G1 Series

Energy Genius General Weighing Scales

Operation Manual

V219 June 2015

Specifications subject to change without prior notice

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1. Before Started

1.1 Placing the scale

Place the scale on a strong and level surface. Avoid using this scale in environment where excessive wind flow, vibration and extreme temperature change exist.

1.2 Power

This instrument can be powered: -

- 3 x D size dry batteries (not include), or
- External USB power cord (included).

Insert batteries according to polarity signs marked on battery holder. Do not install any rechargeable battery inside, scale does not recharge battery.

1.3 Warm Up Time

Allow one minute of warm up period before usage. Warm up period is needed to energy all components to reach a stable status.

1.4 Seal & Serial Number

This scale is legal for trade only when it is sealed (and/or stamped) and bearing a serial number. Do not attempt to break the seal (or stamp) or serial number affixed to scale. Contact your dealer for more information and after sales service.

1.5 Metrological Legislation

Because of metrological legislation, installation and some metrological parameter settings / changings are limited to be done by authorized personnel only. Do not attempt to change any of the built-in parameters of F60 ~ F99. Contact your dealer for installation and technical assistance.

1.6 In Case in Doubt

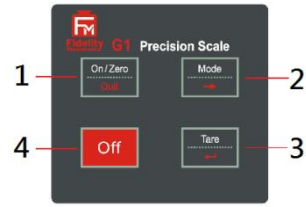
Always contact your dealer for operation doubts and after sales service.

2. Specifications

Model	Capacity (Max)	Division (d)	
		Standard	High
G1-3000	3000g	0.5g	0.2g
G1-7500	7500g	1g	0.5g
G1-15K	15kg	0.002kg	0.001kg
G1-30K	30kg	0.005kg	0.002kg
A/D & Internal Resolution	• 24 bit Delta to Sigma to Delta (Δ-Σ) Analog-to-Digital Converter		
Digits & Indications	• 6 x 31mm HTN Bold Type Wide Angle LCD Numeric Digits • Gross, Net, Stable, Zero, Weight Unit, Battery Level Indicators		
Max. Tare Range	- Max (Subtractive Tare)		
Estimated Battery Operation Hours	> = 4000 hours with backlight with 3 x D size Alkaline Batteries		
Power Consumption	3mA without backlight. 12.2mA with backlight		
Power Source	• 3 x D size Dry Batteries (not included) • External DC 5V Input (USB Power Cord Included, Charger not included)		
Platter	ABS Patter with 210 x 250mm Stainless Steel Insert		
Operation Environment	5 ~ 40°C. Non-condensed. R.H.≦ 85%		

Specifications subject to change without prior notice

3. Keys, Display & Connections

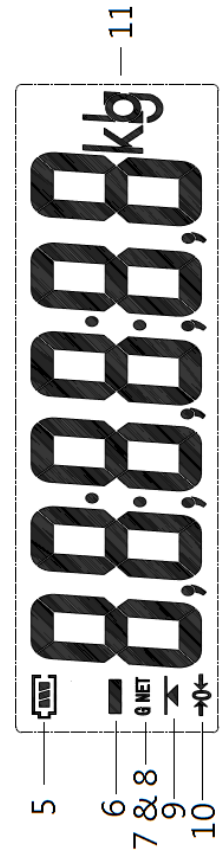


1. On/Zero Key
Turn scale on or to set weight displayed to zero when an empty scale has drifted away from a true zero reading.

2. Mode Key
To trigger the pre-defined function set forth in internal function F30.

3. Tare Key
Press this key to tare off the weight of a container.

4. Off Key
Press this key to turn scale off.



5. Battery Level Indicator
Battery level is shown here.

6. Minus Sign
Visible when a negative value is displayed.

7. Gross Indicator
Visible when gross weight reading is displayed.

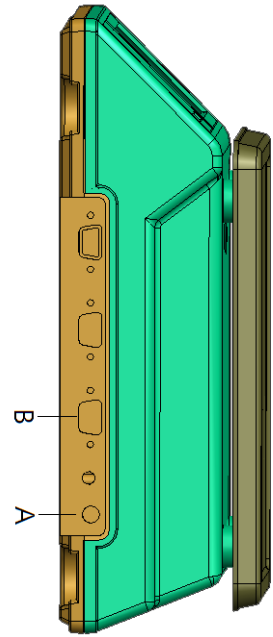
8. Net Indicator
Visible when the tare function is in effect.

9. Stable Indicator
Visible when weight reading is stable.

10. Zero Indicator
Visible when instrument is at true zero weight status.

11. Weight Units Indicator

Current weight unit is shown here.



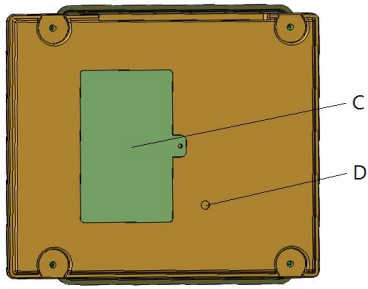
A. DC Jack Input

External power adaptor is plugged in here. Output requirements of the power adaptor: -

- DC5V
- Polarity: - Centre Positive

B. RS232 Comport (DB9)

RS232 communication comport.



C. Battery Compartment

To access to battery compartment, unlock the locking screw.

D. Under Pan Weighing Access Hole

Access hole for under pan weighing hook. Thread size = M4 x 0.7.

4. Initial Setup

Different internal checking and setting functions are built-in. Refer to below table for details.

4.1 Internal Function Table

Function No.	Description	Parameters / Notes Underlined = Default Setting
F1	Internal Analogue to Digital (ad) Value.	**Notes: -** • ***When ADC is more than 1 million. W1 sign will appear. Actual ADC is = 1 million plus the ADC value being displayed.*** • ***When ADC is more than 2 million. W2 sign will appear. Actual ADC is = 2 million plus the ADC value being displayed.*** • ***Off set value is usually around 2 million counts.*** • ***Press [On/Zero] to set offset value to zero when unloaded. Then add load on the platform to observe the span value of load applied.*** • ***Each 1 mV is roughly equal to about 111000 counts.*** • ***To quite F1, press [Tare].***
F2	All Segment Check	**All display segments and backlight will be lit on. Use this function to check if there are any missing segments.**
F3	Capacity, Division & Default	**Display basic metrology characteristics (capacity, division and weight unit) set. Value displayed when in single range**

	Weight Unit	**mode = Max + 1d.**					
F6	**Set F7~F28 to Default**	**NO**			**YES**		
	If YES is selected, Long press [Mode] to confirm or press [Tare] to quit or Off to power off. After system is reset, Instrument displays DonE then return to F6 automatically.						
F7	**Auto Power Off Time (Minute)**	**From off to 20 in 6 steps. Default = 5**					
F8	**Backlight**	**Off**		**ON**		**Auto**	
	When Auto is selected, backlight will goes off when weight remains unchanged for 5 second.						
F9	**Weight Unit Enable / Disable**	**kg or g (Off / On)**		**lb (Off / On)**			
	Set metric weight unit first then press [Tare] to set lb, then press [Tare] to save and return to internal function menu.						
F10	**Display Update Rate / Filter Strength**	**n 1**	**n 2**	**n 3**	**L 1**	**L 2**	**L 3**
	Notes: - • ***"n" = normal display update. Select this for filling / adding / removing applications or when more display update is needed.***						

	• *"L" = reduced display update. Select this for applications which weight changing process is not necessary.* **1 ~ 3 = filter strength: -** • *1 for bad working environment where vibration, wind flow… etc affect stable reading,* • *2 for normal environment,* • *3 for very good working environment (e.g. laboratory)*			
F12	**Auto Tare Function**	**OFF**	**ON**	**Contin**
	Notes: - • *Off = Auto Tare Function disable* • *On = Only first table weight applied will be tare off.* • *Contin = All stable weight applied will be tare off.* *Minimum tare weight requirements for parameter is set = "ON" or "Contin"* • *First Tare weight should ≥ 5d, otherwise Auto Tare will not function,* • *Second and onwards Tare weights ≥ 10d, otherwise Auto Tare will not function.*			
F13	**Repetitive Tare Control**	**OFF**	**ON**	
	If F12 is set = Contin, Repetitive Tare setting "Off" will be surpassed.			
F14	**Keypad Buzzer**	**OFF**	**ON**	
F16	**RS232**	**Off**	**Auto**	**Manual**	**PC**

	Output				
	• ***Off = no outpout.*** • ***Auto = auto output when weight is stable. Output = print format.*** • ***Manual = Manual output. Output = print format.*** • ***PC = Continuous output. Output = PC data format.*** **Notes: -** ***If Auto, Manual or PC is selected, set also: -*** • ***Baud rate = 4800, 9600, 19200, 38400, and then se*** • ***Parity = none, even, odd***				
F29	**Read Calibration and parameter set counts.** • ***O (Parameter set count): - shows total times the important parameters (F80~F88) has been altered.*** • ***C (Calibration count): - shows total times this instrument has been calibrated.***				
F30	**Mode Key Function Assignment**	**Unit**	**Print**	**Funset**	**rES**
	Notes: - • ***Unit = Weight Unit Conversion*** • ***Print = Manual Print*** • ***Funset = Function Set (F1 ~ F31 only)*** • ***rES = Swift between high and low resolution***				
F31	**Operation Mode**	**Eco**	**Normal**		
	Notes: - • ***Eco = Power Saving Mode. This mode can further increase battery operation hours for***				

	about 20%. Under this mode, Instrument will go to sleeping mode if detected weight remain unchanged for 10 second. • ***Normal = Normal Mode***

4.2 Enter Internal Function Mode

Follow the below steps to enter and select desired parameter of an internal function.

1. Power scale off and then power on again,
2. Press **[Tare]** during countdown,
3. Displays **F1**,
4. Scale is now in internal function.

Note: -

1. F1 ~ F31 are accessible without restriction,
2. F60 ~ F99 are restricted which are protected by password or hardware key. Do not change any settings of these functions.

4.3 Key Function when under Internal Function Mode

Key	Function under Internal Function Mode
On/Zero	• During password setting / entry status: - Increase numeric value by 1. • During other setting status: - quit without saving.
Mode	Goto next manual / Move cursor to one place right
Tare	• During power on countdown process: - Go to internal function. • During other setting status: - Enter & Save.
Off	Quit & Power off.

5. Operating the Scale

5.1 Power On & Off

- Press **[On/Zero]** to turn scale on.
- Press **[Off]** to turn scale on.

5.2 Set Weight value to zero when unloaded

Before weighing, make sure that value displayed is zero. If necessary, press **[On/Zero]** to set weight value to zero.

5.3 Manual Tare

Press **[Tare]** to tare off the weight of a container manually.

5.4 Auto Tare (F12)

This scale is equipped with 3 Auto Tare function (F12) parameters: -

a. Off = Auto Tare function disabled.
b. On = the first stable weight applied will be tare off automatically.
c. Contin = all stable weight applied will be tare off automatically.

5.5 Repetitive Tare (F13) Control

This scale is equipped with Repetitive Tare control, which is used to govern manual tare operation: -

a. Off = scale does not permit multiple manual tare operation.
b. On = multiple manual tare operation is allowed.

5.6 Cancel Tare Effect

a. Manual Tare mode: - Remove container then press **[Tare]**.
b. Auto Tare mode: - Tare effect is cancelled automatically when all loads and container applied are removed.

5.7 Assign a Function to [Mode] Key (F30)

Assign one of the below functions for **[Mode]** key.

a. **Unit** = weight unit conversion.
b. **Print** = send out print data manually.
c. **Funset** = function set.
a. **rES** = swift between standard and high-resolution mode.

6. RS232 Data Output (Optional)

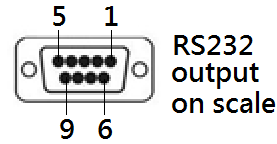
6.1 Set output format (F16)

If RS232 output is equipped, select one of the below output format: -

a. Off = no outpout.
b. Auto 1 = auto output when weight is stable. Output = print format.
c. Manual = Manual output. Output = print format.
d. PC = Continuous output. Output = PC data format.

6.2 RS232 Output pin Assignment

- pin 2 = TXD (data transmission)
- pin 3 = RXD (data receiving)
- pin 5 = Ground



6.3 Procedures of Connecting with an External Device

1. Power off scale and external devices,
2. Connecting scale and external device by a suitable cable or wireless modules,
3. Power on scale,
4. Power on external device.

6.4 PC Data Format[1] [2]

Data is transmitted in ASCII code. Data format is listed on below table.

DATA BIT	DESCRIPTION
1~2	**MOTION STATUS** US = UNSTABLE ST = STABLE
3	**COMMA SEPARATION**
4~5	**NET/GROSS** NT = NET WEIGHT GS = GROSS WEIGHT
6	**SIGN** (Sign of weight reading)

[1] When F16 is set to **PC**.

[2] No data will be sent when overloaded.

	Positive = space. Negative = minus (-)
7~13	**WEIGHT VALUE** 7 digits weight value including location of decimal point. If there is no decimal point, then the first character = space.
14	**COMMA SEPARATION**
15~16	**UNIT** **kg = kilogram** **g = gram** **lb = pound**
17	**Cr**
18	**LF**

6.5 Auto & Manual Output Format[3]

3 lines will be transmitted as below: -

1. Net weight,
2. Tare Weight,
3. Gross Weight ,

6.6. ECO Mode (F31)

Under ECO mode, scale will switch to power saving status (represented by flashing weight unit) if weight changes is less than 2d within a second or remains unchanged for 10 seconds.

7. Battery Level Indicator

Remaining battery level is displayed by the **Battery Level Indicator.**


Battery level ≥ 4.2V


Battery level ≥ 3.6V


Battery level ≥ 3.0V


Battery level ≥ 2.75

Flashing Frame ≤ 2.75V. Replace batteries immediately.

[3] When F16 is set to **Auto** or **Manual.**

Scale will power off automatically when voltage drops below 2.7V

8. Error Codes

Error Code #	Description
Err 3	Exceed manual zero range
Err 4	Offset out of range/unstable during power on
Err 5	No load cell signal detected
Err 6	Tare operation error
Err 13	Exceed maximum power on
Err 20	Calibration Error
Err 21	F30 key define error. Mode key defined as Print, while F16 set ≠ Manual
Err 22	Stability error of Zero, Tare, Print operation. Stable weight condition not acquired for more than 3 second. Key operation aborted.
JP Off	Accessing to specific function denied.
--oL--	Overload (Gross weight is more than Max plus 9d)
UndEr	Negative Weight values exceeds display range