

500.0 g x 0.1 g, RS-232/USB

DIGITAL SCALE

Model : GM-500



Your purchase of this DIGITAL SCALE marks a step forward for you into the field of precision measurement. Although this DIGITAL SCALE is a complex and delicate instrument, its durable structure developed. Please read the following instructions carefully and always keep this manual within easy reach.

OPERATION MANUAL

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1. FEATURES

- * 500 g measuring capacity with 0.1 g resolution.
- * Built-in self-calibration system, high precision.
- * RS 232 PC serial interface.
- * Full capacity tare function capability.
- * Only one control button on front panel, easy operation.
- * Battery or DC adapter power supply.
- * Large LCD display, Stainless platform.
- * Durable & portable housing plastic case.
- * LOAD CELL transducer, high precision.
- * Gram and Oz display unit, select by rear switch.
- * Use exclusive microprocessor LSI-circuit, high reliability.

2. SPECIFICATIONS

Display	18 mm(0.7") LCD, 5 digits w/annunciator.
Measuring Capacity	500.0 g/17.6 oz.
Resolution	0.1 g/0.005 oz.
Min. Display Weight	0.3 g/0.015 oz.
Accuracy	0.1 % + 3 d) * After the moment when the self-calibration be executed.
Unit Select	g or oz, select by internal slide switch.
Sampling Time	Approx. 0.8 second.
Tare Control	Full capacity.
Transducer	Load cell.
Circuit	Exclusive LSI-circuit.
Data Bus	RS-232 serial output.
Cabinet Size	250 x 190 x 50 mm
Platform Size	Round, 120 mm Dia.
Power Supply	6 x 1.5V AA (UM-3) BATTERY, or DC 9V adapter.
Power Consumption	Approx. DC 27 mA.

Accessory Included	Manual.....1 PC.
Calibration Weight WT-200, optional	The 200 gram standard weight that use for executing the self-calibration.
RS-232 cable, Model : UPCB-01	RS-232 cable for connecting between scale & the computer, optional.
Software SCALE-U002	Counting scale software, optional.

3. FRONT PANEL DESCRIPTION

Side view

Bottom view

Front view

Back view

Fig. 1

- 3-1 Platform
- 3-1a Level Bubble
- 3-2 Calibration Button
- 3-2a Tare Button
- 3-3 Display
- 3-4 Power Switch
- 3-5 Rubber Pads
- 3-6 Battery Cover/Compartment
- 3-7 DC 9V receptacle
- 3-8 RS232 Output Socket
- 3-9 Calibration Plate
- 3-10 Unit Switch

4. PLATFORM INSTALLATION

Fig. 2

5. MEASURING PROCEDURE

- 1) Place scale on a flat hard surface.
Adjust the "Rubber Pad"(3-5, Fig. 1) until the water bubble of the "Level Bubble"(3-1a, Fig. 1) on the center position, then the scale already install under the horizontal position completely.
- 2) Set the "gm" or "oz" unit by slide the "Unit Switch" (3-10, Fig. 1).
 - * Use the "-" type screw driver to slide the "Unit Switch".
 - * The scale are preset to the "gm" unit typically.
 - * Slide the "Unit Switch" to the right position will set to "gm" unit & the right down corner of LCD will show the "g" marker.
 - * Slide the "Unit Switch" to the left position will set to "oz" unit, but the LCD display will not show any marker.
- 3) Turn the "Power Switch"(3-4, Fig. 1) to the On position. The Display(3-3, Fig. 1) will show "8.8.8.8.8" for a few seconds, then "0" will appear again.
- 4) Apply the load to the platform gently, display will show the measuring weight values.
 - * Do not exceed the over load capacity of the scale.
 - * Over weighting, the display will show "EEEE".
- 5) Tare function :
After weighting the first item, press "Tare Button" (3-2a, Fig. 1), scale will reset to zero values automatically. At the same time, the LCD display will show the "Tare" mark. Place next weighted item onto scale. Scale will give weights of the second only.
 - * **If the display show "- - - -", means the display reading is under the zero, then tare function should be execute again.**
 - * **The max. tare capacity is the full capacity(500g).**

- * The "Tare" marker will disappear until "Power Off" and "Power On" again.

6. SELF-CALIBRATION

- 1) Prepare a 200 gram standard weight (WT-200, optional).
- 2) Select the display unit to "gram".
Power on the scale until the display show zero value.
Apply the 200 gram standard to the center of the platform gently,
- 3) Press the "Calibration Button" (3-2, Fig. 1), then the display will show the value of " 200.0 0.1 g "
Then the scale is calibrated completely & ready for the measurement accurately.

Consideration of Self-Calibration :

- * The internal Self-Calibration correction data is save to the memory circuit a while. Once power off, then the correction data will disappear .
- * The permanent calibration procedure should be execute according the procedure of "Quick Calibration" (11-1)

7. BATTERY REPLACEMENT

If battery is weak, LCD display will show "LO" indicator. This reminds user to replace new battery.

- 1) Open "Battery Cover"(3-6, Fig. 1) located at the bottom of the scale.
- 2) According to the device instruction, place batteries(1.5V AA size battery x 6 PCs) into the battery compartment & replace the battery cover.

8. DC 9V AC/DC ADAPTER OPERATION (Adapter is optional accessory)

- 1) The scale will also be operated by the household ACV power source (110/220/240 ACV) with a DC 9V AC/DC Adapter(capacity 300 mA).
- 2) Plug the jack from the Adapter into the "DC 9V receptacle"(3-7, Fig. 1).
- 3) Now the scale is ready for ACV operation.

9. RS232 PC SERIAL INTERFACE

The instrument features an RS232 output via 3.5 mm Terminal (3-8, Fig. 1).

The connector output is a 11 digit data stream for "gram" & 12 digit data stream for "oz", which can be utilized to the user's specific application.

An RS232 lead with the following connection will be required to link the instrument with the PC serial input.

Scale (3.5 mm jack plug)	PC (9W 'D' Connector)
Center Pin.....	Pin 2
Ground/shield.....	Pin 5

The data stream will be displayed in the following format :

gram

11 digit data stream :

D10	D9	D8	D7	D6	D5	D4	D3	D2	D1
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Each digit indicate the following status :

D0	CR	CR = Enter (code is "A")
D1	LF	LF = Line feed (code is "D")
D2	g	
D3 to D5	SPACE	
D6 to D9	Display reading, D6=LSD, D9=MSD	
D10	SPACE	

oz

12 digit data stream :

D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1
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Each digit indicate the following status :

D0	CR	CR = Enter (code is "A")
D1	LF	LF = Line feed (code is "D")
D2	Z	
D3	O	
D4 to D5	SPACE	
D6 to D10	Display reading, D6=LSD, D10=MSD	
D11	SPACE	