desired weighing unit.	Unit not set to enable, or d≥5oz,when unit is lb:oz	Enable unit in CONFIG-UNITS
Battery symbol is empty or Lo.bAt is shown	Batteries are discharged.	Change batteries

25. Display Character

ASCII	LCD/LED Show	ASCII	LCD/LED Show	ASCII	LCD/LED Show
0		A		N	
1		B		O	
2		C		P	
3		D		Q	
4		E		R	
5		F		S	
6		G		T	
7		H		U	
8		I		V	
9		J		W	
		K		X	
		L		Y	
		M		Z	

26. Packing List

No.	CONTENT	QTY
1	Indicator	1
2	User manual	1
3	Swivel bracket	1
4	AC Adapter	1
5	RS232 cable	1
6	USB interface	1
7	USB cable	1
9	1x CR2032 battery for RTC	1
10	AA Alkaline batteries	4