

AD-8127

Multi Printer

INSTRUCTION MANUAL

AND

A&D Company, Ltd.

1WMPD4003327C

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1. INTRODUCTION

This manual describes how the AD-8127 Multi Printer work and how to get the most out of them in terms of performance.

Read this manual thoroughly before using the printer and keep it at hand for future reference.

1-1. Features

- This device is a printer used to connect to a weighing device such as A&D's electronic balance, scale, counting scale, moisture analyzer, vibro viscometer or weighing indicator and print out data transmitted from the weighing device.
- With dot matrix printing, the printed contents can clearly and easily be viewed, allowing for storage of records for a long period of time.
- Light weight and compact size of the printer enables it to be set up in various locations and be easily transported.
- The printer is equipped with the RS-232C or current loop interface for data input, so it allows easy connections between the printer and a weighing device such as an electronic balance.
- Dust-free paper sold separately is available for using the printer in cleanrooms (AX-PP173-S).
- Built-in clock function of the printer enables printing out of the date and time.
- Printing at a regular interval is possible. (Interval printing)
- Statistical calculation results of the weighing data, including standard deviation, can be printed out.
- Time series variation of the weighing data in chart form can be printed out.
- The liquid crystal display provides easy conditions confirmation and settings of the printer.
- By pressing the key switch of the printer, a re-zero command to zero the display and request commands for the weighing data can be transmitted to an electronic balance, so the weighing data can be printed out without touching the highly sensitive electronic balance.

2. PRODUCT STRUCTURE (PART NAMES) , PACKAGE CONTENTS

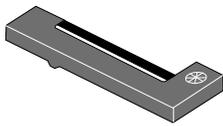
2-1. Package contents

Main unit



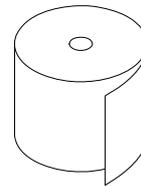
Ink ribbon (1 pc)

* The ink ribbon for test printing is installed to the main body.

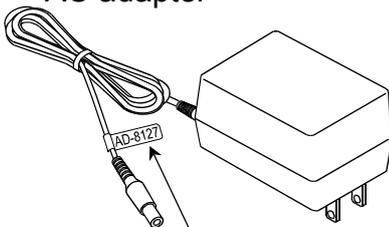


Ordinary printer paper (1 pc)

* Attached to the main body



AC adapter



AC adapter labels



Affix the AC adapter label to the cable of the provided AC adapter as shown in the figure.

English instruction manual
(This document)



Japanese instruction manual



- * Using the wrong AC adapter with the AD-8127 may prevent the AD-8127 or weighing devices from operating properly.
- * Confirm that the adapter type is correct for the local voltage and power receptacle type.

RS-232C cable

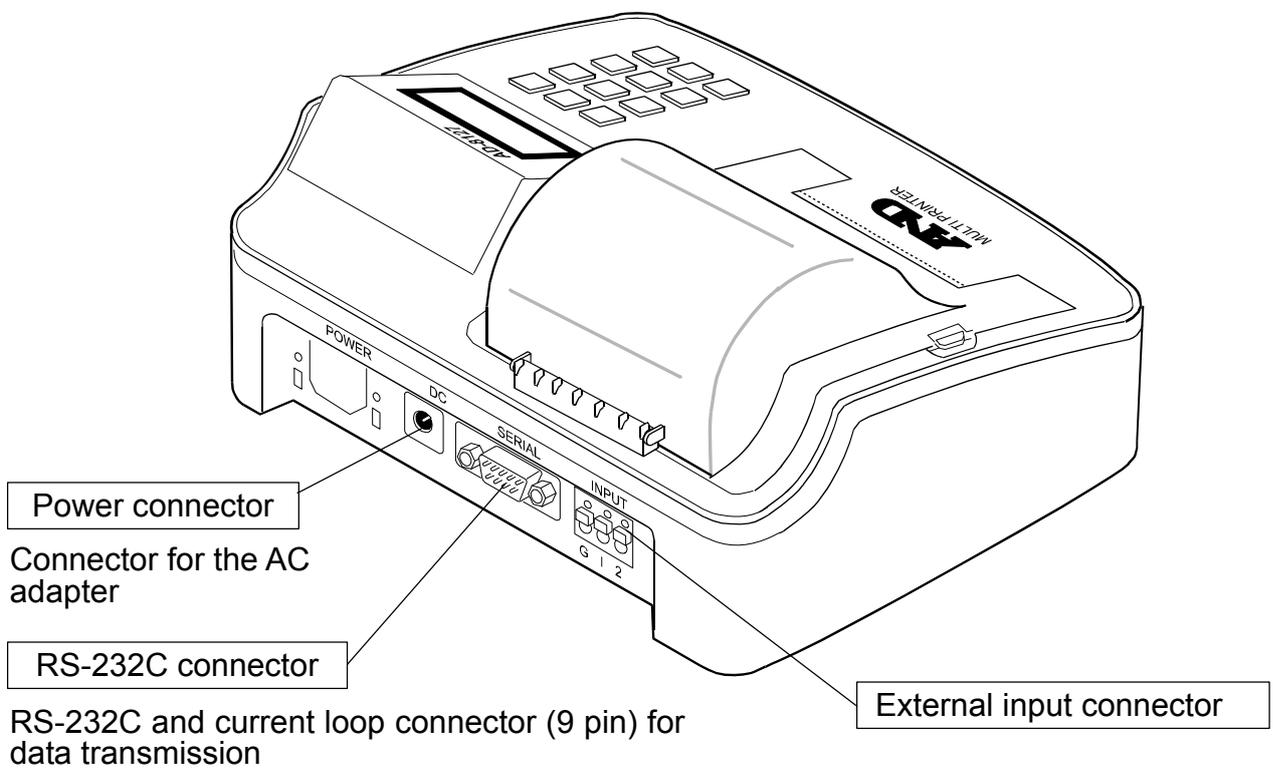
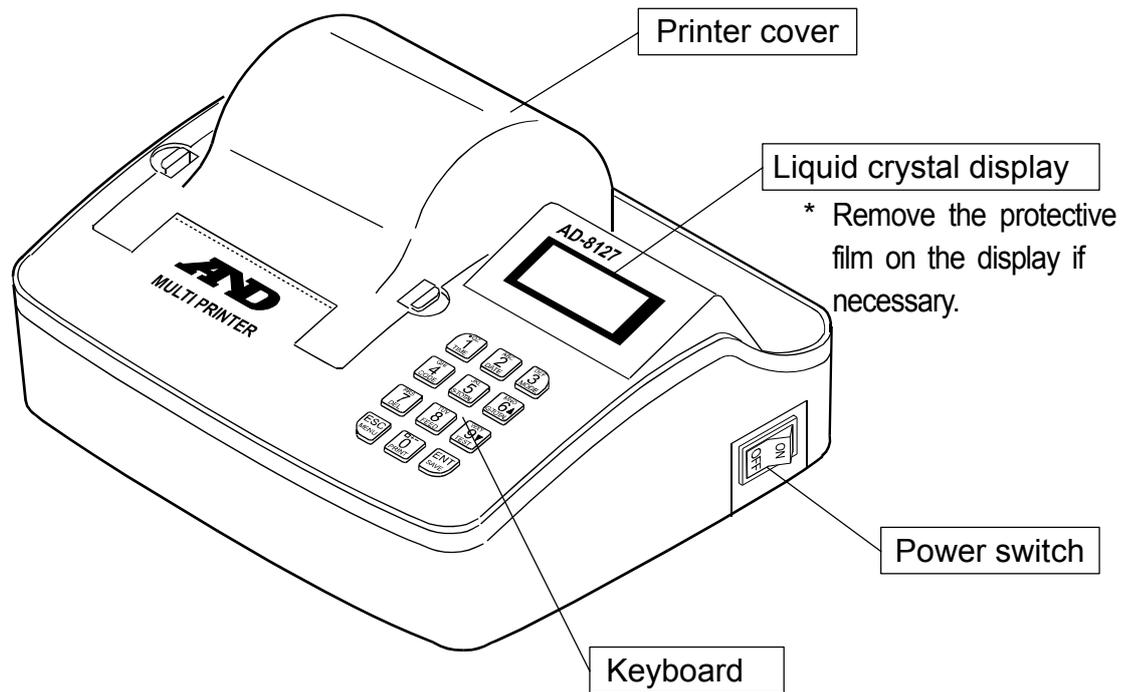
* RS-232C cables A, B or C below will be provided by specifying at time of order.

D-sub9 pin - 9 pin (AX-KO2741-100)	D-sub25 pin - 9 pin (AX-KO2116-090)	DIN - D-sub9 pin (AX-KO1786-200)	DIN - D-sub9 pin (AX-KO5291-100) * For current loop
A		B	
		C	

Sold separately

- Ink ribbon (5 pcs) AX-ERC-22B-S
- Ordinary printer paper (10 pcs) AX-PP137-S
- Dust-free printer paper (10 pcs) AX-PP173-S

2-2. Part names

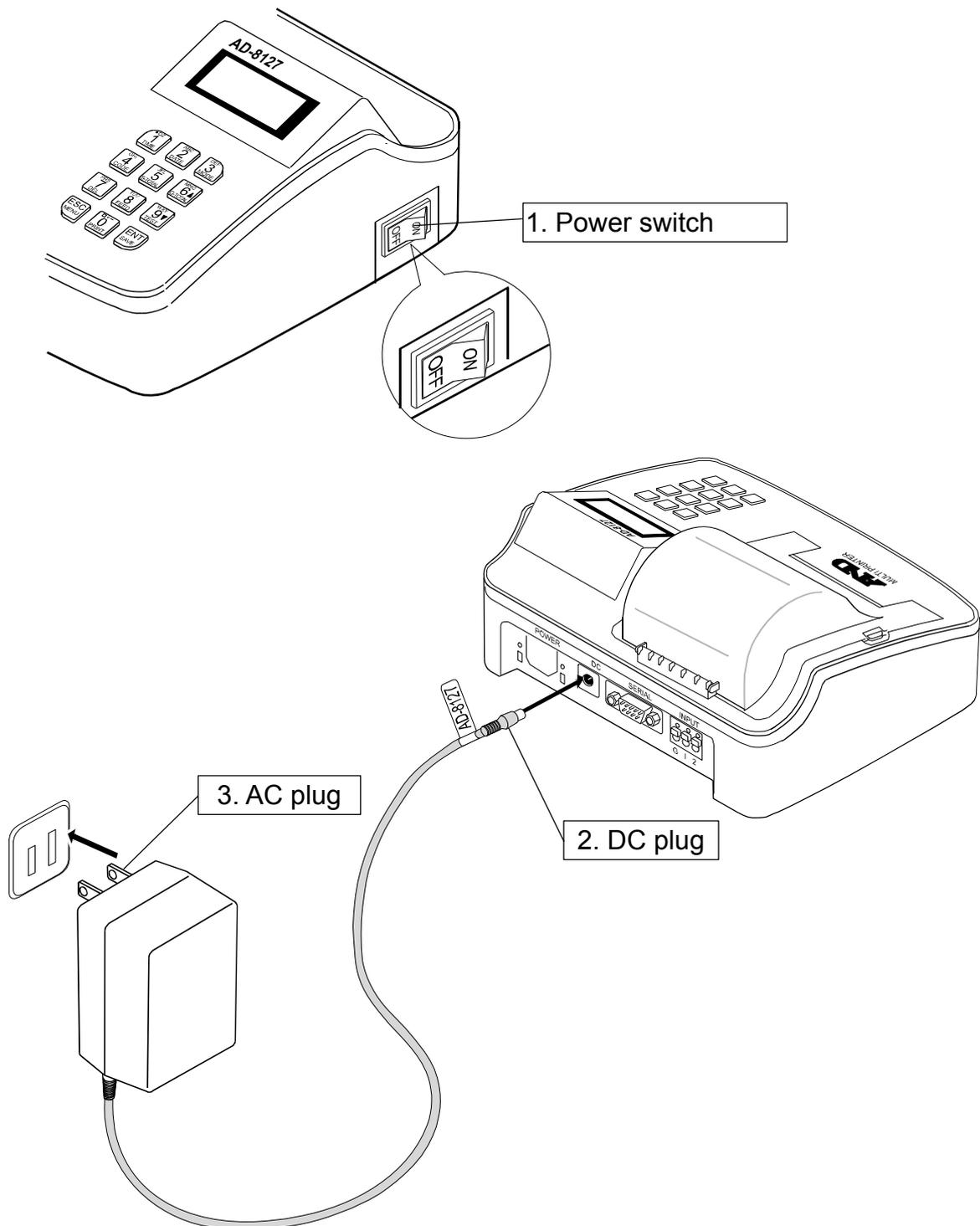


3. PREPARATIONS

3-1. Connecting the AC adapter

Instructions

1. Confirm that the power switch is turned to off.
2. Connect the DC plug of the AC adapter to the power connector of the printer.
3. Connect the AC plug to the outlet.

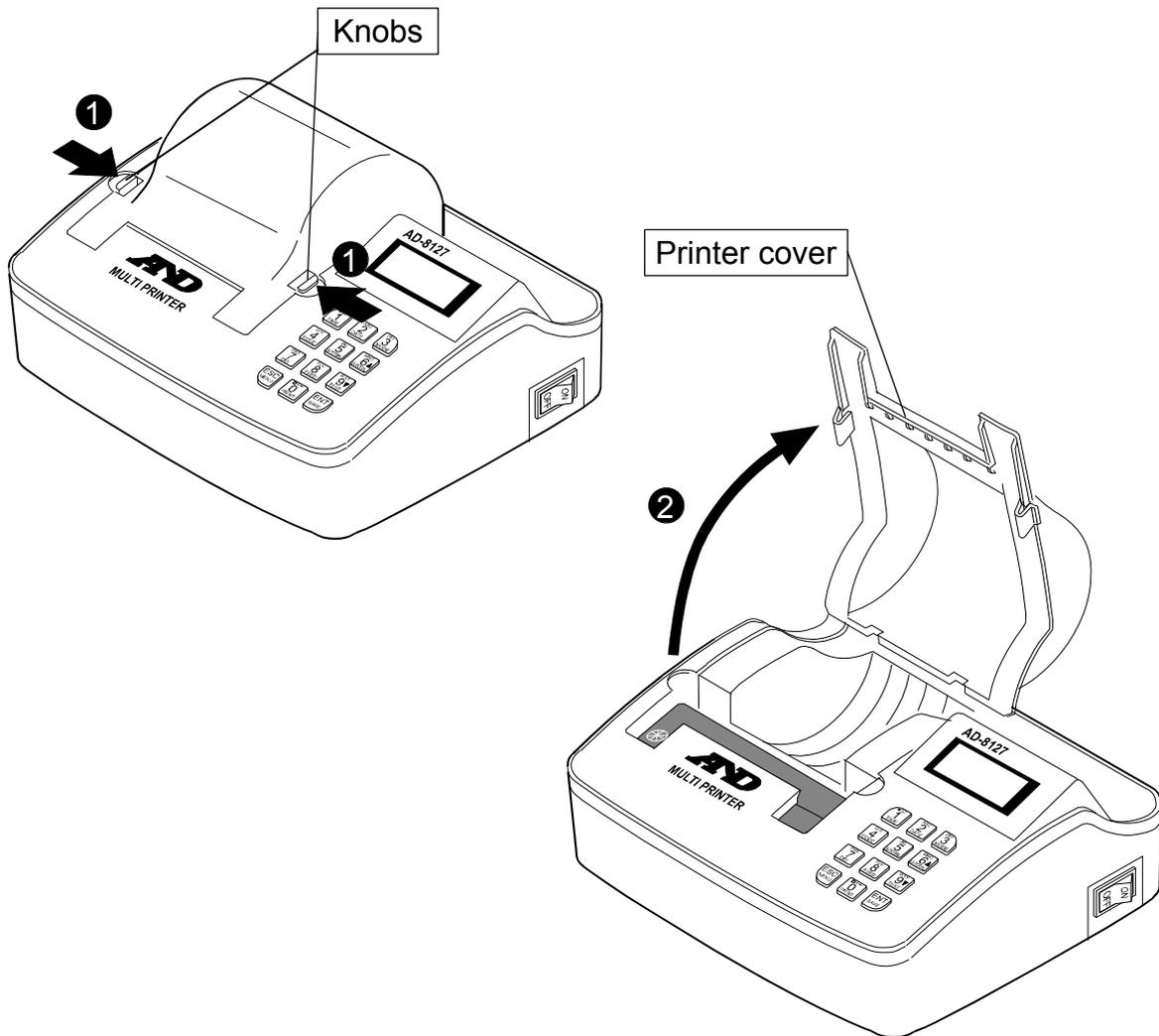


3-2. Opening and closing the printer cover

When installing and removing the ink ribbon and printer paper, open the printer cover to allow these operations to be performed.

Instructions

1. Push the knobs at both sides of the printer cover toward the inside (directions indicated by arrows).
2. Lift up the printer cover while keeping the knobs depressed.

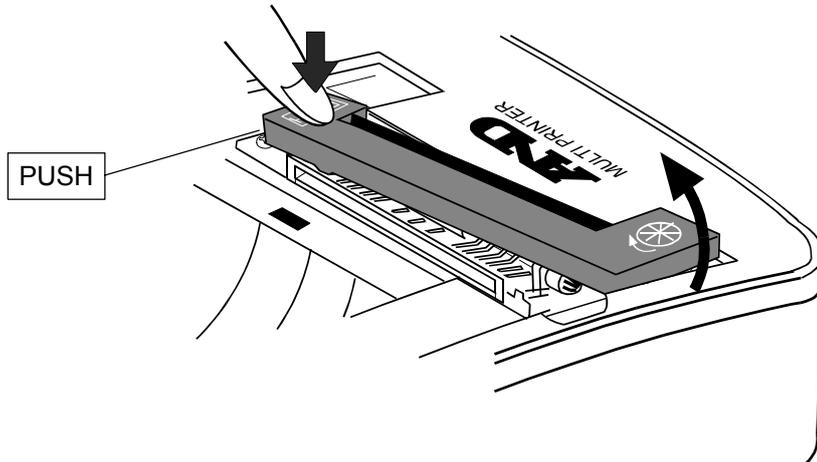


Note Opening or closing the printer cover improperly may result in damage to the printer cover.

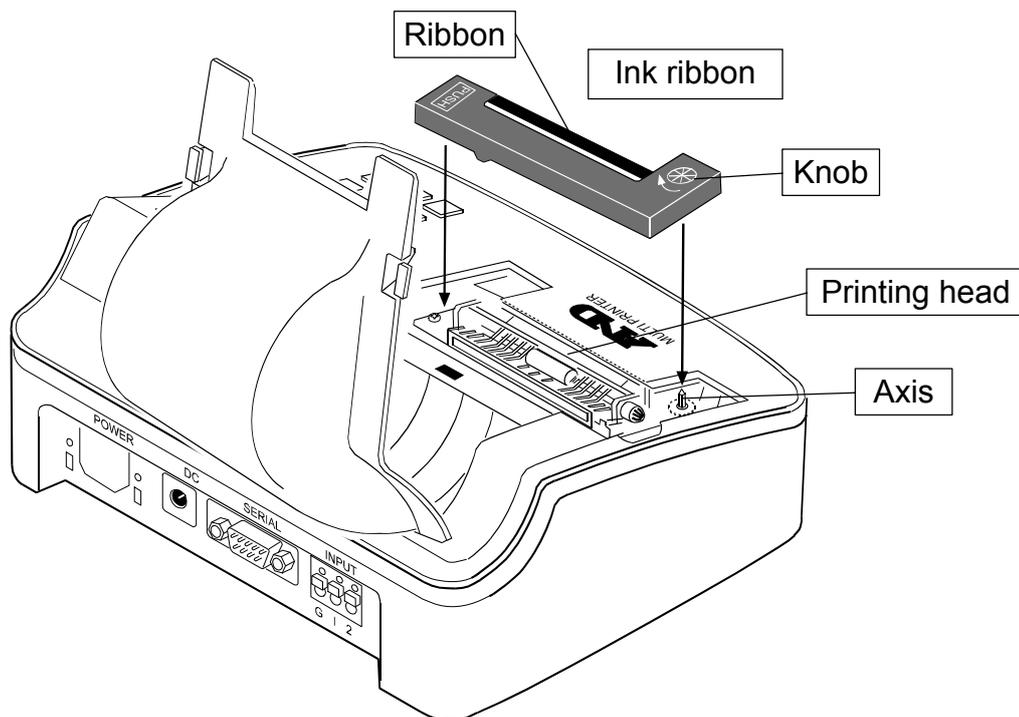
3-3. Installing and removing the ink ribbon

Instructions

1. Turn the power off, and then open the printer cover.
2. When removing the ink ribbon, push the part indicated by “PUSH” on the ink ribbon to raise the knob side, and then lift up the ink ribbon straight.



3. When attaching the ink ribbon, turn the ink ribbon's knob in the direction indicated by the arrow until there is no slack in the ribbon.
 4. Place the hole on the ink ribbon's knob rear side over the axis located on the main body. Insert the ribbon into the printing head and press the ink ribbon onto the main body.
- * When replacing the ink ribbon with printer paper attached, insert the ribbon between the printing head and printer paper.

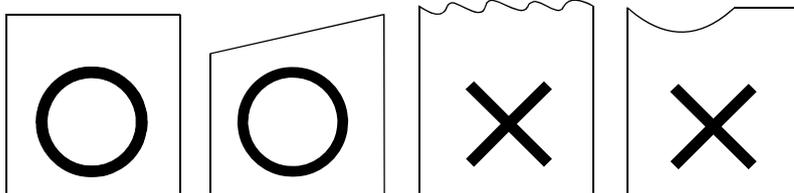


* Sold separately: ink ribbon (5 pcs) AX-ERC-22B

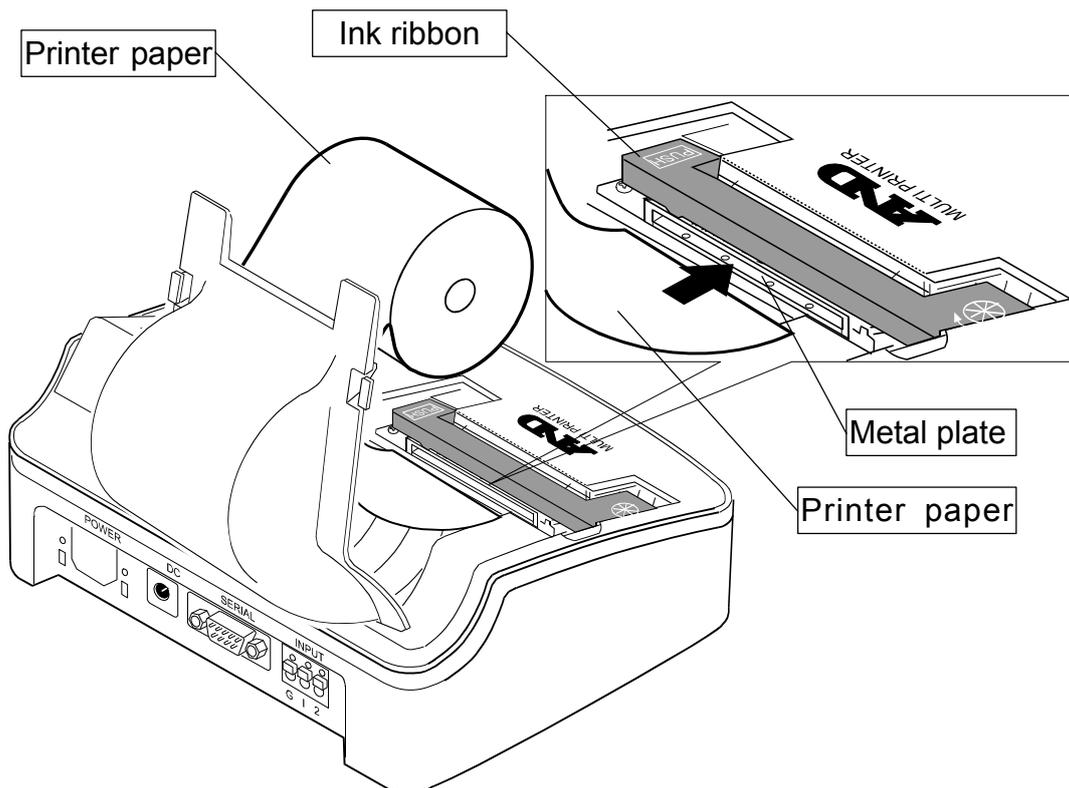
3-4. Installing the printer paper

Instructions

1. Open the printer cover.
2. Cut off the end of the printer paper at a right angle or obliquely as shown at the figure below.



2. Insert the end of the printer paper onto the metal plate of the printing unit.
3. Turn the power switch on.
4. Press the  key to feed the printer paper 5 or 6 cm out of the printing unit.
5. Close the printer cover.



- * Place the paper roll in the printer cover to allow these operations to be done easier.
- * Sold separately: ordinary printer paper (10 pcs) AX-PP137-S
Sold separately: dust-free printer paper (10 pcs) AX-PP173-S

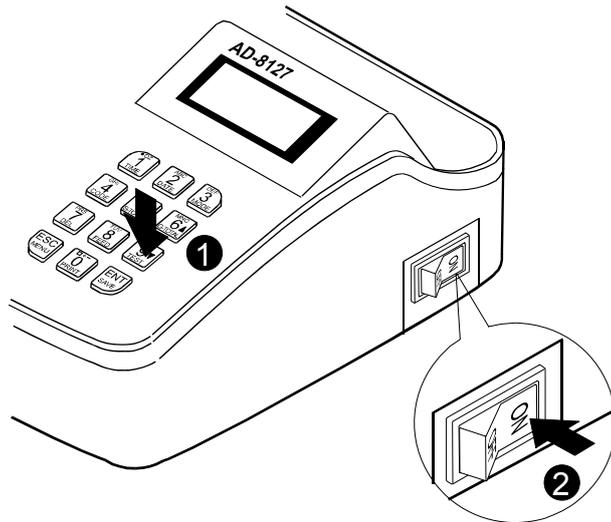
3-5. Test printing

To start test printing, turn the power on while pressing and holding the  key, and then press and hold the  key (for approx. 4 seconds).

By performing test printing, the status of the function settings can be confirmed.

Printout example

* To stop printing, turn the power off.

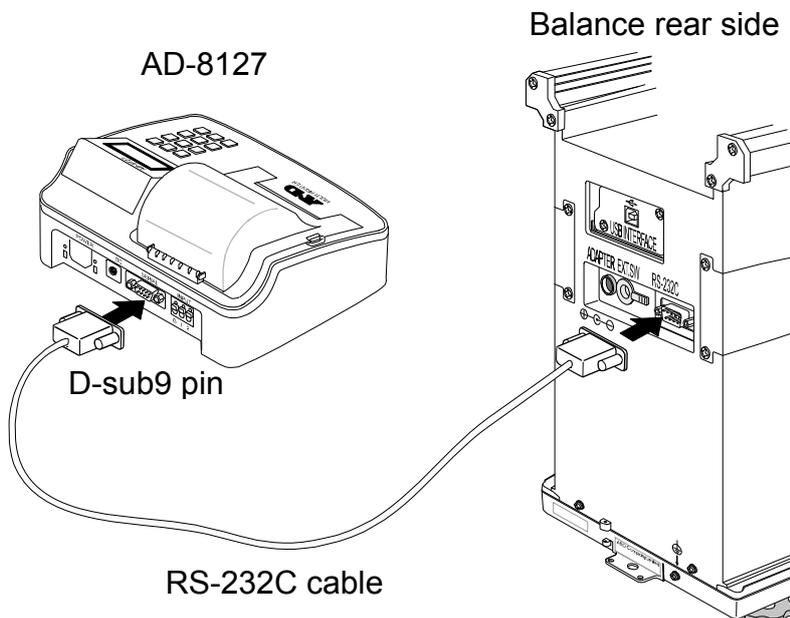


```

*{ PRINTER SETUP }*
VERSION :US.15(2017/10/31)
USER MODEL : AND
PRINT MODE : EXT.KEY
PRINT FORMAT : WEIGHT
PRINT FORMAT2: +/- PRINT
US PRINT : NOT PRINT
DATE FORMAT : Y/M/D
LINE FEED : 1LINE
USER CODE : 00000001
TOTAL MODE : TIME PRINT
CODE DIRECTION: L← R
CODE PRINT : PRINT
NO.PRINT : PRINT
INTERFACE : SERIAL(RS-232C)
CURRENT LOOP
PROTOCOL : 2400bps,E,7,1
CURRENT TIME/DATE :
2017/11/02 14:38:42
    
```

3-6. Connecting to the weighing device

Use the RS-232C cable to connect the printer to the balance or scale.



* Depending on the balance or scale models, there are three types of pin: D-sub9 pin, D-sub25 pin or Din7 pin. Use the cable that matches the specific type to connect the printer.

4. PRINTING

4-1. Printing out data from the weighing device

Instructions

1. Turn the printer power on.
 2. Connect the printer to the weighing device using a RS-232C or current loop cable.
 3. Transmit data to the printer from the weighing device.
Refer to the instruction manual of the weighing device for the data output methods, output format and RS-232C communication settings.
 4. Press and hold the  key to feed the printer paper until the printed results can be viewed, and then cut off the printer paper.
- * The balance has functions such as outputting by pressing the  key or automatically outputting after stabilizing the weighing.

4-2. Paper feed

Instructions

1. Press the  key to allow paper feed while the button is pressed.

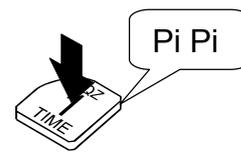
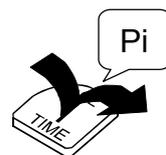
4-3. Precautions

- Do not print with the ink ribbon detached. Doing so may cause damage in the printing head.
- Replace the ink ribbon with a new one before it becomes worn out due to excessive use. Failure to do so may cause damage to the printing head. Also, do not apply ink to the ink ribbon. Doing so may cause bleeding.
- Do not drop foreign matter into the printer. Doing so may cause mechanical damage to the printer.
- When operating the printer, install the printer in a stable location. Installing the printer in an uneven or unstable location may result in movement of the printer caused by vibration due to printing out, leading to a serious accident.
- Depending on a material (PVC, etc.) of the installation table, rubber may transfer to it from the printer. Do not set the printer on a table or sheet made of vinyl.
- When cleaning the main unit, do not use organic solvents such as alcohol, thinner, or benzene. Otherwise, that may cause damage to the printer as its main body is made of plastic.
- Keeping the ink ribbon attached to the printer a long time may result in the printer paper becoming dirty. Also, performing continuous printing at low temperature may result in faint printing due to characteristics of the ink.
- Attempting to print when out of paper could damage the printing head. Install new printer paper to the printer.
- The ink ribbon provided at shipping is for test printing.

5. BASIC OPERATIONS OF THE KEYS

There are two actions possible when pressing a key.

1. Press the key and release after the buzzer sounds
2. Press and hold the key (for approx. 2 seconds) and release after the buzzer sounds twice



* To prevent errors when making key operations, there is an interval until the buzzer sounds after pressing the key.

Keys	When the key is pressed (Until the buzzer sounds one time)	When the key is pressed and held for approx. 2 seconds (Until the buzzer sounds twice)
	Prints out the current time.	Puts the printer in the time settings mode.
	Prints out the current date.	Puts the printer in the date settings mode.
	Accesses the printing mode settings.	
	Prints out the ID code.	Puts the printer in the ID code settings mode.
	Prints out the total.	
	Prints out the statistical calculation results.	
	Deletes one instance of the data to be used in statistical calculation.	Deletes all of the data to be used in statistical calculation.
	Feeds paper while the key is pressed.	
	Test prints when the power is turned on while pressing this key with the power turned off.	
	Cancels changes at each setting. Advances to the next setting item when configuring the function settings.	Transmits a re-zero command. * The commands can be selected at the function settings.
	Prints out weighing values in the manual printing mode. Prints out received weighing values after transmitting weighing value request commands ("Q" command) to the device at the external key printing mode and dump printing mode. *	
	Confirms the setting changes. Stops or restarts the chart printing while printing a chart.	Toggles between the external key printing mode and dump printing mode. Completes the chart printing while printing a chart.

* When connecting using the current loop, the commands cannot be transmitted.

6. STATISTICAL CALCULATION FUNCTIONS

In addition to printing out weighing values, the printer can also perform statistical calculation of the weighing values printed out. The printer always performs calculation processing while operating, so you can print out calculation results at the touch of a key whenever needed.

6-1. Printing example and printing contents of statistical calculation

1. When printing out the weighing values, the weighing number is printed out.

If unit and kind of data entered in the printer differ from those of the data entered first, the printer prints out the values without calculating.

2. If accidentally printing out the weighing values, press the



key. “***< *** DELETE >***” is displayed and the printer does not calculate prior data.

3. When printing out total calculation results, press the



key.

Date and time, ID code, data count (N) and total (TOTAL) are printed out. To delete all the data used with the statistical calculation, press and hold the



key for approx. 2 seconds.

4. When printing out all of the calculation results, press the



key.

Date and time, ID code, data count (N), total (TOTAL), averaging value (AVE), maximum value (MAX), minimum value (MIN), maximum value - minimum value (R), standard deviation (STDEV), coefficient variation (CV) and minimum weighing value (MINI WT) are printed out.

$$\text{Coefficient variation (CV)} = \frac{\text{Standard deviation (STDEV)}}{\text{Averaging value (AVE)}} \times 100(\%)$$

$$\text{Minimum weighing value (MINI WT)} = \text{standard deviation (STDEV)} \times 2000$$

* Calculation of the minimum weighing value conforms to USP Chapter 41. This calculation is applied only when weighing using a weight.

* Data count (N) to be calculated is a maximum of 999.

5. After printing out all of the calculation results, data to be used at statistical calculation can all be deleted. (Or press and hold the



key for approx. 2 seconds to make the same operation.)



key : To delete all of the data.



key : To not delete the data.

LCD display

CLEAR
DATA? E

Printout example

```
ID CODE : LAB-1234
NO. 1 WT 1000.12 9
NO. 2 WT 1000.20 9
NO. 3 WT 1000.16 9
NO. 4 WT 1000.21 9
```

< 004 DELETE >

```
NO. 4 WT 1000.25 9
NO. 5 WT 1000.13 9
```

< SUB TOTAL >

```
2016/02/09 15:31:50
ID CODE LAB-1234
N 5
TOTAL 5000.86 9
```

< GRAND TOTAL >

```
2016/02/09 15:32:07
ID CODE LAB-1234
N 5
TOTAL 5000.86 9
AVE(X) 1000.17 9
MAX 1000.25 9
MIN 1000.12 9
RANGE(R) 0.13 9
STDEV(S) 0.054 9
CV 0.01 %
MINI WT 108.00 9
```

7. BASIC SETTINGS

The basic settings allow easy key operations to perform minimum required settings such as clock and printing mode. The setting values are always backed up using the built-in battery, so those values are maintained in the memory even when the power is turned to OFF or the AC adapter is disconnected.

Note If an alarm such as one long beep followed by three short beeps sounds when the power is turned to ON, the printer is prevented from printing properly and configuring settings for date and time due to an error in the built-in lithium battery. In this case, the printer requires repair.

7-1. Time settings

1. Press and hold the  key.

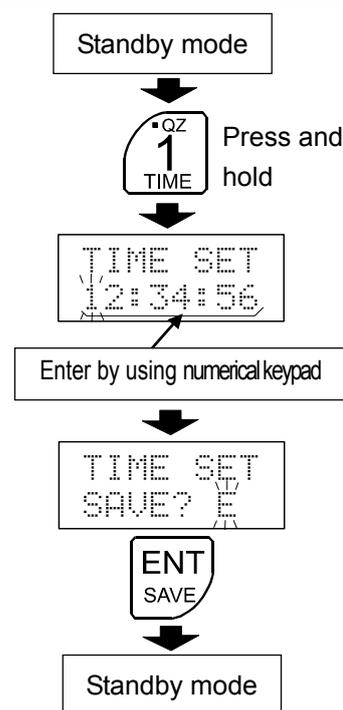
2. Enter the hour, minutes and seconds by using the numerical keypad.

3. The display shows  when all data is entered.

4. To confirm the entered data, press the  key.

To cancel the entered data, press the  key.

* Do not set a time that does not exist to the printer.



7-2. Date settings

1. Press and hold the  key.

2. Enter the year, month and day by using the numerical keypad.

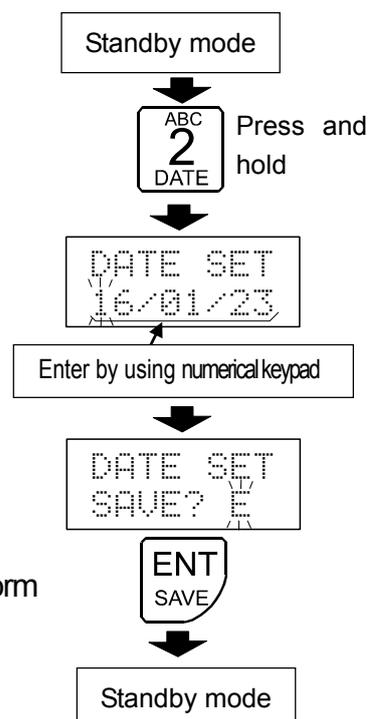
3. The display shows  when all data is entered.

4. To confirm the entered data, press the  key.

To cancel the entered data, press the  key.

* Do not set a date that does not exist to the printer.

* When changing the order of year, month and day, set by "Date form (DATE FOR)" of "Function settings (3=MODE)" in "8-2. Items list".

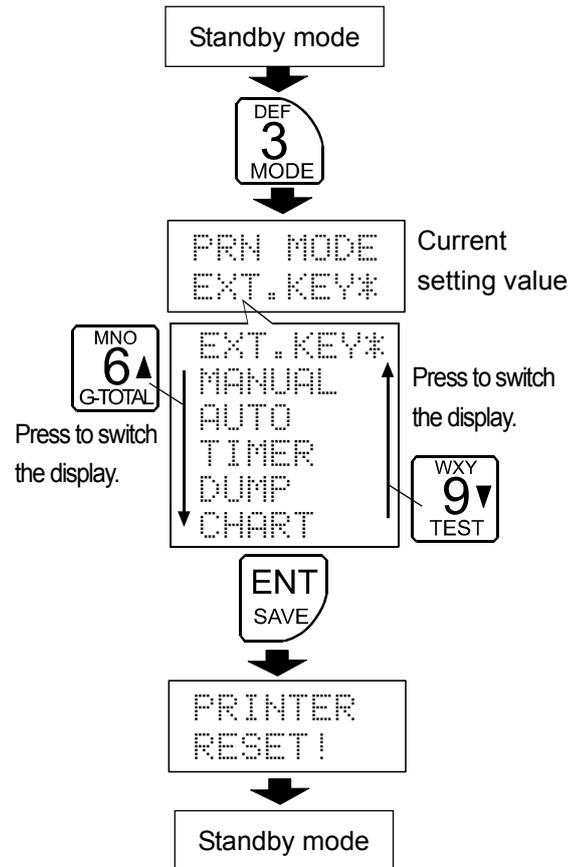


7-3. Printing mode settings

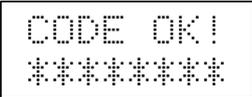
1. Press the  key.
2. Press the  or  key to switch the display.
3. Press the  key to confirm the setting.

To cancel the setting, press the  key.

* Refer to “8-4. Descriptions for the printing mode” for descriptions of the each setting.

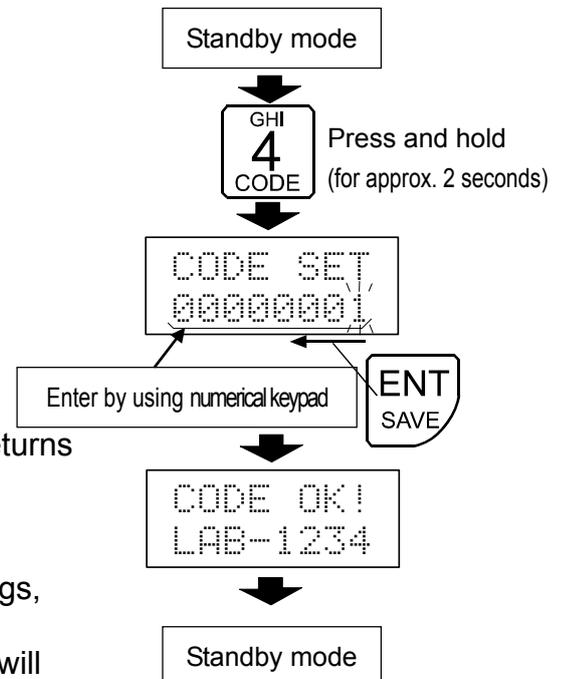


7-4. ID code setting

1. Press and hold the  key.
2. Enter the ID code by using the numerical keypad.
3. To move the digit to be entered, press the  key.
4. When the digits to be changed are all entered,  is displayed, and then the printer returns to the standby mode.

* Even if the  key was pressed to cancel settings, any digits where the  key has been pressed will be changed.

* Direction in which the ID code is set can be changed using the function settings.



8-2. Items list

Class	Items	Setting values	Details and usage	
1=SERIAL Serial interface * 1	BAUDRATE Baud rate	300	300 bps	
		600	600 bps	
		1200	1200 bps	
		■ 2400	2400 bps	
		4800	4800 bps	
		9600	9600 bps	
		19200	19200 bps	
	PARITY Parity	NONE	Not used	
		ODD	Odd	
		■ EVEN	Even	
WORD LEN Data length	8 bit	8 bit		
	■ 7 bit	7 bit		
STOP BIT Stop bit	■ 1STOP	1 bit		
	2STOP	2 bit		
2=VENDER Data format *2		■ AND	A&D standard format	
		⋮ •	Subsequent values are for other-company format.	* 3
3=MODE Function settings	PRN MODE Printing mode	■ EXT.KEY	External key printing mode	
		MANUAL	Manual printing mode	* 4
		AUTO	Auto printing mode	* 4
		TIMER	Interval printing mode	* 4
		DUMP	Dump printing mode	
		CHART	Chart printing mode	* 4
	PRN FOR. Printing data	■ WEGHIT	Weighing values only	
		TIME/UG	Date and time + weighing values	
		TM1/UG	Date and time + weighing values	Prints out date and time only at first operation.
	PRN FOR2 Printing data 2	+ PRN	Prints out when the weighing values are at "+".	
		■ +/- PRN	Prints out when the weighing values are at "+" and "-".	
	US PRN Unstable data	■ NOT PRN	Not printed out	
		PRINT	Printed out	
	DATE FOR Date form	■ Y/M/D	yyyy/mm/dd	
M/D/Y		mm/dd/yyyy		
D/M/Y		dd/mm/yyyy		

■ indicates factory settings.

*1 Initial setting values of the serial interface are adjusted to those of an A&D balance or scale.

*2 We do not support operations of product formats other than A&D's standard format.

*3 Set the output format of the weighing device to A&D's standard format.

*4 The output mode of the balance or scale must be set to stream output.

Class	Items	Setting values	Details and usage	
3=MODE Function settings	FEED CNT Feed	■ 1 LINE	Feeds one line after printing.	
		2 LINE	Feeds two lines after printing.	
		3 LINE	Feeds three lines after printing.	
		4 LINE	Feeds four lines after printing.	
		5 LINE	Feeds five lines after printing.	
		6 LINE	Feeds six lines after printing.	
		7 LINE	Feeds seven lines after printing.	
		8 LINE	Feeds eight lines after printing.	
	TOTAL MD Calculation printing	■ T/D YES	Adds a date to the calculation printing.	
		T/D NO	Does not add date to the calculation printing.	
	CODE PRN ID printing	NOT PRN	Not printed out	When printing out No.1 data and statistical calculation
		■ PRINT	Printed out	
	CODE DIR ID setting direction	■ L ←→ R	To left from right	
		L →→ R	To right from left	
NO. PRN Weighing number printing	NOT PRN	Not printed out	Number to be applied to statistical calculation	
	■ PRINT	Printed out		
REZERO Re-zero command *5	■ SEND R	R command		
	SEND Z	Z command		

■ indicates factory settings.

*5 Set the command so as to match figures for the balance or scale connected.

Class	Items	Setting values	Details and usage	
3=MODE Function settings	EXT IN1 External input 1	■ NONE	Has no function.	
		PRINT	Printed out	Printing mode is "MANUAL" .
		FEED	Paper feed	* 6
		G TOTAL	Calculation results printing	
		S TOTAL	Total printing	
		R/Z CMD	Re-zero command	
		Q CMD	Weighing value request command	
	EXT IN2 External input 2	■ NONE	Has no function.	
		PRINT	Printed out	Printing mode is "MANUAL" .
		FEED	Paper feed	* 6
		G TOTAL	Calculation results printing	
		S TOTAL	Total printing	
		R/Z CMD	Re-zero command	
		Q CMD	Weighing value request command	
4=INITAL Initialization	PRN F/A Initialization	—	Resets the printer's function settings to factory settings.	
5=PW Password lock function	LOCK Password lock function	■ NOT USE	Disables password function	When the password function is enabled,, the password must be entered in order to change the date, time or function settings.
		USE	Enables password function	

■ indicates factory settings.

*6 By pressing the external input switch one time, paper feed is started. By pressing the external input switch once again, paper feed is stopped.

8-3. Initializing the function settings

When resetting the function settings values of the printer to factory settings, perform "Initializing (4=INITAL)" in "8-2. Items list".

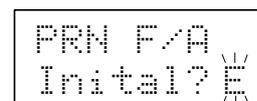


key: Initializes function settings to factory settings.

LCD display



key: Cancels initialization



(The function settings are not initialized.)

8-4. Descriptions for the printing mode

Printing method of the printer varies depending on “Printing mode (PRN MODE)” in “8-2. Items list”.

External key printing mode (EXT. KEY)

Printing is done using weighing device’s keys without making printer key operations. Set data output settings of the weighing device to output using the keys.

It is also possible to print out data by pressing the  key to transmit a weighing value request command (“Q” command) to the weighing device side.

But when connecting using current loop, the commands cannot be transmitted.

Manual printing mode (MANUAL)

Printing can be done by pressing the  key.

Set data output settings of the weighing device to stream output (Always outputting).

Auto printing mode (AUTO)

Printing is done automatically when data transmitted from the weighing device has changes of +10 digits or more to zero and is stable.

One digit is the minimum display of the weighing device.

Set data output settings of the weighing device to stream output (Always outputting).

Interval printing mode (TIMER)

Printing is done at each time that was set by this mode. To set the interval time, set minutes and seconds (mm:dd) after confirming settings of the printing mode to “TIMER” .

To suspend the printing, press the  key. To restart the printing, press the  key.

Set data output settings of the weighing device to stream output (Always outputting).

Dump printing mode (DUMP)

Data transmitted from the weighing device is printed out without changes. Use these settings for GLP outputs, etc. of the weighing device.

Set data output settings of the weighing device to output using the keys.

It is also possible to print by pressing the  key to transmit a weighing value request command (“Q” command). But when connecting using current loop, the commands cannot be transmitted.

Character code table (ASCII) that is available for printing in DUMP printing mode

	0	1	2	3	4	5	6	7
0			SP	0	@	P	'	p
1			!	1	A	Q	a	q
2			"	2	B	R	b	r
3			#	3	C	S	c	s
4			\$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9			)	9	I	Y	i	y
A			*	:	J	Z	j	z
B			+	;	K	[	k	{
C			,	<	L	\	l	!
D			-	=	M	]	m	}
E			.	>	N	^	n	~
F			/	?	O	_	o	

ASCII code available for printing: 20h to 7Eh

Spaces cannot be printed.

SP indicates a space.

Chart printing mode (CHART)

Amount of changes of the weighing values is printed out as scatter plot. Changes of the weighing values in real time can be confirmed visually.

At the chart printing mode, set digits (2 digits) for chart printing, minutes and seconds of the interval time (mm:ss) and the printing count after confirming settings of the printing mode to "TIMER".

Set data output settings of the weighing device to stream output (Always outputting).

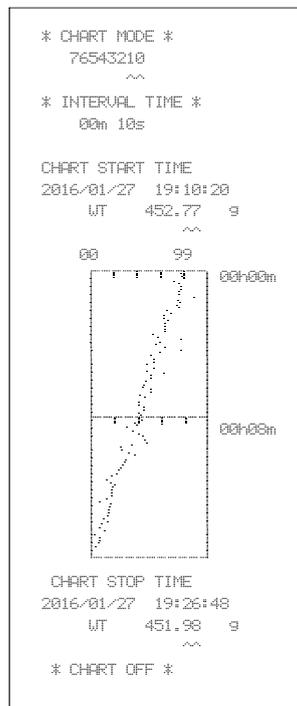
Refer to "8-5. Chart printing mode" for details.

8-5. Chart printing mode

1. Set the printing mode to "CHART" and press the  key to confirm.
2. Turn the power off and on.
3. Press the  or  key to select a digit to be transformed in chat and press the  key to confirm.
4. Enter the interval time by using the numerical keypad and press the  key to confirm.
5. Enter the chart printing number by using the numerical keypad and press the  key to confirm.

Chart printing starts.

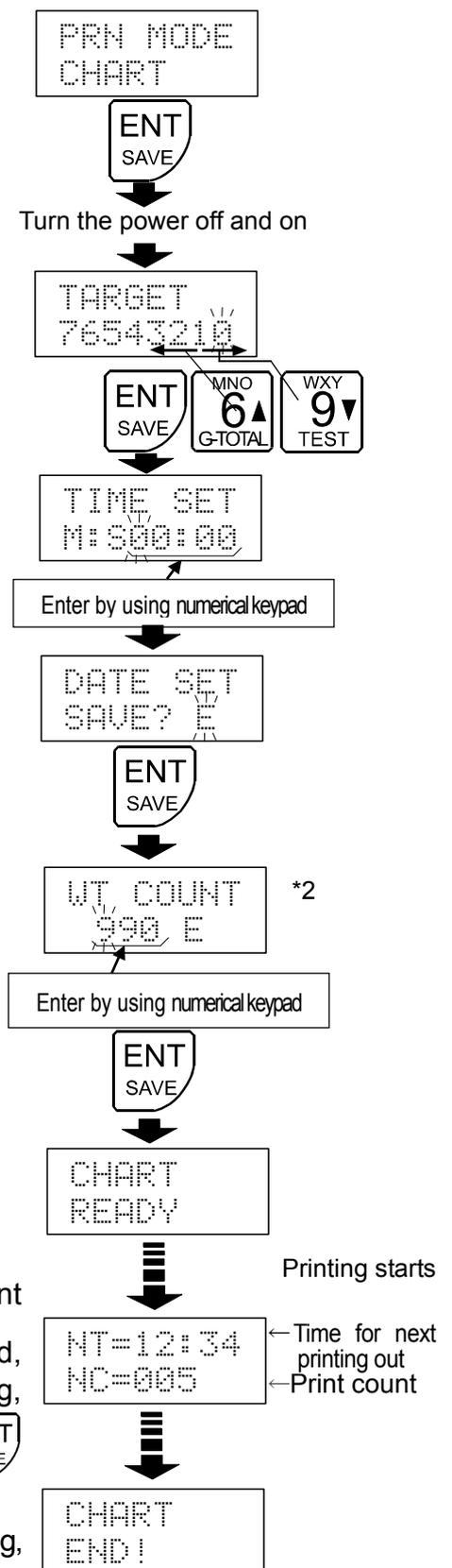
Chart printing example



6. When the  key is pressed and held or the chart print count reaches the number of times that was set beforehand, the chart printing is completed. To stop the chart printing, press the  key. To restart the printing, press the  key.
7. To repeat the operations from "Step 3" after finishing chart printing, press the  key.

*1 Settings range of the interval time is 00 : 05 (5 seconds) to 59 : 59 (59 minutes 59 seconds).

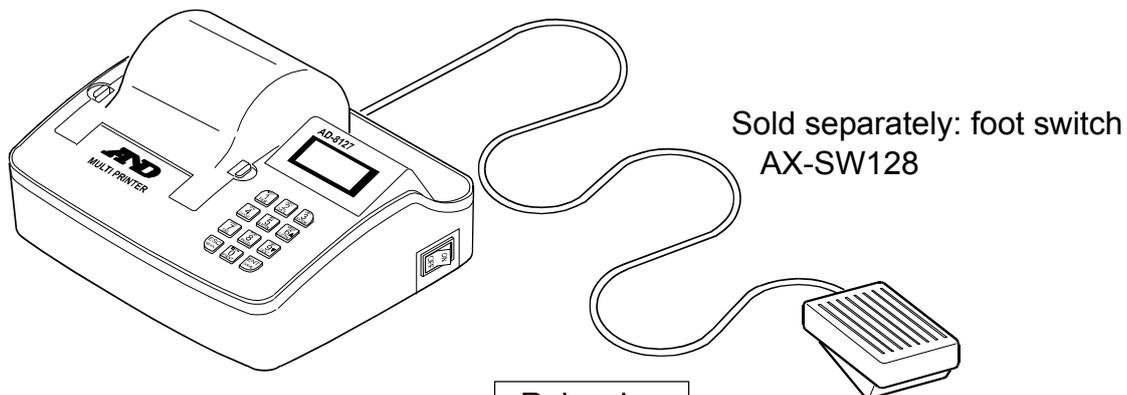
*2 Settings range of the chart print count is 010 (10 times) to 990 (990 times) .



8-6. Descriptions for the external input connector

By using the external input connectors, operations such as printing, paper feed or re-zero on a weighing device away from the printer can be performed. The printer has two external inputs. Those operations can be set by “External input 1 (EXT IN1)” and “External input 2 (EXT IN2)” of “Function settings (3=MODE)” in “8-2. Items list”.

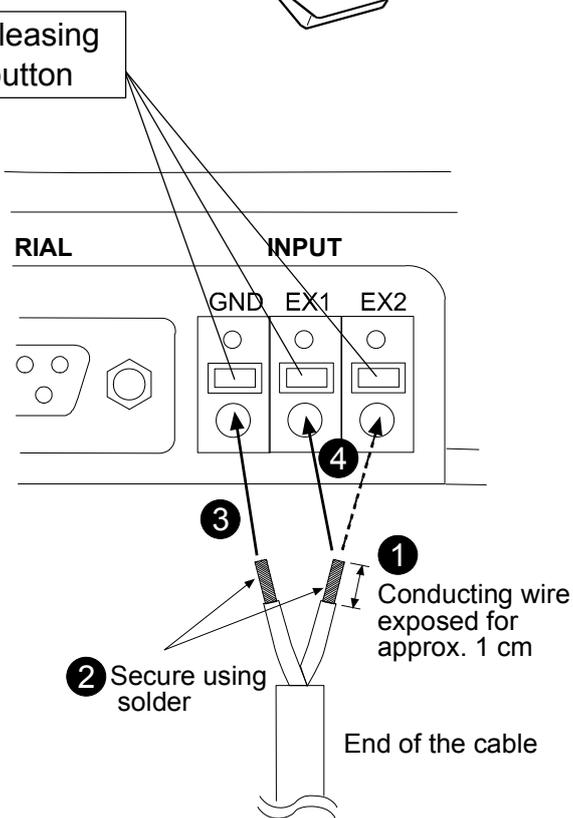
Combination example



Using the external input connector (Example using a foot switch)

1. Strip the cable coatings to expose the conducting wire for approx. 1 cm.
2. Secure the conducting wire using solder so that it cannot be bended or come apart.
3. Insert either conducting wire into the “GND” terminal of the external input connector.
4. Insert the other conducting wire into the “EX1” or “EX2” terminal of the external input connector.
5. When removing the conducting wire from the external input connector, pull out the conducting wire while pressing the releasing button

- * If the conducting wire can not be secured properly by inserting, insert the conducting wire into the terminal while pressing the releasing button.
- * If the releasing button can not easily be pressed, depress the releasing button using a screwdriver.



9. PASSWORD LOCK FUNCTION

This function is used to set a password to allow only an administrator who knows the password to change the date or time setting and function settings. The operator can change the ID number even while the password lock function is in use.

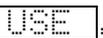
9-1. Enabling the password lock function

Setting the password

1. With the power off, turn the power on while pressing and

holding the  key, and then continue to press and hold the  key. (for approx. 4 seconds)

2. Function setting  appears. Press the  key

to display  or . Press the  or  key to select , and then press the  key.

3.  appears.

Set the password with five digits using the numerical keypad.

(The password is set to 00000 at shipment.)

(To stop the setting operations in progress, press the  key.)

4. When finished setting the five-digit password using the

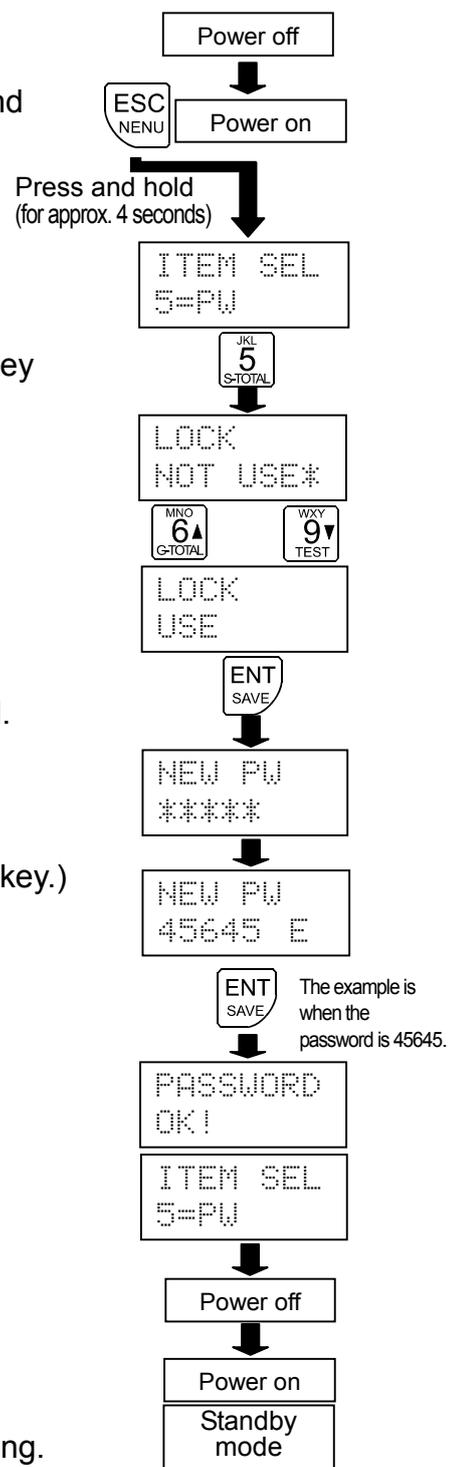
numerical keypad, “E” appears. Press the  key to confirm the password setting.

5. The function settings display appears after displaying

.

6. Turn the power off and then turn the power on again.

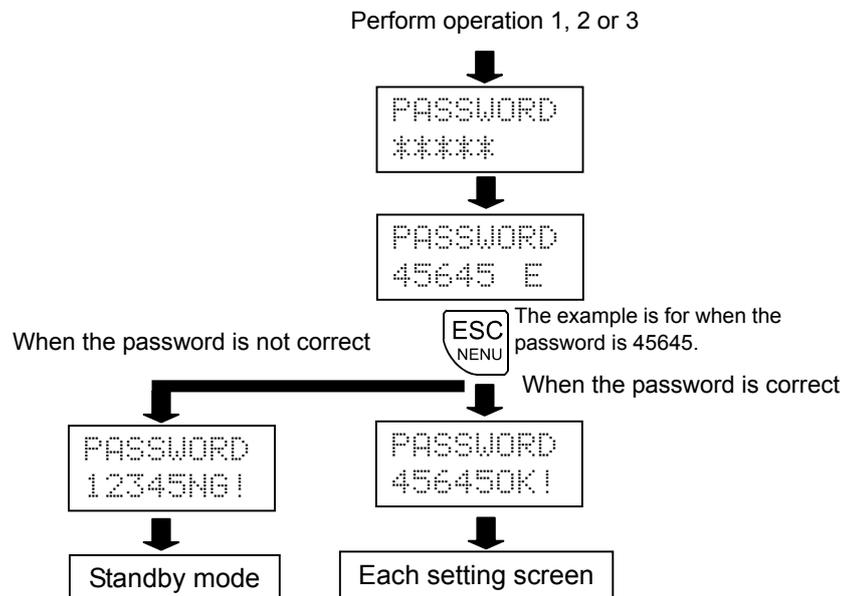
The printer returns to standby mode and is available for printing.



9-2. Where the password is entered

When the password is enabled (**USE ***), the password must be entered by using the setting operations described below.

1. To enter the function settings : With the power off, turn the power on while pressing and holding the  key.
2. To enter the time setting : In standby mode, press and hold the  key (for approx. 2 seconds).
3. To enter the date setting : In standby mode, press and hold the  key (for approx. 2 seconds).



10. INTERFACE SPECIFICATIONS

10-1. RS-232C

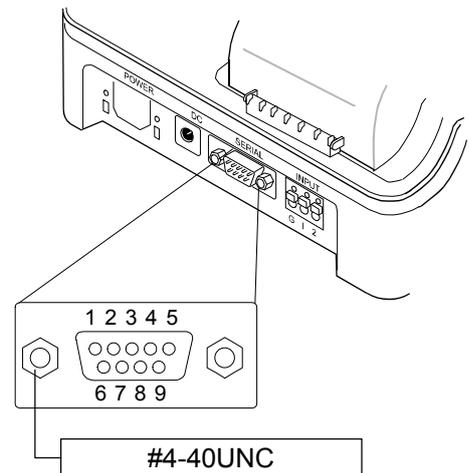
The printer is a DTE device. Connect a balance (DCE) to the printer using a straight through cable.

Transmission system : EIA RS-232C
 Transmission form : Asynchronous, bi-directional, half duplex
 Data format : Baud rate : 300, 600, 1200, 2400*, 4800, 9600, 19200 bps
 Terminator : <CR><LF>
 Data length: 7* or 8 bits
 Parity : Even*, ODD (Data length 7 bits)
 NONE (Data length 8 bits)
 Stop bit : 1 bit

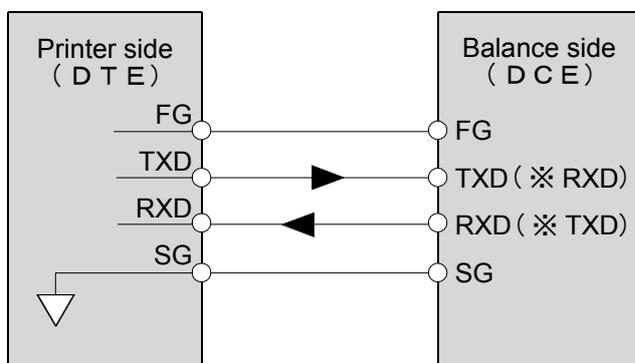
* indicates factory settings. (This is adjusted to factory settings for most of A&D's balances.)

D-Sub 9-pin assignment

Pin No.	Signal name	Direction	Description
1	RXD	—	Current loop receiving data
2	RXD	Input	Receive data
3	TXD	Output	Transmit data
4	Used internally	Output	Unavailable for connection (5V output)
5	SG	Output	Signal ground
6	—	—	No connection
7	—	—	No connection
8	—	—	No connection
9	—	—	No connection



RS-232C connection



* The names in the parentheses are used for some balances in the instruction manual.

11. MAINTENANCE

11-1. Care and cleaning

- Do not use organic solvents or chemical cloth to clean the printer.
- Clean the printer with a lint free cloth that is moistened with a mild detergent.
- Do not disassemble the printer.
- Use the original packing material for transportation.

11-2. Checking the printer performance

If the printer seems to have a problem, check the items described below.

If improper performance persists after checking, contact the local A&D dealer for repair.

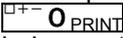
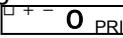
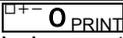
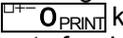
Checking the power supply

- Is an appropriate AC adapter connected?

Checking the data transmission

- Is the printer connected to the weighing device using an RS-232C straight through cable or current loop cable?
- Are the RS-232C settings (baud rate, data length and parity) of the printer the same with those of the weighing device?

11-3. Troubleshooting

No.	Phenomenon		Possible cause, remedy
11-3-1	The weighing values cannot be printed.	The results are printed as dots.	An improper AC adapter may be used with the printer. Confirm that the adapter type is correct for the local voltage and power receptacle type. Refer to "2-1. Package contents" in "2. PRODUCT STRUCTURE (PART NAMES), PACKAGE CONTENTS" in this document.
11-3-2		Printer display MANUAL DATA ERR	<p>The printer cannot receive weighing values because the printer is set to "Manual printing mode" [3=MODE | PRN MODE / MANUAL] in the function settings.</p> <p>* Manual printing mode is used to print weighing values each time the  key on the printer is pressed while the weighing values are being continuously transmitted from the balance / scale to the printer.</p> <p>1. To print weighing values using keys on the balance / scale Initialize the settings for the printer. Refer to "8-3. Initializing the function settings" in "8. FUNCTION SETTINGS" in this document.</p> <p>2. To print weighing values using keys on the printer Perform by one of the methods below.</p> <p>2-1 Transmitting the weighing value request command from the printer to the balance / scale. * These operations are available only for balances / scales that can output weighing values using the "Q" command.</p> <ol style="list-style-type: none"> 1) Settings for the balance / scale <ul style="list-style-type: none"> - Data output format: "A&D standard format" 2) Settings for the printer <ul style="list-style-type: none"> - Printing mode: "External key printing mode" [3=MODE | PRN MODE / EXT.KEY] Refer to "7-3. Printing mode settings" in "7. BASIC SETTINGS" in this document. 3) Printing the weighing value <ul style="list-style-type: none"> - By pressing the  key, the weighing value request commands are transmitted from the printer to the balance / scale, and then the printer prints the weighing values received from the balance / scale. <p>2-2 Printing weighing values each time the  key on the printer is pressed while the weighing values are being continuously transmitted from the balance / scale to the printer</p> <ol style="list-style-type: none"> 1) Settings for the balance / scale <ul style="list-style-type: none"> - Data output mode: "Stream mode" (outputting the weighing values continuously) - Data output format: "A&D standard format" 2) Settings for the printer <ul style="list-style-type: none"> - Printing mode: "Manual printing mode" [3=MODE | PRN MODE / MANUAL] Refer to "7-3. Printing mode settings" in "7. BASIC SETTINGS" in this document. 3) Printing the weighing value <ul style="list-style-type: none"> - Press the  key on the printer to print the newest weighing values <p>* When output of weighing values from the balance / scale stops in cases such as when the display is turned off or when re-zeroing, the printer displays error shown at the left.</p>

No.	Phenomenon		Possible cause, remedy
11-3-3	The weighing values cannot be printed.	Printer display <div style="border: 1px solid black; padding: 2px; display: inline-block;"> AUTO DATA ERR </div>	<p>The printer cannot receive weighing values because it is set to “Auto printing mode” [3=MODE | PRN MODE / AUTO] in the function settings.</p> <p>* Auto printing mode of the printer is used to automatically print weighing values only when the printer detects a change in a weighing value while weighing values are being continuously transmitted from the balance / scale to the printer.</p> <p>1. To print weighing values using keys on the balance / scale Initialize the settings for the printer. Refer to “8-3. Initializing the function settings” in “8. FUNCTION SETTINGS” in this document.</p> <p>2. To automatically print weighing values due to a change in the weighing value. Perform by one of the methods below.</p> <p>2-1 Printing using the auto printing function of the balance / scale Many models of balance / scale are equipped with functions (auto printing function) that can automatically output weighing values after the weighing value changes or stabilizes. The weighing values can be printed automatically with the printer by using this function.</p> <p>1) Settings for the balance / scale - Data output mode: “Auto printing” - Data output format: “A&D standard format”</p> <p>2) Settings for the printer - Printing mode: “External key printing mode” [3=MODE | PRN MODE / EXT.KEY] Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS” in this document.</p> <p>3) Printing the weighing value When outputting the weighing values to the printer by placing and removing a sample according to the instruction manual of the balance / scale, the printer prints the weighing values.</p> <p>2-2 Printing using auto printing mode of the printer</p> <p>1) Settings for the balance / scale - Data output mode: “Stream mode” (outputting the weighing values continuously) - Data output format: “A&D standard format”</p> <p>2) Settings for the printer - Printing mode: “Auto printing mode” [3=MODE | PRN MODE / AUTO] Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS” in this document.</p> <p>3) Printing the weighing value - When the weighing value has a change of more than 10 digits from zero and is stable, the printer prints the weighing values.</p>

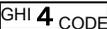
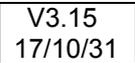
No.	Phenomenon		Possible cause, remedy
11-3-4	The weighing values cannot be printed.	Printer display <div style="border: 1px solid black; padding: 2px; display: inline-block;"> TARGET 76543210 </div>	<p>Digits to be charted are selected because the printer is set to chart printing mode [3=MODE | PRN MODE / CHART].</p> <hr/> <p>1. To print weighing values using keys on the balance / scale Initialize the settings for the printer. Refer to “8-3. Initializing the function settings” in “8. FUNCTION SETTINGS” in this document.</p> <p>2. To perform chart printing (printing of changes in the weighing value in real time as a scatter diagram)</p> <p>1) Settings for the balance / scale</p> <ul style="list-style-type: none"> - Data output mode: “Stream mode” (outputting the weighing values continuously) - Data output format: “A&D standard format” <p>2) Settings for the printer</p> <ul style="list-style-type: none"> - Printing mode: “Chart printing mode” [3=MODE | PRN MODE / CHART] Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS” in this document. - Refer to “8-5. Chart printing mode” in “8. FUNCTION SETTINGS” to set chart printing mode.
11-3-5	The weighing values cannot be printed.	Printer display <div style="border: 1px solid black; padding: 2px; display: inline-block;"> TIME SET M:S00:00 </div>	<p>Interval time is set because the printer is set to interval printing mode [3=MODE | PRN MODE / TIMER] or chart printing mode [3=MODE | PRN MODE / CHART].</p> <hr/> <p>1. To print weighing values using keys on the balance / scale Initialize the settings for the printer. Refer to “8-3. Initializing the function settings” in “8. FUNCTION SETTINGS” in this document.</p> <p>2. To perform interval printing or chart printing with the printer.</p> <p>1) Settings for the balance / scale</p> <ul style="list-style-type: none"> - Data output mode: “Stream mode” (outputting the weighing values continuously) - Data output format: “A&D standard format” <p>2) Settings for the printer</p> <ul style="list-style-type: none"> - Printing mode: “Interval printing mode” [3=MODE | PRN MODE / TIMER] or “Chart printing mode” [3=MODE | PRN MODE / CHART]. Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS ” in this document. - Refer to “8-4. Descriptions for the printing mode” and “8-5. Chart printing mode” in “8. FUNCTION SETTINGS” for detailed settings procedure.
11-3-6		Printing cannot be done after tare (HV-C-K series)	<p>This issue often appears when the printer is used with the HV-C-K series.</p> <p>Settings for the printer</p> <ul style="list-style-type: none"> - Printing mode: “Dump printing mode” [3=MODE | PRN MODE / DUMP] Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS” in this document.

No.	Phenomenon		Possible cause, remedy
11-3-7	The weighing values cannot be printed.	Others	<p>1. An improper connection cable is used between the balance / scale and printer. When connecting between the balance / scale and printer using a RS-232C cable, straight type cable must be used. When connecting using DIN cable (rounded connector), make sure that a cable for RS-232C connection is used without using a cable for current loop connection. Refer to “2-1. Package contents” in “2. PRODUCT STRUCTURE (PART NAMES), PACKAGE CONTENTS” in this document.</p> <p>2. The output format of the balance / scale is not correct. See if printing can be done by the settings below. If printing can be done properly, the communication settings between the balance / scale and printer match.</p> <p>1) Settings for the balance / scale - Data output format: “A&D standard format”</p> <p>2) Settings for the printer - Printing mode: “Dump printing mode” [3=MODE | PRN MODE / DUMP] Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS” in this document.</p> <p>3. The communication settings between the balance / scale and printer do not match. Confirm the communication settings (baud rate, data bit rate and parity bit) for the balance / scale and printer. Refer to the instruction manual for the balance / scale for its communication settings. Factory settings for most balances / scales are the same as for the printer. There are cases when it is possible to print by initializing the balance / scale and printer Refer to “8-3. Initializing the function settings” in “8. FUNCTION SETTINGS” in this document.</p> <p>1) Settings for the printer - Confirm settings of the serial interface [1=SERIAL]. Refer to “8. FUNCTION SETTINGS” in this document.</p>
11-3-8	The weighing values are continuously printed without end.		<p>Data output mode for the balance / scale is set to stream mode (outputting the weighing values continuously)</p> <p>1. When you would like to print weighing values using keys on the balance / scale</p> <p>1) Settings for the balance / scale Data output mode: select other than stream mode</p> <p>2. To print weighing values using keys on the printer</p> <p>1) Settings for the printer Printing mode: Set to manual printing mode [3=MODE | PRN MODE / MANUAL] Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS” in this document.</p>

11-4. When problems cannot be resolved

No.	Phenomenon, desired action		Remedy
11-4-1	The printed results cannot be seen.		<p>1. Press and hold the [^{UV}8 FEED] key to feed paper until the printed results can be seen.</p> <p>2. Paper can also be fed automatically after the weighing values are printed. Settings for the printer: Select the paper feed amount by "FEED" [3=MODE | FEED CNT / x LINE]. Refer to "8-2. Items list ("FEED CNT" item)" in "8. FUNCTION SETTINGS" in this document.</p> <p>* If the paper feed amount cannot be set to larger than "2 LINE", contact A&D through your local dealer after confirming the software version of the printer</p>
11-4-2	About the weighing number before the weighing value	To print or not print the weighing number	<p>Whether or not to print the weighing number before the weighing value can be selected.</p> <p>1) Settings for the printer - Weighing number printing: Printed out/Not printed out [3=MODE | NO. PRN | NOT PRN / PRINT] Refer to "8-2. Items list ("NO.PRN" item)" in "8. FUNCTION SETTINGS" in this document.</p> <p>2) Settings for the balance / scale - Data output format: "A&D standard format"</p>
11-4-3		To reset the printer	<p>Statistical calculation data can be deleted by pressing the [ENT_{SAVE}] key after pressing and holding the [PRS 7 DEL] key (for approx. 2 seconds). Refer to "6-1. Printing example and printing contents of statistical calculation" in "6. STATISTICAL CALCULATION FUNCTIONS" in this document.</p> <p>* If statistical calculation data is deleted, the weighing number for that data will be also reset. (printed from "No.1" next time)</p>
11-4-4	About statistical calculation	To delete all data to be used for statistical calculation	<p>Refer to "6-1. Printing example and printing contents of statistical calculation" in "6. STATISTICAL CALCULATION FUNCTIONS" in this document.</p> <p>* If statistical calculation data is deleted, the weighing number for that data will be also reset. (printed from "No.1" next time)</p>
11-4-5		To perform statistical calculation	<p>1) Settings for the balance / scale - Data output format: "A&D standard format" * When the weighing values are outputted from the balance / scale, do not add information (date / time, ID number, etc) other than the weighing value to the weighing values.</p> <p>2) Settings for the printer - Printing mode: "External key printing mode" [3=MODE | PRN MODE / EXT.KEY] Refer to "7-3. Printing mode settings" in "7. BASIC SETTINGS" in this document.</p> <p>Data used for statistical calculation is maintained in non-volatile memory of the printer even when turning the power of the printer off. To reset the weighing number, please delete the statistical calculation data. Refer to "6-1. Printing example and printing contents of statistical calculation" in "6. STATISTICAL CALCULATION FUNCTIONS" in this document.</p>

No.	Phenomenon, desired action		Remedy
11-4-6	About statistical calculation	To print a maintenance record according to GLP/GMP	<p>1) Settings for the balance / scale</p> <ul style="list-style-type: none"> - Set for the balance / scale to "Perform the GLP output". <p>2) Settings for the printer</p> <ul style="list-style-type: none"> - Printing mode: Dump printing mode [3=MODE | PRN MODE / DUMP] <p>Refer to "7-3. Printing mode settings" in "7. BASIC SETTINGS" in this document.</p> <ul style="list-style-type: none"> * When printing maintenance records according to GLP/GMP, the printing mode for the printer must be set to "Dump printing mode" [3=MODE PRN | MODE / DUMP]. * When performing statistical calculation, the printer is operated using "External key printing mode" (3=MODE | PRN MODE / EXT.KEY). Therefore, to print maintenance records according to GLP/GMP, it is necessary to change the mode to "Dump printing mode" temporarily. * When switching printing mode, please note that the printer deletes all date to be used with statistical calculation. (We recommend taking actions such as printing results for statistical calculation beforehand.) * Press and hold the ENT_{SAVE} key to switch between "External printing mode" and "Dump printing mode" <p>Refer to the item for the "ENT" key in "5. BASIC OPERATIONS OF THE KEYS" in this document.</p> <p>3) Printing the maintenance records</p> <p>When outputting data for maintenance records such as data for calibration (sensitivity adjustment) of the printer by operating the balance / scale, the printer prints the data transmitted to it.</p> <ul style="list-style-type: none"> * Return the printing mode for the printer to "External key printing mode" if necessary.
11-4-7	About date / time	To print the date / time	<p>Press the QZ 1_{TIME} key to print the time. Press the ABC 2_{DATE} key to print the date.</p> <ul style="list-style-type: none"> * The printer uses the built-in clock for printing date / time. * By using the password lock function of the printer, setting the date / time can be limited to only by an administrator. <p>Refer to "9. PASSWORD LOCK FUNCTION" in this document.</p>
11-4-8		To automatically print the date / time when printing the weighing values	<p>1) Settings for the balance / scale</p> <ul style="list-style-type: none"> - Data output format: "A&D standard format" <p>2) Settings for the printer</p> <ul style="list-style-type: none"> - Printing mode: "External key printing mode" [3=MODE | PRN MODE / EXT.KEY] <p>Refer to "7-3. Printing mode settings" in "7. BASIC SETTINGS" in this document.</p> <ul style="list-style-type: none"> - Printing data: Date + weighing value [3=MODE | PRN FOR. / TIME/WG] <p>Refer to "8-2. Items list ("PRN FOR" item)" in "8. FUNCTION SETTINGS" in this document.</p> <ul style="list-style-type: none"> * The printer uses the built-in clock for printing date / time. * By using the password lock function of the printer, setting the date / time can be limited to only by an administrator. <p>Refer to "9. PASSWORD LOCK FUNCTION" in this document.</p>
11-4-9		To change settings of date / time	<p>Press and hold the QZ 1_{TIME} key to enter time setting mode. Press and hold the ABC 2_{DATE} key to enter date setting mode.</p> <p>Enter values using the numerical keypad in each setting mode to set date or time.</p> <p>Press the ENT_{SAVE} key while TIME SET / SAVE? E is displayed to store date or time.</p> <ul style="list-style-type: none"> * By using the password lock function of the printer, setting the date / time can be limited to only by an administrator. <p>Refer to "9. PASSWORD LOCK FUNCTION" in this document.</p>
11-4-10		To not print date / time in statistical calculation results	<p>Set the printer as follows.</p> <ul style="list-style-type: none"> - Calculation printing: Do not add date and time in the calculation printing [3=MODE | TOTAL MD / T/D NO] <p>Refer to "8-2. Items list ("TOTAL MD" item)" in "8. FUNCTION SETTINGS" in this document.</p>

No.	Phenomenon, desired action		Remedy
11-4-11	Printing the weighing values	To automatically print weighing values by placing the sample without pressing the key.	Refer to “11-3-3 (2. To automatically print weighing values due to a change in the weighing value.)” in “11-3. Troubleshooting” in this table.
11-4-12		To print weighing values using keys on the printer	Refer to “11-3-2 (2. To print weighing values using keys on the printer)” in “11-3. Troubleshooting” in this table.
11-4-13		To print the unstable weighing values where the stable mark is not lit	Set the printer as follows. - Unstable data: Printed [3=MODE | US PRN / PRINT] Refer to “8-2. Items list (“US PRN” item)” in “8. FUNCTION SETTINGS” in this document.
11-4-14		When outputting a different type of data (counting, mass or unit mass. etc), only the first type of data can be printed.	Set the printer as follows. - Printing mode: “Dump printing mode” [3=MODE | PRN MODE / DUMP] Refer to “7-3. Printing mode settings” in “7. BASIC SETTINGS” in this document. * Statistical calculation function cannot be used with dump printing mode. To perform statistical calculation using the data outputted first, contact A&D through your local dealer after confirming the software version of the printer When confirming the software version, refer to “11-4-17. Confirming the software version” in “11-4. When problems cannot be resolved” in this table.
11-4-15	About ID code	To not print ID code	Set the printer as follows. 1) Settings for the printer - ID printing: Not printed out [3=MODE | CODE PRN / NOT PRN] Refer to “8-2. Items list (“CODE PRN” item)” in “8. FUNCTION SETTINGS” in this document.
11-4-16		How to use ID code	By having the printer record information (product name, lot number, and measurer, etc) related to the weighing results in advance, that data can be printed whenever needed. * Press the  key to print the ID code.
11-4-17	Confirming the software version		Confirm the software version by following the procedure below. 1) Turn the power of the printer off by using the power switch on the right side of the printer. 2) When the power of the printer is turned on again, the printer’s display shows the software version temporarily.  (software version display) The example above shows software version “V3.15 (17/10/31)”.

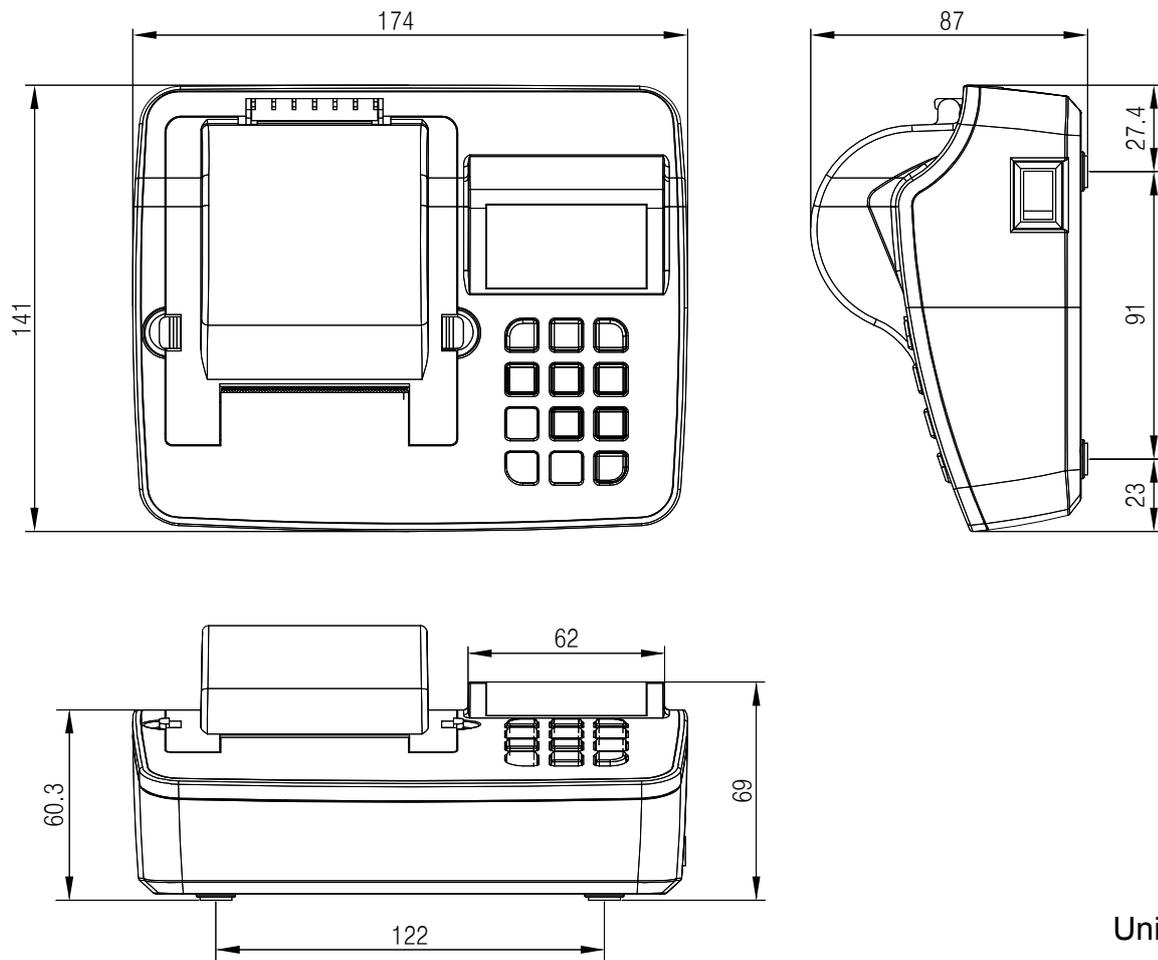
11-5. Asking for repair

If improper performance persists after checking, contact the local A&D dealer for repair. The printer is a precision instrument. Use the original packing material for transportation.

12. SPECIFICATIONS

Printing method	Impact type dot matrix
Character specifications	7 dots × 9 dots 1.6 (W) × 3.2 (H) mm
Printing speed	Approx. 1.6 line per second
Paper feeding speed	Approx. 4 line per second
Number of characters printed	24 characters per line
Operating temperature range	0°C to 40°C
Operating humidity range	35% to 85%RH (No condensation)
Storage temperature range	-20°C to 60°C
Storage humidity range	10% to 90%RH (No condensation)
Interface	RS-232C, current loop
Power supply & AC adapter type	Supplied to the AC adapter Confirm that the adapter type is correct for the local voltage and power receptacle type.
External dimensions	174 (W) × 141 (D) × 87 (H) mm
Weight	Approx. 500g
Accessories	Ink ribbon (1 pc), ordinary printer paper (1 pc), AC adapter, AC adapter labels, instruction manual, RS-232C cable

12-1. External dimensions



Unit: mm

12-2. Sold separately

Ordinary printer paper (10 pcs) AX-PP137-S

- This is ordinary replacement paper of 57.5mm width × Approx. 30m length.

Dust-free printer paper (10 pcs) AX-PP173-S

- This is dust-free paper that is available for use in cleanrooms.
57.5mm width × Approx. 30m length

Ink ribbon (5 pcs) AX-ERC-22B-S

- This is replacement ink ribbon.

RS-232C cable (D-sub9 pin – 9 pin, 1m) AX-KO2741-100

RS-232C cable (D-sub9 pin – 9 pin, 2m) AX-KO2466-200

RS-232C cable (D-sub25 pin - 9 pin, 0.9m) AX-KO2116-090

RS-232C cable (D-sub25 pin - 9 pin, 2m) AX-KO1710-200

RS-232C cable (DIN – D-sub9 pin, 2m) AX-KO1786-200

Current loop cable (DIN - D-sub9 pin, 1m) AX-KO5291-100

Foot switch AX-SW128

- By connecting the foot switch to the external input connector, functions assigned to the “External input 1 (EXT IN1)” and “External input 2 (EXT IN2)” of “Function settings (3=MODE)” can be performed.



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