T2200P series

Weighing Indicator

User's guide

UGT2200P-E1.00

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SECTION 1 INTRODUCTION

The T2200P series of weighing indicator provides an accurate, fast and versatile series of general purpose weighing indicator with counting and check-weighing functions. There are 2 series of indicator within the range.

All the keypads are sealed, color coded membrane switches and the displays are large easy to read liquid crystal type displays (LCD). The LCD's are supplied with a backlight.

All units include automatic zero tracking, audible alarm for pre-set weights, automatic tare, and an accumulation facility that allows the individual weights to be stored and recalled as an accumulated total.

SECTION 2 SPECIFICATIONS

Model	T2200P
Resolution	1/15,000
Interface	RS-232 Output Optional
Stabilisation Time	1 Seconds typical
Operating Temperature	0°C - 40°C / 32°F - 104°F
Power supply (external)	110/ 240 Vac, 50/60Hz
Calibration	Automatic External
Display	6 digits 24mm LCD display, with LED backlight
indicator Housing	ABS Plastic
Zero range	0mV~5mV
Signal input range	0~15mV
ADC	Sigma delta
Internal counts	600,000
ADC update	Max 60 times /second
Load cell drive voltage	Max 5V/150mA
Load cells	Up to four 350 ohms cells
Dimensions	280*160*170

SECTION 3 INSTALLATION

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

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

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

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

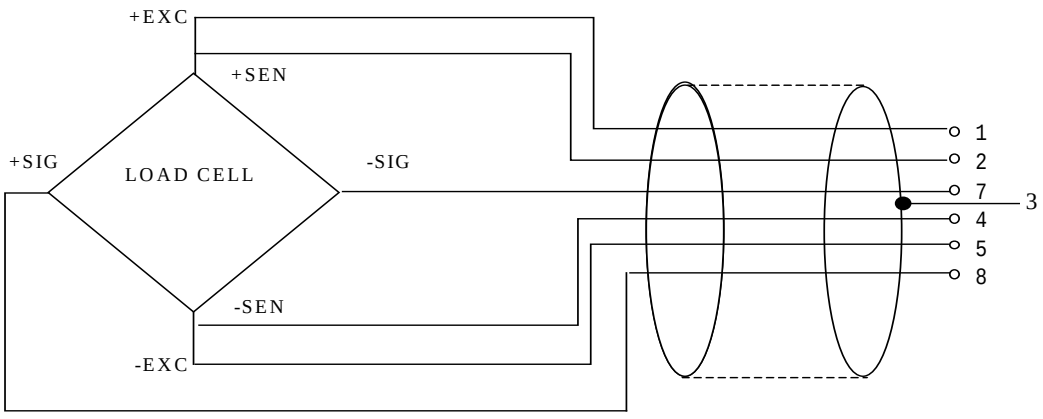
Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water.

Keep the weighing indicator clean.

Verify the voltage showing on the label matches the voltage in your area.

Attach the mains cable to the connector on the side of the indicator. The power switch is located next to he mains inlet.

Load cell connect as below(9 pin D-sub connecter)



SECTION 4 KEY DESCRIPTIONS

ZERO or 

Set the zero point for all subsequent weighing. The display shows zero.

A secondary function ↵, of "Enter" key when setting parameters or other functions.

TARE or 

Tares the scale. Stores the current weight in memory as a tare value, subtracts the tare value from the weight and shows the results. This is the net weight. Entering a value using the keypad will store that value as the tare value.
A secondary function ▲, of incrementing the active digit when setting a value for parameters or other functions.

SHIFT or 

Selects the data to be displayed when parts counting and is used for other functions during setting modes. Will move the active digit to the right ▶ when setting values for some functions.

SMPL or 

Select sample quantities when parts counting. Move the active digit left ◀ when setting values for other functions.

FUNC or **SET**

Used to select the function of the scale. If the scale is weighing it will select parts counting. Of it is not in weighing mode it will return the user to weighing.
Secondary function (C) , is to act as a clear key when setting values for parameters or other functions.

PRINT or 

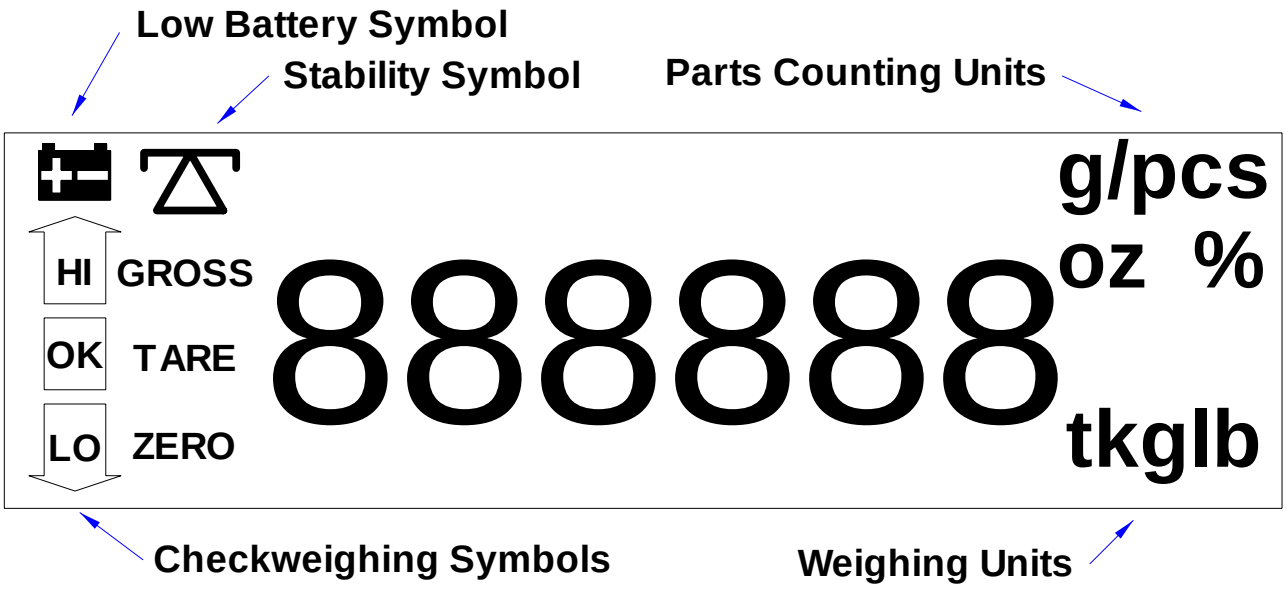
To print the results to a PC or printer using the optional RS-232 interface. It also adds the value to the accumulation memory if the accumulation function is not automatic.
Secondary function (ESC) , is to return to normal operation when the scale is in a parameter setting mode.

U or **UNIT**

Change weighing unit.

SECTION 5 DISPLAYS

The LCD display will show a value and a unit to the right of the digits.
In addition there are labels for TARE, GROSS weight, Zero



SECTION 6 OPERATION

6.1 Zeroing The Display

You can press the **ZERO** key at any time 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 rezeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press the **ZERO** key to rezero the scale if small amounts of weight are shown when the platform is empty.

6.2 Taring

Zero the scale by pressing the **ZERO** key if necessary. The zero indicator will be on.

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

Press the **TARE** key to tare the scale. The weight that was displayed is stored as the tare value and that value is subtracted from the display, leaving zero on the display. The "TARE" indicator will be on. As product is added only the weight of the product will be shown. The scale could be tared a second time if another type of product was to be added to the first one. Again only the weight that is added after taring will be displayed.

When the container is removed 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 product that was removed. The zero indicator will also be on because the platform is back to the same condition it was when the **ZERO** key was last pressed.

6.3 Weighing a sample

To determine the weight of a sample first tare the empty container then place the sample in the container. the display will show the weight and the units of weight currently in use.

6.4 Parts Counting

When the scale is showing weight, pressing the **SMPL** key will start the parts counting function.

Before beginning, tare the weight of any container that will be used, leaving the empty container on the scale. Place the number of samples on the scale. The

number should match the options for parts counting, 10, 20, 50, 100 or 200 pieces.

Press the **SMPL** key to begin. The scale will show "P 10" asking for a sample size of 10 parts. Change the sample size by pressing the **TARE** key, the display will cycle through the options: 10,20, 50, 100, 200 and back to 10.

Press the **ZERO** key when the number matches the number of parts used for the sample. As more weight is added the display will show the number of parts (pcs).

When in counting mode, you can press **SHIFT** key to show unit weight, total weight and quantity (pcs)

Press the **FUNC** key to return to normal weighing.

6.5 Check-Weighing

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.

See PARAMETERS SECTION for the procedure to be used to set the limits, function "F0 H-L" is used. After limits have been set the Check-weighing function is 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 HIGH and the beeper will be off.

HIGH LIMIT SET,

LOW LIMIT is set to zero

The display will show LOW 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.

BOTH LIMITS SET. LOW IS SET GREATER THAN HIGH

The beeper will never sound and the display will show LOW if the weight is less that the LOW limit, and HIGH if the weight is greater than the Low Limit.

NOTE: The weight must be greater than 20 scale divisions for the checkweighing to

operate.

To disable the Check-Weighing function enter zero into both limits by pressing the **FUNC** key when the current limits are shown then pressing **ZERO** to store the zero values.

6.6 Accumulated Total

The scale can be set to accumulate manually by pressing the **PRINT** key. See the PARAMETERS Section for details of selecting the method using function "F5 PRT". The accumulation function is only available when weighing. It is disabled during parts counting.

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The weight displayed will be stored in memory when the **PRINT** key is pressed and the weight is stable.

The display will show "ACC 1" and then the total in memory for 2 seconds before returning to normal. If the optional RS-232 interface is installed the weight will be output to a printer or PC.

Remove the weight, allowing the scale to return to zero and put a second weight on. Press the **PRINT** key, the display will show "ACC 2" and then the new total.

Continue until all weights have been added.

To view the totals in memory press **PRINT** key in zero point (ZERO indicator on), to clear the memory, just press **FUNC** key during memory recall display.

When the scales are set to display in other units of weight the accumulation function is still keeping the weight in kilograms.

SECTION 7 PARAMETERS

The scale has 6 parameters that can be set by the user plus a method of entering the calibration section.

To set parameters press the **FUNC** key.

The display will show the first function, "F0 H-L".
Pressing the **TARE** key will cycle through the other functions.
Pressing **ZERO** key will allow you to set the function. It may be necessary to either use **TARE** or set a value using the **SMPL** key and **UNITS** key to move the active digit and then using the **TARE** key to increment a digit, followed by the **ZERO** key to enter the value. Use the **PRINT** key to leave a parameter unchanged.

For example when the display shows "F0 H-L" press the **ZERO** key to begin.

The display will show "Set Lo", press the **ZERO** key to set the low limit, or press the **TARE** key to skip to the next parameter, "Set Hi" for setting the high limit.

After pressing the **ZERO** key to set a limit, use the **SMPL** key and **SHIFT** keys to change the flashing digit, then use the **TARE** key to increment the flashing digit. Continue to the next digit and set it as needed.

When all digits have been set press the **ZERO** key to store the value. The display will go back to the parameter just set, i.e. "Set Lo". Advance to another parameter if needed or press the **PRINT** key to return to weighing.

FUNCTION MENU SETTINGS TABLE

FUNCTION	SUB-FUNCTION	DESCRIPTION	DEFAULT VALUE
F0 H-L	SEt Lo	Set a value for the Low limit.	000.000
	SEt HI	Set a value for the High Limit.	000.000
F1 toL	to CLr	Clears the accumulation memory without printing the results.	
	to P-C	Prints the accumulation memory total and then clears the memory.	
	to Prt	Prints the accumulation Total, does not clear the memory.	
F2 unt		Set weighing unit ON/OFF, you can select gram (g), pound (lb), ounce, Hongkong Jin, Taiwanese jin.	Kg, g, ounce, lb
F3 tI	SEt dA	Set date, The display will show last date set or 00.01.01. Enter new date, format yy. mm. dd	
	SEt tI	Set time, The display will show current time Enter new time, format hh. mm .ss	

FUNCTION MENU SETTINGS TABLE

FUNCTION	SUB-FUNCTION	DESCRIPTION	DEFAULT VALUE
F4 off	CLoCK	Set clock off or on, CLK of / CLK on. When set clock on, scale will display clock after standby for 5 minutes.	CLK off
	bL	Set the backlight to be on, automatic or off, EL on / EL Au / EL off On: always turn on OFF: always off AU: automatically turn on/off, when press any key, add load, backlight will turn on automatically.	EL Au
	bEEP	Set the beeper to be Bp 1, Bp 2 ,BP3 during the check-weighing function. BP 1: not beeper. BP 2 :If the weighing overstep the rang of check-weighing, it will tweet. BP3 :If the weight accord the rang of check-weighing, it will tweet.	Bp 3
F5 Prt	Set the RS-232 , at first set RS-232 working mode (press **TARE** key to change, press **ZERO** key to sure) P Prt: print weighing ticket when the **PRINT** key is pressed, P Cont: send weighing data continuously, connect to PC , ASK: ask and answer mode (bi-direction mode), connect to PC. Command "R": send weighing data to PC Command "T": do tare operate Command "Z": do zero operate P auto: auto print mode. Seire: connect with remote display (also send continuously) Then set baud rate After set working mode, display will show b xxx, this is current baud rate, you select baud rate by **TAKE** key ad press **ZERO** to sure. If you set Seire, then need set communication protocol, display will show Con x, con1 is TSCALE standard protocol, con2 and con3 is other communication protocol, see detail in section 9. If you set printer (P PRT, P AUTO), then you can set print out format. Display will shows "PR x", set the date/time print format, Then display show "LAB x", set gross/acc print format, you can see detail below. These parameter only available in MODE0(normal mode), see detail in section 12. Then set printer type, TY-TP: mini ticket printer Epm205: EPM205 ticket printer LP-50: LP-50 label printer wireless: wireless mode.		
Prog	Pin	Enter the programming and calibration menus by entering the correct password. See the calibration section for details.	

Print out format form 1 (for LP-50 printer)

Lab / prt	0	1	2	3
0	GS: 0.888kg	NT: 0.666kg TW: 0.222kg GW: 0.888kg	GS: 0.222kg TOTAL: 0.222kg	NT: 0.222kg TW: 0.666kg GW: 0.888kg TOTAL: 0.222kg
1	DATE: 04/06/06 GS: 0.888kg	DATE: 04/06/06 NT: 0.666kg TW: 0.222Kg GW: 0.888kg	DATE: 04/06/06 GS: 0.222kg TOTAL: 0.444kg	DATE: 04/06/06 NT: 0.222kg TW: 0.666kg GW: 0.888kg TOTAL: 0.444kg
2	TIME: 11/11/11 GS: 0.888kg	TIME: 11/11/11 NT: 0.666kg TW: 0.222kg GW: 0.888kg	TIME: 11/11/11 GS: 0.222kg TOTAL: 0.666kg	TIME: 11/11/11 NT: 0.222kg TW: 0.666kg GW: 0.888kg TOTAL: 0.666kg
3	DATE: 04/06/06 TIME: 11/11/11 GS: 0.888kg	DATE: 04/06/06 TIME: 11/11/11 NT: 0.666kg TW: 0.222kg GW: 0.888kg	DATE: 04/06/06 TIME: 11/11/11 GS: 0.222kg TOTAL: 0.888kg	DATE： 04/06/06 TIME: 11/11/11 NT: 0.222kg TW: 0.666kg GW: 0.888kg TOTAL: 0.888kg
4	NO.: 4 GS: 0.888kg	NO. : 4 NT : 0.666kg TW: 0.222kg GW: 0.888kg	NO.: 4 GS: 0.222kg TOTAL: 1.000kg	No.: 4 NT: 0.222kg TW: 0.666kg GW: 0.888kg TOTAL: 1.000kg
5	DATE: 04/06/06 NO.: 5 GS: 0.888kg	DATE: 04/06/06 NO.: 5 NT: 0.666kg TW: 0.222kg GW: 0.888kg	DATE: 04/06/06 NO.: 5 GS: 0.222kg TOTAL: 1.222kg	DATE: 04/06/06 No.: 5 NT: 0.222kg TW: 0.666kg GW: 0.888kg TOTAL: 1.222kg
6	TIME: 11/11/11 NO.: 6 GS: 0.888kg	TIME: 11/11/11 NO.: 6 NT: 0.666kg TW: 0.222kg GW: 0.888kg	TIME: 11/11/11 NO.: 6 GS: 0.222kg TOTAL: 1.444kg	TIME: 11/11/11 No.: 6 NT: 0.222kg TW: 0.666kg GW: 0.888kg TOTAL: 1.444kg
7	DATE: 04/06/06 TIME: 11/11/11 NO.: 7 GS: 0.888kg	DATE: 04/06/06 TIME: 11/11/11 NO.: 7 NT: 0.666kg TW: 0.222kg GW: 0.888kg	DATE: 04/06/06 TIME: 11/11/11 NO.: 7 GS: 0.222kg TOTAL: 1.666kg	DATE: 04/06/06 TIME: 11/11/11 No.: 7 NT: 0.222kg TW:: 0.666kg GW: 0.888kg TOTAL: 1.666kg

Print out format form 2 (for Tpup label printer, only "PRT" parameter available)

0	2000/00/00 00:00 S/N 1 GW 0.888kg	4	2000/00/00 00:00 S/N 4 GW 0.888kg
1	DATE: 2000/00/00 TIME: 00:00 GW: 0.888kg	5	DATE: 2000/00/00 TIME: 00:00 GW: 0.888kg
2	DATE: TIME: 00:00 S./NO.: 2 GROSS WT: 0.888kg	6	DATE: TIME: 00:00 S./NO.: 6 GROSS WT: 0.888kg
3	2000/00/00 00:00 S/N 0003 GW 0.888kg	7	2000/00/00 00:00 S/N 7 GW 0.888kg

SECTION 8 RS-232 OUTPUT

The T2200P Series of scales can be ordered with an optional RS-232 output.

9. 1 basic information
Specifications:

RS-232 output of weighing data
ASCII code
8 data bits
No Parity

Connector: 25 pin d-subminiature socket
Pin 2: Output
Pin 3: Input, not used at this time
Pin 7: Signal Ground

9. 2 normal print out
Data Format for normal weighing operations, parts counting or recalling of totals from memory will all be different. Examples follow:

Normal Output

Date AND TIME	The scale will be set date and time
S/N	The number increments every time a new value is stored in memory
GW	GW for gross weight, NT for net weight and a unit of weight
<If>	
<If>	Includes 2 line feeds

When parts counting the weight, unit weight and count will be printed.

Date:	The scale hasn't printed
Time: 00:00	The scale will be set time
Gross wt: 0.149KG	GW for gross weight, NT for net weight and a unit of weight
Unit wt: 7.4257G	The average piece weight computed by the scale
Quantity : 20PCS	The number of parts counted
<If>	
<If>	

When recalling the Total weight stored in the accumulation memory the output format is:

**********		A line of stars is shown
<lf>		Includes 1 line feed
Date:		
Time:	00:00	
Total No:	3	Times of the accumulation memory
Total wt.:	0.447KG	Weight of the accumulation memory
**********		

9. 3 continuously output protocol

con1: weighing mode

		,			-/␣								k	g	CR	LF
-HEADER1--		HEADER2-				--- WEIGHT DATA --							-WEIGHT UNIT-		TERMINATOR	

con1: counting mode

P	C	S	:								␣	p	c	s	CR	LF
				- QTY -								-QTY UNIT-				

HEADER1: ST=STABLE， US=UNSTABLE

HEADER2: NT=NET， GS=GROSS

Con2:

Header0	Header1	Header2	Header3	Weight1	Weight2	Weight3	Weight4	Weight5	Weight6	Tare1	Tare2	Tare3	Tare4	Tare5	Tare6	Terminator1	Terminator2

Header0=02H

Header1 follow decimal point

Decimal point=0, header1=22H

Decimal point=1, header1=23H

Decimal point=2, header1=24H

Decimal point=3, header1=25H

Decimal point=4, header1=26H

Header2 follow weigh status, default value=20H

If in net mode (tare value not 0), header2=header2|01H

If gross weight "-", header2=header2|02H

If overload or gross weight "-", header2=header2|04H

If unstable, header2=header2|08H

If weighing unit=kg, header2=header2|10H

Header3 follow weighing unit

If weighing unit=g, header3=21H

If weighing unit=oz, header3=23H

Weight1~weight6: weighing data

Tare1~tare6: tare value

Terminator1: 0DH

Terminator2: 0AH

Con3:

Header0	Header1	Weight1	Weight2	Weight3	Weight4	Weight5	Weight6	Weight7	Unit1	Unit2	Status	Terminator1	Terminator2

Header0=01H

Header1 follow weight "+" or "-"

When weight "+", header1="+", when weight "-", header="-"

Weight1~weight7: weight data (include decimal point)

Unit1~unit2: weight unit

Status: when stable, status=0, when unstable, status=1

Terminator1: 0DH

Terminator2: 0AH

SECTION 9 CALIBRATION

The scale can be calibrated using the following procedure. For a more detailed method of calibrating the scale it will be necessary to enter the secure Programming Menu. See detail in section 12.

The T2200P weighing indicator can calibrate using either metric or pound weights, depending on the weighing unit in use before calibration. The display will show either "kg" or "lb" to identify the weights expected.

PROCEDURE

Turn the power off.

Turn the power back on, during the counting from 9 to 0 press the **FUNC** key.

The display will show "CAL " for a few seconds. While it is showing "CAL " press the **SMPL**, **PRINT** and **TARE** keys in sequence to enter the Calibration section. The display will show "unLoAd".

Remove any weight from the platform. After stable indicator on, press the **ZERO** key.

The display will show last calibrate weight value, you can use **SMPL**, **SHIFT**, **TARE** key input new calibrate weight value (use **SMPL**, **SHIFT** key to move active digit, use **TARE** key to change value), after you setting, press ZERO key to sure, display will show "LoAd". Place the calibration weight on the scale. Press the **ZERO** key.

If the calibration is acceptable the display will show "PASS" and then return to normal. If an error message is shown try calibration again as a disturbance may have prevented a successful calibration.

If the problem persist then contact your dealer.

After calibration the scale should be checked to verify the calibration and linearity is correct. If necessary repeat calibration, especially be certain the scale is stable before accepting any weight.

SECTION 10 ERROR CODES

ERROR CODES	DESCRIPTION	RESOLUTION
- - - - -	Over range	Remove weight from the scale. If the problem persist contact your dealer or Taiwan scale for assistance.
E r r 1	Date Setting Error	Enter date using correct format and reasonable values. Format: yy:mm:dd
E r r 2	Time Setting Error	Enter time using correct format and reasonable values. Format: hh:mm:ss
E r r 4	Zero Setting Error	The scale was outside the normal zero setting range either when it was turned on or when the ZERO key was pressed. Remove weight from the scale and try again. Use the TARE key to set the display to zero value. If the problem persist contact your dealer for assistance
E r r 5	Keyboard short	Keyboard damaged
E r r 6	A/D out of range	The values from the A/D converter are outside the normal range. Remove weight from the scale if overloaded, make sure the pan is attached. Indicates the load cell or the electronics may be faulty. If the problem persist contact your dealer for assistance.
E r r 9	Unstable, can't return to zero	When turn on the power, if internal counts is not stable, display will have "Err 9", please check the platform and load cell. If the problem persist contact your dealer for assistance.

SECTION 11 TECHNICAL PARAMETERS

You can press **SMPL**, **PRINT**, **TARE** key to enter setting mode at PROG mode

FUNCTION	SUB-FUNCTION	DESCRIPTION
P1 REF	AZN 0	This option is used to select the auto zero maintain Options : 0.5d, 1d, 2d, 4d
	0-AUTO	This option is used to select the auto zero range when turn the indicator. Options : 0%, 2%, 5%, 10%, 20%
	0-RANGE	This option is used to select the manual zero range when press the ZERO key. Options: 2%, 4%, 10%, 20%, 50%, 100%
	SPEED	Set the ADC speed 7.5/15/30/60 times/second
P2 CAL	DECI	This option is used to select the decimal Options : 0, 0.0, 0.00, 0.000
	INC	This option is used to select the division Options : 1, 2, 5, 10, 20, 50
	CAP	This display will show xxxxxx for setting the capacity.
	CAL	Calibrate, see detail in SECTION 10
P3 PRO	TRI	This display will show xxxxxx for trimming the load cells .
	COUNT	This display will show xxxxxx for indicating the internal counts.
	RESET	This display will show SURE for recovering the factory default setting.
P4 CHK	MODE 0	This is mode of the natural scale
	MODE 1	This is parameter of the animal scale If you set MODE 1, then will display some parameter to set the animal scale First set the shake range, you can use **TARE** key to select 0/5/10/15/20/25/30/35/40/45/50, (0 means disable) reading data shake between the range you set, the reading will be lock. Then set the reading lock option, A1(lock the min data), A2(lock the average data), A3(lock the max data) Then set the new data increment value, use **SMPL**, **SHIFT**, **TARE** key to enter the data, use **ZERO** key to sure. After you set these data, when reading have been locked, if you add goods again to the platform or release goods more than this weight, the reading will be update and lock again. Then set the delay time: 10/20/30/40. At last, set lock condition (3/4/5/6/7/8), 3 means if find continuous 3 times data between the range, data will be locked.

FUNCTION	SUB-FUNCTION	DESCRIPTION
	MODE 2	This is a subtration scale (print out "-" weight) Print format: GROSS: 0.888KG gross for gross weight NET: 0.222KG net for net weight TARE: 0.666KG tare for tare weight
	MODE 3	As the mode 2, but print out format different NW: 0.222KG nw for net weight GW:0.888KG gw for gross weight

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- Digital weighing/check-weighing scales
- High performance platform scales with extensive software facilities including parts counting, percent weighing etc.
- Digital electronic scales for medical use
- Retail price computing scales
- Floor scales
- Truck scale
- Crane scales
- Weighing indicator for platform scales, floor scales and truck scales
- Hand push and pull gauge
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