

GX-M/GF-M Series

GX-L/GF-L Series

Options

INSTRUCTION MANUAL

GXM-04 / GXL-04

GXM-06 / GXL-06

COMPARATOR OUTPUT


ANALOG VOLTAGE OUTPUT




A&D Company, Ltd.

Warning Definitions

Caution Sign

 Caution	Disregarding this note could result in injury or material damage.
--	---

Graphic Symbols

	The 'X' symbol indicates something users must not do (prohibited acts). Specific meanings are shown with words or illustrations inside/near the symbol. For example, the figure on the left side indicates "No impact".
---	---

Others

Caution	The description to take precautions to use the device correctly.
Advice	The description about the case when mishandling could occur or the general advice in using the device.
Note	The useful information in using the device.

The contents of this manual and the specifications of the instrument covered by this manual are subject to change for improvement without notice.

© 2019 A&D Company Ltd. All rights reserved.

No part of this publication may be reproduced, transmitted, transcribed, or translated into any language in any form by any means without the written permission of A&D Company Ltd.

Contents

1.	Introduction.....	4
2.	Features	4
3.	Packing List.....	5
4.	Installing the Option	5
4.1.	Installing the GXM-04/GXM-06.....	5
4.2.	Installing the GXL-04/GXL-06.....	6
4.3.	Assembling the mini-DIN connector	6
5.	Function Table of Balance	7
5.1.	Operation Keys and Display of Function Table.....	7
5.2.	Items List of the Function Table.....	8
6.	GXM-04 /GXL-04 Comparator Output.....	11
6.1.	Specifications of Comparator Output	11
6.2.	Using the Comparator Output.....	12
6.3.	Comparison Method Selection (Tolerance Range and Center Value or Threshold Values).....	14
6.4.	Setting Threshold Values.....	15
6.5.	Setting Center Value and Tolerance Range.....	16
7.	GXM-06 /GXL-06 Analog Voltage Output.....	18
7.1.	Specifications of Analog Voltage Output	18
7.2.	Function Table of Analog Voltage Output.....	19
7.3.	Voltage Output Selection.....	22
7.4.	Voltage Output Fine Adjustment	22
7.5.	Fixed Voltage Output	23

1. Introduction

This manual describes how the options for the GX-M/GF-M series and the GX-L/GF-L series (comparator output, analog voltage output) work and how to get the most out of it in terms of performance. Read this manual thoroughly before using and keep it at hand for future reference.

2. Features

The following options can be used for the GX-M/GF-M series and the GX-L/GF-L series.

- GXM-04/GXL-04 Comparator output (with buzzer)/External contact input x 2/RS-232C
- GXM-06/GXL-06 Analog voltage output/RS-232C

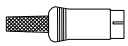
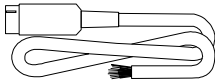
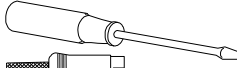

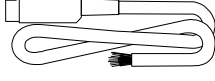
GXM-04/GXL-04: Comparator output/External contact input/RS-232C

- The GXM-04/GXL-04 can compare the weighing value and preset threshold values and can output the result to the contact output.
- The GXM-04/GXL-04 are equipped with six contact outputs: "HH", "HI", "OK", "LO", "LL" of the comparison output and "READY" output to indicate the status of the balance.
3-stage comparison or 5-stage comparison can be selected.
- The GXM-04/GXL-04 can sound a buzzer according to the comparison result.
- The GXM-04/GXL-04 are equipped with external control input terminals that can make the **RE-ZERO** and **PRINT** key operations. An optional foot switch (AX-SW137-PRINT, AX-SW137-REZERO) can be used.

GXM-06/GXL-06: Analog voltage output/RS-232C

- The GXM-06/GXL-06 can output analog voltage in the following modes:
"mode where the specified digits of the weighing value are converted to voltage" and
"mode where weighing value is converted to voltage in range between gross zero or net zero and full scale".
- The voltage output range can be selected using the "0V~/0.2V~" switch on the panel.
It can be selected "0 to 1 V" range and "0.2 V to 1 V" range. The factory setting is "0 to 1 V" range.

3. Packing List

GXM-04/GXL-04...	Mini DIN connector (8 pin, plug)	1	
	Cable with connector (AX-KO5692)	1	
	Cable length: 1.5 m		
	This manual	1	
GXM-06/GXL-06...	Screwdriver for adjustment	1	
	Mini DIN connector (4 pin, plug)	1	
	Cable with connector (AX-KO5692)	1	
	Cable length: 1.5 m		
	This manual	1	

4. Installing the Option

Caution

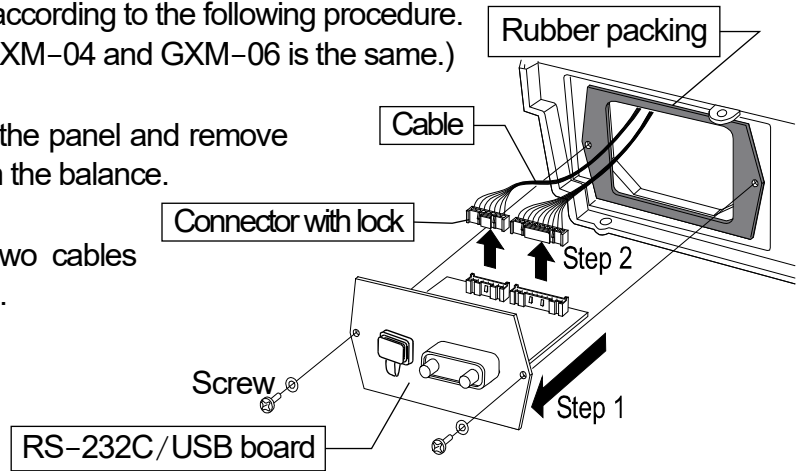
Disconnect the AC adaptor before installing the option to the balance.

4.1. Installing the GXM-04/GXM-06

Install the GXM-04 and GXM-06 according to the following procedure.
(The installation procedure of the GXM-04 and GXM-06 is the same.)

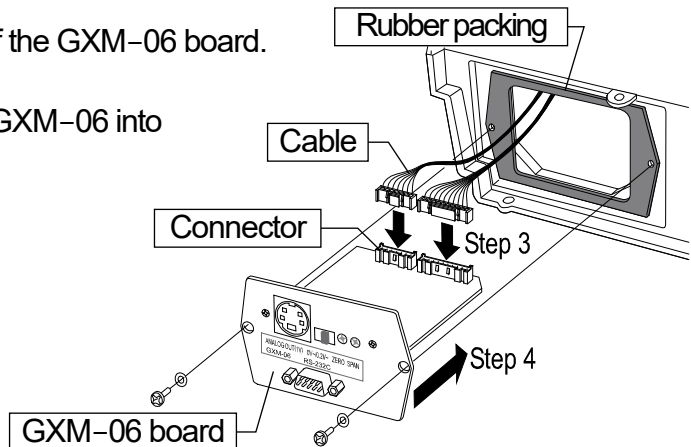
Step1 Remove the two screws from the panel and remove the RS-232C/USB board from the balance.

Step2 Pull gently and remove the two cables from the RS-232C/USB board.



Step3 Insert the two cables into the sockets of the GXM-06 board.

Step4 Insert the rubber packing and plug the GXM-06 into the balance.
Screw the panel of GXM-06.



Caution

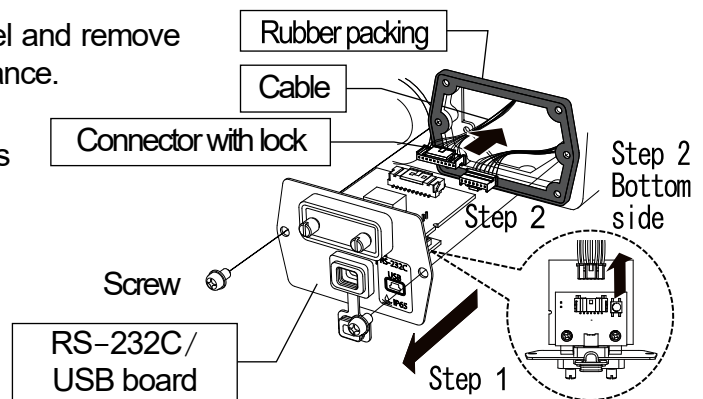
- When inserting the board, pay attention to its top and bottom orientation.
- The rubber packing has a deep groove on the balance side.

4.2. Installing the GXL-04/GXL-06

Install the GXL-04 and GXL-06 according to the following procedure.
(The installation procedure of the GXL-04 and GXL-06 is the same.)

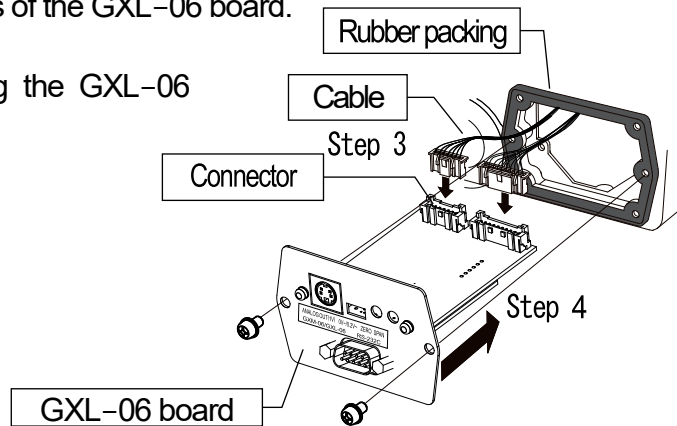
Step1 Remove the two screws from the panel and remove the RS-232C/USB board from the balance.

Step2 Pull gently and remove the two cables from the RS-232C/USB board.



Step3 Insert the two cables into the sockets of the GXL-06 board.

Step4 Insert the rubber packing and plug the GXL-06 into the balance.
Screw the panel of GXL-06.



Caution

- When inserting the board, pay attention to its top and bottom orientation.
- The rubber packing has a deep groove on the balance side.

4.3. Assembling the mini-DIN connector

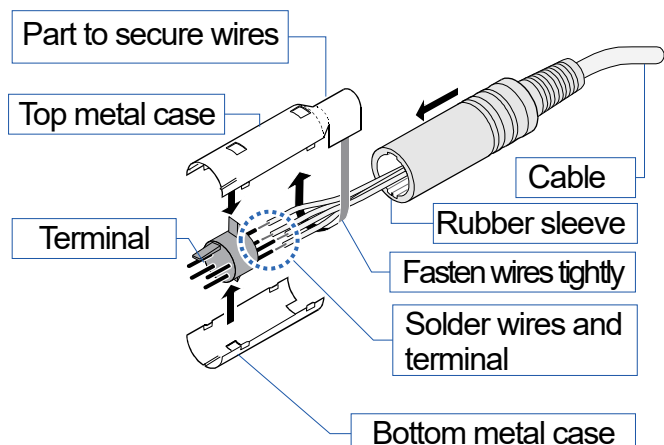
Step1 Pass the cable through the rubber sleeve.

Step2 Solder wires and terminal.

Step3 Cover the terminal with the top metal case and bottom metal case.

Step4 Fasten wires with the top metal case.

Step5 Insert the assembled parts into the rubber sleeve.

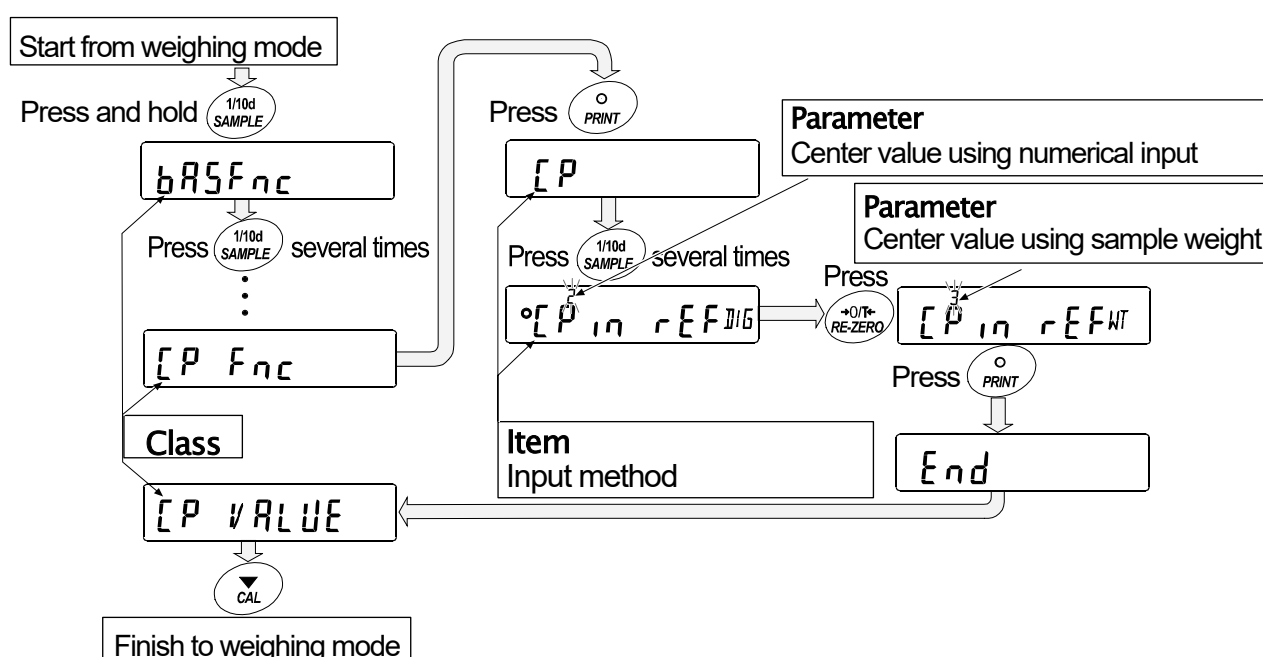


5. Function Table of Balance

The function table stores parameters that specify how to operate the balance, and it is used to monitor or update those parameters. These parameters are stored in memory even if the AC adaptor is removed and are retained until overwritten. Balance operations are specified by this table when using the GXM-04/GXL-04 and the GXM-06/GXL-06. The table menu consists of two layers as shown in the diagram below. The first layer is the "Class" and the second layer is the "Item". Each item stores a "Parameter". The last displayed parameter is in effect. After the **PRINT** key is pressed, these updated parameters are applied to operations of the balance.

Example of settings and menu structure (Example: the GXM-04)

Example : Set to "Center value using sample weight input" of "Input method" in "Comparator".



Caution

The balance may not function properly, depending on the settings and the operating environment. Be sure to set parameters correctly.

5.1. Operation Keys and Display of Function Table

	The ○ indicates that the parameter displayed is in effect.
	Enters the function table when pressed and held in the weighing mode. Selects the class or item in the function table.
*1	Changes the parameter.
*1	
	Moves to an item in the class when a class is displayed. Stores the new parameter and displays the next class when an item is displayed.
	Cancels new parameter and displays the next class when an item is displayed. Exits the function table and returns to the weighing mode when a class is displayed.

* 1 Press with the GX-M/GF-M series and with the GX-L/GF-L series.

5.2. Items List of the Function Table

Note Functions available differ by model of the balance.

Class	Item	Parameter	Description	
<i>bRSFnC</i> Environment·display			(Refer to the instruction manual of main unit)	
<i>[L Adj]</i> Clock adjustment				
<i>[P Fnc]</i> Comparator	<i>[P]</i> Comparator mode	■ 0	No comparison (Comparator is not used)	
		1	Comparison when stable value or overloaded	
		2	Comparison always	
	<i>[P-t]</i> Comparator method	■ 0	3-stage comparison	[HI], [OK], [LO]
		1	5-stage comparison	[HH], [HI], [OK], [LO], [LL]
	<i>[P-z]</i> Zero near	0	Comparison including near zero	
		1	Comparison excluding	±5 digits (counts) from zero
		■ 2	Comparison excluding	±10 digits (counts) from zero
		3	Comparison excluding	±20 digits (counts) from zero
		4	Comparison excluding	±50 digits (counts) from zero
	<i>[P-p]</i> Polarity	0	Comparison of positive values only	
		1	Comparison of negative values only	
		■ 2	Comparison of both polarities	
	<i>[P-r]</i> Comparison results	■ 1	Not added	Select whether or not to add the comparison results to the output data.
		2	Added	
	<i>[P in]</i> Input method	■ 0	Threshold value using numerical input	[P HH], [P H ₁], [P L ₀], and [P LL] are used.
		1	Threshold value using sample weight	
		2	Center value using numerical input	[P rEF], [P LMt] and [P LMt2] are used.
		3	Center value using sample weight	
	<i>[P-Frd]</i> Flow measurement	■ 0	Comparison by flow rate value	
		1	Comparison by weighing value (g)	
	<i>[P-b]</i> Main display comparison	■ 0	OFF	Displays the results on the main portion of the display in place of the weight value.
		1	ON	

Class	Item	Parameter	Description
[P VALUE Comparator threshold value	[P HH Second upper limit		Refer to explanation of "6. GXM-04/GXL-04 Comparator Output". Upper/lower limits when using the data input method ([P in] [0] or [P in] [1]) is selected. [P HH], [P LL] are displayed when 5-stage comparison ([P-t] [1]) is selected.
	[P H, Upper limit		
	[P L, Lower limit		
	[P LL Second lower limit		
	[P REF Center value		Refer to explanation of "6. GXM-04/GXL-04 Comparator Output". Reference value when using the data input method ([P in] [2] or [P in] [3]) is selected. [P LME2] is displayed when 5-stage comparison ([P-t] [1]) is selected.
	[P LME Tolerance range from center value		
	[P LME2 Second tolerance range from center value		

- indicates factory settings. Digit is the unit of minimum division (readability).

Class	Item	Parameter	Description	
[P] bEEP Comparator buzzer	bEP HH HH buzzer	■ 0	Off	Displayed only when 5-stage comparison ([P-t] [I]) is selected.
			On	
	bEP H, Hi buzzer	■ 0	Off	
			On	
	bEP ok OK buzzer	■ 0	Off	
			On	
bEP Lo Lo buzzer	■ 0	Off		
		On		
bEP LL LL buzzer	■ 0	Off	Displayed only when 5-stage comparison ([P-t] [I]) is selected.	
		On		
dout Data output	(Refer to instruction manual of main unit)			
SIF Serial interface				
USB USB interface				
Rout Analog output	Rn Analog output mode	■ 0	2-digit output mode	Displayed only when the GXM-06/GXL-06 are connected.
			3-digit output mode	
		2	Net full scale output mode	
		3	Gross full scale output mode	
	SEL Output digit selection	■ 0	First digit	Displayed only when the GXM-06/GXL-06 are connected.
			Second digit	
		2	Third digit	
		3	4th digit	
		4	5th digit	
		5	6th digit	
6	7th digit			
RP Fnc Application	(Refer to instruction manual of main unit)			
MW Fnc Alarm function for minimum weighing value				
Unit Unit				
dS Fnc Density function				
id ID number				
PASSwd Password lock				
Ruto CAL * Automatic calibration				
[S in] * Internal mass value correction	(Refer to instruction manual of main unit)			

■ indicates factory settings. *: Settings for the GX-M/GX-L series only.

6. GXM-04/GXL-04 Comparator Output

The comparator output (GXM-04/GXL-04) has the function to compare between the weighing value and preset second upper limit, upper limit, lower limit or second lower limit. The result of comparison can be output to the contact. When the contact is shorted, this option can select whether or not to sound the buzzer.

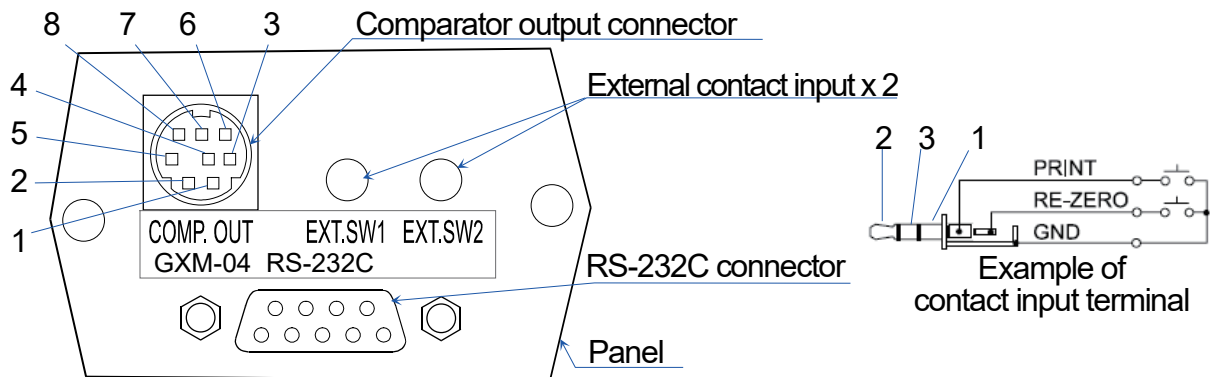
Note Optional foot switch (AX-SW137-PRINT, AX-SW137-REZERO) or other external switches can be used.

6.1. Specifications of Comparator Output

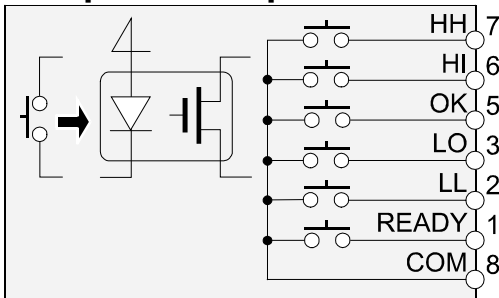
Maximum contact voltage:	50 V DC
Maximum contact current:	100 mA DC
Maximum contact resistance:	20 Ω
Output connector	Compatible plug : 8 pin mini DIN connector [Female] (Accessory) E8-200J-100 or equivalent
External contact input connector	Compatible plug : φ3.5 mm 3 pole mini stereo jack MP-013LC or equivalent parts

Panel External View (Example: The GXM-04)

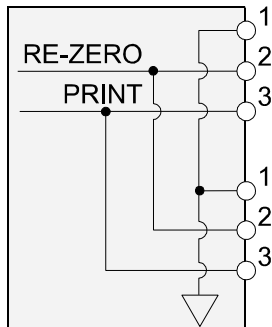
* The panel external view of the GXL-04 is same as that of the GXM-04. Their panel sizes only are different.



Comparator output circuit



External contact input circuit



Pin assignments and wire colors of accessory cable

Pin No.	Description	Wire color
1	READY Output	Red
2	LL Output	White
3	LO Output	Black
4	N.C. No connection	Yellow
5	OK Output	Blue
6	HI Output	Green
7	HH Output	Brown
8	COM	Gray
Housing	Case	Shield

Pin No.	Description
1	GND
2	RE-ZERO External contact input
3	PRINT External contact input

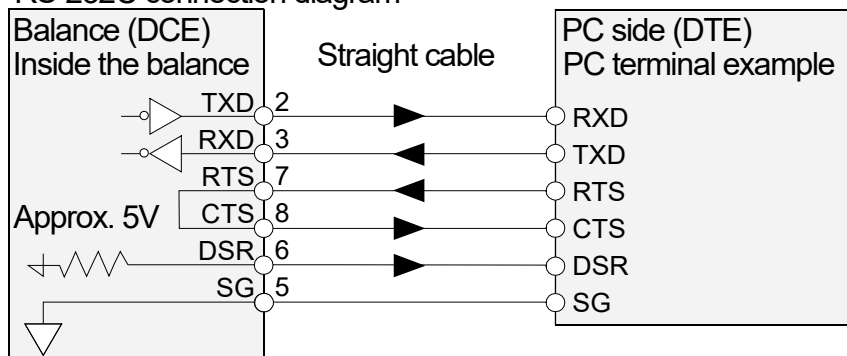
Optional foot switch can connect to either input.

Using External Contact Input

When 1 pin and 3 pin or 1 pin and 2 pin of lead wire of optional foot switch (AX-SW137-PRINT, AX-SW137-REZERO) is shorted 100 ms or longer, it can be operated the same as the **PRINT** key and **RE-ZERO** key on the panel.

Although the GX-L series do not have the **RE-ZERO** key, they operate re-zeroing performance (update the zero point within the zero range, run tare operation beyond the zero range).

RS-232C connection diagram



6.2. Using the Comparator Output

This option can output results of the 3-stage comparison or 5-stage comparison that is specified at "Comparison method (**[P-1]**)" in the function table of the balance.

Comparison results are displayed using **HI**, **OK**, **LO** and are output using contacts of I/O terminals. Comparison tolerance ranges are the following 3 types and they can be specified at "Comparator mode (**[P]**)" in the function table.

"No comparison", "Comparison when stable value or overloaded", or "Comparison always"

The range of near zero can be specified at "Near zero (**[P-2]**)" in the function table.

There are two types of comparison method. One is the method using second upper limit, upper limit, lower limit and second lower limit. Another is the method using center value and tolerance range. There are two types of input methods for second upper limit, upper limit, lower limit and second lower limit. One is the numerical input. Another is the input using sample weight.

Balance can sound a buzzer according to the comparison result. That can be specified at "Comparator buzzer (**[P bEEP]**)" in the function table.

Caution

When weighing value is not displayed in performing RE-ZERO, etc., READY contact becomes "open". When weighing value is displayed, READY contact becomes "short".

3-stage comparison result 3-stage comparison – display, contact output

Weighing value		Result	Display	Contact output			Buzzer
Threshold value	Formula			HI	OK	LO	
UL	$UL < WV$	HI	HI illuminated	Short		Open	bEP HI
LL	$LL \leq WV \leq UL$	OK	OK illuminated		Short		bEP OK
	$WV < LL$	LO	LO illuminated	Open		Short	bEP LO

Weighing value: WV, Upper limit: UL, Lower limit: LL

5-stage comparison result 5-stage comparison – display, contact output

Weighing value		Result	Display	Contact output					Buzzer
Threshold value	Formula			HH	HI	OK	LO	LL	
SUL	$SUL < WV$	HH	HI blinking	Short					bEP HH
UL	$UL < WV \leq SUL$	HI	HI illuminated		Short		Open		bEP HI
LL	$LL \leq WV \leq UL$	OK	OK illuminated			Short			bEP OK
SLL	$SLL \leq WV < LL$	LO	LO illuminated		Open		Short		bEP LO
	$WV < SLL$	LL	LO blinking					Short	bEP LL

Weighing value: WV, Second upper limit: SUL, Upper limit: UL, Lower limit: LL, Second lower limit: SLL

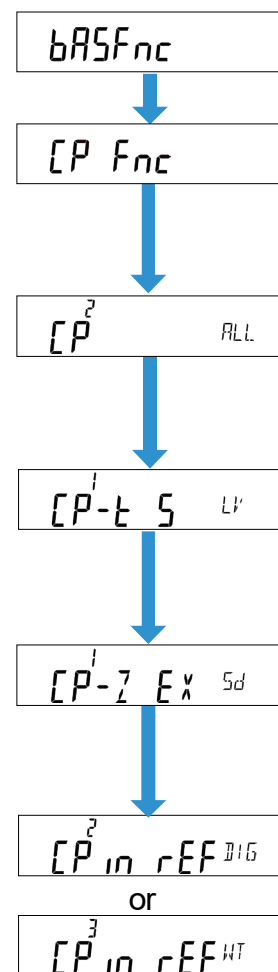
6.3. Comparison Method Selection (Tolerance Range and Center Value or Threshold Values)

Setting Example (GXM-06)

Comparison always	[P]	[2]	
5-stage comparison	[P-t]	[1]	
Comparison excluding ±5 digits (counts) from zero	[P-z]	[1]	
Comparison of both polarities	[P-P]	[2]	Factory setting
Center value using numerical input	[P in]	[2]	or
Center value using sample weight	[P in]	[3]	

Procedure

- Step 1 Press and hold the **SAMPLE** key to enter the function table.
bASFnC is displayed.
- Step 2 Press the **SAMPLE** key to display [P Fnc] (Comparator).
- Step 3 Press the **PRINT** key to enter [P Fnc] (Comparator).
- Step 4 Press the **RE-ZERO** key several times to display [P] [2]
 (Comparison always).
- Step 5 Press the **SAMPLE** key to display [P-t] (Comparison method).
- Step 6 Press the **RE-ZERO** key to display [P-t] [1] (5-stage comparison).
- Step 7 Press the **SAMPLE** key to display [P-z] (Near zero).
- Step 8 Press the **RE-ZERO** key several times to display [P-z] [1]
 (Comparison excluding ±5 digits (counts) from zero).
- Step 9 Press the **SAMPLE** key several times to display [P in]
 (Input method).
- Step 10 Press the **RE-ZERO** key several times to select input method.
[P in] [2] (Center value using numerical input) or,
[P in] [3] (Center value using sample weight)
- Step 11 Press the **PRINT** key to store new settings and use them.



Advice

- The GX-L/GF-L series operates with the **ZERO** key instead of the **RE-ZERO** key.
- The separate instruction manual also describes the setting example. It is downloadable from A&D website <https://www.aandd.jp> for reference.

6.4. Setting Threshold Values

This explanation uses $[P-t]$ $[1]$ (5-stage comparison) and specifies $[P_{in}]$ $[0]$ (Threshold value using numerical input) or $[P_{in}]$ $[1]$ (Threshold value using sample weight) to $[P_{in}]$ (input method) in the function table and inputs the threshold value.

Selecting an input method

(If $[P_{in}]$ $[0]$ or $[1]$)

Step 1 Press and hold the $[SAMPLE]$ key to enter the function table. $bASFC$ is displayed.

Step 2 Press the $[SAMPLE]$ key several times to display $[P VALUE]$ (Comparator threshold value).

Step 3 Press the $[PRINT]$ key to enter $[P VALUE]$ (Comparator threshold value).

Step 4 Press the $[SAMPLE]$ key several times to input threshold value. Refer to the following "Threshold value using numerical input" or "Threshold value using sample weight".

Step 5 If the $[PRINT]$ key is pressed when threshold value is displayed, the current parameters are displayed (all digits blinks).

Numerical input of threshold values

(If $[P_{in}]$ $[0]$)

Step 6 If changing the parameters, press the $[RE-ZERO]$ key to store the following keys.

$[SAMPLE]$ key	Moves blinking digit.
$[RE-ZERO]$ key	Changes value of blinking digit.
$[MODE]$ key	Changes polarity.
$[PRINT]$ key	Stores and proceeds to step 7.
$[CAL]$ key	Cancels and proceeds to step 7.

If the current parameters will be maintained, press the $[PRINT]$ or $[CAL]$ key to proceed to step 7.

Step 7 Repeat step 4, 5 and 6 for other threshold values.

Storing threshold values using sample weight

(If $[P_{in}]$ $[1]$)

Step 8 Press the $[RE-ZERO]$ key to display $0.00 g$.

Put the sample on the weighing pan and press the $[PRINT]$ key to store weighing value as the threshold value.

$[RE-ZERO]$ key	Resets display of the balance to zero.
$[PRINT]$ key	Stores weighing value and proceeds to step 9.

Step 9 Repeat step 4, 5 and 8 for other threshold values.

Advice

- The GX-L/GF-L series operates with the $[ZERO]$ key instead of the $[RE-ZERO]$ key.

Storing threshold values using RS-232C commands from peripherals

- * The second upper limit, upper limit, lower limit and second lower limit can be specified using RS-232C commands from peripherals.

Example command	HH : +1000.000 ␣ ␣g	second upper limit
	HI : +0800.000 ␣ ␣g	upper limit
	LO : +0600.000 ␣ ␣g	lower limit
	LL : +0400.000 ␣ ␣g	second lower limit
		␣ : space of ASCII code 20 h

6.5. Setting Center Value and Tolerance Range

This explanation uses $[P-t]$ $[1]$ (5-stage comparison), specifies $[P_{in}]$ $[2]$ (Center value using numerical input) or $[P_{in}]$ $[3]$ (Center value using sample weight input) to $[P_{in}]$ (input method) in the function table, and compares using the center value and numerical input of tolerance range.

Selecting a input method

(If $[P_{in}]$ $[2]$ or $[3]$)

Step 1 Press and hold the $[SAMPLE]$ key to enter the function table.

$bA5FnC$ is displayed.

Step 2 Press the $[SAMPLE]$ key several times to display $[P\ VALUE]$ (comparator threshold value).

Step 3 Press the $[PRINT]$ key to display $[P\ VALUE]$ (comparator threshold value).

Step 4 Press the $[SAMPLE]$ key several times to display "Center value using numerical input" or "Center value using sample weight". Specify the center value, tolerance range and second tolerance range.

Numerical input of center value

(If $[P_{in}]$ $[2]$)

Step 5 Press the $[PRINT]$ key while displaying $[P\ rEF]$. The current parameter is displayed (all digits blinking). If parameter does not need to be changed, press the $[PRINT]$ key or $[CAL]$ key and proceed to step 6. If the parameter is to be changed, press the $[RE-ZERO]$ key and change it using the following keys.

$[SAMPLE]$ key	Moves blinking digit.
$[RE-ZERO]$ key	Changes value of blinking digit.
$[MODE]$ key	Changes polarity.
$[PRINT]$ key	Stores and proceeds to step 6.
$[CAL]$ key	Cancels and proceeds to step 6.

Step 6 Proceed to "Storing tolerance range from center value using numerical input".

Storing center value using sample weight

(If $[P_{in}]$)

Step 7 Press the $[PRINT]$ key while displaying $[P_{rEF}]$. The current parameter is displayed (all digits blinks). Press the $[RE-ZERO]$ key to enter to the sample weight input mode. Press the $[RE-ZERO]$ key to display 0.00 g . Put sample of center value on the pan and press the $[PRINT]$ key. The current parameter can be confirmed (all digits blinking). Press the $[PRINT]$ key to store the center value.

Step 8 Next, $[P_{LMt}]$ is displayed.

Step 9 Proceed to "Storing tolerance range from center value using numerical input".

Storing tolerance range from center value using numerical input

Step 10 Press the $[PRINT]$ key while displaying $[P_{LMt}]$. The current parameter is displayed.

If the tolerance range is to be changed, change it using the following keys.

Input the tolerance range with center value assumed to be 100%.

$[SAMPLE]$ key	Moves blinking digit.
$[RE-ZERO]$ key	Changes value of blinking digit.
$[PRINT]$ key	Stores and proceeds to step 11.
$[CAL]$ key	Cancels and proceeds to step 11.

Step 11 Press the $[PRINT]$ key while displaying $[P_{LMt2}]$. The current parameter is displayed.

If the second tolerance range is to be changed, change it using the following keys.

Input the second tolerance range with center value assumed to be 100%.

$[SAMPLE]$ key	Moves blinking digit.
$[RE-ZERO]$ key	Changes value of blinking digit.
$[PRINT]$ key	Stores and proceeds to step 12.
$[CAL]$ key	Cancels and proceeds to step 12.

Step 12 Press the $[CAL]$ key to return to weighing mode.

Advice

- The GX-L/GF-L series operates with the $[ZERO]$ key instead of the $[RE-ZERO]$ key.

7. GXM-06/GXL-06 Analog Voltage Output

The analog voltage output (GXM-06/GXL-06) can convert the specified weighing value to analog voltage between 0 and 1 V and output it.

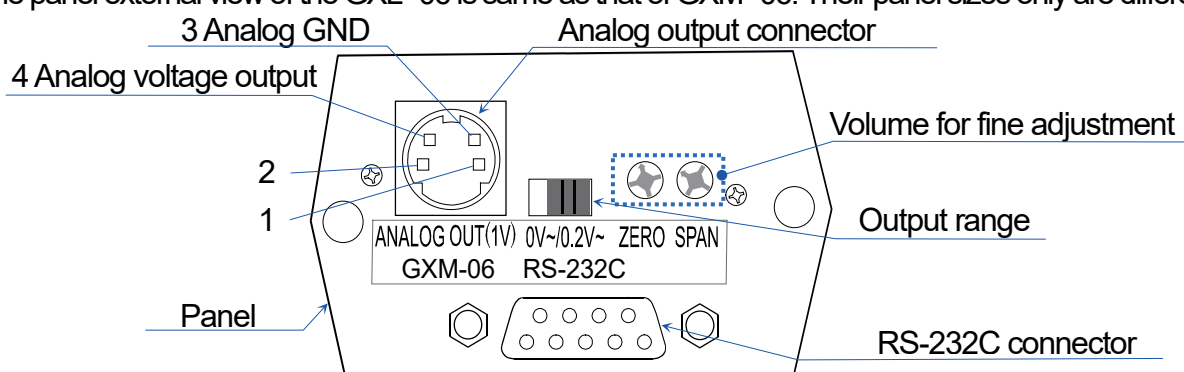
7.1. Specifications of Analog Voltage Output

Analog Voltage Output

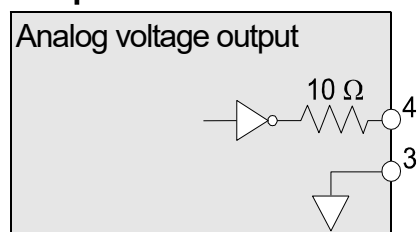
Output impedance	100 Ω or less	
Linearity	± 0.3% or less	
Output connector	Compatible plug:	4 pin mini DIN connector [Female] (Accessory) E4-200J-100 or equivalent
Pin connections	Output	4 pin
	GND	3 pin
Output range	0 V to 1 V	With the slide switch set to "0V~"
	0.2 V to 1 V	With the slide switch set to "0.2V~"
Input impedance of the device connected	10 kΩ or greater	
Output update	To be updated depending on the cycle of display rewriting. The cycle is changeable with the function table (Spd) of the balance. (Approximately 5 times/second, 10 times/second, 20 times/second)	

Panel External View (Example: The GXM-06)

* The panel external view of the GXL-06 is same as that of GXM-06. Their panel sizes only are different.

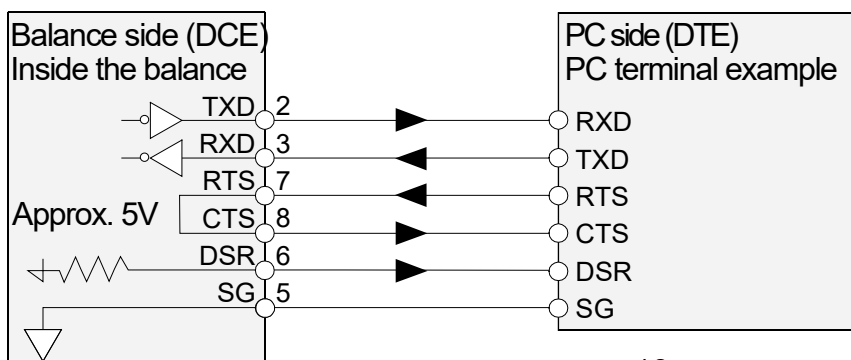


Output circuit



Pin assignments and wire colors of accessory cable

Pin No.	Description	Wire color
1	N.C. No connection	Black
2	N.C. No connection	Blue
3	Analog GND (0V)	Red
4	Analog voltage output	White
Housing	Case	Shield



7.2. Function Table of Analog Voltage Output

R_{out} of the function table can be selected when this option is connected.

R_{out} Analog output

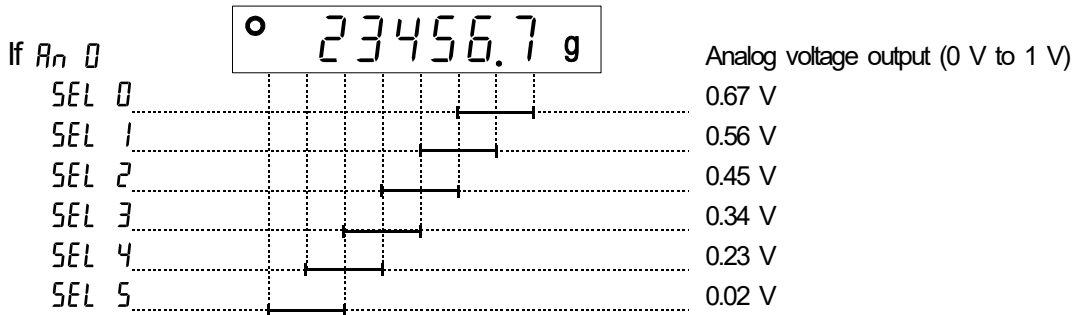
Item	Parameter	Description
R_n Analog output mode	■ 0	2-digit output mode Converts 2 consecutive digits with minimum digit selected by SEL to voltage.
	1	3-digit output mode Converts 3 consecutive digits with minimum digit selected by SEL to voltage.
	2	Net full scale output mode Outputs 0.000 V when the net weight is zero. Outputs 1.000 V when the net weight is full scale. Output is 0.000 V when zero is set using the RE-ZERO key.
	3	Gross full scale output mode Outputs 0.000 V when the gross weight is zero. Outputs 1.000 V when the gross weight is full scale. Tare operation using the RE-ZERO key will not affect the output. (Note: If tare is extremely light, tare operation might change the zero point. Thus affecting the output.)
SEL Output digit selection		Specify minimum digit to be output at R_n mode. When R_n is set to 0 or 1, the setting is in effect.
	■ 0	Specify first digit as minimum digits.
	1	Specify second digit as minimum digits.
	2	Specify third digit as minimum digits.
	3	Specify 4th digit as minimum digits.
	4	Specify 5th digit as minimum digits.
	5	Specify 6th digit as minimum digits.
6	Specify 7th digit as minimum digits.	

■ indicates factory settings.

Advice

- The GX-L/GF-L series operates with the **ZERO** key instead of the **RE-ZERO** key.
- For the setting example, refer to the separate instruction manual. The separate instruction manual is downloadable from A&D website <https://www.aandd.jp>.

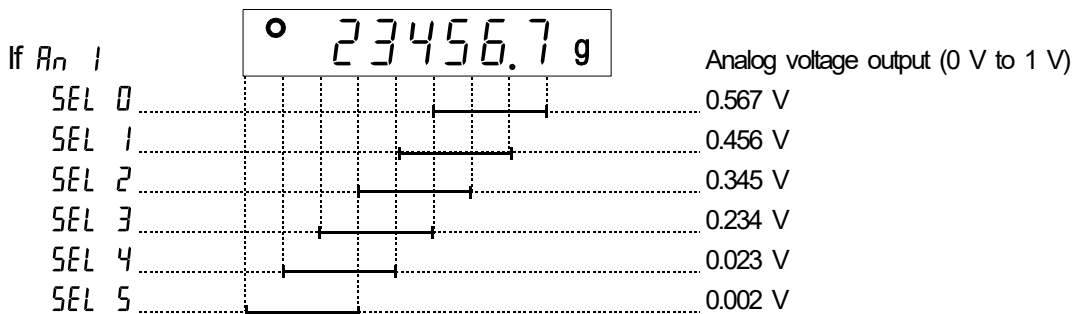
Example



Caution

The hidden high-order digits are regarded as zero.

The hidden least significant digit is regarded as zero (when the least significant digit is hidden using the **SAMPLE** key).



If $R_n 2$ or $R_n 3$

Model (GX-M/GF-M series)				Full scale
GX-8202M	GX-8202MD	GF-8202M	GF-8202MD	8 kg
GX-10202M		GF-10202M		10 kg
GX-12001M		GF-12001M		12 kg
GX-22001M		GF-22001M		22 kg
GX-32001M	GX-32001MD	GF-32001M	GF-32001MD	32 kg

Model (GX-L/GF-L series)			Full scale
GX-12001L		GF-12001L	12 kg
GX-22001L		GF-22001L	20 kg
GX-32001L	GX-32001LS	GF-32001L	30 kg
GX-32001LD	GX-32001LDS		
GX-42001L			40 kg
GX-62001L	GX-62001LS		60 kg
GX-62000L	GX-62000LS	GF-62000L	
GX-102000L	GX-102000LS		100 kg

Example When the GX-10202M displays 1 kg, the voltage output of \boxed{Fn} \boxed{t} is 0.1 V.
(Using "0V~" of the slide switch)

$$1.000 \text{ V} \times \frac{1 \text{ kg}}{10 \text{ kg}} = 0.100 \text{ V}$$

Caution

"Full scale" of the full scale output mode indicates the full scale values shown in the tables above. The output voltage may exceed 1.000 V, depending on the weighing value.

Example When the GX-10202M displays 10.2 kg, the voltage output is 1.02 V.
(Using "0V~" of the slide switch)

$$1.000 \text{ V} \times \frac{10.2 \text{ kg}}{10 \text{ kg}} = 1.02 \text{ V}$$

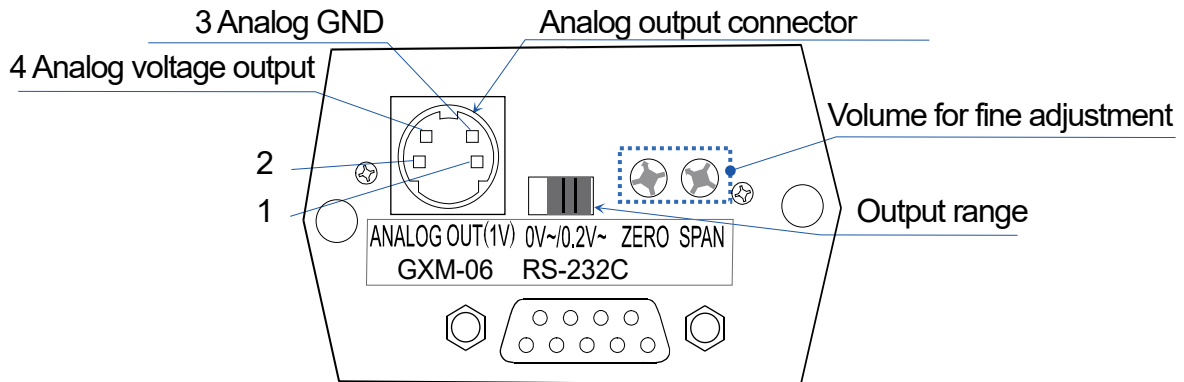
7.3. Voltage Output Selection

The range of output voltage can be changed using the slide switch on the panel.

Factory settings is "0V ~".

- "0V~" (0 to 1 V) : Zero 0.000 V, full scale 1.000 V
- "0.2V~" (0.2 to 1 V) : Zero 0.200 V, full scale 1.000 V

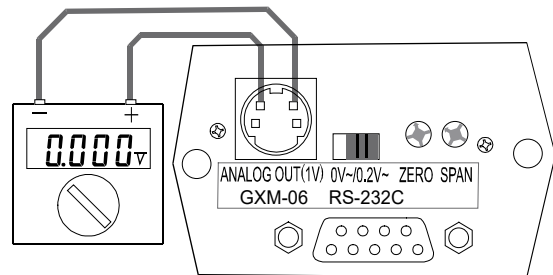
Panel External View (Example: The GXM-06)



7.4. Voltage Output Fine Adjustment

The voltage output has been adjusted at the factory before shipment.

Using the ZERO volume and SPAN for fine adjustment and a voltmeter, voltage output can be finely adjusted.



Procedure

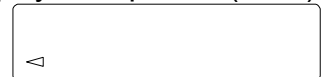
Step 1 Turn off the display using the **ON:OFF** key.

Voltage output becomes zero point status.

Adjust the ZERO volume so that the voltmeter indicates 0.000 V (when the slide switch is set to "0V~").

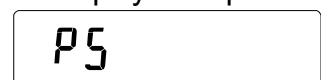
Adjust the ZERO volume so that the voltmeter indicates 0.200 V (when the slide switch is set to "0.2V~").

The display to output 0 V (0.2 V).



Step 2 While pressing and holding the **PRINT** and **SAMPLE** keys, press the **ON:OFF** key to enter the initializing mode. Then 1 V is output. Adjust the SPAN volume so that the voltmeter indicates 1.000 V

The display to output 1 V.



Step 3 Repeat step 1 and step 2 until the correct voltage output is obtained.

7.5. Fixed Voltage Output

The voltage output is fixed under the following conditions:

- Step 1 With the display off, 0 V is output (or 0.2 V if the slide switch is set to "0.2V~") when not weighing during calibration, etc.
- Step 2 After the re-zeroing (tare) operation in gross full scale output mode ($\boxed{R_n} \boxed{3}$), the previous output value is retained.
 After the re-zeroing (tare) operation in 2-digit output mode ($\boxed{R_n} \boxed{0}$), 0 V is output (or 0.2 V if the slide switch is set to "0.2V~").
 After the re-zeroing (tare) operation in 3-digit output mode ($\boxed{R_n} \boxed{1}$), 0 V is output (or 0.2 V if the slide switch is set to "0.2V~").
- Step 3 When $\boxed{-E}$ (weighing value is negative overload) is displayed, 0 V is output (or 0.2 V if the slide switch is set to "0.2V~").
- Step 4 When \boxed{E} (weighing value is positive overload) is displayed, the following voltages are output.

Example Voltage output when \boxed{E} is displayed if the slide switch is set to "0 V~".

Model (GX-M/GF-M series)	$\boxed{R_n} \boxed{0}$, $\boxed{R_n} \boxed{1}$	$\boxed{R_n} \boxed{2}$, $\boxed{R_n} \boxed{3}$
GX-8202M GX-8202MD GF-8202M GF-8202MD	1.000 V	1.025 V
GX-10202M GF-10202M	1.000 V	1.02 V
GX-12001M GF-12001M	1.000 V	1.017 V
GX-22001M GF-22001M	1.000 V	1.009 V
GX-32001M GX-32001MD GF-32001M GF-32001MD	1.000 V	1.006 V

Model (GX-L/GF-L series)	$\boxed{R_n} \boxed{0}$, $\boxed{R_n} \boxed{1}$	$\boxed{R_n} \boxed{2}$, $\boxed{R_n} \boxed{3}$
GX-22001L GF-22001L	1.000V	1.001V
GX-32001L GX-32001LS GF-32001L	1.000V	1.100V
GX-32001LD GX-32001LDS	1.000V	1.067V
GX-42001L	1.000V	1.050V
GX-62001L GX-62001LS	1.000V	1.033V
GX-62000L GX-62000LS GF-62000L	1.000V	1.035V
GX-102000L GX-102000LS	1.000V	1.021V



A&D Company, Limited

3-23-14 Higashi-Ikebukuro, Toshima-ku, Tokyo 170-0013, JAPAN
Telephone: [81] (3) 5391-6132 Fax: [81] (3) 5391-1566

A&D ENGINEERING, INC.

47747 Warm Springs Blvd, Fremont, California 94539, U.S.A.
Tel: [1] (800) 726-3364 Weighing Support[1] (888) 726-5931 Inspection Support[1] (855) 332-8815

A&D INSTRUMENTS LIMITED

Unit 24/26 Blacklands Way, Abingdon Business Park, Abingdon, Oxfordshire OX14 1DY United Kingdom
Telephone: [44] (1235) 550420 Fax: [44] (1235) 550485

A&D AUSTRALASIA PTY LTD

32 Dew Street, Thebarton, South Australia 5031, AUSTRALIA
Telephone: [61] (8) 8301-8100 Fax: [61] (8) 8352-7409

A&D KOREA Limited

한국에이.엔.디(주)
서울특별시 영등포구 국제금융로6길33 (여의도동) 맨하탄빌딩 817 우편 번호 07331
(817, Manhattan Bldg., 33. Gukjegeumyung-ro 6-gil, Yeongdeungpo-gu, Seoul, 07331 Korea)
전화: [82] (2) 780-4101 팩스: [82] (2) 782-4264

OOO A&D RUS

ООО "ЭЙ энд ДИ РУС"
Почтовый адрес: 121357, Российская Федерация, г. Москва, ул. Верейская, дом 17
Юридический адрес: 117545, Российская Федерация, г. Москва, ул. Дорожная, д.3, корп.6, комн. 86
(121357, Russian Federation, Moscow, Vereyskaya Street 17)
тел.: [7] (495) 937-33-44 факс: [7] (495) 937-55-66

A&D Instruments India Private Limited

D-48, उद्योग विहार , फेस -5, गुडगांव - 122016, हरियाणा , भारत
(D-48, Udyog Vihar, Phase-V, Gurgaon - 122016, Haryana, India)
फोन : [91] (124) 4715555 फैक्स : [91] (124) 4715599

ऐ&डी इन्स्ट्रूमेंट्स इण्डिया प्रा० लिमिटेड

A&D SCIENTECH TAIWAN LIMITED. A&D台灣分公司 艾安得股份有限公司

台灣台北市中正區青島東路5號4樓
(4F No.5 Ching Tao East Road, Taipei Taiwan R.O.C.)
Tel : [886](02) 2322-4722 Fax : [886](02) 2392-1794

A&D INSTRUMENTS (THAILAND) LIMITED

บริษัท เอ แอนด์ ดี อินสตรูमेंท์ (ไทยแลนด์) จำกัด
168/16 หมู่ที่ 1 ตำบลรังสิต อำเภอธัญบุรี จังหวัดปทุมธานี 12110 ประเทศไทย
(168/16 Moo 1, Rangsit, Thanyaburi, Pathumthani 12110 Thailand)
Tel : [66] 20038911