NANO

Nano Series

Electronic Weighing Scale

Scale Users Guide

1 About Nano Series Precision Balance

We would like to thank you for choosing **SMART** as your preferred choice for your weighing requirements.

The NANO series weighing scale is an accurate, fast and versatile series of precision scales, loaded with time saving features and ease of customer use.

The scale is equipped with a 0.56" LED display to show weight for the user, and an option of remote display for the customer

There are different models in this series, with capacities ranging from 50g up to 2 kg and with least count from 1mg up to 20mg.

They all have stainless steel weighing platforms on an special grade ABS pan assembly. The loadcell is mounted on a special mounting providing precise centering of load and overload protection of up to 150% FS load capacity.

The soft touch keypad buttons are ideally sized, color coded, and bear symbolic tags for easy recalling scale functions. The displays are large easy to read LED type displays for easy view in different lighting conditions.

The scale is loaded with features like, automatic zero tracking, overload alarm, low battery protection, "SMART" weighing mode to filter stable results, full capacity tare , multiple units of measure, piece counting and price computing function to calculate gold rate with a press of a button.

The scales feature auto zero tracking to automatically compensate for small fluctuations in zero such as a build up of material on the platform.

2 TECHNICAL DATA

Measurement Parameters

High Precision Balances				
Measurement Data	**NANO-50G1**	**NANO-100G1**	**NANO-200G2**	**NANO-300G5**
Capacity	50g	100g	200g	300g
Readout / Interval	1mg	1mg	2mg	5mg
Tare range subtractive	50g	100g	200g	300g
Repeatability	±1d	±1d	±1d	±1d
Display Resolution	1:50000	1:100000	1:100000	1:60000
Precision GOLD Balances				
Measurement Data	**NANO-300G10**	**NANO-600G10**	**NANO-1000G10**	**NANO-1200G10**
Capacity	300g	600g	1000g	1200g
Readout / Interval	10mg	10mg	10mg	10mg
Tare range subtractive	300g	600g	1000g	1200g
Repeatability	±1d	±1d	±1d	±1d
Display Resolution	1:30000	1:60000	1:100000	1:120000
All In One				
Measurement Data	**NANO-200G100**	**NANO-300G100**	**NANO-600G100**	**NANO-1200G100**
Capacity	200g	300g	600g	1200g
Readout / Interval	100mg	100mg	100mg	100mg
Tare range subtractive	200g	300g	600g	1200g
Repeatability	±1d	±1d	±1d	±1d
Display Resolution	1:2000	1:3000	1:6000	1:12000

Other Parameters

Application Modes	Weighing, Counting, Percentage, Price / User Calculation
Product Features	Auto Sleep, 100% Tare Range, Piece Counting, Glow Control, Direct Printer Output
Keyboard	6 membrane keys (On/off, Counting, F, Mode, Tare and Zero)
Display Indicators	Stability, Zero Position, Tare, Charging Status, Percentage mode, function active, d=e/10 mode*
Weighing Units	g, carat, tola **
Calibration	Digital with external weight.
Weight	4kg Approx
Pan Size	120mm dia
Front Display Type	0.56” Bright red LED display
Remote Display	Optional, Available with 0.56” LED Display
Communication	Optional RS232C for PC communication

Stabilization	2 seconds
Power	9V AC Adaptor / built in battery for backup to 50hrs. / 70 hrs with sleep mode active
Operating Temp.	50° to 98° F / 10° to 35° C
Dimensions	164.5 x 232.5 x 164.5 (w x d x h) – including shield.

* all in one models only , ** specific to country restrictions.

3 INSTALLATION

3.1 Unpacking

Unpack and verify that the following components have been included:

a) NANO Precision Scale
b) Instruction Manual
c) AC Adapter
d) Draft Shield with cover - mounted on NANO scale
e) SS Pan on top.

Save the packaging material. This packaging ensures the best possible protection for the storage or transport of the product.

3.2 Placing your scale

Before you install the scale, identify the best location for the equipment. The proper environment enhances its operation and longevity. Keep in mind the following factors, which might have a negative influence on the scale's operation:

a) **Vibration**: Vibration diminishes the scale's ability to measure accurately. Electrical machinery such as conveyors and drill presses can cause inaccurate and non-repeatable readings. The scale may also read inaccurately if it is not leveled properly. The scale incorporates a SMART weighing mode

where the scale can reject readings with vibration up to some extent.

b) **Drafts / Air currents**: Moving air can cause the scale to read wind movement as an additional force and cause inconsistency in the weighing results.

c) **External Rubbing / Friction:** A scale cannot measure accurately if an object is rubbing or pressing against the scale platform.

3.3 Leveling the scale

Level the scale by turning the adjustable feet. It is leveled correctly when the bubble indicator is in the center of the circle.

3.4 Power Source

The unit works on 220V AC Level the scale by turning the adjustable feet. It is leveled correctly when the bubble indicator is in the center of the circle.
The scale is fitted with a built in 6V 4Ah battery which provides backup of more than 45 – 70 hours depending on glow setting and sleep mode setting.

3.5 Calibration Check

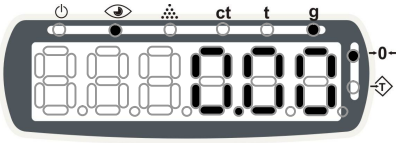
Put a known weight on the machine and make sure that the scale reads the correct weight on the display. In case of a variation in the display reading, it is recommended to calibrate the scale again with the procedure explained in section 7.1 later in the manual.

4 CONTROLS & FUNCTIONS

SYMBOL	NAME	FUNCTION
	**Power Key**	• To power on and off the machine
	**Counting / Print Key**	• Switch to piece counting mode • Long Press – Initiate the Print Command
	**Function / Left Shift Key**	• Call Price Calculation function. • Left shift the selected digit during cal or other setup modes • Long Press – Enter price of current gold rate to use for price calculation
	**Mode / Up Shift Key**	• Switch between weighing units • Up Shift to change option of selected digit. Ex change 0 to 1 to 2 to 3 etc • Switch to Internal Count Mode. Hold the M button and switch on the machine.
	**Tare / Right Shift Key**	• Tare the weight kept on the pan • Right Left shift the selected digits during cal or other setup modes • Manual Accumulation • Auto Zero Setting – Press, Hold the Tare button and switch on the machine.
	**Zero / Enter Key**	• Zero the weight kept on the pan. • Enter Key – Accept the selected setting and exit from setting mode.

5 USER OPERATION

5.1 SWITCHING SCALE - ON / OFF



The scale is switched ON / OFF by pressing the Power BUTTON: This button is used to switch on and switch off the scale. It is a real ON/OF which is implemented using the latest technology so that there is absolutely no power consumption when the scale is switched off.

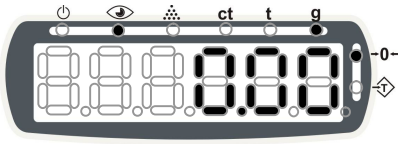
USAGE:

a) SWITCH ON: Press the button once, the scale will switch on.

b) If the scale is already switched on, press the button again, display will show “SEE YOU SOON” and switch off after sounding a beep.

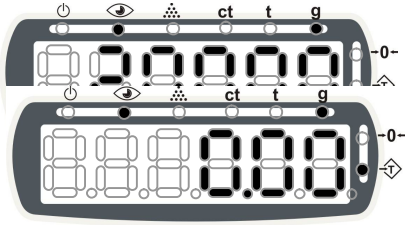
Note: Make sure the weighing pan is empty before turning on the scale.

5.2 MANUAL TARE



5.2.1 TARE BUTTON: This button is used for taring a weight to display 0.00. A Tare value is indicated by the “t” LED on the panel.

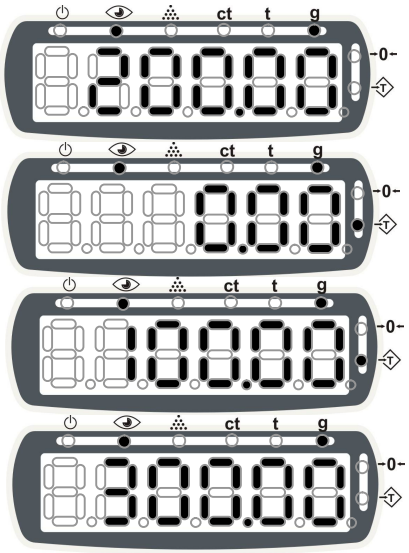
Place a container on the weighing pan (say 200g), then press the TARE button. The weight is tared and the



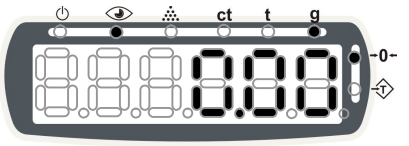
machine will display zero and the tare LED will be ON. To recall the tared weight, simply press the TARE button again. To TARE the value, again press the TARE button.

5.2.2 RIGHT ARROW KEY: This is used to selected digit on right side while entering settable values or calibration weight or any other user parameter etc.

5.2.3 MANUAL ACCUMULATION: Function: This function will work only if the ACC is selected to 0 in the MODE button setting. Keep a weight on the weighing pan(ex 200g). The display will show the weight. Now press TARE. The display will show 0.00 Now keep another weight (ex 100g), the display will show its weight. Now press TARE button. The display will show the total of the first value tared and the second weight tared. Press TARE button again, the display will show 0.00. Now keep another weight, the display will show the weight. Press TARE button, the display will show the total of all the three weights (300.00g), press TARE button, the display will show 0.00



5.3 ZERO OPERATION

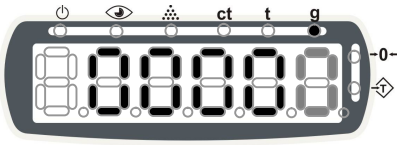


Center of Zero is indicated by the annunciator →0← . You can press the ZERO/ENTER key to set the zero point from which all other weighing and

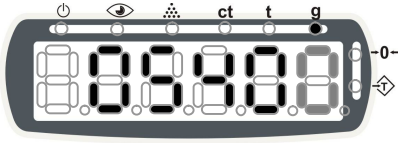
counting is measured. The zero will function within 5% of the internal zero setting. The scale has an automatic auto-zeroing function to account for minor drifting or accumulation of material on the platform. This auto-zero range can be configured in the user setup. However you may need to press the ZERO/ENTER key to rezero the scale if small amounts of weight are shown when the platform is empty.

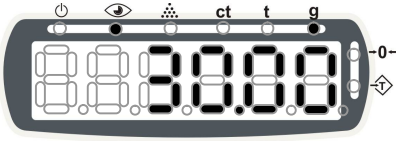
5.4 PRICE BUTTON 

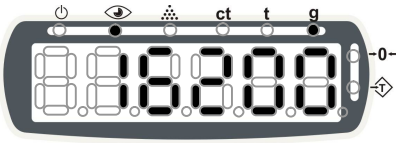
Price Button: This button is used to enter and calculate the total price of the material being weighed according to the price entered. This button is also used to select digits on the left side while entering values in setting mode or calibration modes.



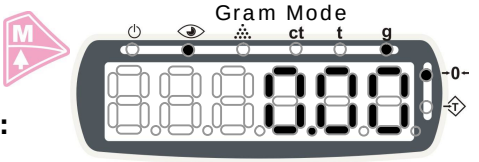
5.4.1 PRICE ENTRY: Press and hold the P button for 2 seconds. The display will show “00000” with the last digit blinking. You can change the value of the blinking digit by pressing the M or up arrow key. Assuming that you need to set a value of say “5400” press the Up arrow key 5 times and press P (or left arrow) button When you press the left arrow the blinking digit moves towards left. Using the up arrow and left arrow key enter the value “5400” and press ZERO to confirm. Now put a weight say 100g on the pan and press P button. The value calculated with blink 3 times





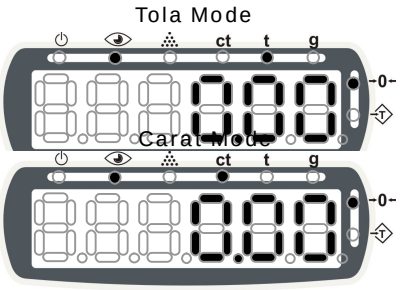


5.4.2 LEFT ARROW KEY: This is used while entering settable values or calibration weight etc.



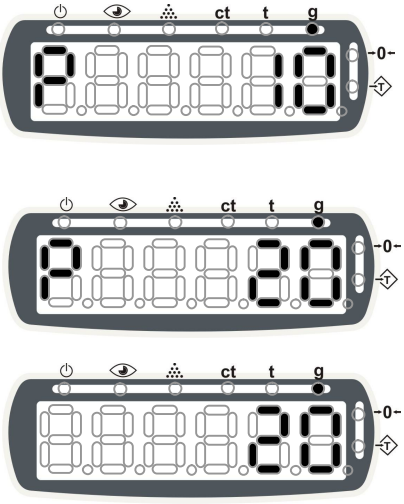
5.5 MODE BUTTON / UP ARROW KEY:

This butdton is used to select the different units of weight available in the scale, that is to choose between the units of carat, tola, and gram.



5.6 COUNTING BUTTON / PRINT BUTTON:

This button is used to put the scale in the counting mode and also for the printing the weight data on the printer using the RS232serial output of the scale (optional)



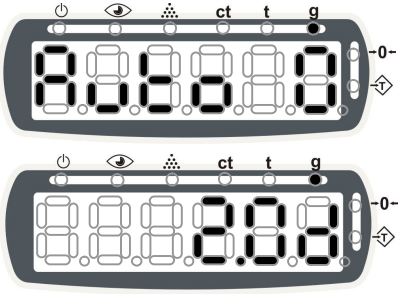
5.6.1 COUNTING FUNCTION: When the scale is displaying 0.00, press this button, the display will show “P 10” which is the number of pieces. You can select between values of 10, 20, 50 and 100 using the Up arrow button. Once the number of pieces is displayed, keep the same number of pieces on the weighing pan and press the ZERO button and hold it for 2 seconds. The weight of the pieces kept on the weighing pan is displayed as the number of

pieces selected. Simply press the counting button once, if the user wants to exit the counting function to come in to the weighing mode.

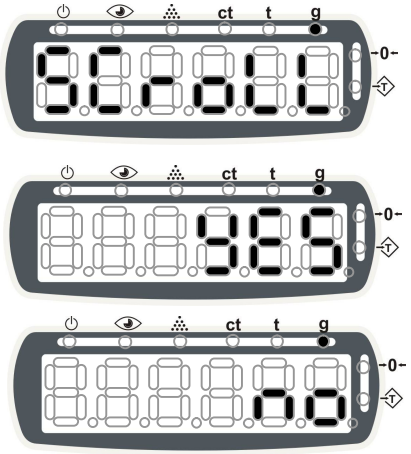
5.6.2 PRINT FUNCTION: When a certain weight value or counting value or percentage value is being displayed, keep this button pressed for three seconds. The display will now show “PRINT”. Press enter button, the will show “DONE” and go back to the working mode.

6 SCALE SETTINGS:

This menu allows you to do various setting related to scale like auto zero, glow, scroll mode, dummy zero setting, dual range, filter etc.



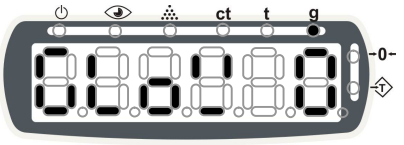
6.1 AUTO ZERO SETTING: Press and hold the TARE button and then switch on the scale. The display will show “Auto 0” (Valid Values are 0.0, 0.5, 1.0, 2.0 and 3.0d). This is the auto zero setting. Press there ZERO button You can now select the value using the MODE (M) button. 3.0d means 3 divisions Default setting of Auto-Zero mode is 3d.

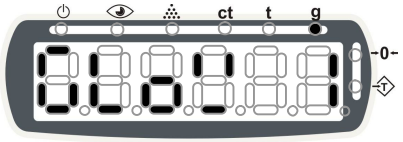


6.2 SCROLL SETTING

When the scale is switched on and it is idle, there are 2 types of modes which we can choose from, and the display will perform accordingly. When the display shows “SCROLL” in the scale setting mode, press the ZERO button and the display will show “Yes” or “No”. You can

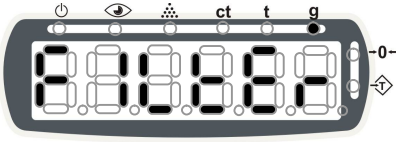
press the MODE button, and user can choose whether the scrolling function is required or not. If the price scrolling function is required user should select “Yes”, and if it is not required then the user should select “No”. Press the ZERO button, to exit this setting. Now the scale will scroll the rate entered in the price entering function, that is when the scale is switched on and idle, the display will start scrolling “today’s rate 10 gm 5500”



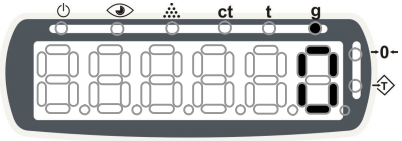


6.3 LED GLOW: The display GLOW strength can be increased or decreased depending upon the user requirement. Increasing the GLOW of the display will effect the Battery back up time, and the battery life. The GLOW setting is set to minimum by Default. If the user wants to increase the GLOW of the display, it can be done as follows:

In setting mode when display shows “Glow 0“ press the MODE button. On pressing the MODE button, you will notice the GLOW of the display is increased. If the user wants to keep this setting, simply press the ENTER button, until the display comes back to the weighing mode. It is important to note that when the scale is switched off and then switched on again, the display Glow setting will again be set to GLOW 0 by default.



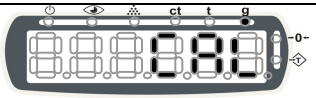
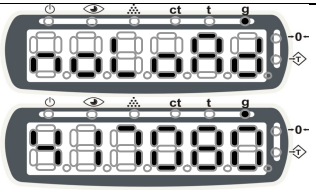
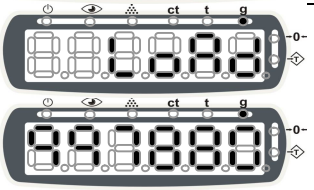
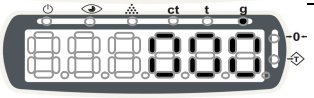
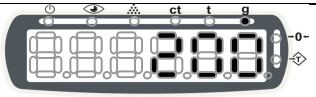
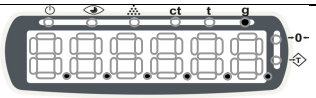
6.4 FILTER SETTING: This setting is used to set the speed of the display. When the display shows “FILTER” press 0. Valid values are 0, 1, 2, 3 which can be selected using the mode button. 0 is the fastest and 3 is the slowest mode.

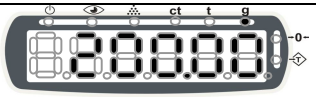


7 CALIBRATION

All SMART weighing scales come pre-calibrated from the factory. However the scale may require re-calibration. Temperature changes, geographic gravity variations, altitude changes and abuse are few reasons why a scale may need recalibration. The scales can be calibrated using a known external weight.

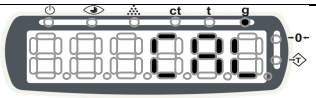
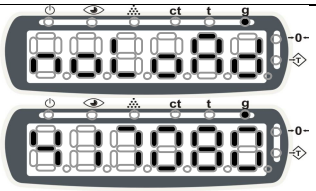
7.1 EXTERNAL USER CALIBRATION

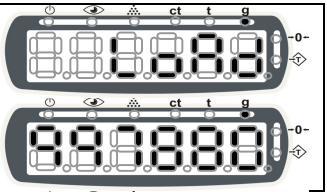
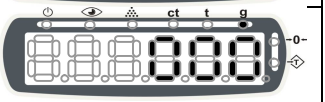
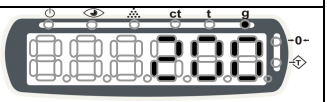
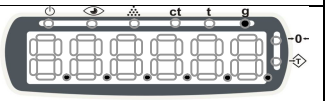
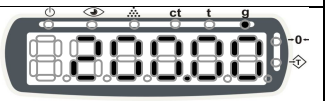
STEP	PROCEDURE	DISPLAY
1	To start calibration turn the scale off and then turn it on. During the count down, press and hold down the Zero button (do not release until the display shows “CAL"	
2	Make sure there is no weight on the pan. Press Zero / Enter key and the display shows “noLoAd” momentarily and shows the counts at zero level.	
3	Pause for 2 seconds at the previous step and press Zero/Enter key. The display shows “LoAd” momentarily and shows the internal counts.	
4	Put a known weight on the weighing pan (Ex.: 200g). Press the Enter key. The display will now show all “000” with the units digit blinking.	
5	If you put 200g weight, Enter “200”. Change the blinking digit by pressing the mode button. Shift the changed digit to left by pressing the “P” button once.	
6	Press the Enter key once again. The display will show “.....” for some time and then show the weight	

7	With the weight still on the pan, the display will now show the weight that is calibrated. Check calibration to ensure the scale is reading correct	

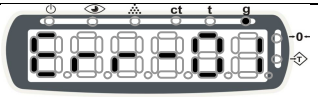
7.2 INTERNAL SERVICE CALIBRATION

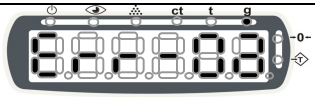
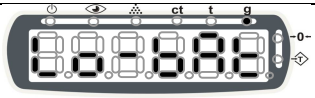
Internal calibration also referred as service calibration requires opening the machine and changing the jumpers. It is advisable to do this step only if you have required assistance or the service personnel assisting you to do this.

STEP	PROCEDURE	DISPLAY
1	Open the 4 screws from the bottom of the machine and change the calibration jumper marked CAL. Now place back the cover, ABS pan and the SS pan and switch on the machine. Make sure there is nothing kept on the weighing pan. At this moment do not put back the screws, simply place the cover on the machine.	
2	To start calibration turn the scale off and then turn it on. During the count down, press and hold down the Zero button (do not release until the display shows “CAL"	
3	Make sure there is no weight on the pan. Press Zero / Enter key and the display shows “noLoAd” momentarily and shows the counts at zero level.	

4	Pause for 2 seconds at the previous step and press Zero/Enter key. The display shows “LoAd” momentarily and shows the internal counts.	
5	Put a known weight on the weighing pan (Ex.: 200g). Press the Enter key. The display will now show all “000” with the units digit blinking.	
6	If you put 200g weight, Enter “200”. Change the blinking digit by pressing the mode button. Shift the changed digit to left by pressing the “P” button once.	
7	Press the Enter key once again. The display will show “.....” for some time and then show the weight	
8	With the weight still on the pan, the display will now show the weight that is calibrated. Check calibration to ensure the scale is reading correct.	
9	Turn of the machine. Replace the CAL jumpers back to the original position. Tighten the screws and close the covers of the machine as it was in the original condition.	

ERROR CODES

ERROR – DISPLAY	Error	Solution
	• Zero not in range	Remove weight from pan and restart the machine. If the problem persists, the machine may have been overloaded.

	• Weight not enough for the selected setting	Keep weight or Add more weight on pan for correct results.
	• LOW Battery. Machine displays message and turns off	Battery is low. Connect scale to power so that the battery can be charged.

8 TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	REMEDY
Scale will not power on	If running on batteries, the battery may have fully discharged. AC Power cord not connected.	Connect scale to power source. Recharge battery
Battery does not give enough backup	The battery is defective. The battery may have past its useful life. (Generally 6months – 1 year)	Change the battery.
Weight reading on scale does not stabilize	External Rubbing / Friction A scale cannot measure accurately if an object is rubbing or pressing against the scale platform. Mobile interference, Vibration or wind could be other possible reasons	Move the scale away from mobile signal, breeze or vibration areas.
Scale does not show weight accurately	Improper calibration	Calibrate the scale again to and check for the problem again.
External calibration is not stored after switch on / off the machine	This happens when the Internal to External calibration variance larger than 2%. The cause could be that the user is not using correct weight.	Use correct weights to calibrate. If the problem persists, calibrate the scale using internal calibration routine.