BIXOLON®

User's Manual

BCD-2000

Customer Display
Rev. 1.02

http://www.bixolon.com
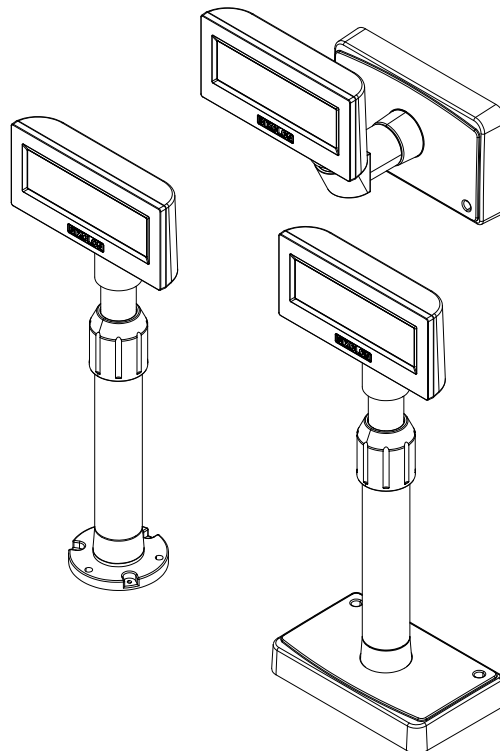
Introduction

BCD-2000 is designed to be used while connected to computer peripherals and electronic devices such as ECR (Electronic Cash Register) and POS (Point Of Sales).

※ The main features of the printer are as follows:

1. Customer Display LCD Module Model
2. Character Number
   - BCD-2000: 120 Letters(30 Letters x 4 Lines)
   - BCD-2000K: 40 Letters(20 Letters x 2 Lines)
3. Interface: RS232/USB Supported
4. Rotation Angle: Horizontal: +/-180˚,Vertical: 52˚ (5step)
5. Display Color: Background (Blue), Characters (White)
6. Emulation: ESC/POS, CD5220

It is advisable to read the contents of this manual carefully before using the printer for the first time.

※ Use only authorized supplies that can be trusted!

- We are not responsible for quality and service for damage caused by the use of unauthorized products.

We at BIXOLON maintain ongoing efforts to enhance and upgrade the functions and quality of all our products. In following, product specifications and/or user manual content may be changed without prior notice.
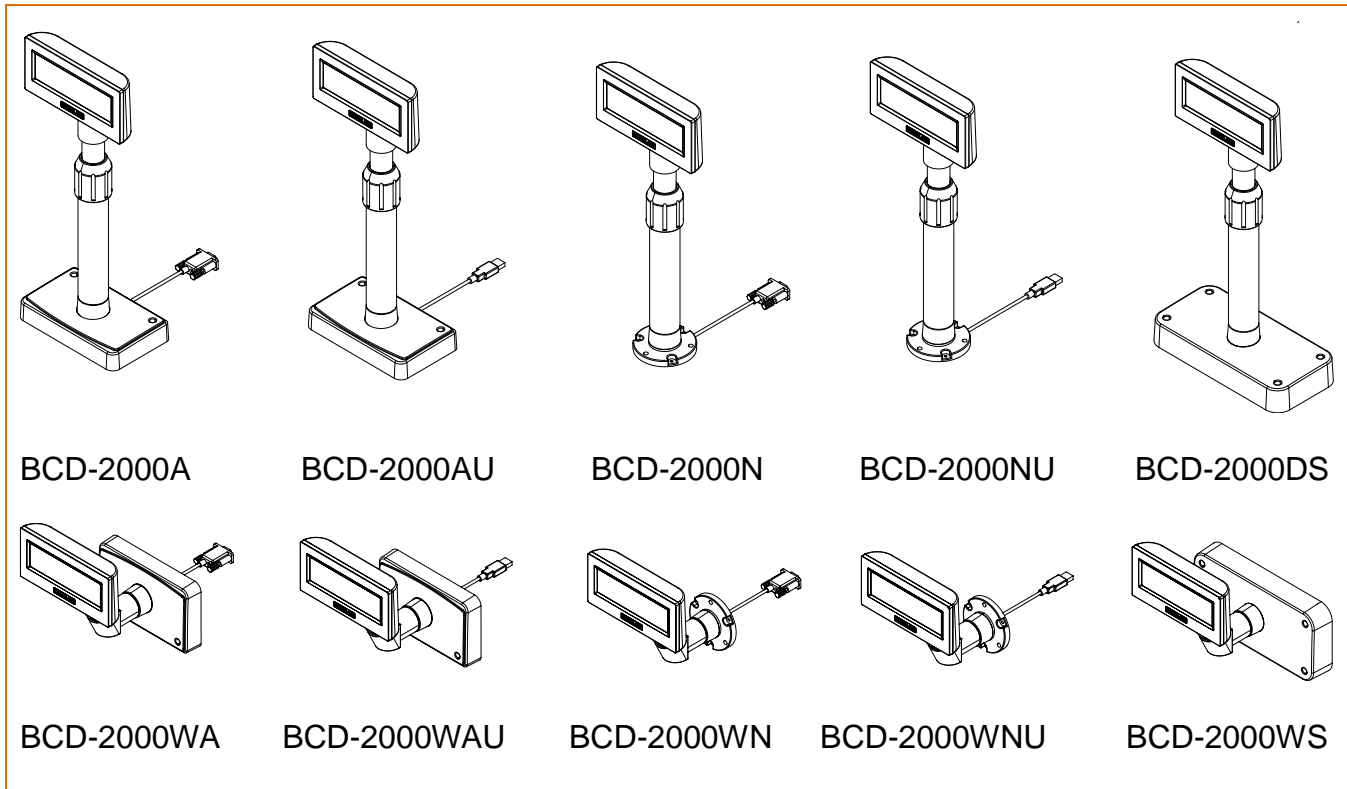
Table of Contents

1. Product Models & Components

• The following display models are available:

1) Desktop (BCD-2000A/AU/DS)

2) Desktop Mount (BCD-2000N/NU)

3) Wall Mount (BCD-2000WA/WAU/WN/WNU/WS)

| BCD-2000A | BCD-2000AU | BCD-2000N | BCD-2000NU | BCD-2000DS |
| BCD-2000WA | BCD-2000WAU | BCD-2000WN | BCD-2000WNU | BCD-2000WS |

* All models can be easily mounted on a wall or desk using an electric screwdriver.

BCD-2000N/NU/WN/WNU   BCD-2000A/AU/DS/WA/WAU/WS
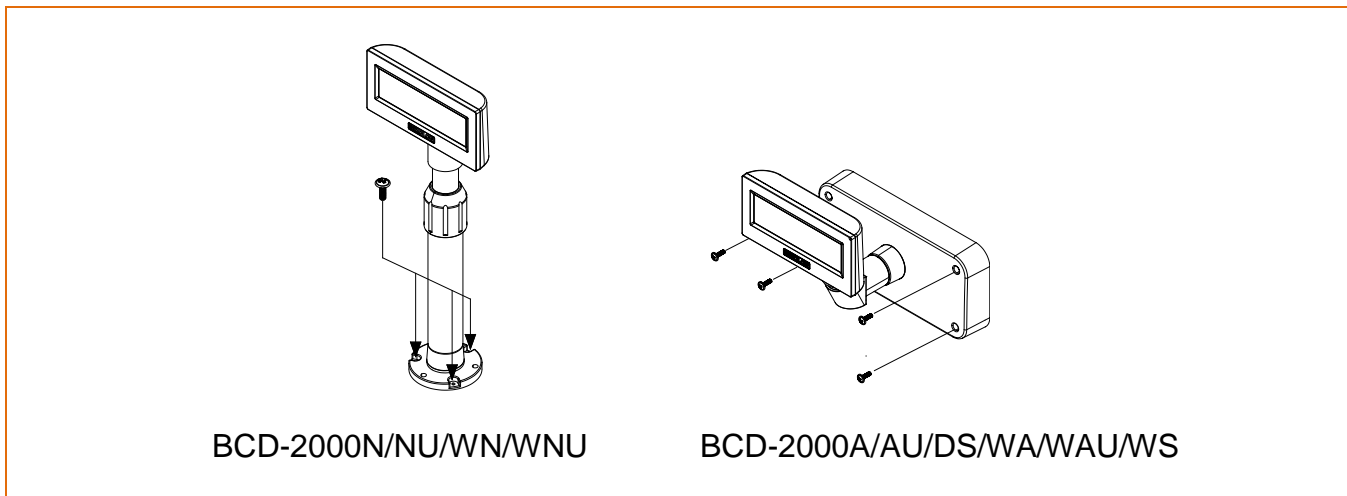
| Caution or Warning | - Please only use the screws supplied for the installation of the device. |

2. Unpacking

2-1 BCD-2000A/AU/DS Types

Display Set	Installation Guide	CD	Screws x 4 (M3x10) Tapping

2-2 BCD-2000N/NU Types

Display Set	Installation Guide	CD	Screws x 4 (M3x10) Tapping

2-3 BCD-2000WA/WAU/WS Types
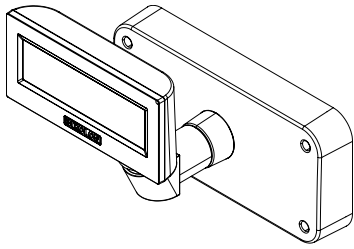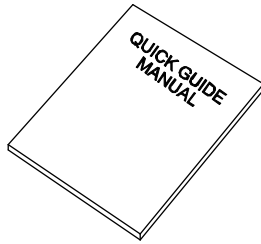
Display Set	Installation Guide	CD	Screws x 4 (M3x10) Tapping

2-4 BCD-2000WN/WNU Types
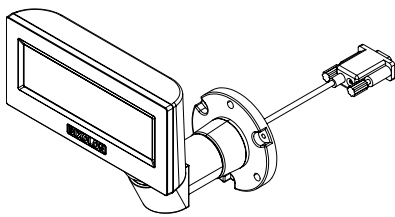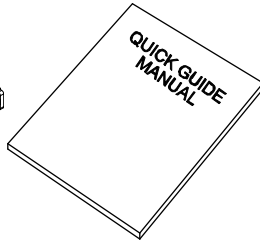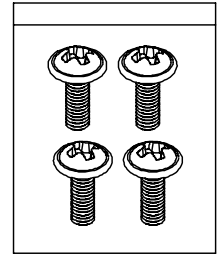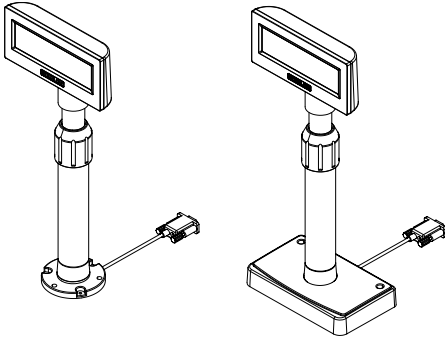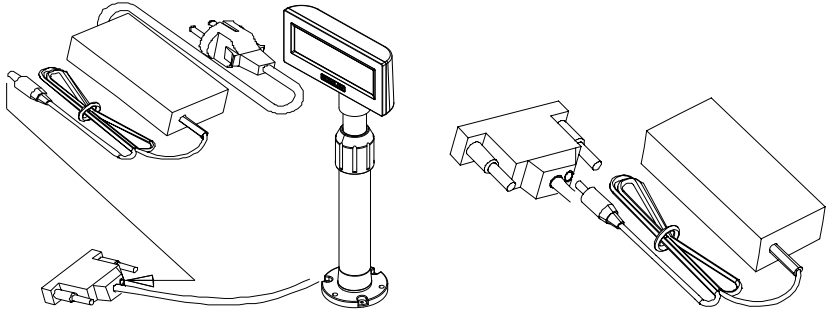
Display Set	Installation Guide	CD	Screws x 4 (M3x10) Tapping

3. Initial Settings & Options (Serial)

3-1 Direct Connection
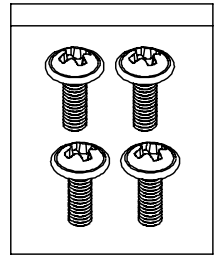• Connected to the Display directly without passing through the board.
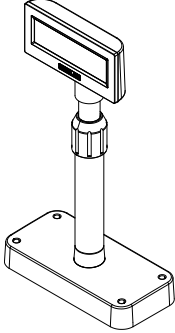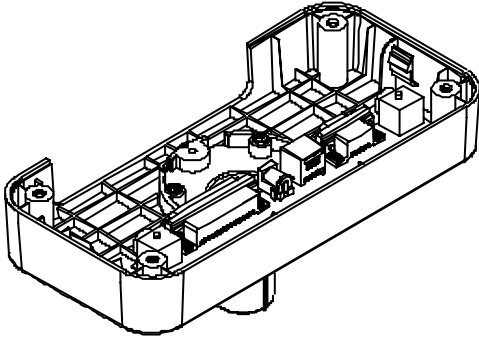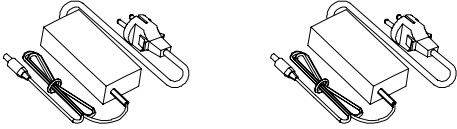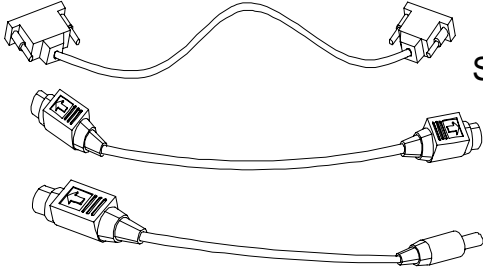
Item	Display-Serial
Standard Model	 BCD-2000N BCD-2000A
How to Connect a Power Cable to the Serial Cable	Connect an SMPS to the Serial Cable Jack Voltage Used: 24V (2pin) BCD-2000N+SMPS

Caution or Warning	- The above image may be different from the actual items.

3-2 Pass Through

• Data transmits through Host(PC) → Display → Printer.
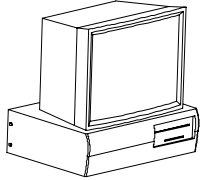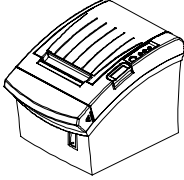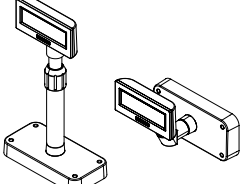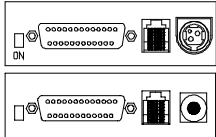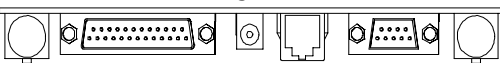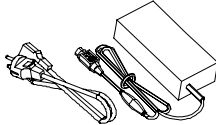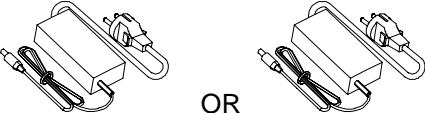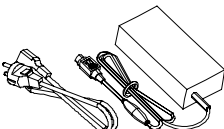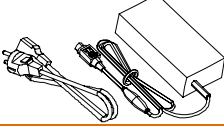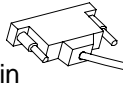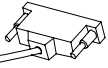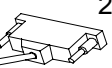
Item	Display-Serial
Standard Model	 BCD-2000DS
Standard Board Specifications	
Power (Optional)	 24V, 2.5A 24V, 1.5A
Cable Types (Optional)	 Serial Cable 9PM to 25PF Power Cable 3P to 3P Power Cable 3P to 2P

Caution or Warning	- Please only use the genuine optional accessories.

4. Connection Types & Sizes

4-1 Connection Types (BCD-2000A/N/DS/WA/WN/WDS)

Standard Components	(Host PC Side) ▼	(Printer Side) ▼	(Display Side) ▼
Interface			A B C D E F
Power Connection 1 (Separate power supply needed for Rinter/Display)	-		24VDC OR
Power Connection 2 (SMPS→Display →Printer)	-	3 pin	3 pin 24VDC
Power Connection 3 (SMPS→Display →Printer)	-	2 pin	3 pin 24VDC
Serial Cable Connection 1 (Host→Display →Printer)	9 pin 25 pin	25 pin	9 pin
Serial Cable Connection 2 (Host→Printer) (Host→Display)	9 pin 9 pin	25 pin	25 pin
Misc.	A: Power Supply Connector (Output 24VDC, 3pin) B: Host Interface Connector (D-SUB 25pin, Female) C: Power Supply Connector (Input 24VDC, 2pin) D: Display Connector E: Printer Interface Connector (D-SUB 9pin, Male) F: Power Supply Connector (Input 24VDC, 3pin)		

4-2 How to Connect (BCD-2000AU/NU/WAU/WNU)

1) Install the USB Virtual COM driver.

2) Connect the display cable to the USB port on a PC.

3) Turn on the PC and display. The PC will automatically detect new hardware connected to the USB port.

4) Once the driver is installed, the display is ready to receive data.
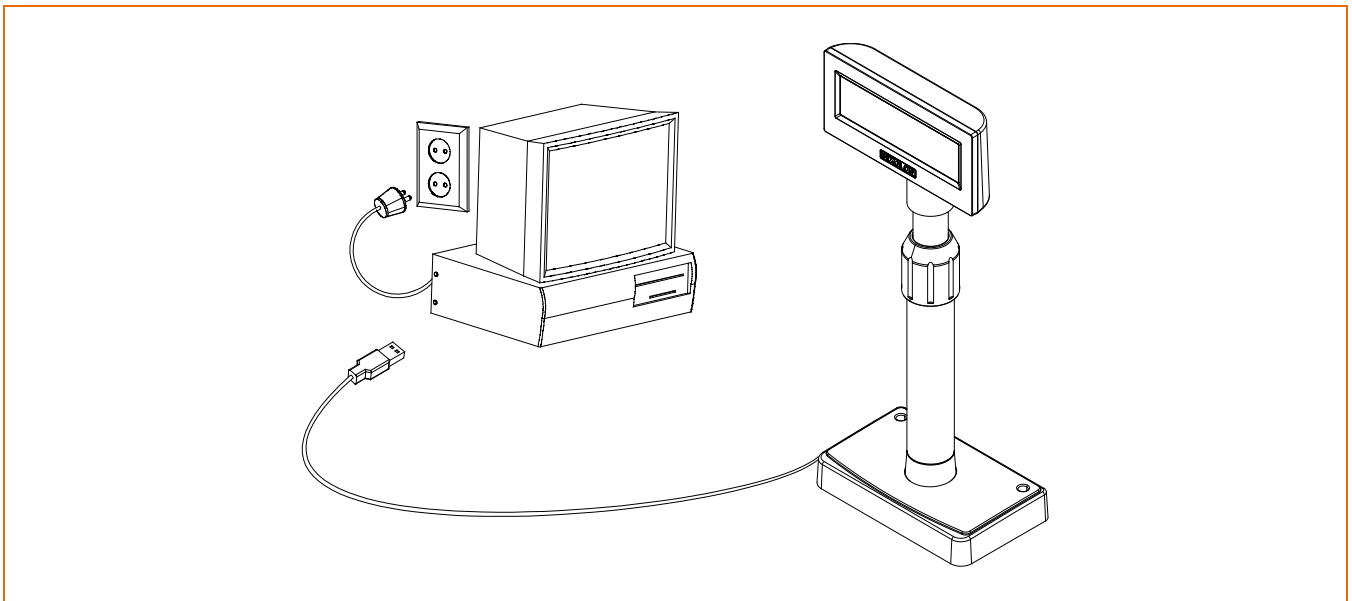
Caution or Warning	- If the PC and Display are connected, the driver may not be installed properly. Please disconnect the PC when installing the driver.

4-3 Sizes

4-3-1 Desktop Type

519mm 498mm 375mm 353mm 174mm 153mm

4-3-2 Wall Mount Type

173mm 152mm

4-3-3 Others

161mm 49mm 76mm 163mm 98mm 26mm

BCD-2000A/AU

220mm 105mm 32mm Ø76mm
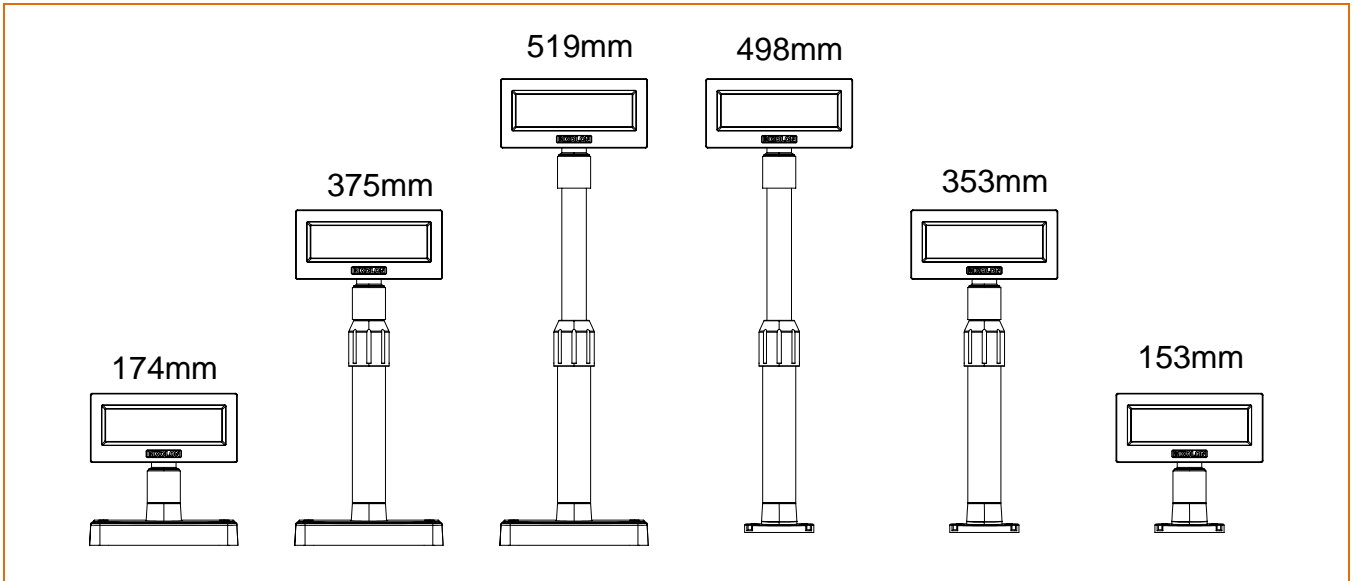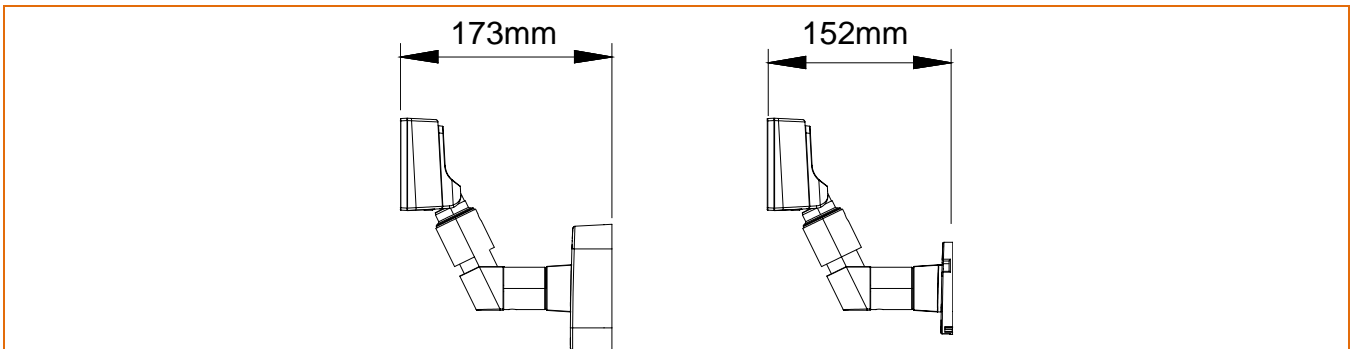
BCD-2000DS
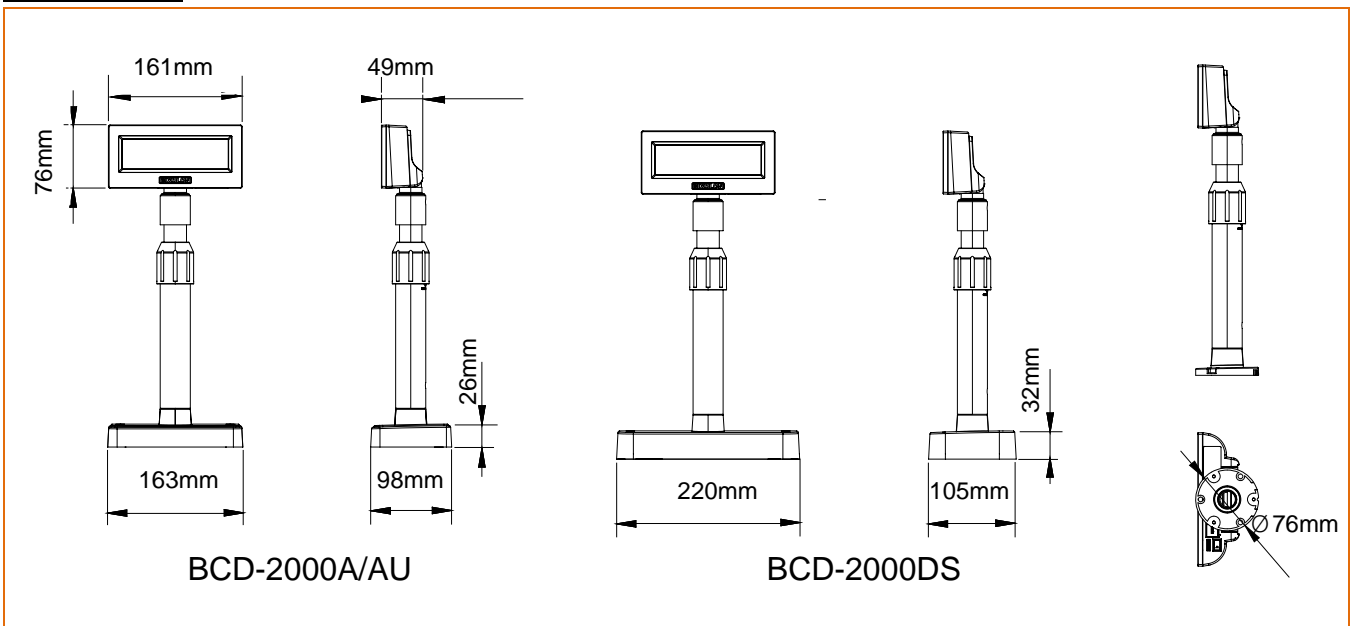
5. Features

5-1 Swivel

• This device can be swiveled freely. Please follow the instructions below to avoid damage or malfunction when installing the device. To change the direction of the display after installation, follow the instructions provided below.

Pole Adjustable Ball

Nut Holder

Pole-Main

(a)   (b)   (c)
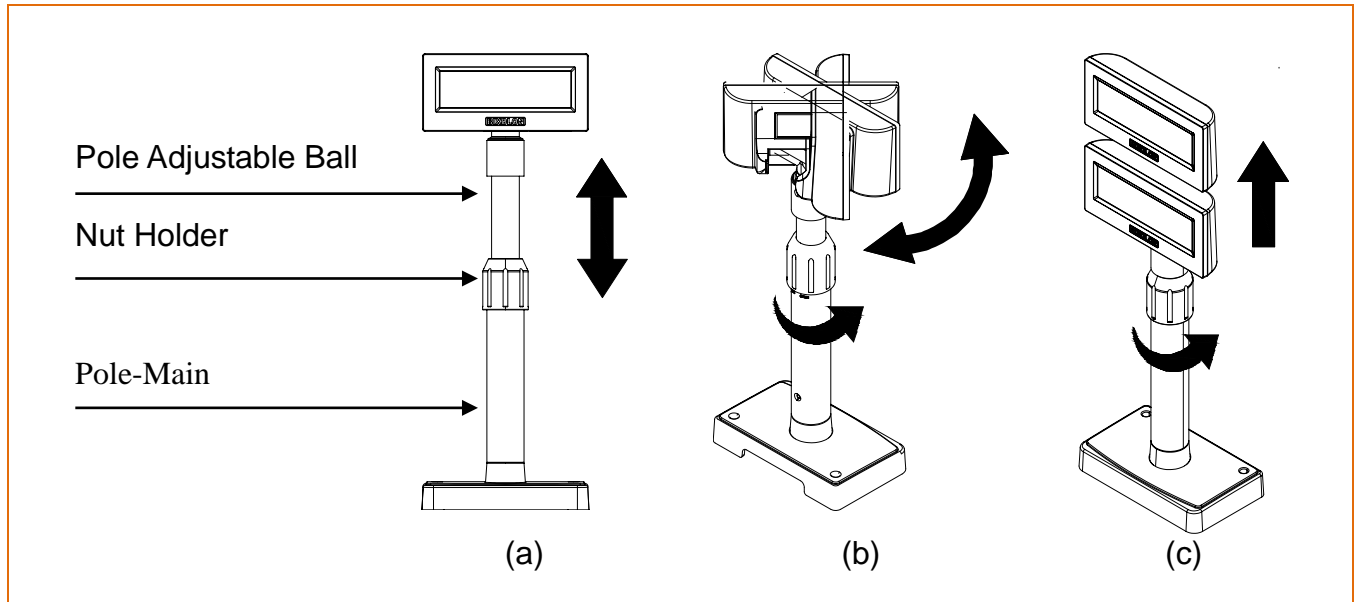
* (a) Lower the body to the direction of the arrow. Spin the Nut Holder so the body goes down. (Refer to the OPEN/CLOSE indications on the product.)

* (b) Swivel the body to the angle you want.

* (c) After adjusting the angle, tighten the Nut Holder. (Keep the body from swiveling when moving it up and down.) Adjust the height of the body and tighten the Nut Holder.

Caution or Warning	- Do not turn the body more than once in the same direction. (The body can be turned indefinitely.) - Do not over-tighten the Nut Holder as it can cause damage. Please tighten so that the body does not move.

5-2 Tilting

• The device can be tilted to the degree you want.
 Please follow the instructions below to avoid damage or malfunction when installing the
 device. It can be tilted up to 13° to each side with 4 levels and 5 positions. (Tilt: max. 52°)
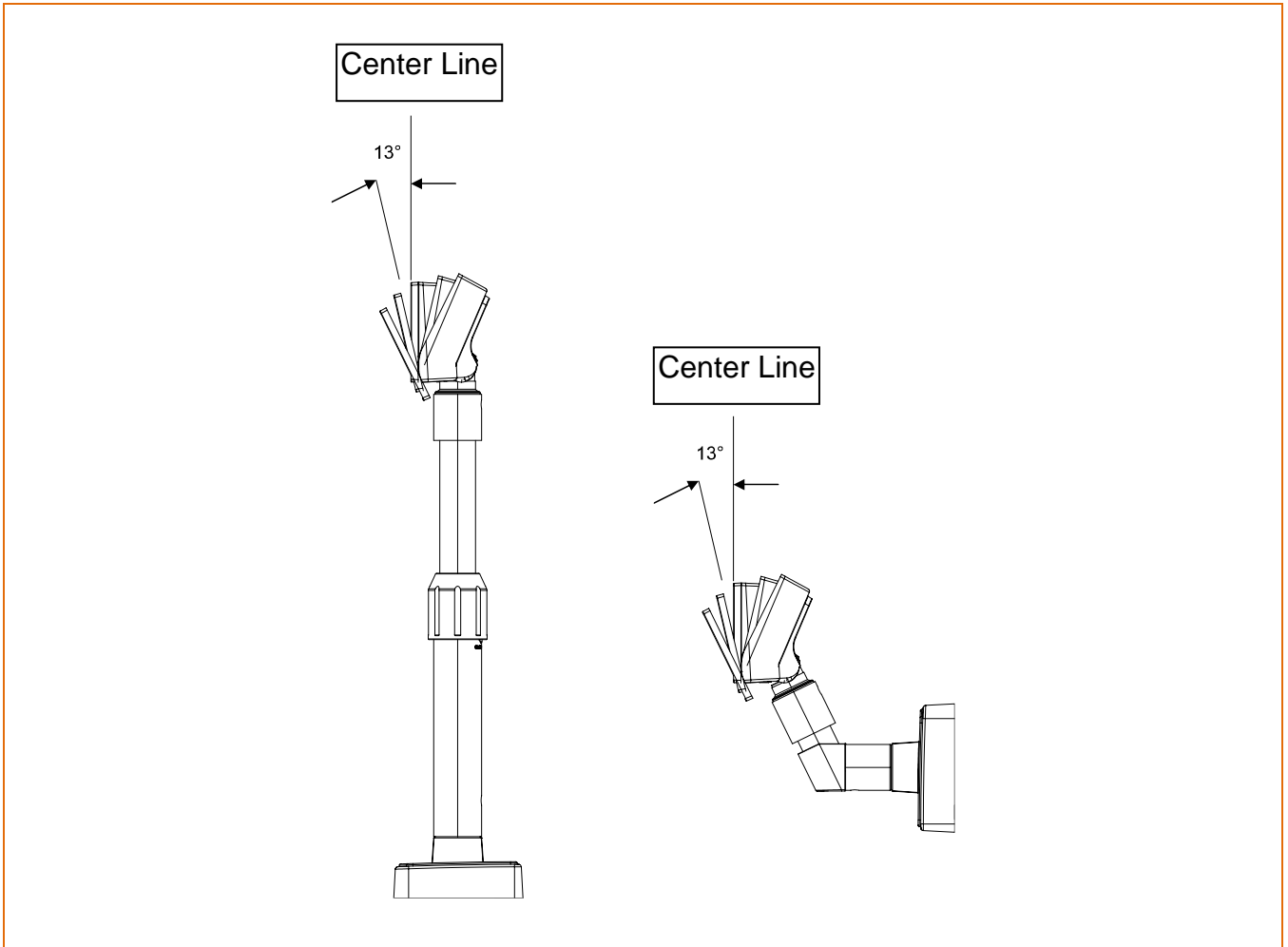
Caution or Warning	- Do not tilt over the limit as it can cause damage.

6. Connection

6-1 Connecting Direct Connection Pin

6-1-1 How to Install

1) Turn off the PC.

2) Connect the display cable to the RS-232 port on the PC.

3) Use a proper DC power adapter to connect the DC power.

4) Turn on the PC and display. The screen will turn on and ready for communication.
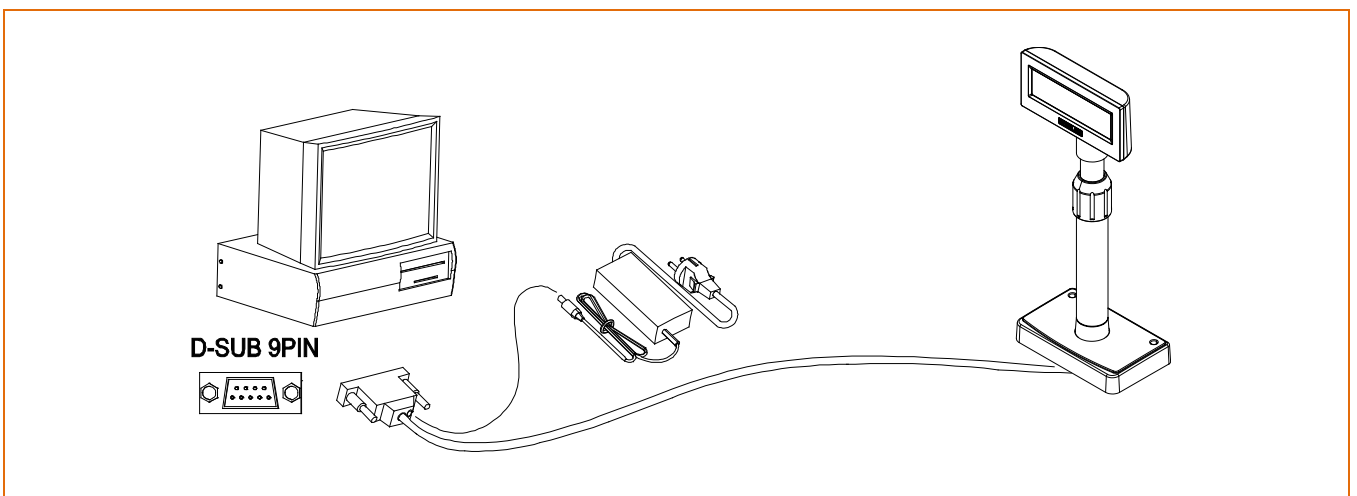
D-SUB 9PIN

6-1-2 Serial Cable Pin Layout (D-SUB 9PF)


```
        5 4 3 2 1

        o o o o o
         o o o o

        9 8 7 6
```
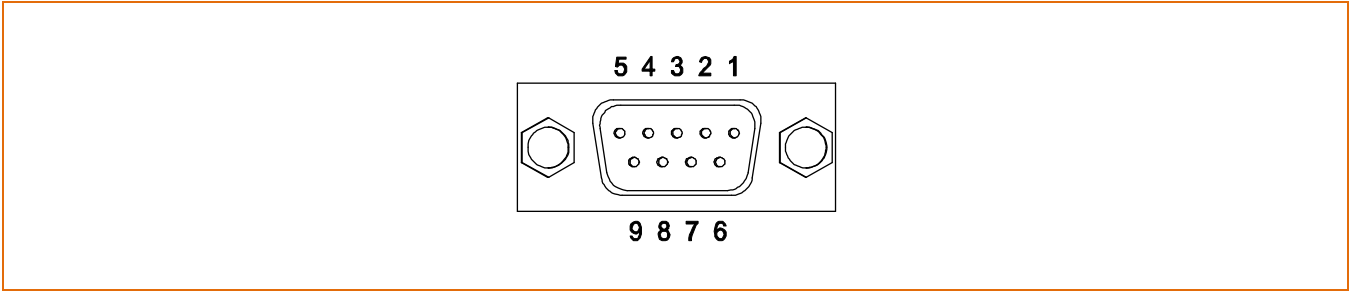
	1	2	3	4	5	6	7	8	9
pin Name	NC	RXD	TXD	DTR	GND	DSR	NC	CTS	NC
Short Connection						●		●	

6-1-3 DC Power Jack

GND ⎯

MAX +24VDC.
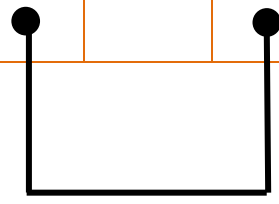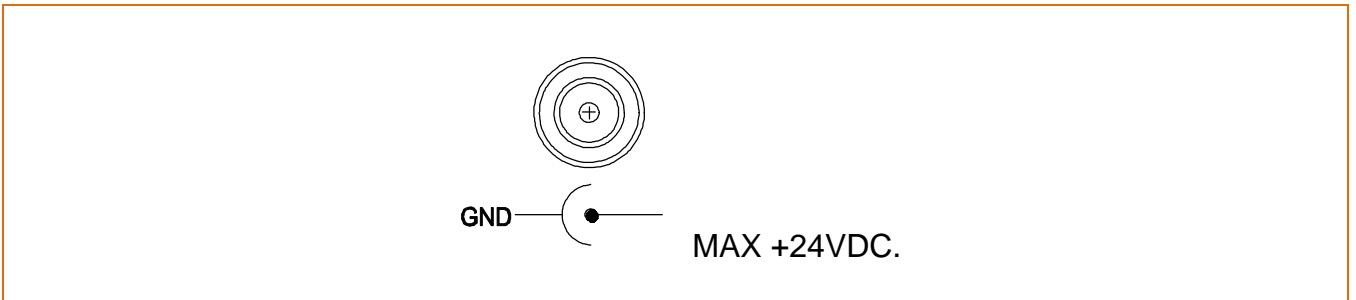
Caution or Warning	- Use only the genuine connection cable and adapter provided by the manufacturer. - The warranty does not cover damage caused by the use of unauthorized cables.

6-2 Serial Communication Connector (D-SUB 25PF)

6-2-1 Host Interface Connector (D-SUB 25PF)

• The stand models (BCD-2000DS/WS) come with a serial communication connector.
 (D-SUB 25-pin female type)
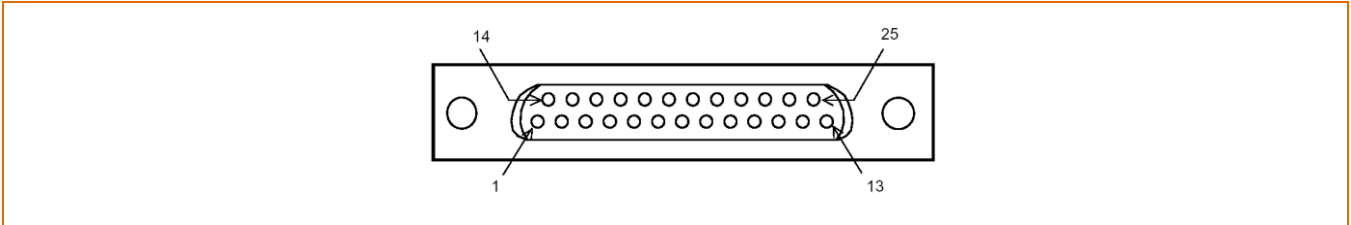
6-2-2 Host Interface Connector Pin Layout

Pin NO	Signal	Input/Output	Function
1	FG	-	Grounding of frame

2	TXD	Output	1) BCD-2000 connected to pass through:
			    Send data from printer to host
			2) BCD-2000 connected independently:
			    Send data from DM to host

3	RXD	Input	Receive data from host (Host → DM)
4	RTS	Output	Same as DTR
6	DSR	Input	Indicate whether host is ready for incoming data transmission
7	GND	-	Grounding of signal
20	DTR	Output	Indicate whether display is ready for incoming data transmission

6-2-3 Printer Interface Connector (D-SUB 9PM)

• The stand models (BCD-2000DS/WS) come with a serial communication connector.
 (D-SUB 9-pin male type)
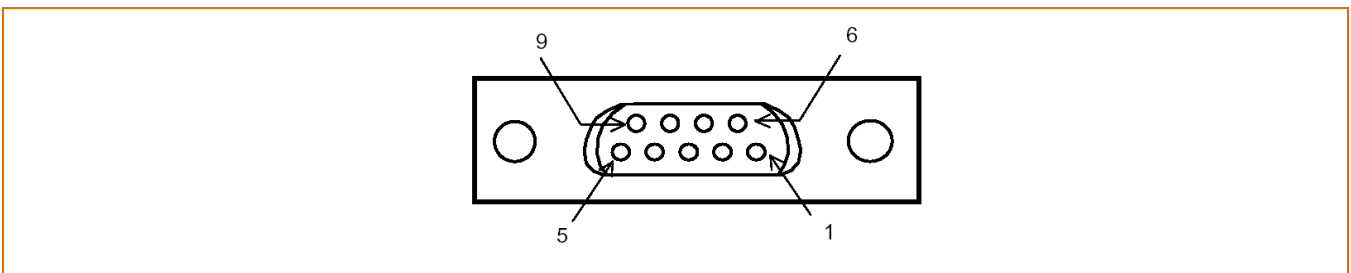
6-2-4 Printer Interface Connector Pin Layout

Pin NO	Signal	Input/ Output	Function
2	RXD	Input	Receive data from printer (printer -> host)
3	TXD	Output	Send data to printer (DM -> printer)
4	DTR	Output	Indicate whether host is ready for incoming data transmission
5	GND	-	Grounding of signal
6	DSR	Input	Indicate whether display is ready for incoming data transmission
9	RESET	Output	Reset signal to printer (host -> printer)

Caution or Warning	- Use only the genuine communication cable provided by the manufacturer. - The warranty does not cover damage caused by the use of unauthorized cables.

6-3 USB Communication

6-3-1 USB Interface Connector
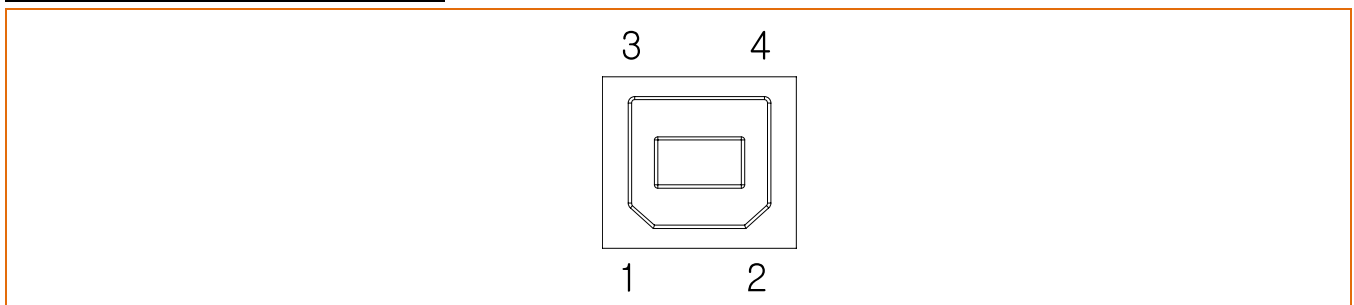
6-3-2 USB Interface Connector Pin Layout

Pin No	Signal	Designation (Color)	Function
Shell	Shield	Drain cable	Grounding of frame
1	VBUS	Red	Host power
2	D-	White	Data line (D-)
3	D+	Green	Data line (D+)
4	GND	Black	Grounding of signal

Caution or Warning	- Please only use the genuine USB cable supplied by the manufacturer to avoid damage or malfunction.

Rev. 1.02

7. Switch (Power, Brightness, DIP Switch)

7-1 Power & Brightness Control Switches

7-1-1 Location

• The Power and Brightness Control switches are located at the bottom of the display.
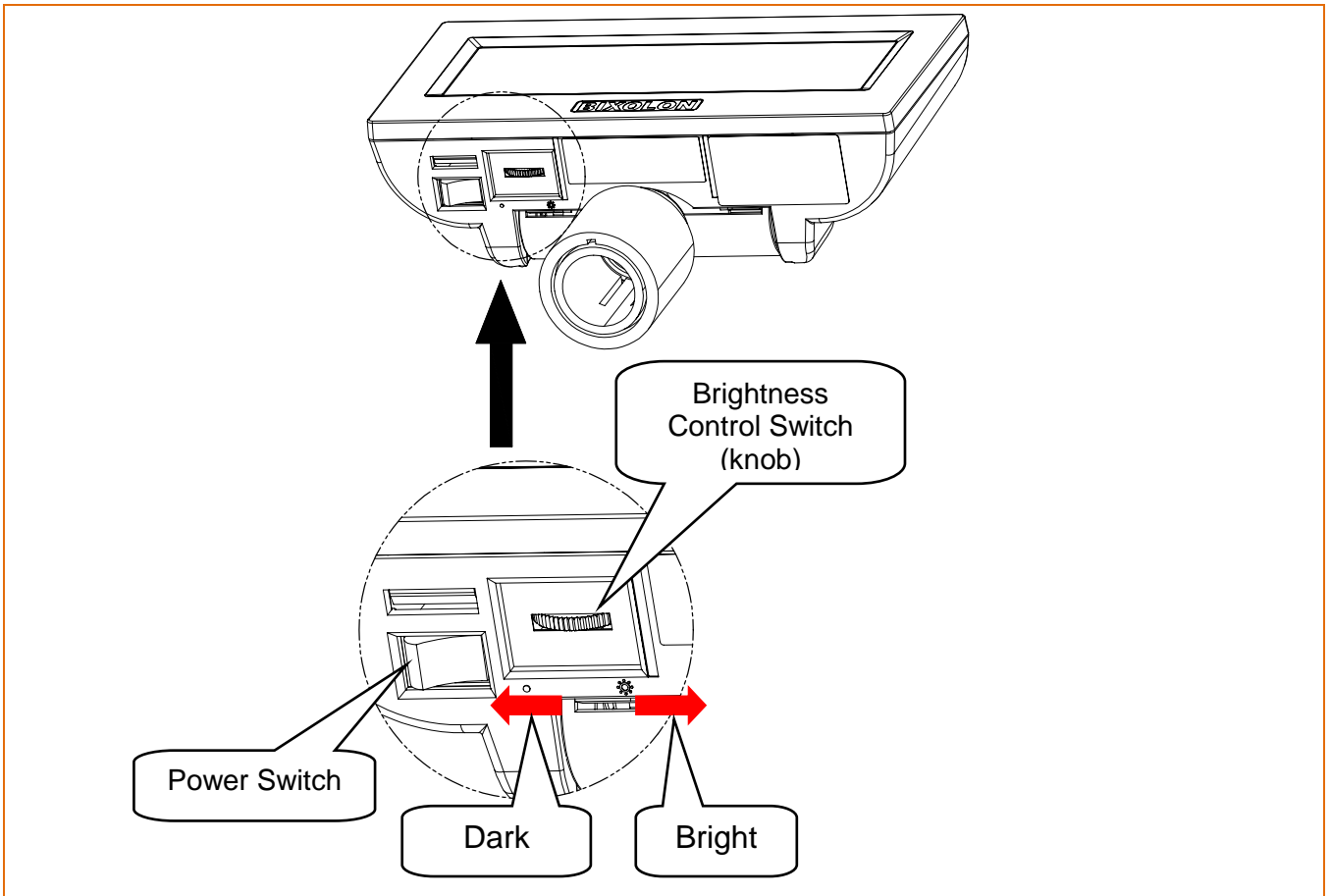
7-1-2 Function

• Power Switch: turns on/off the power
• Brightness Control Switch: adjust the brightness level of the screen

7-2 DIP Switch

7-2-1 Location & Features
• The 2 DIP switches are located on the backside of the panel.
  The DIP switch cover can be removed by pressing the hook.
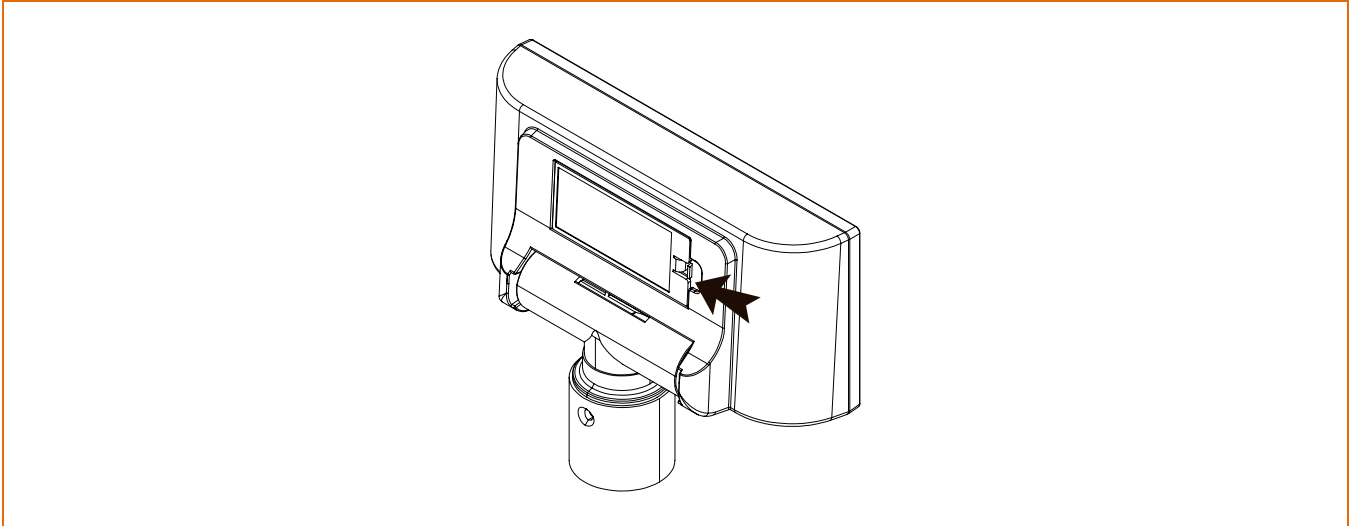
7-2-2 Settings
• RS-232 serial input and command emulation mode settings

No.	Function	Switch OFF	Switch ON
1	Data Length	8 bits	7 bits
2	Parity Check	Disable	Enable
3	Parity Selection	Odd	Even

No.	Function	4	5	6	Data Rate	4	5	6	Data Rate
4~6	Data Rate	0	0	0	9,600 bps	1	0	0	115,200 bps
		0	0	1	4,800 bps	1	0	1	57,600 bps
		0	1	0	2,400 bps	1	1	0	38,400 bps
		0	1	1	1,200 bps	1	1	1	19,200 bps

("0": S/W OFF, "1": S/W ON)

No.	Function	7	8	Command Emulation	7	8	Command Emulation
7~8	Command Emulation	0	0	ESC/POS	0	1	Reserved
		1	0	CD5220	1	1	Reserved

("0": S/W OFF, "1": S/W ON)

Caution or Warning	- Close the DIP switch cover before operation. - Turn off the DIP switch before changing the settings. - New DIP switch settings apply when powered on.

7-3 VMSM (Virtual Memory Switch Manager)

• Other than DIP switch settings, you can change the following settings using VMSM software. The following settings apply when powered on and are executed by the initialization command.

1) MSW 1 (BCD Common Setting)

Memory S/W	Function	Default	Content to be set	Range to be set
1	Character code table Selection	n=0	Page 0 is selected	[BCD-2000] 0,17,18,20,27,31 [BCD-2000K] 0,1,2,3,4,5,14,15,16, 17,18,19,20,21,25, 26,27,28,29,30,31,32, 33,36,38,40,41,49,50,51
2	International character set selection	n=0	U.S.A is selected	0-15
3	Selection of the peripheral devices	n=2	Display is selected	1-3
4	Cursor display	n=1	Cursor On	0, 1
5 ~ 7	Reserved	-	-	-
8	Sleep mode selection	n=0	Sleep mode off	0, 1

2) MSW 2 (BCD-2000 Setting)

Memory S/W	Function	Default	Content to be set	Range to be set
1	Handshaking(BCD-2000)	n=0	DTR/DSR	0: DTR/DSR 1: Xon/Xoff
2	BCD Mode Selection	n=0	BCD-2000	0: BCD-2000 (8x16) 1: BCD-2000K (9x17)
3 ~ 8	Reserved	n=0	-	-

3) MSW 3 (BCD-3000 Setting)

Memory S/W	Function	Default	Content to be set	Range to be set
1 ~ 8	Reserved	n=0	-	-

4) MSW 4 (Display Position Setting)

Memory S/W	Function	Default	Content to be set	Range to be set
1	Set horizontal row	BCD-2000: n = 4 BCD-2000K: n = 2 BCD-3000: n = 2	3-47.Character & Line Position Reference for command	
2	Max character number	BCD-2000: n = 30 BCD-2000K: n = 20 BCD-3000: n = 20		
3	Horizontal start position of the first character	BCD-2000: n = 0 BCD-2000K: n = 11 BCD-3000: n = 0		

4	Vertical start position of the first character	BCD-2000: n = 0 BCD-2000K: n = 12 BCD-3000: n = 0			
5	character space	BCD-2000: n = 0 BCD-2000K: n = 2 BCD-3000: n = 0			
6	line space	BCD-2000: n = 0 BCD-2000K: n = 6 BCD-3000: n = 0			
7~8	Reserved	-	-	-	

5) MSW 5 (Emulation Mode Setting)

Memory S/W	Function	Default	Content to be set	Range to be set
1	BCD-2000/2000K/3000 Command Emulation	(*)Refer to following Table	ESC/POS	0~15
2				
3				
4				
5	Reserved	-	-	-
6				
7				
8				

(*)BCD-2000/2000K/3000 Command Emulation

Memory Switch				Emulation	Remark
MSW5-4	MSW5-3	MSW5-2	MSW5-1		
OFF	OFF	OFF	OFF	ESC/POS	Note 1
OFF	OFF	OFF	ON	CD5220	
OFF	OFF	ON	OFF	PD6000	
OFF	OFF	ON	ON	UTC Standard / UTC Enhance	
OFF	ON	OFF	OFF	Reserved	
OFF	ON	OFF	ON		
OFF	ON	ON	OFF		
OFF	ON	ON	ON		
ON	OFF	OFF	OFF		
ON	OFF	OFF	ON		
ON	OFF	ON	OFF		
ON	OFF	ON	ON		
ON	ON	OFF	OFF		
ON	ON	OFF	ON		
ON	ON	ON	OFF		
ON	ON	ON	ON		

Note1: In the event that every MSW5 is off, emulation will be controlled by Dip-Switch.

Caution or Warning	- If new settings do not apply, please contact your dealer for assistance.

8. Power Control

• The base board is located inside the base unit.
  Remove the PCB cover by pressing the hook on the base unit as shown in the image below.
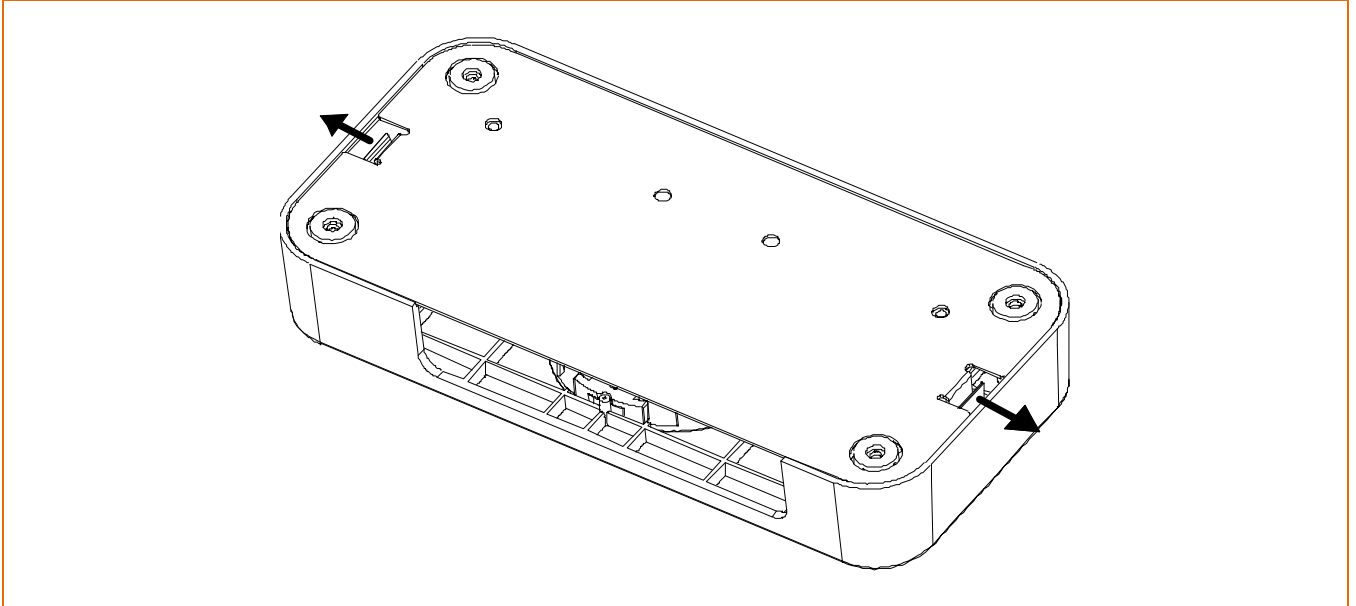
Caution or Warning	- Close the PCB cover before operation.

* Base Board

Jumper 1 (JP1) - Power

Jumper 2 (JP2)- Communication Cable

CN1   J2   J1   CN2

JP1   JP2
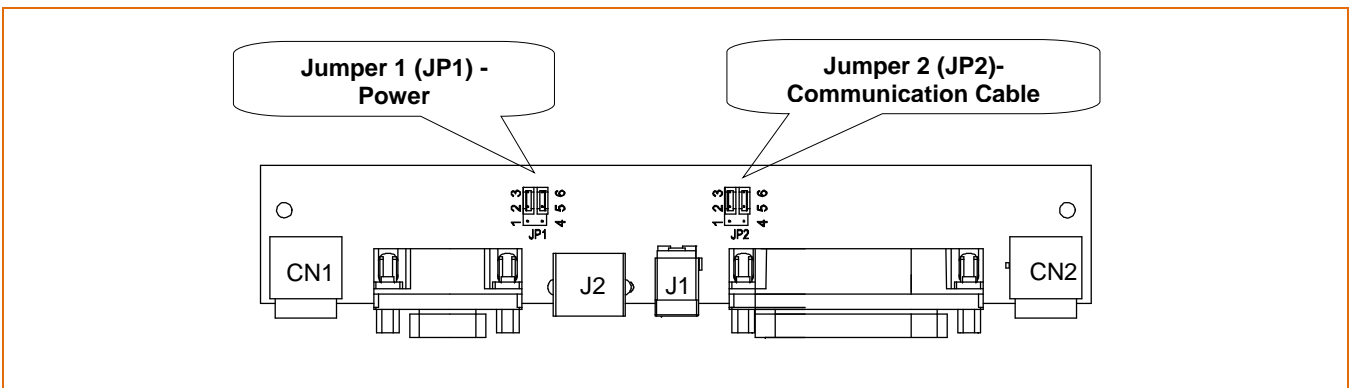
1) Jumper 1

Connection Mode	JP1	Jack Type
Input Power (24VDC)	1-2	Position J1
Input Power (24VDC)	2-3	Position CN1
N/C	4-5	-
Out power to print (24VDC) (Pass Through)	5-6	Position CN2

2) Jumper 2

• Can be used when Data Pass Through mode or Printer Disabled mode is selected.

Connection Mode	JP2	Function
Data Pass Through (Default)	1-2, 4-5	Can be connected to a printer that does not support ConneESC = command
Printer Disabled	2-3, 5-6	Do not use a printer

Caution or Warning	- Do not set the jumper switch other than how specified above to avoid damage or malfunction.

9. Specifications

Display		
Display Method		STN LCD
Display Color	Background / Text(Image)	Blue / White
Active Area	(W) x (H) mm	127.17 x 33.89
Visual Area	(W) x (H) mm	129.0 x 37.6
Brightness	(cd/m²)	100
Character Number	(Letters) x (Lines)	[BCD-2000]: 30 x 4 [BCD-2000K]: 20 x 2
Character Type(Set)		[BCD-2000]: 95 Alphanumeric, 6 International [BCD-2000K]: 95 Alphanumeric, 30 International
Character Pattern	(W) x (H) dot	[BCD-2000]: 8*16 dot matrix [BCD-2000K]:9*17 dot matrix
Character Size	(W) x (H) mm	[BCD-2000]: 4.24 x 8.48 [BCD-2000K]: 4.77 x 9.01
Character Space	(mm)	0.03
Receive Buffer	[byte]	1K
Emulation		ESC/POS, CD5220
Power & Interface		
Power	Voltage	USB: 5VDC±5%(USB Bus Power) / RS232: 24VDC
Interface		RS232 / USB
Software		
Windows Driver		Windows XP (32bit/64bit) / WEPOS/2003 Server (32bit/64bit) / 2008 Server (32bit/64bit) / VISTA (32bit/64bit) / Windows 7 (32bit/64bit) / Windows 8 (32bit/64bit) / Windows 10 (32bit/64bit)
OPOS Driver		Windows XP (32bit/64bit) / WEPOS / 2003 Server (32bit/64bit) / 2008 Server (32bit/64bit) / VISTA (32bit/64bit) / Windows 7 (32bit/64bit) / Windows 8 (32bit/64bit) / Windows 10 (32bit/64bit)
SDK		Windows, Android, iOS SDK
Exterior		
Body Color		Ivory / Dark-Gray
Rotation Angle		horizontal: +/-180˚; vertical: 52˚ (5 positions)
Overall Dimension	(W) x (D) x (H) mm	BCD-2000A/AU: 162.5 x 97.6 x 167~521 BCD-2000N/NU: 161 x 75.8 x 153~507 BCD-2000DS: 220.4 x 105.4 x 174~528 BCD-2000WA/WAU: 162.5 x 166 x 189 BCD-2000WN/WNU: 161 x 152 x 178 BCD-2000WS: 220.4 x 173 x 193
Product weight	(g)	844G (BCD-2000AU)
Environment & Reliability		
Operating Temperature	[℃] / [˚F]	0 ~ 40 / 32 ~ 104
Operating Humidity	[%]	10 ~ 80
Storage Temperature	[℃] / [˚F]	-20 ~ 55 / -4 ~ 140
Storage Humidity	[%]	10 ~ 90
Reliability (Display)	(hours)	50,000 (Backlight)

Warning - U.S.A

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ii) Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Notice - Canada

i) Class A Digital Device : Wired Device
This Apparatus complies with class "A" limits for radio interference as specified in the Canadian department of communications radio interference regulations.
Get appareil est conforme aux normes class "A" d'interference radio tel que specifier par ministre canadien des communications dans les reglements d'interference radio.

Caution
Some semiconductor devices are easily damaged by static electricity. You should turn the display "OFF", before you connect or remove the cables on the rear side, in order to guard the display against the static electricity. If the display is damaged by the static electricity, you should turn the display "OFF".

Waste Electrical and Electric Equipment (WEEE)

This marking shown on the product or its literature, indicates that is should not be disposed with other household wastes at the end of its working life, To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

BCD-2000

Revision history

Rev.	Date	Page	Description
1.00	10.05.17	-	New
1.01	12.28.17	20,21	Add New Emulation
1.02	26.07.18	24	Modified display area (AA, VA)

Rev. 1.02