AND GX-AE/GX-A/GX-AWP/GX-AWP Series Multi Function Balance User Guide

A&D Company, Ltd.

1WMPD4004249B
GX-AE/GX-A/GF-A
GX-AWP/GX-AWP
Quick Start Guide
GX-AE/GX-A/GF-A/GX-AWP/GF-AWP Series
Multi-Function Balance

Contents

Introduction

This manual describes the basic functions and operations of the balance.
For more details, refer to each manual listed in “1-1. List of Functions Explained in Separate Manuals”.

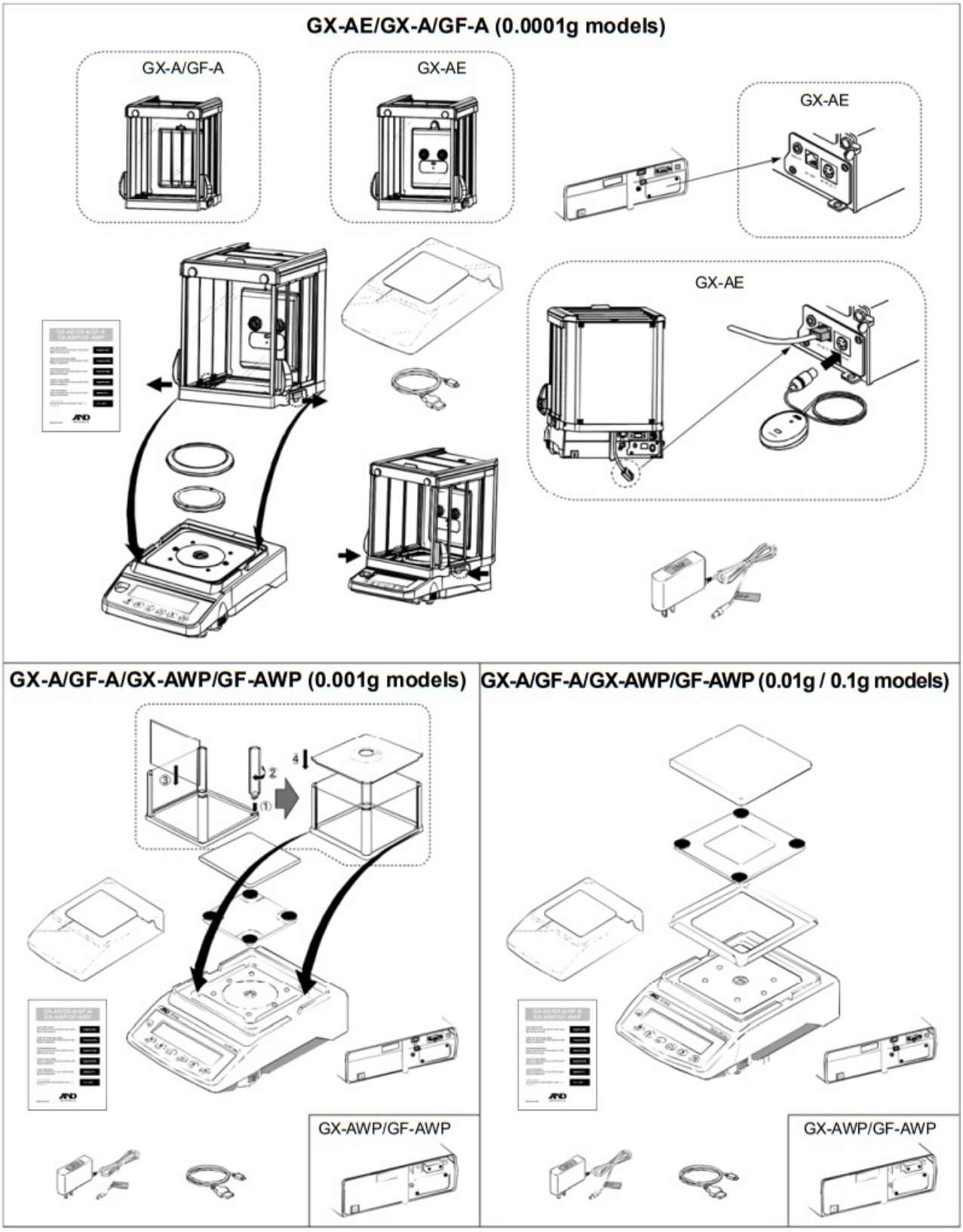
1-1 List of Functions Explained in Separate Manuals

The functions and operating procedures of the balance are explained in detail in other documents besides this manual.
The following three manuals can be downloaded from our website **https://www.aandd.jp**.

1. [Communication Manual]
   Using the communication function of the balance, a personal computer (PC) or printer
   This is a supplementary manual for connecting to peripheral devices.
2. [GX-AE/GX-A/GF-A/GX-AWP/GF-AWP Series Instruction Manual]
   This is an instruction manual for understanding and fully utilizing the precision electronic balance GX-AE/GX-A/GF-A/GX-AWP/GF-AWP series.
3. [Flow Rate Display (FRD) Function]
   This is a supplementary manual for using the flow rate measurement function (FRD: Flow rate display).

Installation and Precautions

The balance is a precision instrument. Unpack it carefully. Keep the packing material to be used for transporting the balance in the future. The packing contents depend on the balance model. See the illustrations to confirm that everything is contained.



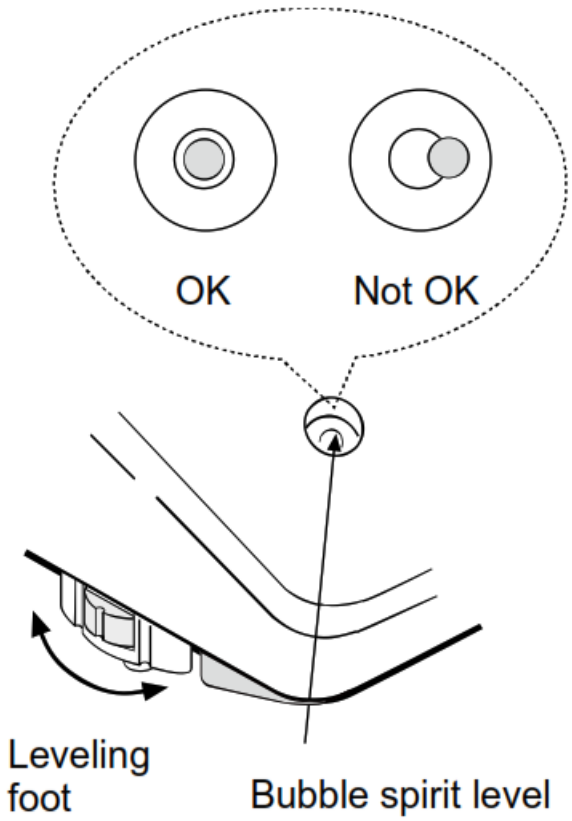
Note

- Please confirm that the AC adapter type is correct for your local voltage and receptacle type.
- Please use the specified dedicated AC adapter for the balance.
- Do not use the included AC adapter for models that are not considered compatible with the AC adapters.
- If you use the wrong AC adapter, the balance and other equipment may not operate properly.

2-1 Precautions

To get the optimum performance from the balance and acquire accurate weighing data, note the following:

- Install the balance in an environment where the temperature and humidity are not excessive.
  The best operating temperature is about 20°C±2°C at about 45 ~ 60%RH relative humidity.
- Install the balance where it is free of dust.
- The weighing table should be solid, free from vibration and drafts, and as level as possible. (An anti-vibration table or stone table is ideal)
- Install the balance in a stable place avoiding vibration and shock. The corners of rooms on the first floor are best, as they are less prone to vibration.
- Install the balance where it is not affected by heaters or air conditioners.
- Install the balance where it is not exposed to direct sunlight.
- Install the balance away from equipment that produces magnetic fields.
- Level the balance by adjusting the leveling feet and confirm it using the bubble spirit level.
- Warm up the balance for at least 30 minutes. Plug in the AC adapter as usual.
- Adjust the sensitivity of the balance before use or after moving it to another location. Refer to the separate instruction manual “7. Sensitivity Adjustment”.



About the GX-AWP/GF-AWP series

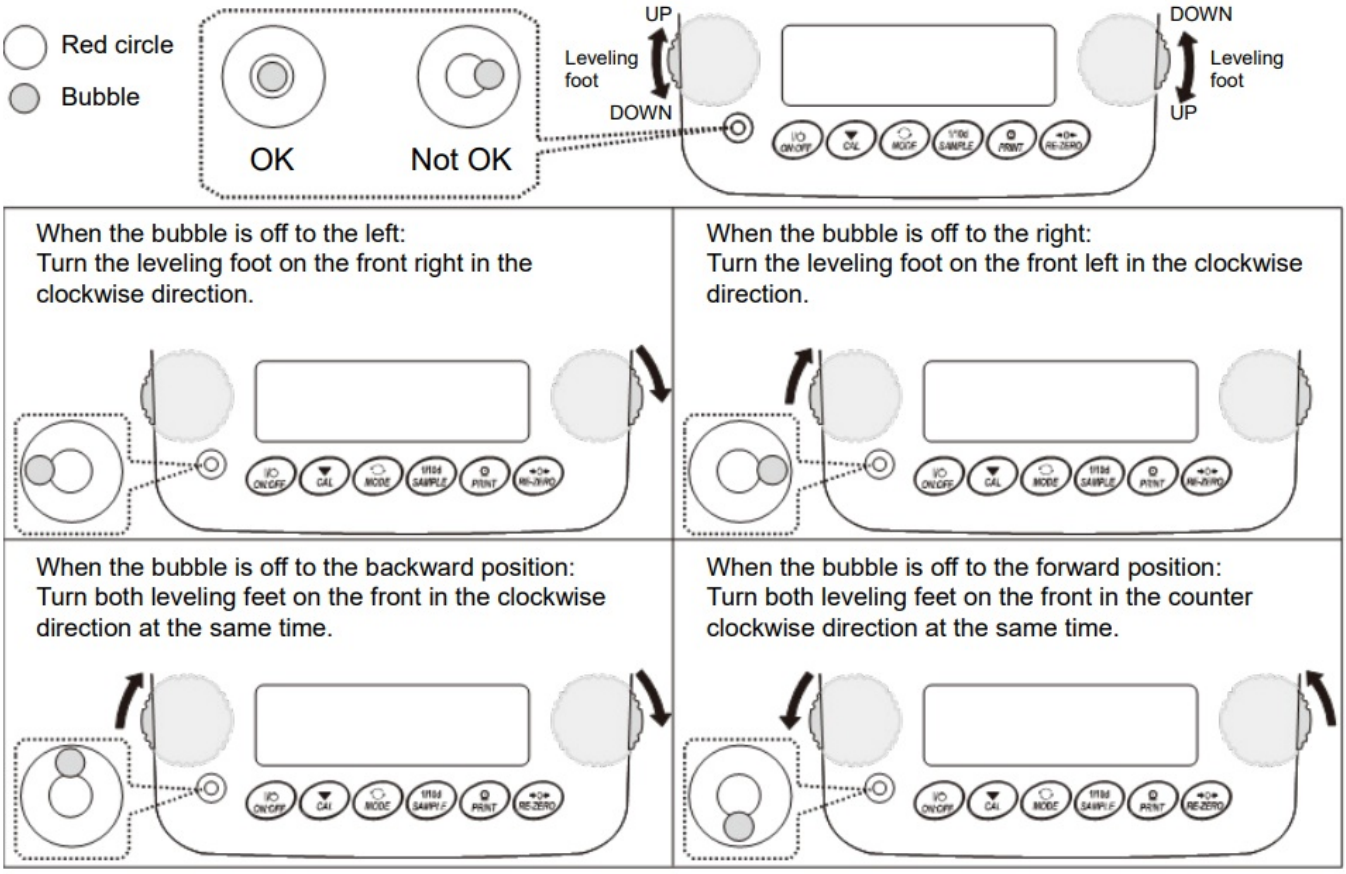
- The dustproof and waterproof level of the balance is equivalent to IP65, and its second digit, “5”, corresponds to “having no harmful influence by receiving a direct jet of water”. Washing with strong water pressure or submersion in water may cause water to enter the balance and cause a malfunction.
- When installing and using the balance under conditions requiring dustproof and waterproof performance, make sure that the AC adapter plug is fully inserted into the AC adapter jack and that the terminal cover is attached

to the RS-232C interface or the waterproof RS-232C cable (AXKO2737-500) is used.

- If the RS-232C terminal cover is removed or the waterproof RS-232C cable (AX-KO2737-500) is not used, protection against dust and water is not provided.

Caution
Do not install the balance where flammable or corrosive gas is present.

How to adjust the bubble spirit level



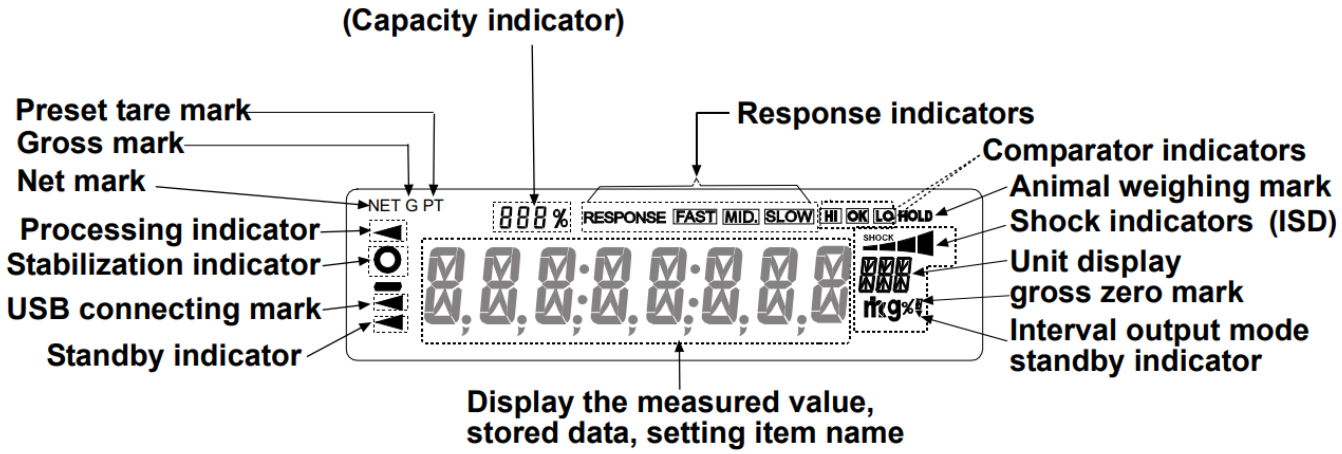
2-2 Connecting to a PC
At the factory settings, you can transfer weighing data from the balance to a PC by following the steps below (Quick USB mode).

1. Connect the balance and PC with the supplied USB cable.
2. When connecting for the first time, the PC will automatically start installing the driver.
3. Start up the PC software (Excel, etc.) for transmitting the weighing data.
4. Set the keyboard input mode to half-width. It is not entered correctly in the full-pitch setting.
5. Move the cursor to the place you want to input the weighing data.
6. When you press the PRINT key on the balance, weighing data will be transmitted from the balance and input at the location of the cursor.
7. Disconnect the USB cable when finished.
   For details, download the communication manual from the A&D website (**https://www.aandd.jp/**) and refer to “5. Connecting to a PC”.

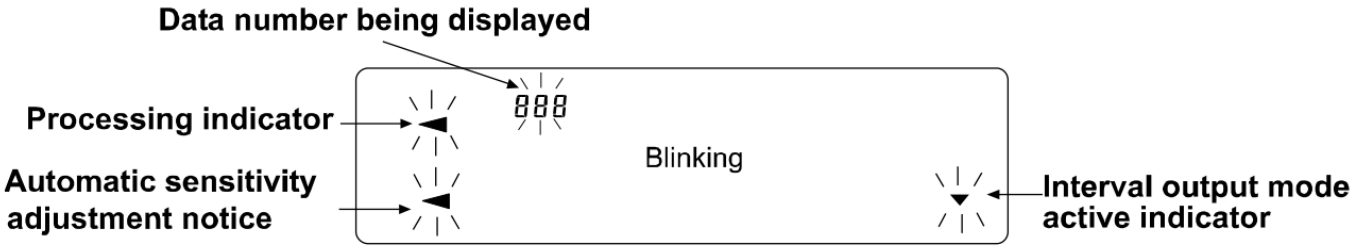
Display Symbols and Key Operation

Display symbols

- Number of statistical data (Statistical calculation mode)
- Displays the weight data relative to the weighing capacity, in percentage, in the weighing mode

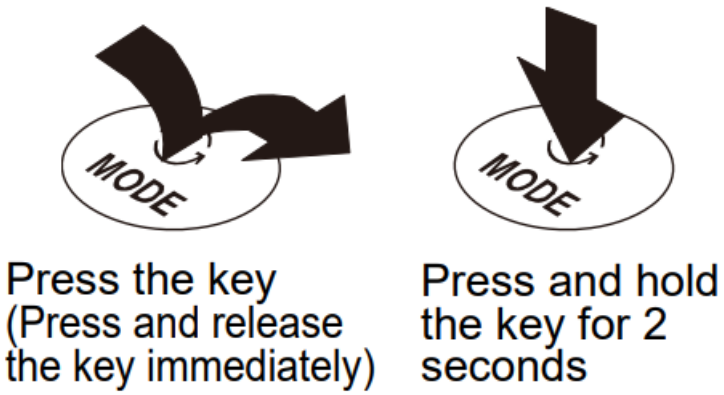


Blinking display contents



Key operation

Key operations affect how the balance functions. Normal key operation during measurement is “Press and release the key immediately” or “Press the key”. Please do not “Press and hold the key (for 2 seconds)” unless required.



Key	When pressed and released	When pressed and held (for 2 seconds)
	Turns the display ON: and of. The standby indicator is displayed when the display is turned off. The weighing mode is enabled when the display is turned on. When the password function is enabled, the password input display will be displayed. Refer to the separate instruction manual “19-4 How to Input The Password At The Start Of Weighing” This ON: OFF key is available anytime. Pressing the ON: OFF key during operation will interrupt operation and turn the display OFF. *	
	In the weighing mode, turns the digit for readability on and off. In the counting or percent mode, enters the sample storing mode.	– Enters the function table mode. Please refer to the separate instruction manual “9. Function Table”. – Runs the repeatability check function when pressed and held for another 2 seconds after the function table menu is displayed. (GX-AE/GX-A/GX-AWP series only) Please refer to the separate instruction manual “20. Repeatability Check Function”.
	Switches the weighing units stored in the function table. Refer to “4. Weighing”. Displaying of the unit mg is available for 0.0001g models only.	Displays other items on the calibration menu. Please refer to the separate instruction manual “6-2 Self Check Function/Automatic Setting Of Minimum Weighing Value by ECL”.
	Performs sensitivity adjustment of the balance using the internal mass. (GX- AE/GX-A/GX-AWP series)	Displays other items of the sensitivity adjustment menu.
	Stores the weighing data in memory or outputs to a printer or personal computer depending on the function table settings. (Factory setting = output)	Enters mode to change the unit mass registration number in counting mode. By changing the function table: – Outputs “Title block” and “End block” for GLP, GMP report. – Displays the data memory menu. – Enters mode for reading density number in flow measurement.
	Sets the display to zero.	

* When the “Gross net tare function” is selected, the display is turned off by pressing and holding (for 2 seconds). Please refer to the separate instruction manual “14. Gross Net Tare Function”.

Sensitivity Adjustment

Since the balance’s resolution is high, weighing values may change due to gravity and daily environmental changes.

4-1 Automatic Sensitivity Adjustment (GX-AE/GX-A/GX-AWP Series Only)

The GX-AE/GX-A/GX-AWP series automatically adjusts the balance sensitivity using the built-in weight according to the temperature change of the operating environment or the set time and interval time. For details, refer to “7-1 Automatic Sensitivity Adjustment” in the separate instruction manual.

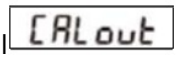
4-2 Sensitivity Adjustment Using The Internal Mass (GX-AE/GX-A/GX-AWP Series Only)

Sensitivity adjustment using the internal mass can be performed with one key press.

1. Connect the AC adapter and warm up the balance for at least 30 minutes with nothing on the weighing pan.
2. Press the **CAL** key. The balance displays  .
3. The balance performs sensitivity adjustment using the internal mass. Do not allow vibration or drafts to affect the balance.
4. After sensitivity adjustment, if the “GLP output  ” parameter of the function table is set, the balanced outputs a sensitivity adjustment report.
5. The balance will automatically return to weighing mode.

4-3 Sensitivity Adjustment Using an External Weight

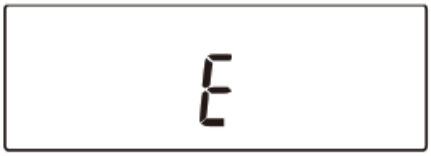
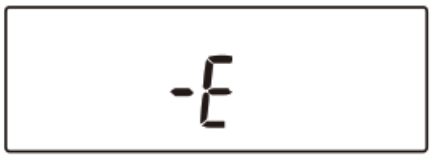
This function adjusts the sensitivity of the balance using an external weight.

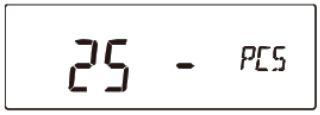
1. Connect the AC adapter and warm up the balance for at least 30 minutes with nothing on the weighing pan.
2. Press and hold the **CAL** key for 2 seconds until  is displayed, then release the key.
3. Make sure that nothing is on the weighing pan and press the **PRINT** key to weigh the zero point. Do not apply vibration, etc.
4. Place the external weight on the weighing pan and press the **PRINT** key. Do not apply vibration etc.
5. Remove the external weight from the weighing pan.
6. After sensitivity adjustment, if GLP output is set, a “sensitivity adjustment report” is output or stored in data memory.
7. The display automatically returns to the weighing display.
8. Place the external weight again and check that the set value is ± 2 digits.
   If it is out of range, pay attention to the surrounding environment and start from “1”.

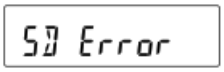
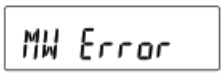
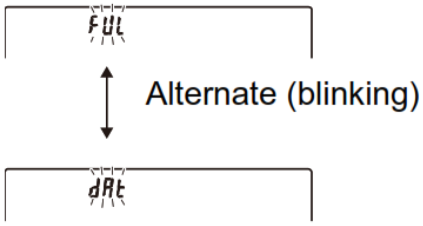
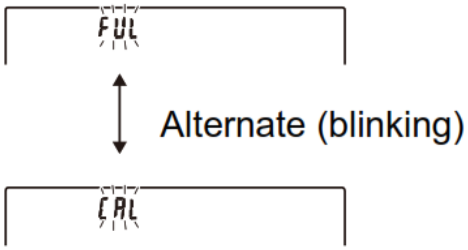
4-4 Error Codes

Display **Error code**	**Description**
 EC, E11	**Stability error** The balance cannot stabilize due to an environmental problem. Che ck around the pan. Prevent vibration, drafts, temperature changes, static electricity, and magnetic fields, from influencing the balance. Refer to the separate instruction manual “2-3 During Use”. To return to the weighing mode, press the CAL key.

	**Out of the setting range** The data to be stored is out of the setting range.
	**Malfunction of the internal memory element of the balance** If this error continues to be displayed, please request a repair.
 EC, E16	**Internal mass error** Applying the internal mass does not yield a change in the mass valu e as specified. Confirm that there is nothing on the pan and perform the weighing o peration from the beginning again.
 EC, E17	**Internal mass error** The internal mass application mechanism does not function properl y. Perform the weighing operation from the beginning again.
	**Abnormality in the internal memory data of the balance** If this error continues to be displayed, please request a repair.
	**Abnormality in the internal memory data of the balance** If this error continues to be displayed, please request a repair.
 EC, E20	**Sensitivity adjustment weight error (Positive value)** The sensitivity adjustment weight is too heavy. Confirm the mass va lue of the weight. Press the CAL key to return to the weighing m ode.

 EC, E21	**Sensitivity adjustment weight error (Negative value)** The sensitivity adjustment weight is too light. Confirm the mass value of the weight. Press the CAL key to return to the weighing mode.
	**Overload error** A sample beyond the balance weighing capacity has been placed on the pan. Remove the sample from the pan.
	**Weighing pan error** The mass value is too light. Confirm that the weighing pan is properly installed and adjust the sensitivity of the balance.

Display Error code	Description
	**Sample mass error** The balance cannot store the sample for the counting mode or for the percent mode because it is too light. Use a larger sample.
  	**Unit mass error** The sample unit mass for the counting mode is too light. Storing and using it for counting will cause a counting error. Add samples to reach the specified number and press the **PRINT** key. Pressing the **PRINT** key without adding samples will shift the balance to the counting mode. But, for accurate counting, be sure to add samples.
	**Clock battery error** The clock backup battery has been depleted. Press any key and set the time and date. The clock and calendar function works normally as long as the AC adapter is connected to the balance. If this error appears frequently, contact the local A&D dealer.
	**Power supply voltage fault** The voltage supplied from the AC adapter is abnormal. Please check if the problem is the AC adapter supplied with the balance.

 	**ECL repeatability** With the self-check function, the standard deviation (SD) of repeata bility due to electronically controlled load (ECL) exceeded 50 digits. Please revise the installation environment of the balance.  This is displayed when repeatability is displayed by ECL.  This is displayed when the minimum weighing value (reference valu e) by ECL is displayed. Refer to the separate instruction manual “6-2 Self Check Function / Automatic Setting Of Minimum Weighing Value by ELC.
	**Full memory** The maximum number of stored weighing values has been reached. In order to store more weighing values, it is necessary to d elete the data. Refer to the separate instruction manual “11 Data M emory”.
	**Full memory** The stored sensitivity adjustment and calibration test history have r eached 50 instances. If more is stored, the old history will be delete d. Refer to the separate instruction manual “11 Data Memory”

Display Error code	Description
EC, E00	**Communications error** A protocol error occurred in communications. Confirm the format, b aud rate, and parity.
EC, E01	**Undefined command error** An undefined command was received. Confirm the command.
EC, E02	**Not ready** A received command cannot be processed. Example: The balance received a “Q” command, but not in the weig hing mode. The balance received a “Q” command while processing a RE-ZER O command. Adjust the delay time to transmit a command.
EC, E03	**Timeout error** If the timeout parameter is set to,  the balance did not receive the next character of command within the time limit of one second. Confirm the communication.
EC, E04	**Excess characters error** The balance received excessive characters in a command. Confirm the command.
EC, E06	**Format error** A command includes incorrect data. Example: The data is numerica lly incorrect. Confirm the command.
EC, E07	**Parameter setting error** The received data exceeds the range that the balance can accept. Confirm the parameter range of the command.

4-5 Other Display

Advice

This is the automatic sensitivity adjustment notice (the indicator blinking).
If the balance is not used for several minutes with this indicator blinking, the balance automatically performs sensitivity adjustment using the internal mass. The blinking period depends on the operating environment. The

balance can be used when this indicator is blinking, but we recommend that you perform sensitivity adjustment before weighing.

Specifications

	GX-124AE GX-124A GF-124A	GX-224AE GX-224A GF-224A	GX-324AE GX-324A GF-324A
Weighing capacity	122g	220g	320g
Maximum display	122.0084g	220.0084g	320.0084g
Readability	0.0001g		
Repeatability (Standard deviation)	0.0001g		0.0002g (300g) 0.0001g (200g)
Linearity	± 0.0002g		± 0.0003g

	GF-123A	GX-203A GF-203A GX-203AWP*2 GF-203AWP*2	GX-303A GF-303A	GX-403A GF-403A GX-403AWP*2 GF-403AWP*2	GX-603A GF-603A GX-603AWP*2 GF-603AWP*2	GX-1003A GF-1003A	GX-1603A GF-1603A
Weighing capacity	122g	220g	320g	420g	620g	1100g	1620g
Maximum display	122.084g	220.084g	320.084g	420.084g	620.084g	1100.084g	1620.084g
Readability	0.001g						
							0.002g
Repeatability (Standard deviation)	0.001g						(1600g) 0.001g (1000g)
Linearity	±0.002g					±0.003g	
Accuracy after							
sensitivity adjustment with internal mass *1	±0.010g						±0.010g (1000g)

	GF-1202A	GX-2002A GF-2002A GX-2002AWP*2 GF-2002AWP*2	GX-3002A GF-3002A	GX-4002A GF-4002A GX-4002AWP*2 GF-4002AWP*2	GX-6002A GF-6002A GX-6002AWP*2 GF-6002AWP*2	GX-10002A GF-10002A
Weighing capacity	1220g	2200g	3200g	4200g	6200g	10200g
Maximum display	1220.84g	2200.84g	3200.84g	4200.84g	6200.84g	10200.84g
Readability	0.01g					
Repeatability (Standard deviation)	0.01g					0.02g (10000g) 0.01g (5000g)
Linearity	±0.02g				±0.03g	
Accuracy after sensitivity adjustment with internal mass *1	±0.10g		±0.15g		±0.15g (5000g)	

*1 The operating environment does not include an excessive change in ambient temperature, humidity, vibration, drafts, magnetic fields, and static electricity.
*2 Compliant with IP65

	GX-6001A GF-6001A GX-6001AWP*2 GF-6001AWP*2	GX-10001A GF-10001A
Weighing capacity	6200g	10200g
Maximum display	6208.4g	10208.4g
Readability	0.1g	
Repeatability (Standard deviation)	0.1g	
Linearity	±0.1g	
Accuracy after sensitivity adjustment with internal mass *1	±0.5g (5000g)	

*1 The operating environment does not include an excessive change in ambient temperature, humidity, vibration, drafts, magnetic fields, and static electricity.
*2 Compliant with IP65

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Documents / Resources

	AND GX-AE/GX-A/GX-AWP/GX-AWP Series Multi Function Balance [pdf] User Guide GX-AE, GX-A, GX-AWP, GX-AWP, GX Series Multi Function Balance, Multi Function Balance

References

- A&D Company, Limited
- A&D Company, Limited