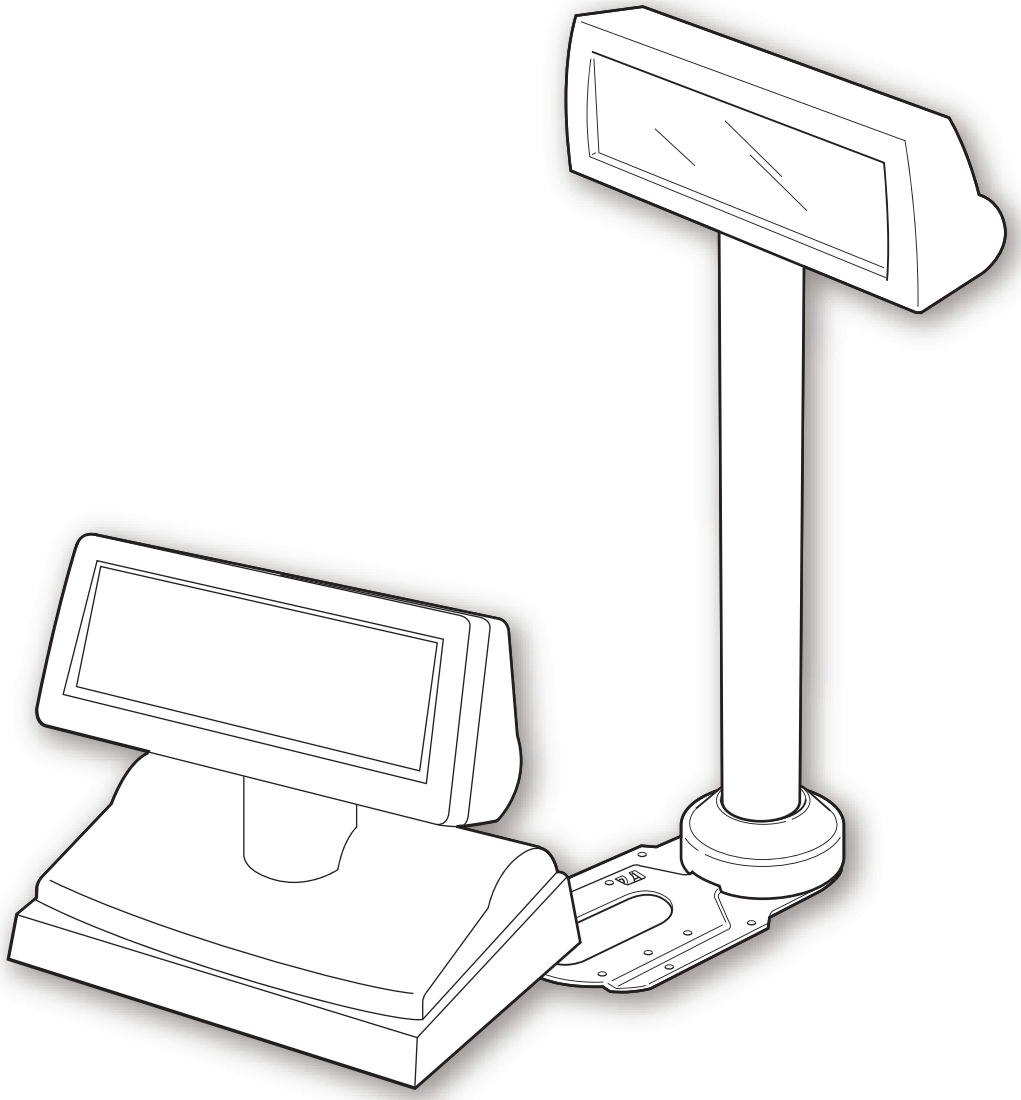
DM-D110 Technical Reference guide



EPSON

English

410826900
Rev.A

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ESC/POS® Proprietary Command System

EPSON took the initiative by introducing ESC/POS, a proprietary POS printer command system including patented commands and enabling versatile POS system construction with high scalability. Compatible with all types of EPSON POS printers and displays, this proprietary control system also offers the flexibility to easily make future upgrades. Its popularity is worldwide.

Revision Information

Revision	Page	Altered Items and Contents
Rev. A	all pages	Newly authorized

Related Software and Documents

Related software and documents

Software/document name	**Description**
DM-D110 User's Manual/	This provides basic handling procedures for the end user of the printer
DM-D110 Technical Reference Guide	This Manual
ESC/POS Application Programming Guide	This provides descriptions in Acrobat format of the commands used by each TM printer, along with sample programs and other information about the printers
EPSON OPOS ADK	This is a OCX driver
EPSON OPOS ADK Manual	This provides information for anyone who is programming using OPOS. This is included in the EPSON OPOS ADK
EPSON Advanced Printer Driver	This is a Windows driver
EPSON Advanced Printer Driver Manual	This provides information for anyone who is programming using the APD (EPSON Advanced Printer Driver)
Guide for DM-D110 right side up printing	This provides information on the DM-D110 printer for anyone who is using the right side up printing mode.

Safety Precautions

EMC and Safety Standards Applied

EMC and Safety Standards Applied
Product Name: DM-D110/DM-D210
Model Name: M58DB/M59DB
The following standards are applied only to the display that is so labeled. (EMC is tested using the EPSON power supplies.)

Europe:	CE marking	
	Safety:	EN 60950-1
North America:	EMI:	FCC/ICES-003 Class A
	Safety:	UL 90650-1/CSA C22.2 No. 60950-1
Japan:	EMC:	VCCI Class A
Oceania:	EMC:	AS/NZS CISPR22 Class B

WARNING

You are cautioned that changes or modifications not expressly approved by SEIKO EPSON Corporation could void your authority to operate the equipment.

CE Marking

The display conforms to the following Directives and Norms:
Directive 89/336/EEC
EN 55022 Class B
EN 55024
IEC 61000-4-2
IEC 61000-4-3
IEC 61000-4-4
IEC 61000-4-5
IEC 61000-4-6
IEC 61000-4-11

FCC Compliance Statement For American Users

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.

FOR CANADIAN USERS

This Class A digital apparatus complies with Canadian ICES-003.

À l'intention des utilisateurs canadiens

Cet appareil numerique de la classe A est conforme a la norme NMB-003 du Canada.

GERAUSCHPEGEL

Gemas der Dritten Verordnung zum Geratesicherheitsgesetz (Maschinenlarminformations- Verordnung-3. GSGV) ist der arbeitsplatzbezogene Gerausch-Emissionswert kleiner als 70 dB(A) (basierend auf ISO 7779).

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.

⚠ WARNING:

Warnings must be followed carefully to avoid serious bodily injury.

⚠ CAUTION:

Cautions must be observed to avoid minor injury to yourself or damage to your equipment.

✎ ***Note:***
Notes have important information and useful tips on the operation of your equipment.

Safety Precautions

This section presents important information to ensure safe and effective use of this product. Please read this section carefully and store it in an accessible location.

⚠ WARNING:

- ❑ *Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the equipment and contact your dealer or a Seiko Epson service center for advice.*
- ❑ *Never attempt to repair this product yourself. Improper repair work can be dangerous.*

- ❏ *Never disassemble or modify this product. Tampering with this product may result in injury or fire.*
- ❏ *Be sure to use the specified power source. Connection to an improper power source may cause fire.*
- ❏ *Do not allow foreign matter to fall into the equipment. Penetration by foreign objects may lead to fire.*
- ❏ *If water or other liquid spills into this equipment, unplug the power cord immediately, and then contact your dealer or a Seiko Epson service center for advice. Continued usage may lead to fire.*

⚠ CAUTION:

- ❏ *Do not connect cables in ways other than those mentioned in this manual. Different connections may cause equipment damage and burning.*
- ❏ *Be sure to set this equipment on a firm, stable, horizontal surface. The product may break or cause injury if it falls.*
- ❏ *Do not use in locations subject to high humidity or dust levels. Excessive humidity and dust may cause equipment damage or fire.*
- ❏ *Do not place heavy objects on top of this product. Never stand or lean on this product. Equipment may fall or collapse, causing breakage and possible injury.*
- ❏ *Do not connect multiple extension struts. If the device topples over, there is a risk of damage or injury.*
- ❏ *The horizontal rotating angle of the screen unit is limited by a stopper. Do not apply excess force to rotate the screen unit past the limit set by the stopper. Doing so may cause damage.*
- ❏ *When you are attaching and detaching the cable, always check that the power switches of the customer display and the unit that it is connected to are turned off.*
- ❏ *Take care when handling the customer display not to drop or knock it because it has a built-in fluorescent display tube.*
- ❏ *If you do not use this product for an extended period of time, always disconnect the power cord for safety. If you move the product, ensure that the power cord is disconnected and that all of the cables are disconnected before moving it.*
- ❏ *Do not use aerosol sprayers containing flammable gas inside or around this product. Doing so may cause fire.*

About This Manual

Aim of the Manual

This manual was created to provide information on the DM-D110 customer display for anyone who is developing hardware, installations, or programs. Programmers will also want to consult other documents.

Contents of the Manual

Chapter 1, "General Information."	General description of features plus specifications.
Chapter 2, "Setup information."	Describes product DM-D110 setup.
Chapter 3, "DIP Switches."	Describes product DIP Switch settings.
Chapter 4, "Hardware."	Describes produc signal connections of the interface and data flow.
Chapter 5, "Application Development Information."	Describes how to control the customer display.
Appendix A, "Character Code Tables."	Character Code Tables

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Chapter 1
General Information

1.1 Features

The DM-D110 has the following features.

- ❑ Large amounts of data can be displayed on the 20-column × 2-line dot matrix.
- ❑ The display uses a fluorescent light, so it is easy to see at a wide angle in bright places and dark places.*1 The fluorescent light has a long life.
- ❑ The emitting light color is green and the brightness can be adjusted by an ESC/POS command.*1
- ❑ The DM-D110 is a compact size, so it is possible to place on a narrow counter.
  DM-D110 165mm (width) x 69mm (height) x 50.5mm (depth)
  DP-110 165mm (width) x 69mm (height) x 110mm (depth)
- ❑ The display panel can be adjusted to the an easy to see position by moving it to the right and left or up and down.
- ❑ The DM-D110 can be installed in the EPSON HSS series and TM printers by using the option parts.
- ❑ The DM-D110 can be placed at a height that is easy to see by using the extension pole.
- ❑ The communication speed can be set to 2400bps - 115200bps in accordance with the RS-232 interface.
- ❑ The EPSON TM printer and the cash drawer can be connected and controlled by using one interface. (In the case of the pass through connection and Y connection*2) The number of interface connections of the host computer can be reduced.
- ❑ OPPS and APD (Windows driver) are prepared with Windows. The display using any other OS and the connecting equipment are prepared by ESC/POS commands.
- ❑ There are two model colors of cool white and dark gray, and these colors are unified with the EPSON HSS series and TM printers. It is possible to choose the one that fits to the atmosphere of your shop.

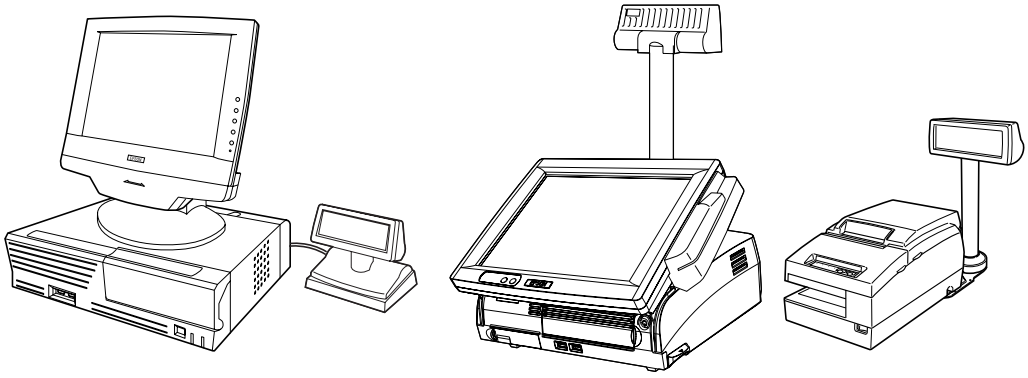
*1 *The initial setting is the brightest setting. It is adjusted by an ESC/POS command.*

*2 *A TM printer with a DM-D connector can be used. The cash drawer can be connected by using a TM printer that has the DK connector.*

*3 *APD cannot be used in a net environment.*

1.2 Installation Example

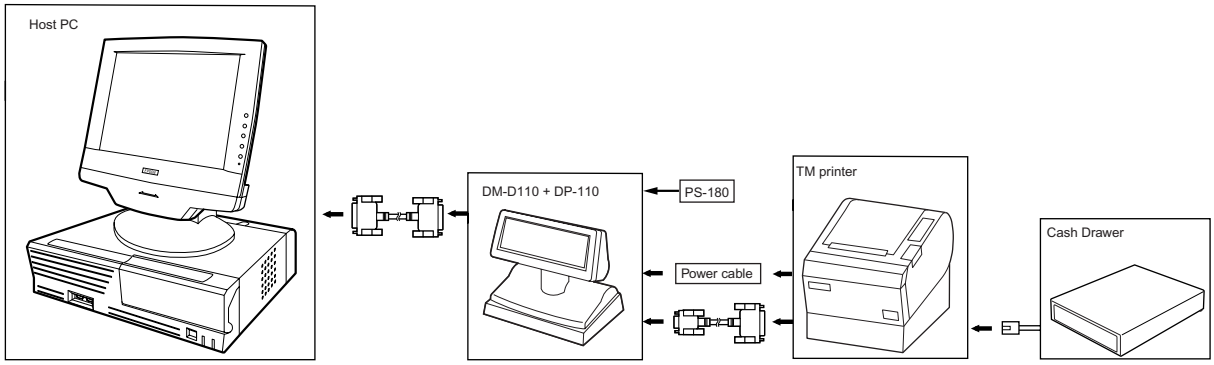
The DM-D110 can be attached to the EPSON HSS series and TM printers, and it can be attached to a DM-D stand.



1.3 Connection Example

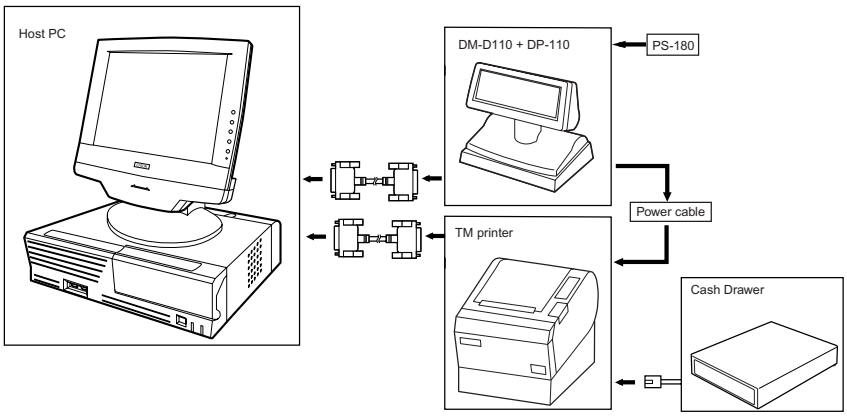
1.3.1 Pass-through Connection

The pass through connection is the way of connecting the TM printer with the cash drawer by passing through the stand of the customer display by using one serial port of the host personal computer.



1.3.2 Stand-Alone Connection

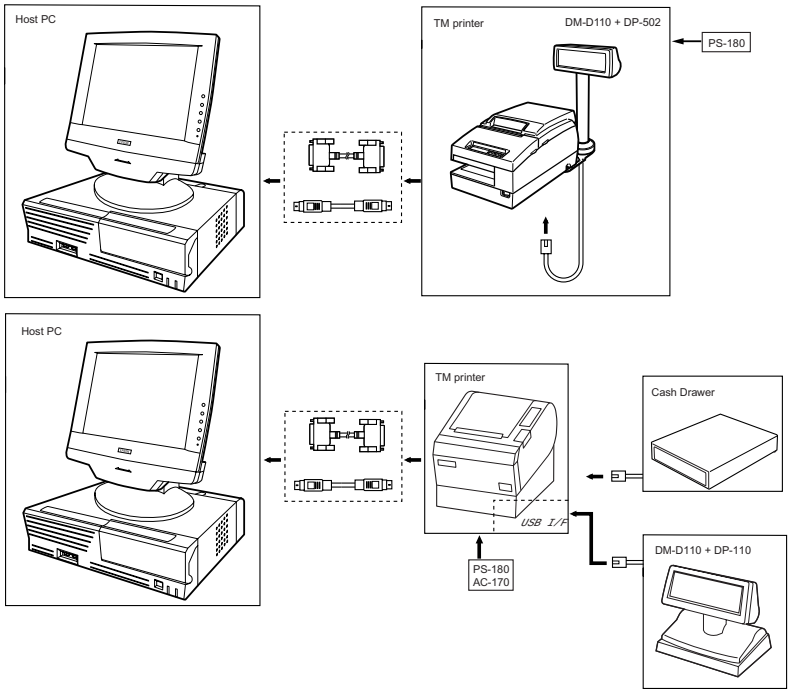
One serial port of the host personal computer is used as the exclusive port of the customer display.



When [Serial Port3 Mode] of the SR-610 is set [DRW/DM-D], the customer display and the cash drawer can be controlled by COM3.

1.3.3 Y-type Connection

Y-type Connection is the way of connecting the DM-D110 with the customer display and the cash drawer by passing through the printer from one serial/USB port of the host personal computer.



When [Serial Port3 Mode] of the SR-610 is set [TM/DM-D], the TM printer, the customer display and the cash drawer can be controlled by COM3.

1.4 System Requirements

- ❑ A personal computer having a serial I/F
- ❑ A TM printer having a DM-D connector
- ❑ EPSON HSS series

1.5 System Planning

A customer display can display and be controlled using any of the following three methods:

1. ESC/POS commands
2. EPSON OPOS ADK
3. Windows printer driver (EPSON Advanced Printer Driver)

Refer to the "Application development information" in Chapter 5 from the characteristics of each.

Chapter 2
Setup information

2.1 Cautions on Handling

When you use the DM-D110, be sure to note the following points:

- ❑ Avoid locations that are subject to high temperature and humidity.
- ❑ Avoid dirty and dusty locations.
- ❑ Avoid locations that are unstable or are subject to high levels of vibration.
- ❑ When connecting or disconnecting cables, make sure that the power switch of the DM-D110 and printers connected to the DM-D110 are turned off.
- ❑ Do not drop the DM-D110 because you may damage the built-in vacuum fluorescent display.

2.2 Usage

The DM-D110 can be used with the following equipment.

- ❑ **IR-320 series**. You can attach the DM-D110 to the IM series using the "DM-D pole unit for IR" (DP-504). (Refer to the IR-320 Technical Reference manual.)
- ❑ **IR-700 series**. You can attach the DM-D110 to the IR-700 the DM-D support unit (DP-506) for IR-700 series. (Refer to the IR-700 Technical Reference guide.)
- ❑ **SR-610 series**. You can attach the DM-D110 to SR-610 series. You can attach the DM-D110 to the SR-610 using the DM-D support unit (DP-504) for SR-610 series. (Refer to the SR-610 Technical Reference guide.)
- ❑ **DM-D stand**. You can attach the DM-D110 to the DM-D stand directly using the "DM-D stand unit for DM Customer Display" (DP-110-1x1). When using the DM-D stand, an optional power supply unit (PS-180) is required. Also, if you want to extend the height of the DM-D110, an optional extension support unit (DP-105) is required. (See page 2-2.)
- ❑ **TM-H6000 series/TM-U675**. You can attach the DM-D110 to TM-H6000II/TM-U675 printers using the "DM-D pole unit for TM printers (Type A)" (DP-502). (See page 2-11.)
- ❑ **TM-H5000 series/TM-J8000 printers**. You can attach the DM-D110 to TM-H5000II/TM-J8000 printers using the "DM-D pole unit for TM printers (Type B)" (DP-503). (See page 2-16.)
- ❑ **TM-U950**. You can attach the DM-D110 to the TM-U950 printers using the "DM-D pole unit for TM printers (Type A)" (DP-502). (See page 2-18.)
- ❑ **Other TM printers**. You can attach the DM-D110 using the "DM-D pole unit for TM printers (Type A)" (DP-502) and Velcro tapes or screws. (See page 2-21.)

2.3 Accessories

	DP-110-1x1	DP-110-1x2	DP-502	DP-503	DP-504	DP-505
extension cable for power supply	1	-	-	-	-	-
RS-232C connector installation screw (mm type)	4	-	-	-	-	-
fixing topping screw (M3 X 10)	-	-	2	3	-	-
fixing screw (M3 X 5)	-	-	2	-	-	-
fixing screws for wood position (M3.1 X 10)	-	-	4	-	-	5
rubber feet (square)	-	-	4	-	-	-
velcro tapes set	-	-	1	-	-	1
rubber feet (big)	-	-	2	-	-	-
fixing screw (M3 X 8)	-	-	-	-	3	-
extension support	-	-	1	-	-	-
rubber feet (small)	-	-	4	-	-	-
fixing plate ,A	-	-	1	-	-	-
fixing screws for fixing plate	-	-	4	-	-	-
stopper	-	-	1	-	-	-
fixing screw for stopper	-	-	1	-	-	-
DM-D angle fixing screw	-	-	1	-	-	-
fixing plate ,B	-	-	1	-	-	-

2.4 Assembling

Attach the DM-D110 by usingb the following procedure.

2.4.1 Attaching to the DM-D stand

The DM-D110 can be attached directly to the DM-D stand using the “DM-D stand unit for DM Customer Display” (DP-110). The DM-D110 with the DM-D stand can be connected to a TM printer, or be used as a standalone product.

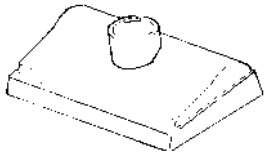
The function differs with the DM-D stand types.

- DP-110-101/DP-110-111 : This is connected to the personal computer and the TM printer with the pass-through connection.
- DP-110-102/DP-110-112 : This is connected to the TM printer with the Y-type connection and this is set on the desk for the DM-D110 and the DP-110-1x2.

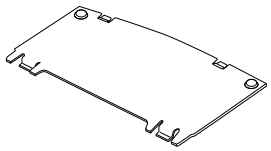
2.4.1.1 Required items

The following items are used to attach the DM-D110 to the DM-D stand. The power supply unit (PS-180) and the extension support (DP-105) are options. For details, ask your dealer.

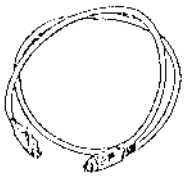
<DM-D stand unit for DM Customer Display (DP-110)>



DM-D stand



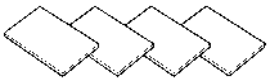
interface connector base plate



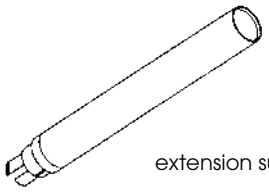
extension cable for power supply

RS-232C connector installation screw (mm type)

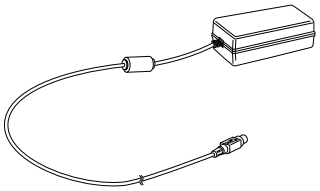
<extension support (DP-105)>



Velcro tapes



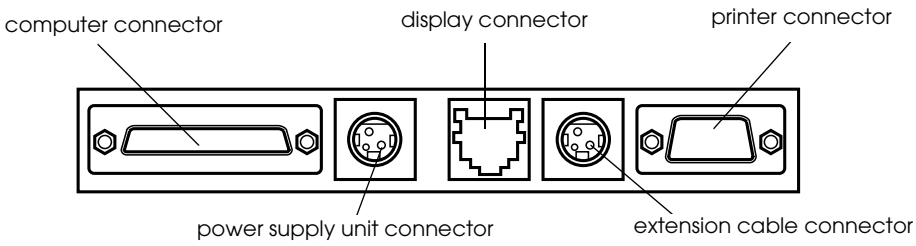
extension support



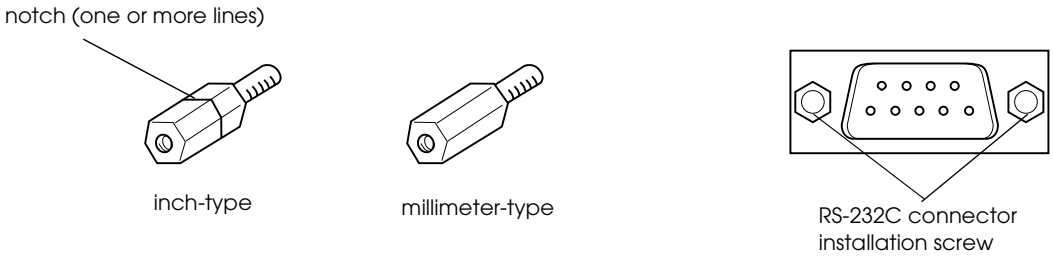
power supply unit (PS-180)

2.4.1.2 Connectors for the DP-110-1x1

The connectors for the DP-110-1x1 are as follows:



Note:
Inch-type hexagonal lock screws are installed in the RS-232 connector. If millimeter-type lock screws are needed, use the millimeter-type lock screws of the accessory.

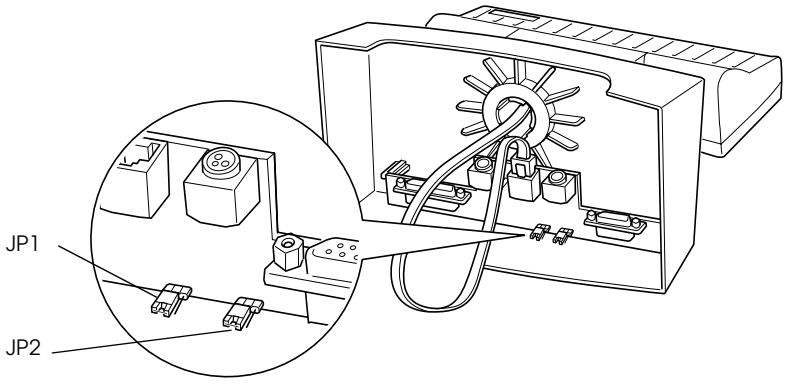


2.4.1.3 Jumper setting

Set the jumpers on the DM-D stand as follows:

JP1	JP2	Perpose
1-2	1-2	For connecting both the TM printer and the DM-D stand. (Default setting)
2-3	2-3	For using the DM-D stand a standalone. (TM printer is not connected.)

The jumpers are located as shown below:



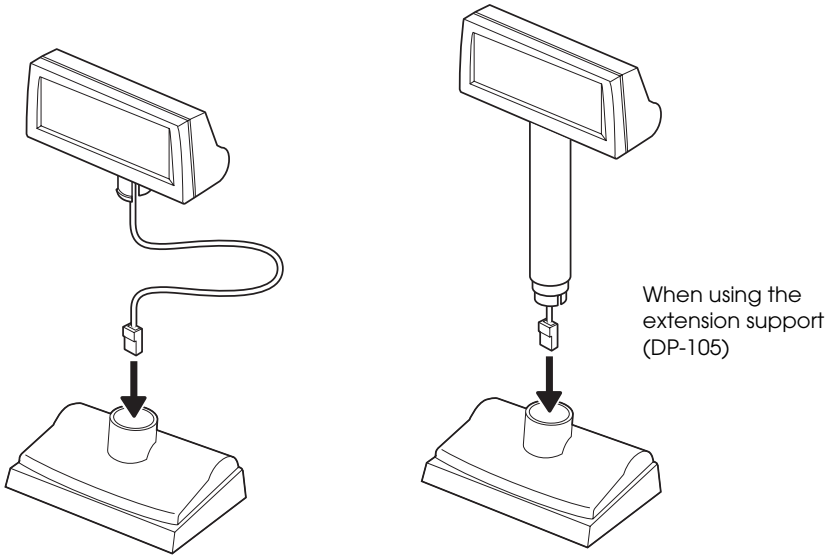
2.4.1.4 Precautions on using the power supply unit

To avoid damage to the DM-D110 and the power supply unit, make sure to note the following points.

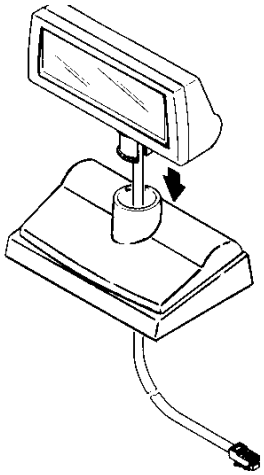
- ❏ Use the optional Seiko Epson products, PS-180 as the power supply.
- ❏ Never connect the DC cable to the power supply unit when the power supply unit is connected.
- ❏ Unplug the DC cable by holding the connector part. If you pull the cable to unplug it, it may be damaged.

2.4.1.5 Assembling steps

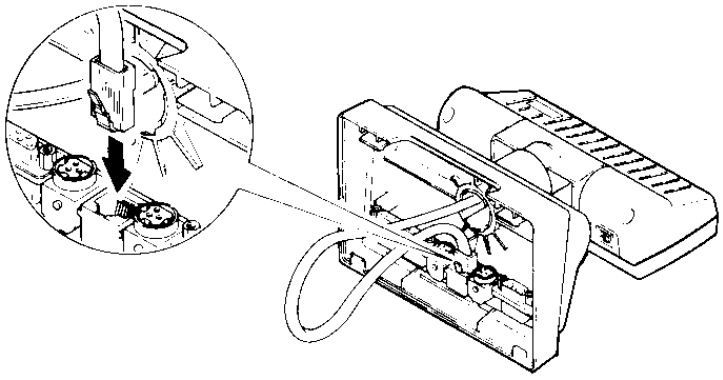
1. Pass the cable for the DM-D110 through the DM-D stand.
   When extending the length of the DM-D stand, attach the extension support (DP-105) to the DM-D stand.



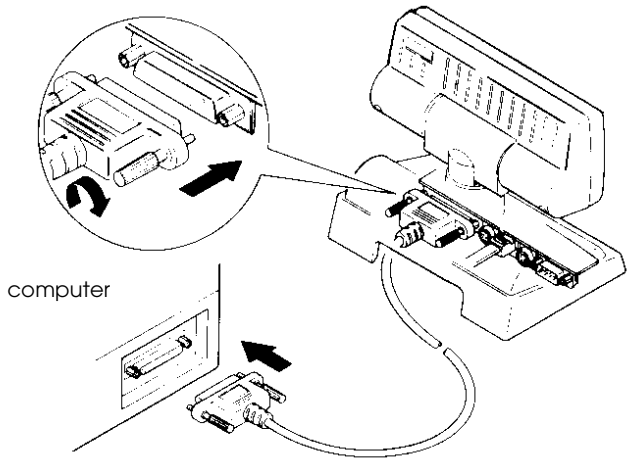
2. Insert the tab on the DM-D110 (or the extension support) into the hole on the DM-D stand until you feel it click.



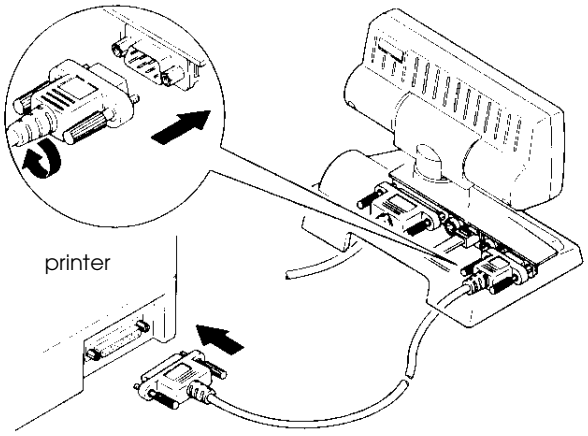
3. When connecting to a TM printer with a Y-type connection, skip to step 13. Connect the cable for the DM-D110 to the display connector on the DM-D stand until you feel it click.



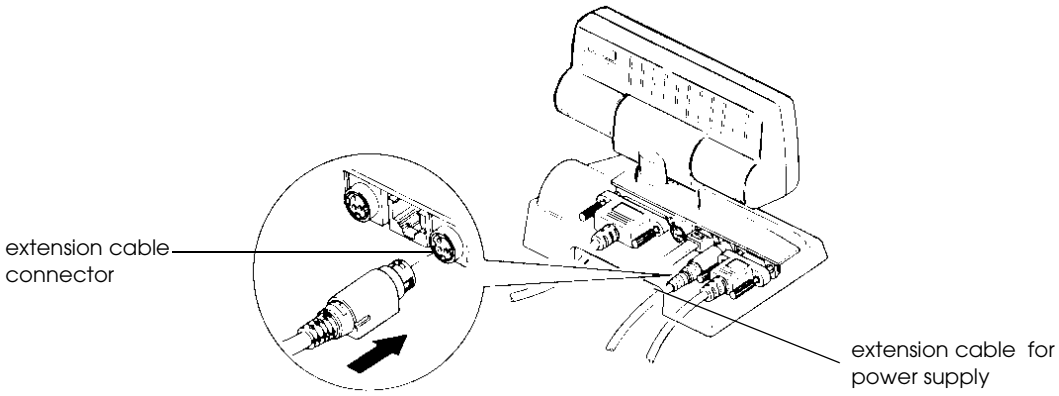
4. Connect one end of the interface cable to the computer connector inside the DM-D stand and connect the other end to the RS-232 connector of the host personal computer. Tighten the screws on both ends of the cables to fasten them.



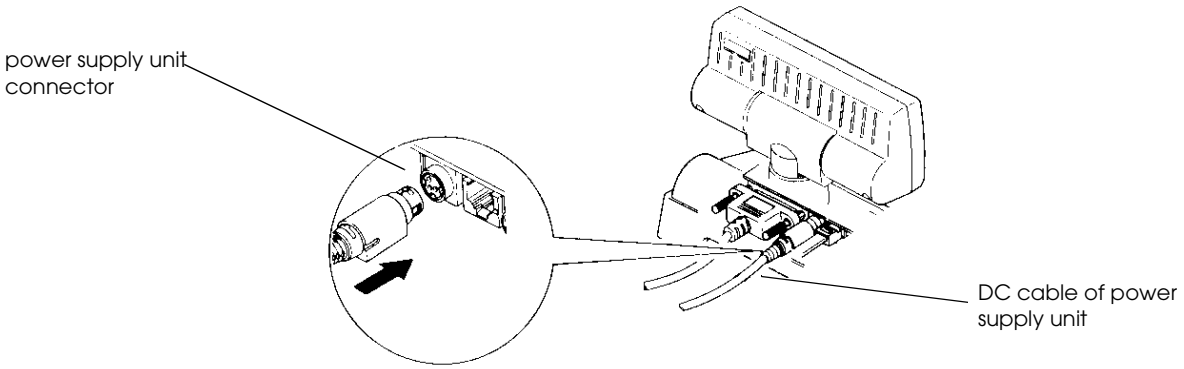
5. When using as a standalone, go to step 7.
   When using with a printer, connect one end of the printer interface cable for the printer to the printer connector on the DM-D stand; then connect the other end to the connector on the printer. Tighten the screws on both ends of the cable to fasten them
   .



6. When not using the extension cable for the power supply packed with the DM-D stand, go to step 7.
   When using the extension cable, connect it (with the arrow mark up) to the extension cable connector indicated by "POWER OUT" on the DM-D stand; then connect the other end to the power connector on the printer.

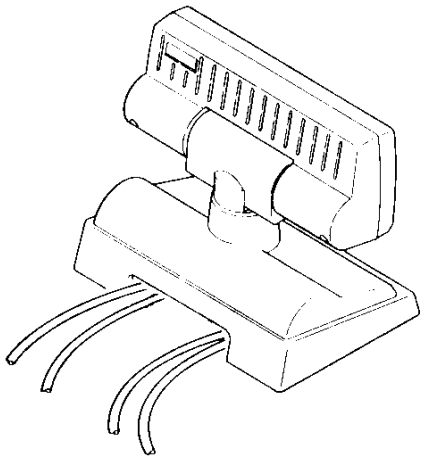


7. Connect the DC cable of the power supply unit (with the arrow mark up) to the power supply unit connector indicated by "POWER IN" on the DM-D stand.

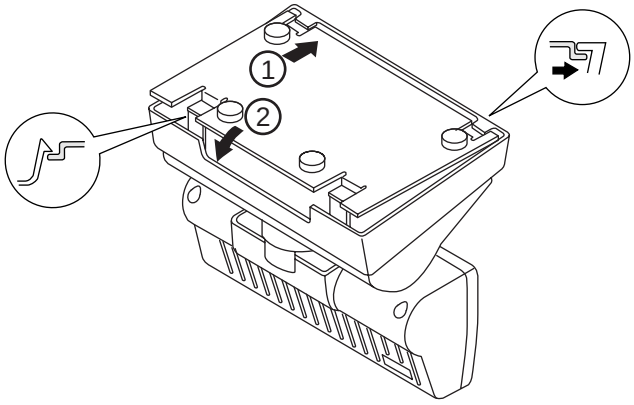


8. When using as a standalone product, set the jumpers. (See "Jumper setting" on page 2-4.)

9. Arrange the cables as shown below. Put the cables for the DM-D110 inside the DM-D stand.



10. Attach the base plate to the DM-D stand following the numbered arrows shown below. Then push the base plate until it is locked by the hook on the DM-D stand.

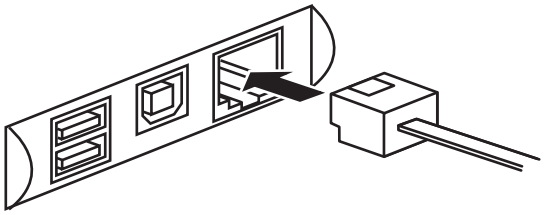


11. When the extension support (DP-105) is used, attach Velcro tapes to the four corners of the plate to keep the unit from falling down.

12. Connect the cord of the power unit to the socket. This completes the setting.

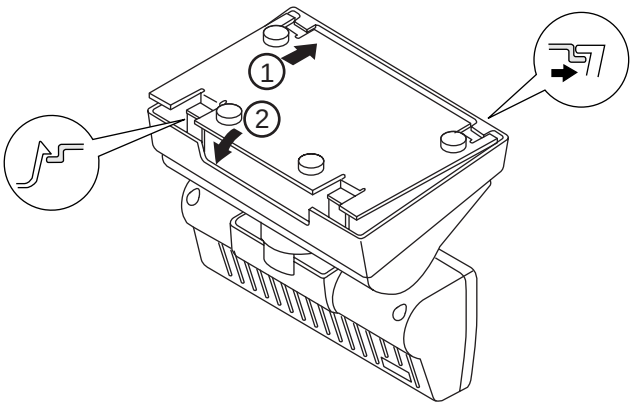
Note:
When connecting with the pass through connection or the standalone connection, step from 13 to 16 are not needed.

13. Connect the cable of the DM-D110 to the connector of the printer.



14. Set the DIP switch of the DM-D110 and switch the communication speed as follows. (Refer to Chapter 3 doe details of the DIP switch setting.)
    Communication speed: 19200bps
    Communication data length: 8Bit
    Parity: Off

15. Attach the base plate to the DM-D stand following the numbered arrows shown below. Then push the base plate until it is locked by the hook on the DM-D stand.



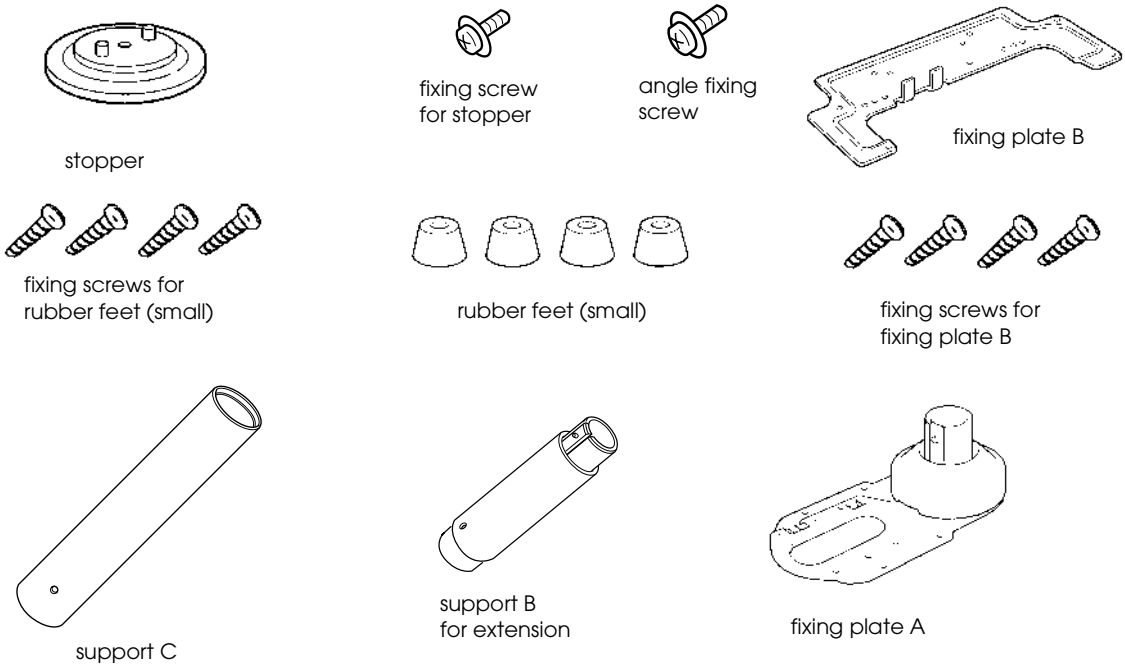
16. When the extension support (DP-105) is used, attach Velcro tapes to the four corners of the plate to keep the unit from falling down. This completes the setting.

2.4.2 Attaching to the TM-H6000 Series/TM-U675

The DM-D110 can be attached directly to the TM-H6000II/TM-U675 printers using the "DM-D pole unit for TM printers (Type A)" (DP-502). You can attach fixing plate A on either side of the TM-H6000II/TM-U675. After attaching it, you can slide the display freely.

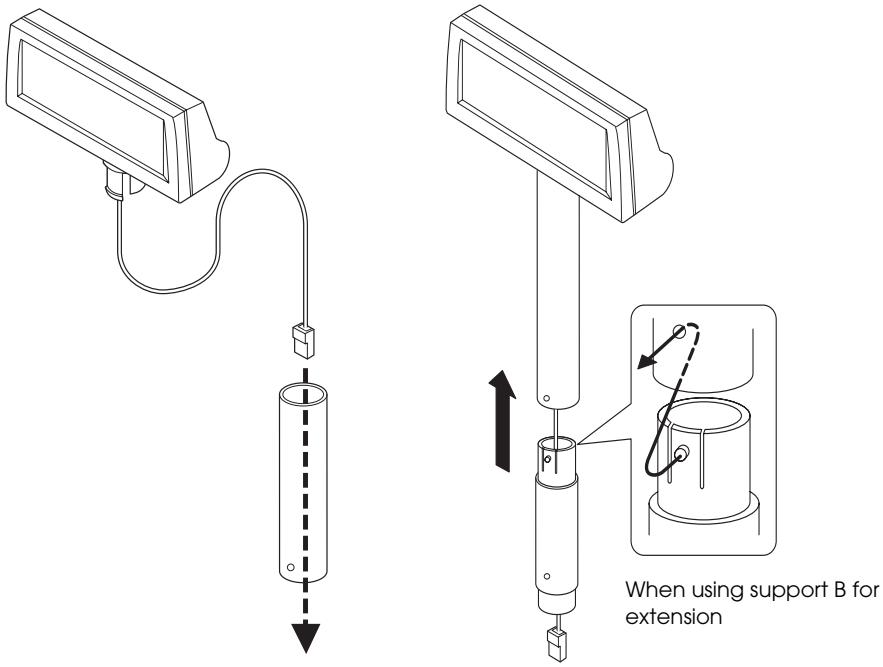
2.4.2.1 Required items

The following items are used to attach the DM-D110 to the TM-H6000II/TM-U675 printers. These items are packed with the "DM-D pole unit for TM printers (Type A)" (DP-502).

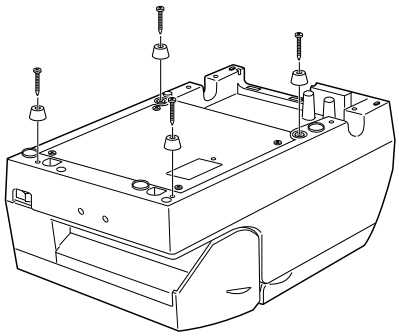


2.4.2.2 Assembling steps

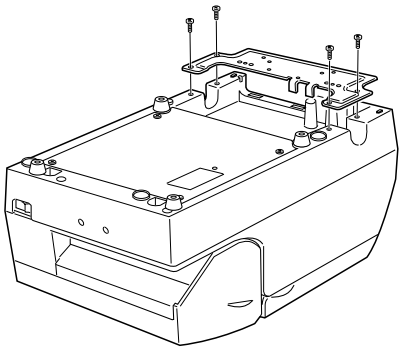
1. Pass the cable for the DM-D110 through support C, and attach support C to the DM-D110. When using support B for extension, insert the tab on support B into the hole on support C until you feel it click.



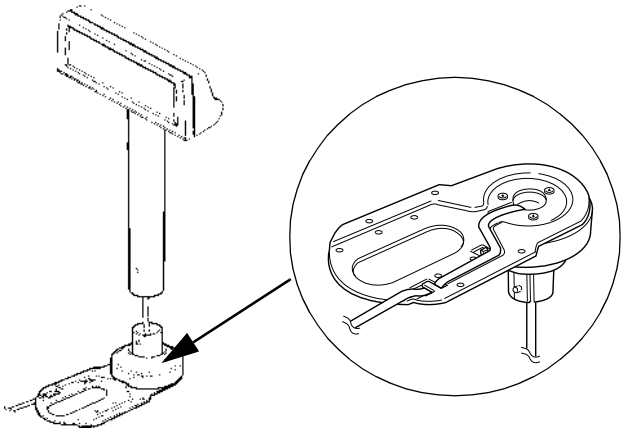
2. Attach the rubber feet to the printer.



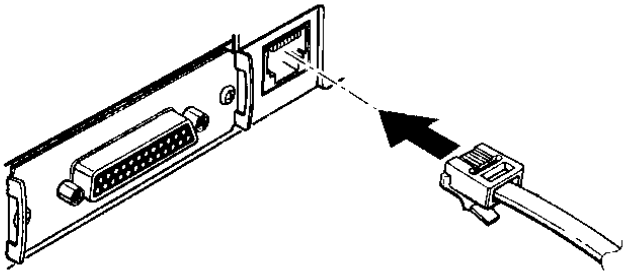
3. Attach fixing plate B to the printer.



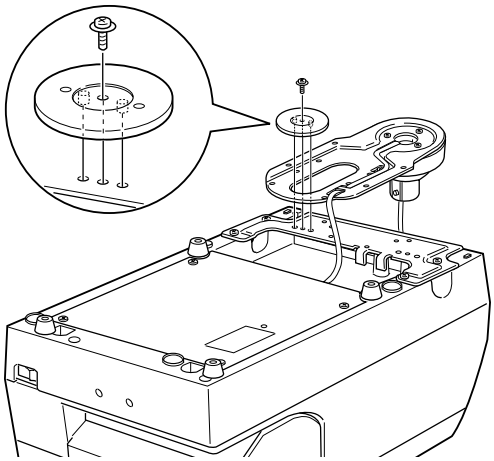
4. Pass the cable for the DM-D110 through the hole on fixing plate A, and fix the cable at the bottom as shown below.



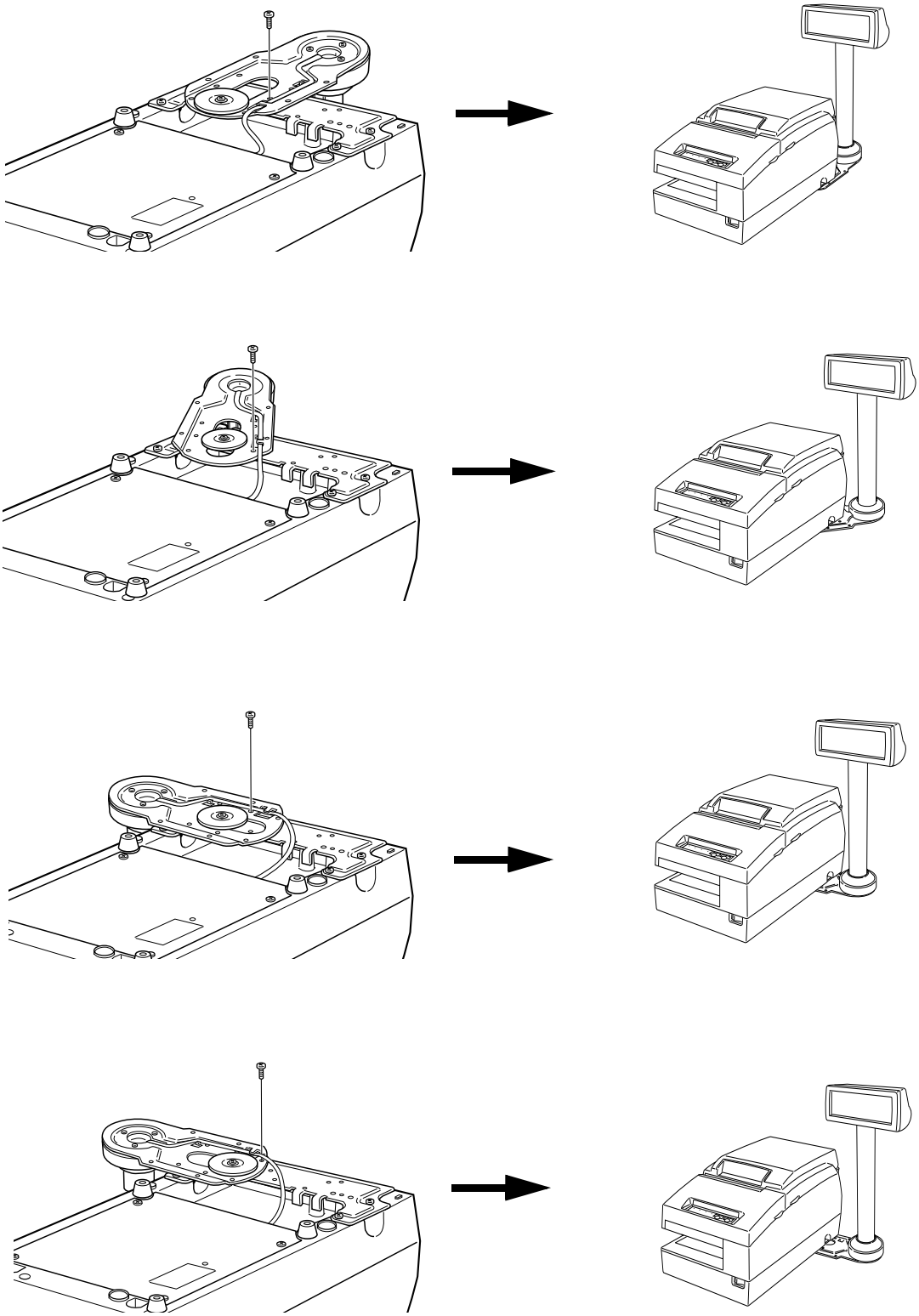
5. Connect the cable for the DM-D110 to the DM connector on the TM printer.



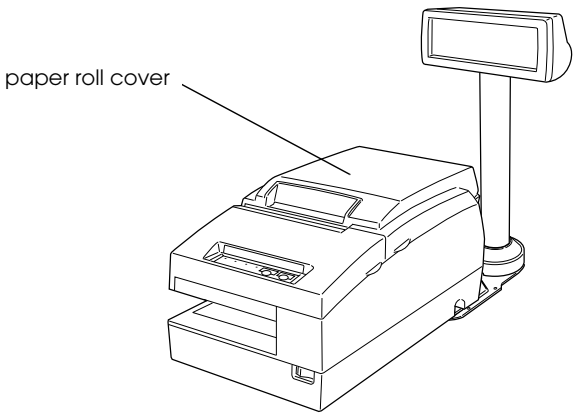
6. Attach fixing plate A to the TM printer using the stopper. When you attach the stopper, insert the projections on the stopper into the holes of fixing plate B. Fixing plate A can be attached on either side of the printer. (The illustration below shows fixing plate A attached to the right side of the printer.)



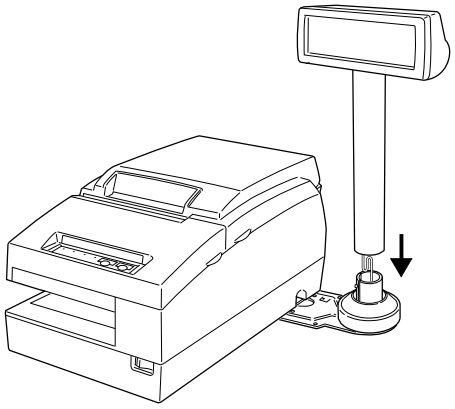
7. The horizontal rotation mechanism of fixing plate A can be adjusted. To secure the location of the display, set fixing plate A to either one of the following four positions and secure it with the angle fixing screw.



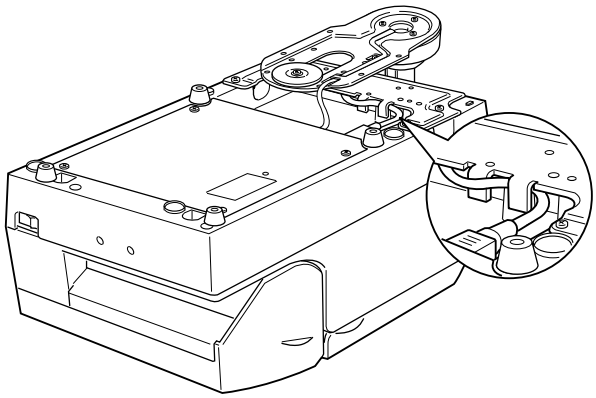
Note:
The paper roll cover may not open if the position of the display is incorrect. Before securing the position of the display, make sure that you can open the paper roll cover.



8. Store any excess cable in the support and attach the DM-D110 to fixing plate A.



9. Connect the power cable of the printer. To avoid disconnection, hook the cable on the tabs on fixing plate B, as shown below.

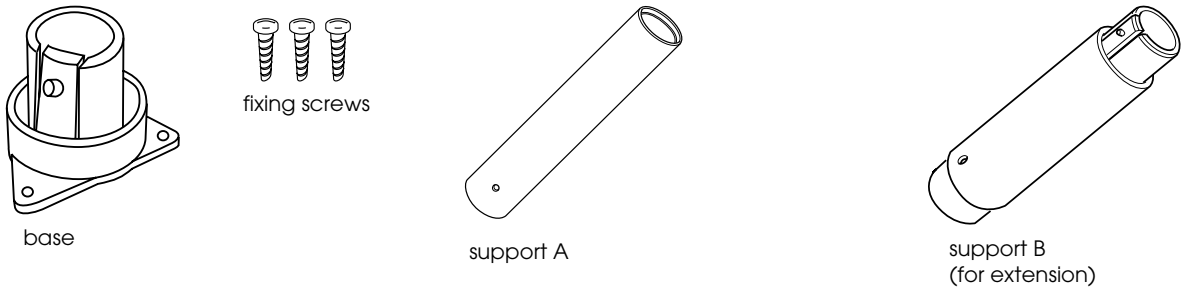


2.4.3 Attaching to the TM-H5000 Series/TM-J8000

The DM-D110 can be attached directly to the TM-H5000II/TM-J8000 printers using the "DM-D pole unit for TM printers (Type B)" (DP-503).

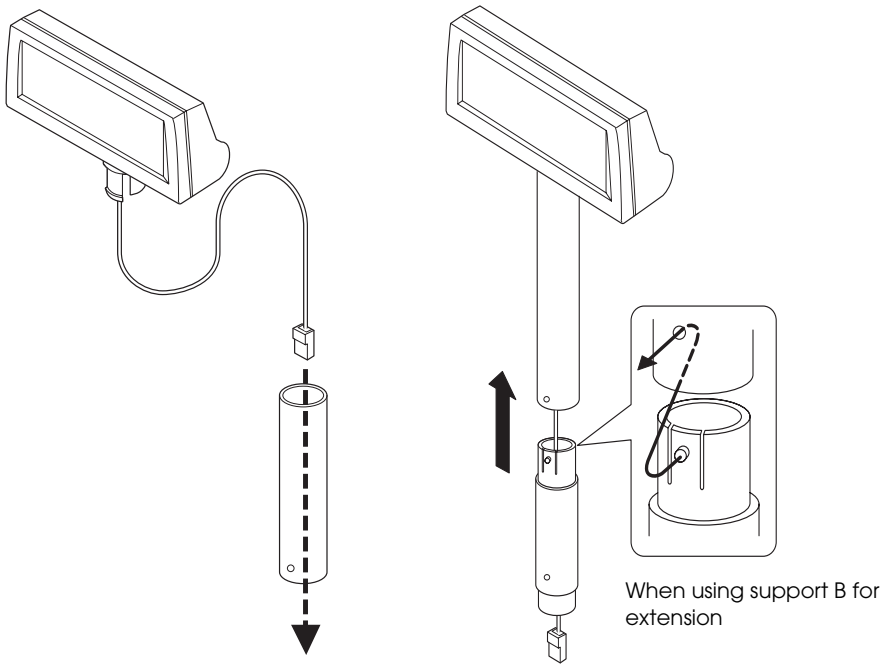
2.4.3.1 Required items

The following items are used to attach the DM-D110 to the TM-H5000II /TM-J8000 printers. These items are packed with the "DM-D pole unit for TM printers (Type B)" (DP-503).

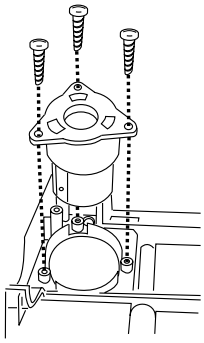


2.4.3.2 Assembling steps

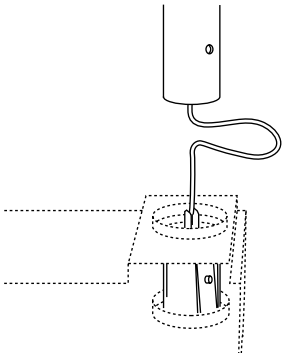
1. Pass the cable for the DM-D110 through support C and attach support C to the DM-D110. When using support B for extension, insert the tab on support B into the hole on support C until you feel it click.



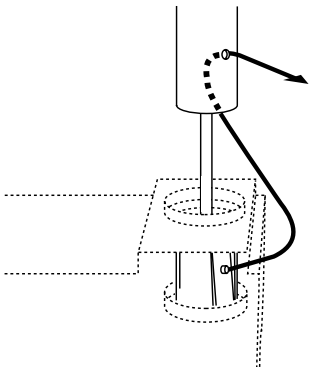
2. Attach the base to the setting position on the TM printer and secure it with the screws.



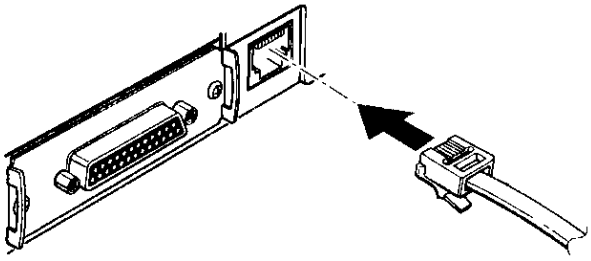
3. Pass the cable for the DM-D110 through the base.



4. Insert the tab on the base into the hole on the support until you feel it click.



5. Connect the cable for the DM-D110 to the DM connector on the TM printer.

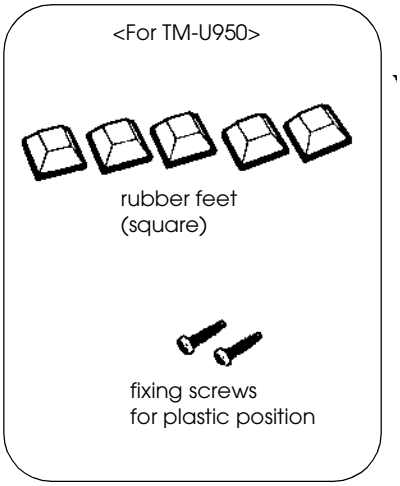


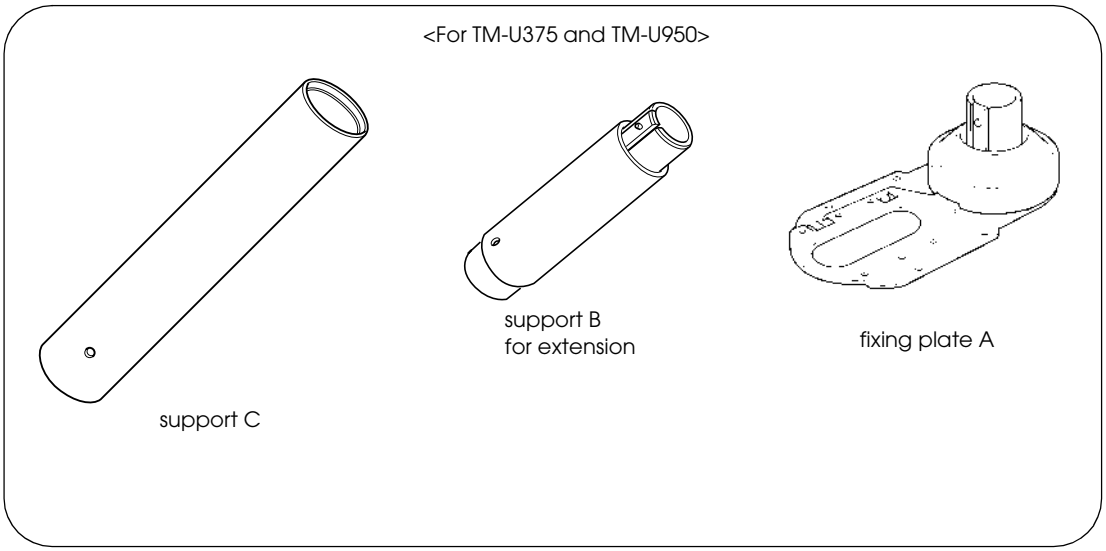
2.4.4 Attaching to the TM-U950

The DM-D110 can be attached directly to the TM-U375/TM-U950 printers using the "DM-D pole unit for TM printers (Type A)" (DP-502).

2.4.4.1 Required items

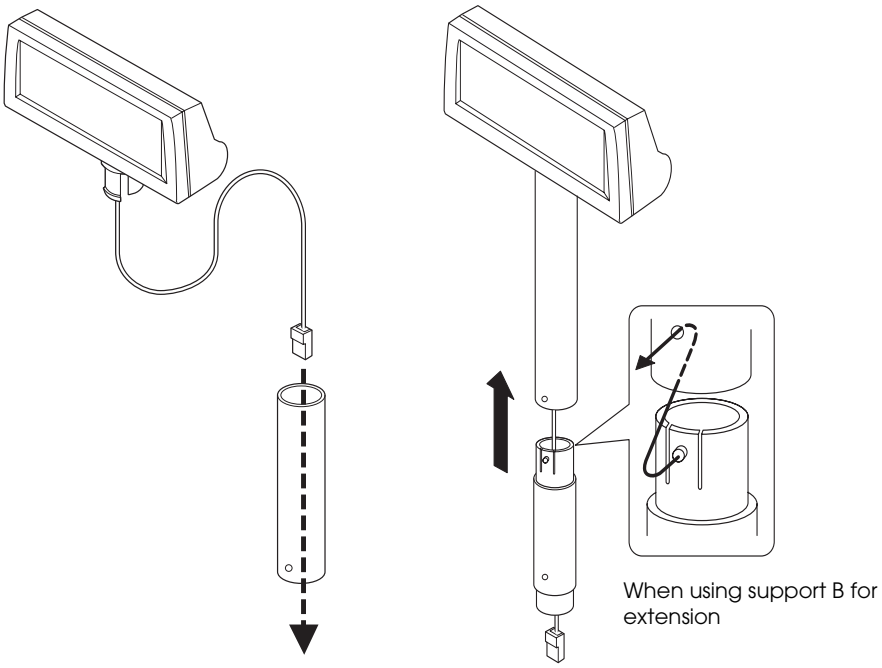
The following items are used to attach the DM-D110 to the TM-U375/TM-U950 printers. These items are packed with the "DM-D pole unit for TM printers (Type A)" (DP-502).



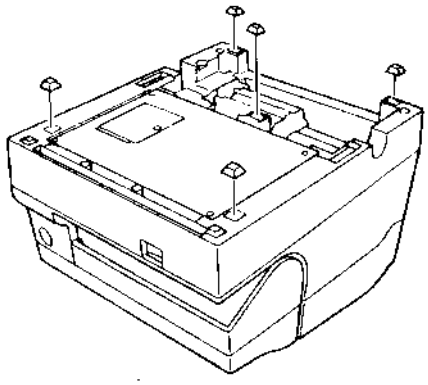


2.4.4.2 Assembling steps

1. Pass the cable for the DM-D110 through support C and attach support C to the DM-D110. When using support B for extension, insert the tab on support B into the hole on support C until you feel it click.

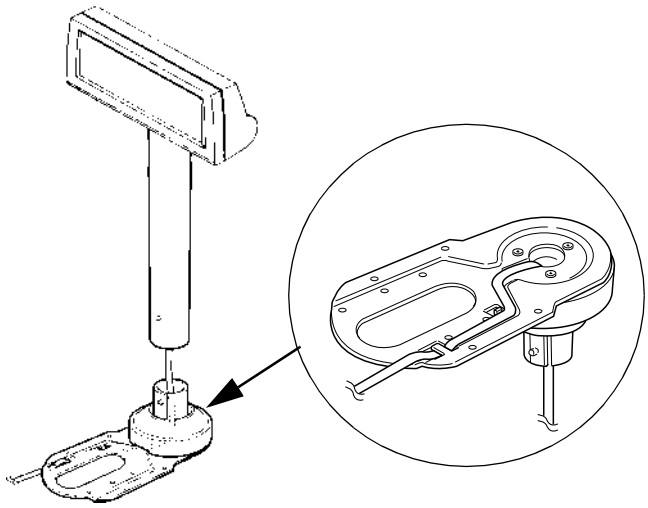


2. Attach the rubber feet to the printer.

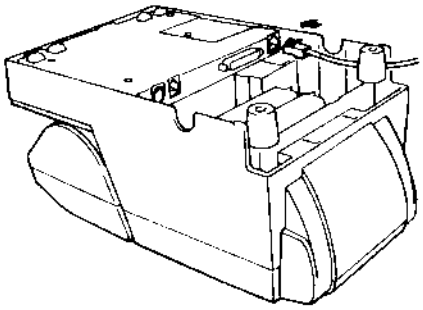


(TM-U950)

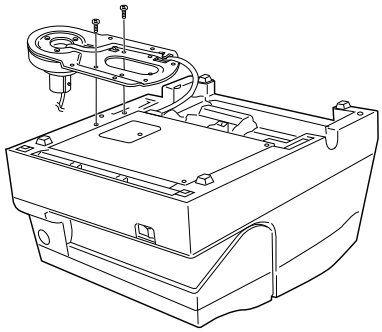
3. Pass the cable for the DM-D110 through the hole on fixing plate A and fix the cable at the bottom as shown below.



4. Connect the cable for the DM-D110 to the DM connector on the TM printer.

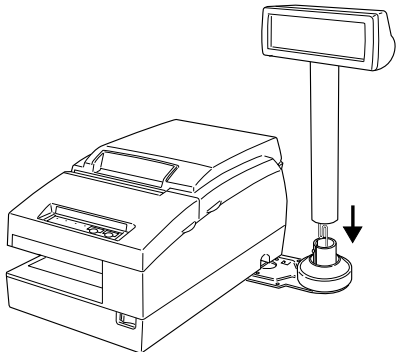


5. Adjust the length of the cable and secure fixing plate A to the printer with screws.



(TM-U950)

6. Store any excess cable in the support, and attach the DM-D110 to fixing plate A.

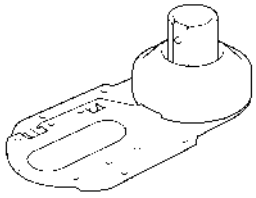


2.4.5 Attaching to Other TM Printers

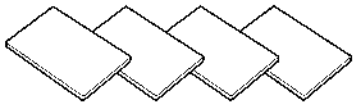
When using with other TM printers, the DM-D110 can be attached to a desk or other surface, using the "DM-D pole unit for TM printers (Type A)" (DP-502), and Velcro tapes or screws.

2.4.5.1 Required items

The following items are used when the DM-D110 is used with other TM printers. These items are packed with the "DM-D pole unit for TM printers (Type A)" (DP-502).



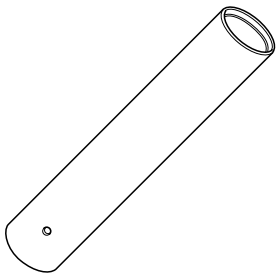
fixing plate A



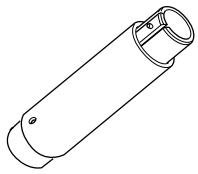
Velcro tapes

Velcro tapes

fixing screws for wood position



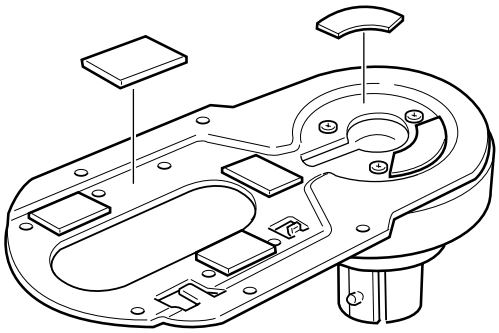
support C



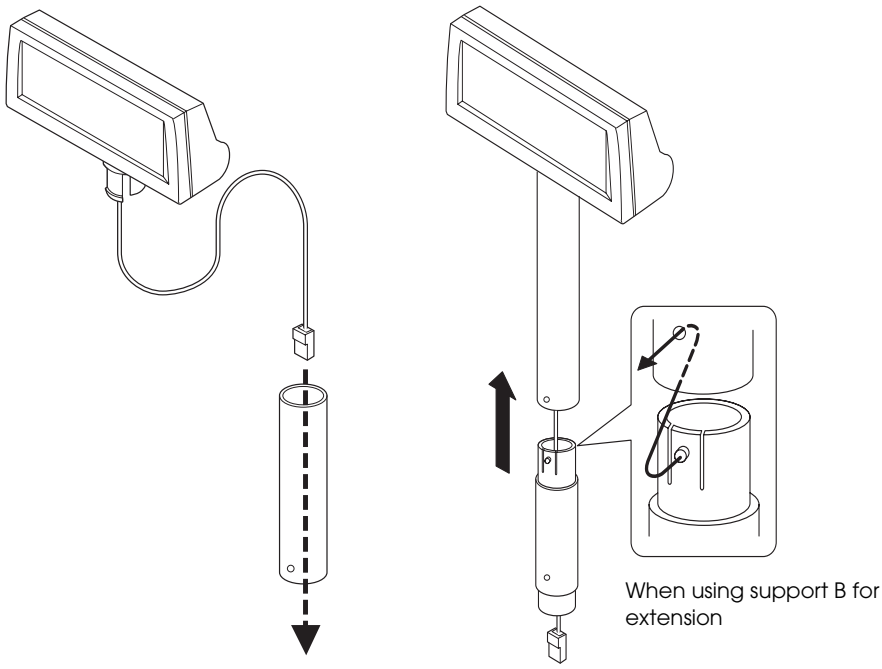
support B (for extension)

2.4.5.2 Assembling steps using Velcro tapes

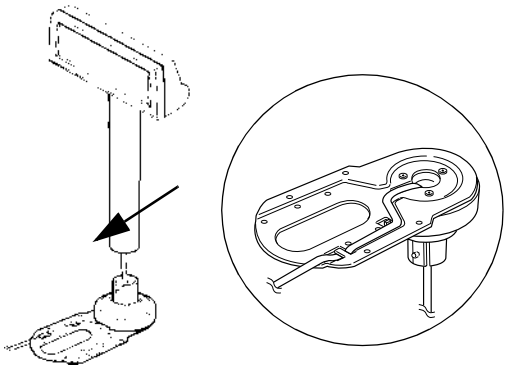
1. Attach Velcro tapes to the bottom of fixing plate A.



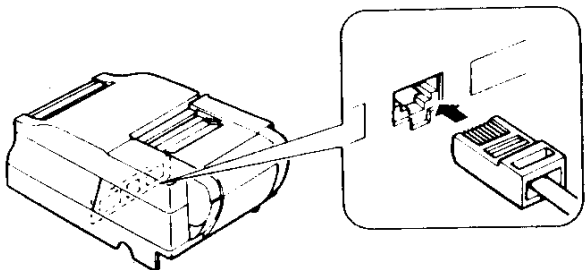
2. Pass the cable for the DM-D110 through support C and attach support C to the DM-D110.
   When using support B for extension, insert the tab on support B into the hole on support C until you feel it click.



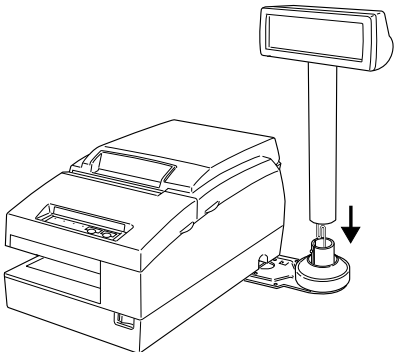
3. Pass the cable for the DM-D110 through the hole on fixing plate A, and fix the cable at the bottom as shown below.



4. Connect the cable for the DM-D110 to the DC connector on the TM printer.



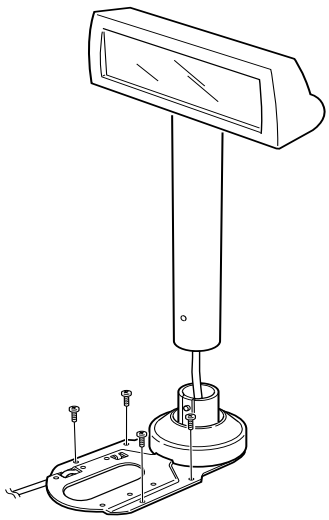
5. Store any excess cable in the support, and attach the DM-D110 to fixing plate A.



6. Peel off the Velcro tapes and attach the display as shown above..

2.4.5.3 Assembling steps using screws

1. Follow steps 2 and 3 in "Assembling steps using Velcro tapes."
2. Secure fixing plate A to the setting position with fixing screws.



3. Attach the DM-D110 to fixing plate A.

Chapter 3
DIP Switches

The DIP switches configure the communication settings and whether a self-test is required.

3.1 DIP Switches

Two DIP switches are located on the back of the display panel. The following table shows the functions of each switch.

Functions: Refer to the tables below. The DIP switch settings are read only when the power is turned on. Therefore, changing the settings while the power is on has no effect.

DSW1 No.	Function	ON	OFF	Default Setting
1-1	Received Error Data	Ignore	"?" Display	OFF
1-2	Receive Data Length	7bit	8bit	OFF
1-3	Parity	With Parity	No Parity	OFF
1-4	Parity Selection	Even	Odd	OFF
1-5	Communication Speed Switching	Refer to "Transfer Speed Switching"		ON
1-6				OFF
1-7				ON
1-8	Execute Self-Test (*1)	Yes	No	OFF

(*1) Executes the self-test once only when the power is turned on.

3.1.1 Transfer Speed Switching

SW1-5	SW1-6	SW1-7	Transfer Speed (bps)
ON	ON	ON	2400
OFF	ON	ON	4800
ON	OFF	ON	9600*1
OFF	OFF	ON	19200*2
ON	ON	OFF	38400
OFF	ON	OFF	57600
ON	OFF	OFF	115200
OFF	OFF	OFF	(Reserved)

*1 Default Setting
*2 Setting that is used when connecting to a USB model of an EPSON TM printer.

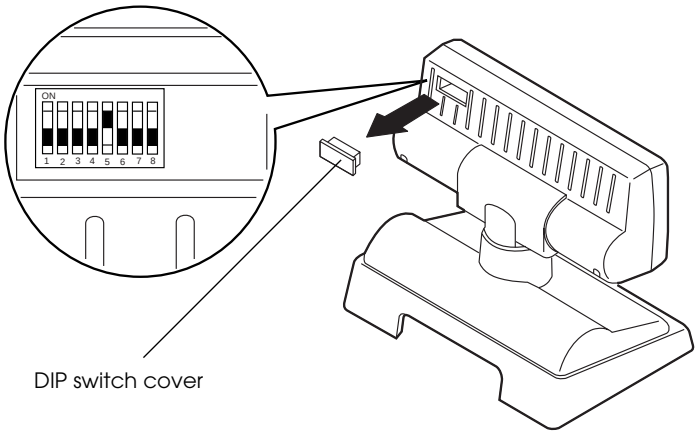
3.1.2 Setting the DIP switches

⚠ *CAUTION:*

Remove the cable of the DM-D110 before removing the DIP switch cover to prevent electrical damage to the DM-D110.

1. Remove the cable of the DM-D110.

2. Remove the DIP switch cover.



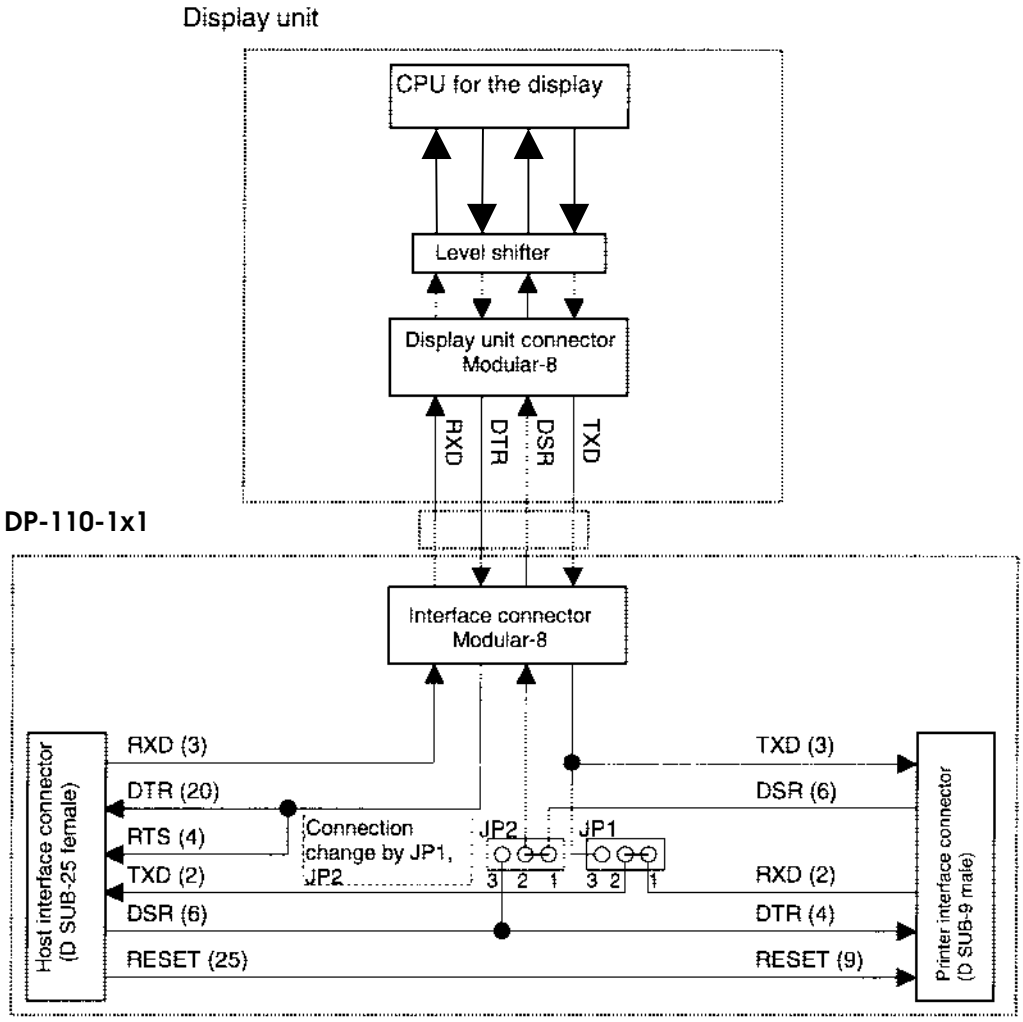
3. Change each setting of the switches with a pointed object, such as a pen tip or small screwdriver.

Close the cover and connect the cable to computer.

Chapter 4
Hardware

4.1 Interface Signal Connection Diagram

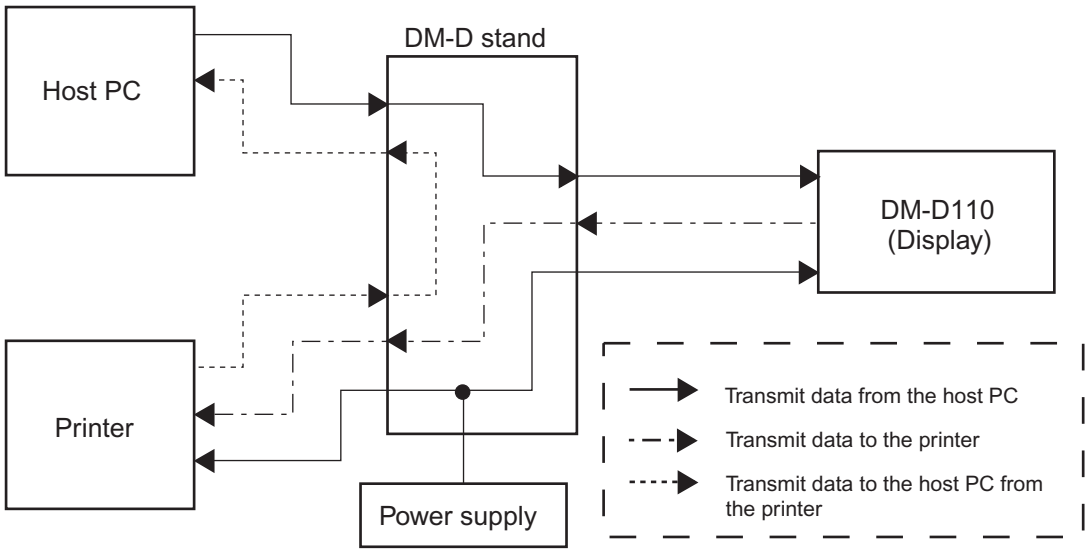
The illustration below shows the signal connections of the interface:



4.2 Data Flow

4.2.1 Pass-through Connection

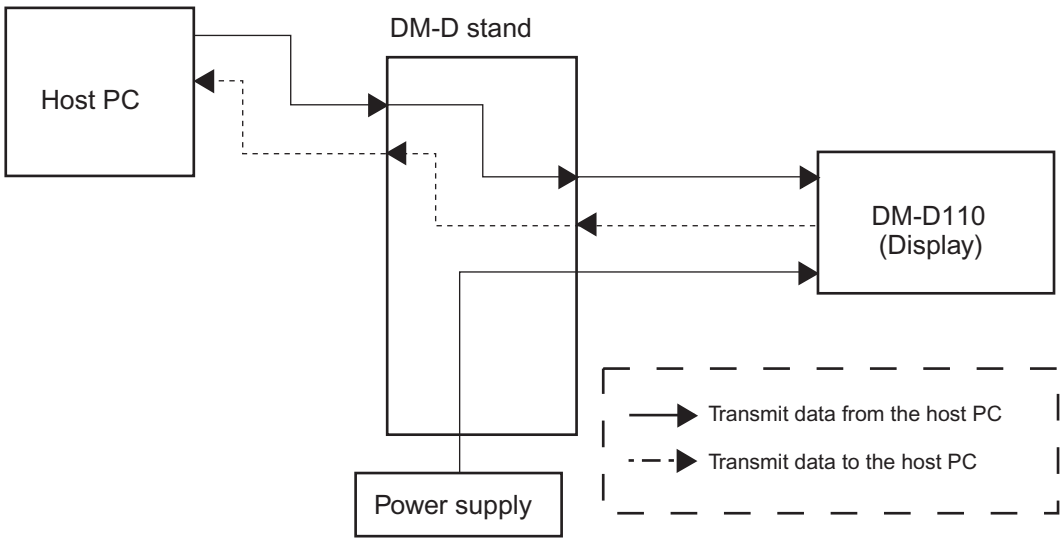
With the pass-through connection, the command from one serial port of the host personal computer is transmitted through the DM-D stand to control the DM-D110, the printer and the drawer. The data flow which is connected through the DM-D stand is as follows.



- With the pass-through connection, the data from the host personal computer is stored in the reception buffer of the display, and then the data is processed sequentially and only data for the printer is transmitted to the printer. The data transmitted from the printer is transmitted to the host personal computer directly without passing the display.
- The peripheral equipment elective command distinguishes between the data for the DM-D110 and the data for the printer.
- The communications condition of the host personal computer, the printer, and the DM-D110 are set to the same condition.

4.2.2 Standalone Connection

With the standalone connection, the command from the serial port of the host personal computer is transmitted directly to control the DM-D110. The data flow when the standalone connection is as follows.

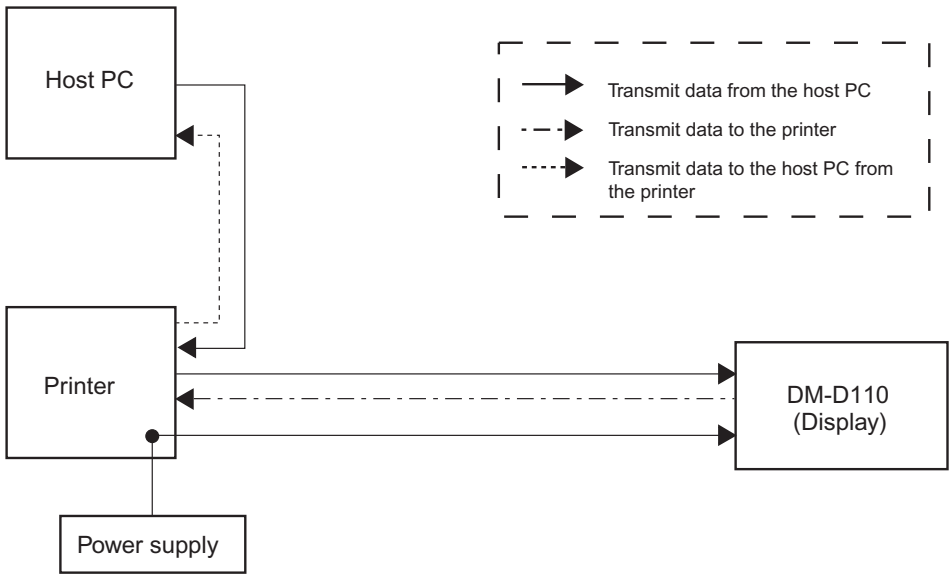


- ❏ When 1-2 of JP1 and JP2 are selected, the data from the host personal computer is transmitted to the DM-D110 and the data from the DM-D110 is transmitted to the host personal computer with the standalone connection.
- ❏ The standalone connection is effective only when the DM-D110 is selected and the user setting commands is used.
- ❏ The communications condition of the host personal computer and the DM-D110 are set to the same condition.

4.2.3 Y-type Connection

With the Y-type connection, the command from the serial/USB port of the host personal computer is transmitted through the printer to control the DM-D110 and the cash drawer.

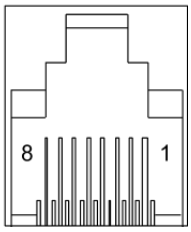
The data flow when the DM-D110 is connected with the Y-type connection is as follows.



- ❏ The data from the host personal computer is transmitted to the printer and the same data is transmitted to the DM-D110 with the stand-alone connection
- ❏ The peripheral equipment command of ESC/POS distinguishes between the data for the DM-D110 and the data for the printer.
- ❏ Set the communication condition of the DM-D110 as follows.
  Communication speed: 19200bps
  Communication data length: 8Bit
  Parity: Off

4.2.4 DM-D110 Standard Model Interface Connectors

Type: RJ-45 Connector



4.2.4.1 Display interface connector pin assignments

Display interface connector pin assignments

Pin Number	Signal Name	Signal Direction	Signal Function
1	FG	—	Frame ground
2	TXD	Output	(1) When the DM-D110 is connected with a pass-through or Y-type connection: Transmits data to the printer. (2) When the DM-D110 is connected as a standalone: Transmits data to the host.
3	RXD	Input	Receives data from the host.
4	DSR	Input	Indicates whether the host is ready to receive data. (1) When the DM-D110 is connected with a Y-type connection (*1) : Unused (2) When the DM-D110 is connected with a pass-through (*2) : **MARK**: The printer is not ready to receive data **SPACE**: The printer is ready to receive data. (3) When the DM-D110 is connected as a standalone: **MARK**: The host is not ready to receive data. **SPACE**: The host is ready to receive data.
5	DTR	Output	This indicates whether the display is ready to receive data (*2). **MARK**: The display is not ready to receive data. **DTR** goes to **MARK** under the following conditions. (1) The period from when the power is turned on until the display becomes ready to receive data. (2) When the self-test is executed. (3) When the remaining space in the receive buffer becomes 40 bytes or less. (4) When **MARK** is on, if the printer is selected by a peripheral device. **SPACE:** The display is ready to receive data. **DTR** goes to **SPACE** under the following conditions. (1) When the display first becomes ready to receive data after power-on. (2) When the self-test has ended. (3) When the remaining space in the receive buffer becomes 50 bytes or more after it becomes 40 bytes or less.
6	SG	—	Signal GND
7	PS	—	Power supply terminal
8	PG	—	Return wire for power

(*1) For a Y-type, pass-through, and standalone connection, refer to the "Connection type" paragraph for details.

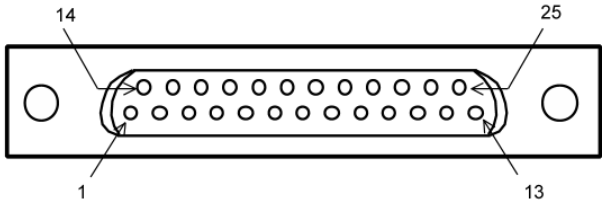
(*2) (DTR MARK) can be set by the **US v** command. This case differs from the above-mentioned (DTR MARK).

4.3 DM-D110 and PC Connection Cable

The host interface connector connects the host computer to the DM-D110 standard model via the DM-D stand.

Type: D-SUB 25-pin connector (female type)

The optional stand provides the host interface connector shown in the figure below.



4.3.0.1 Host interface connector pin assignments

Host interface connector pin assignments

Pin Number	Signal Name	Signal Direction	Function
1	FG	—	Frame ground
2	TXD	Output	1) When the DM-D110 is connected with a pass-through or Y-type connection, transmits data to the host from the printer. 2) When the DM-D110 is connected as a standalone: transmits data to the host from the DM
3	RXD	Input	Receives data from the host (host —> DM)
4 (*1)	RTS	Input	Same as DTR
6 (*2)	DSR	Input	Indicates whether the host is ready to receive data. **SPACE** The host is ready to receive data. **MARK** The host is not ready to receive data.
7	GND	—	Signal ground
20 (*1)	DTR	Output	This indicates whether the display is ready to receive data (*2). **SPACE** The display can receive data. **MARK** The display cannot receive data. **DTR MARK** **DTR** goes to **MARK** under the following conditions: 1) The period from when power is turned on to when the display first becomes ready to receive data. 2) When the self-test is executed. 3) When the remaining space in the receive buffer becomes 128 bytes or less (buffer-full state). 4) When **DSR MARK** is on, if the printer is selected by a peripheral device command. **DTR SPACE** **DTR** goes to **SPACE** under the following conditions: 1) When the display first becomes ready to receive data after power-on. 2) When the self-test has ended. 3) When the remaining space in the receive buffer becomes 50 bytes or more after having been 40 bytes or less.
25	RESET	Input	Reset signal is connected to the **DTR** terminal of the printer directly.

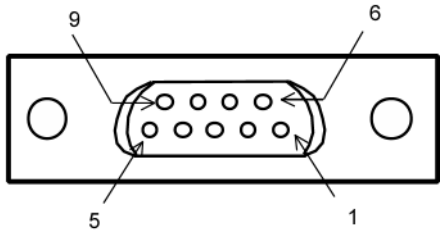
NOTES: (*1): Make sure to use either the **RTS** or the **DTR** terminal. Otherwise, the built-in RS-232 driver IC may be broken.
(*2): This signal is connected to the **DTR** terminal of the printer directly.

4.3.1 DP-110 Printer Interface Connector

The printer interface connector connects a standard model DM-D110 to the printer via the DM-D stand.

Type: D-SUB 9-pin connector (male type)

The optional stand provides the printer interface connector shown in the figure below.



4.3.1.1 Printer interface connector pin assignments

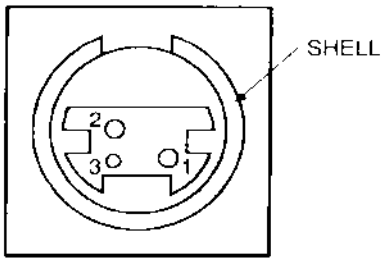
Table 1-1 Printer interface connector pin assignments

Pin Number	Signal Name	Signal Direction	Function
2	RXD	Input	Receive data from the printer (printer to host)
3	TXD	Output	Transmit data to the printer (DM to printer)
4	DTR	Output	Indicates whether the host is ready to receive data. **SPACE** The printer is ready to receive data. **MARK** The printer is not ready to receive data.
5	GND	—	Signal GND
6	DSR	Input	This indicates whether the display is ready to receive data from the printer. **SPACE** The printer can receive data. When the printer becomes ready to receive data **SPACE** is output. **MARK** The printer cannot receive data. If the printer becomes ready to receive data, **MARK** is not output.
9	RESET	Output	Reset signal to the printer (host to printer)

4.3.2 DP-110 Power Supply Connector

The base unit of the DM-D stand provides two power supply connectors. One is used for the input terminals from the external power supply and the other is used to supply power to the printer. Both connectors have the same electrical characteristics (signal functions, signal direction, signal level). These connectors can be used for the DM-D110 power supply connector to the display interface board or the power supply connector to the printer.

Type: 3-pin locking type connector.



4.3.2.1 Power supply connector pin assignments

Power supply connector pin assignments

Pin Number	Signal Name	Signal Direction	Signal Function
1	+24V	—	Power supply line
2	GND	—	GND
3	NC	—	Unused
SHELL	FG	—	Frame GND

Chapter 5
Application Development Information

This chapter describes how to control the customer display.

5.1 Introducing the Control Methods

5.1.1 Commands

- ESC/POS commands

ESC/POS commands directly control the customer display and control all the functions of it. However, detailed knowledge of the hardware, control, and operating environment is required and you need to code all the functions for yourself.

To use ESC/POS commands, “Nondisclosure agreement” and “User registration” are required.

Please contact us to use ESC/POS.

5.1.1.1 Operating environment

Environment in which you can use ESC/POS commands. (For example, MS-DOS.)

5.1.2 Driver

The following drivers are provided to control the customer display.

- EPSON OPOS ADK (Recommended)
- Windows Printer Driver (EPSON Advanced Printer Driver)

5.1.3 Features of EPSON OPOS ADK

The OPOS driver is a standard of the OCX control driver for POS peripherals. Controlling the POS peripherals including the customer display with original commands from an application is not required, and it enables efficient system development reducing development steps.

5.1.3.1 Using OPOS

The following is required to use OPOS.

- OPOS driver and manuals provided by EPSON
  (Download from our homepage.)
- Application Programmer's Guide issued by Open POS Technology Council

5.1.3.2 Operating environment

- ❑ Supported OS (Operation checked)
  - Windows2000 Professional SP4 or later
  - Windows XP Professional SP2 or later

  See OPOS release notes for the latest information.

- ❑ Supported development language
  - Visual Basic
  - VisualC++

5.1.4 Features of Windows Driver (EPSON Advanced Printer Driver)

EPSON Advanced Printer Driver is a Windows driver for the display function of the customer display. You can display on the customer display without programing any applications as well as a standard Windows printer driver.

You cannot display on the customer display in a .net environment. In an environment other than .net, you can display only the exclusive fonts for the customer display. (You cannot display TrueType fonts, Kanji, Hiragana, and Katakana.)

As the APD for the customer display, a package for use in a standalone environment and a package for use with the same port as the TM printer are provided.

APD and manuals provided by EPSON are required to use the APD. Download them from our homepage.

5.1.4.1 Operating environment

- ❑ Supported OS (Operation confirmed by EPSON)
  - Windows2000 Professional SP4 or later
  - Windows XP Professional SP2 or later

  See the release note for the driver for the latest information.

- ❑ Supported development language
  - Visual Basic
  - VisualC++

5.2 Selecting Environment and Driver

Select the driver for the customer display depending on your environment.

Windows environment	.net environment	Environment other than .net (Embedded fonts in the customer display are available.)
When you develop a new application.	Use OPOS.	OPOS is recommended. (You can also use the APD, but OPOS is recommended for system extensibility.)
When you already use OPOS with an existing application.	Use OPOS.	Use OPOS.
When you already use the APD with an existing application.	Use OPOS. (The APD and OPOS cannot both be in one PC. Use OPOS also for the TM printer.)	Use the APD.

Appendix A
Character Code Tables

A.1 Page 0 (PC437: U.S.A., standard Europe)

(international character set: U.S.A.)

	HEX	0	1	2	3	4	5	6	7
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111
0	0000	NUL 00	16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	0001	MD1 01	17	! 33	1 49	A 65	Q 81	a 97	q 113
2	0010	MD2 02	18	" 34	2 50	B 66	R 82	b 98	r 114
3	0011	MD3 03	19	# 35	3 51	C 67	S 83	c 99	s 115
4	0100	04	20	$ 36	4 52	D 68	T 84	d 100	t 116
5	0101	05	21	% 37	5 53	E 69	U 85	e 101	u 117
6	0110	06	22	& 38	6 54	F 70	V 86	f 102	v 118
7	0111	07	23	' 39	7 55	G 71	W 87	g 103	w 119
8	1000	BS 08	CAN 24	(40	8 56	H 72	X 88	h 104	x 120
9	1001	HT 09	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	1010	LF 10	26	* 42	: 58	J 74	Z 90	j 106	z 122
B	1011	HOM 11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	1100	CLR 12	28	, 44	< 60	L 76	\ 92	l 108	¦ 124
D	1101	CR 13	29	- 45	= 61	M 77	] 93	m 109	} 125
E	1110	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	1111	15	US 31	/ 47	? 63	O 79	_ 95	o 111	SP 127

Page 0 Indicated characters (00H-7FH)

Note 1: Character codes from 00H (hexadecimal) to 7FH (hexadecimal) for each page are the same.

Note 2: Some characters indicated by character codes from 00H to 7FH are changed by selecting the international character set. Refer to Section 4.3.13, International character set, for details.

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	¢ 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	¥ 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 0 Indicated Characters (80H?FFH)

A.2 Page 1 (Katakana)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	128	144	SP 160	ー 176	タ 192	ミ 208	□ 224	日 240
1	0001	129	145	。 161	ア 177	チ 193	ム 209	■ 225	月 241
2	0010	130	146	「 162	イ 178	ツ 194	メ 210	■ 226	火 242
3	0011	131	147	」 163	ウ 179	テ 195	モ 211	○ 227	水 243
4	0100	132	148	、 164	エ 180	ト 196	ヤ 212	● 228	木 244
5	0101	133	149	・ 165	オ 181	ナ 197	ユ 213	◇ 229	金 245
6	0110	134	150	ヲ 166	カ 182	ニ 198	ヨ 214	◆ 230	土 246
7	0111	135	→ 151	ァ 167	キ 183	ヌ 199	ラ 215	◆ 231	年 247
8	1000	136	← 152	ィ 168	ク 184	ネ 200	リ 216	▶ 232	円 248
9	1001	137	↑ 153	ゥ 169	ケ 185	ノ 201	ル 217	◀ 233	分 249
A	1010	138	↓ 154	ェ 170	コ 186	ハ 202	レ 218	▲ 234	人 250
B	1011	139	× 155	ォ 171	サ 187	ヒ 203	ロ 219	▼ 235	大 251
C	1100	140	÷ 156	ャ 172	シ 188	フ 204	ワ 220	≪ 236	中 252
D	1101	141	± 157	ュ 173	ス 189	ヘ 205	ン 221	≫ 237	小 253
E	1110	142	≤ 158	ョ 174	セ 190	ホ 206	゛ 222	½ 238	〒 254
F	1111	143	≥ 159	ッ 175	ソ 191	マ 207	° 223	¼ 239	℃ 255

Page 1 Indicated Characters (80H-FFH)

A.3 Page 2 (PC850: multilingual)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	ð 208	Ó 224	— 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	Ð 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	Ê 210	Ô 226	‗ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	õ 228	¶ 244
5	0101	à 133	ò 149	Ñ 165	Á 181	┼ 197	ı 213	Õ 229	§ 245
6	0110	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	1000	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	Þ 232	° 248
9	1001	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	Ù 235	¹ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	ý 236	³ 252
D	1101	ì 141	Ø 157	¡ 173	¢ 189	═ 205	¦ 221	Ý 237	² 253
E	1110	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	▪ 254
F	1111	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▀ 223	´ 239	SP 255

Page 2 Indicated Characters (80H-FFH)

A.4 Page 3 (PC860: Portuguese)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	À 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	È 146	ó 162	▒ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ã 132	õ 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	Á 134	Ú 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	Ì 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	Ê 137	Õ 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ù 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	í 139	¢ 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	Ô 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ù 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ã 142	₧ 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Â 143	ó 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 3 Indicated Characters (80H-FFH)

A.5 Page 4 (PC863: Canadian-French)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	¦ 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	È 145	´ 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Ê 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	Â 132	Ë 148	¨ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	Ï 149	¸ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	¶ 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	‾ 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	¤ 152	î 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ô 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	¢ 155	½ 171	╗ 187	╦ 203	█ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▄ 220	∞ 236	n 252
D	1101	ì 141	Ù 157	¾ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	Ö 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	§ 143	ƒ 159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 4 Indicated Characters (80H-FFH)

A.6 Page 5 (PC865: Nordic)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	╤ 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	0101	à 133	ò 149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	0110	å 134	û 150	ª 166	╢ 182	╞ 198	╓ 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	1001	ë 137	Ö 153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▬ 220	∞ 236	n 252
D	1101	ì 141	Ø 157	¡ 173	╜ 189	═ 205	▌ 221	ø 237	² 253
E	1110	Ä 142	Pt 158	« 174	╛ 190	╬ 206	▐ 222	∈ 238	■ 254
F	1111	Å 143	ƒ 159	¤ 175	┐ 191	╧ 207	▀ 223	∩ 239	SP 255

Page 5 Indicated Characters (80H-FFH)

A.7 Page 16 (WPC1252)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	€ 128	144	NBSP 160	° 176	À 192	Đ 208	à 224	ð 240
1	0001	129	‘ 145	¡ 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	0010	‚ 130	’ 146	¢ 162	² 178	Â 194	Ò 210	â 226	ò 242
3	0011	ƒ 131	“ 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	0100	„ 132	” 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	0101	… 133	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	0110	† 134	– 150	¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	0111	‡ 135	— 151	§ 167	· 183	Ç 199	× 215	ç 231	+ 247
8	1000	ˆ 136	˜ 152	¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	1001	‰ 137	™ 153	© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	1010	Š 138	š 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	1011	‹ 139	› 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	1100	Œ 140	œ 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	1101	141	157	- 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	1110	Ž 142	ž 158	® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	1111	143	Ÿ 159	¯ 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

Page16 Indicated Characters (80H-FFH)

A.8 Page 17 (PC866: Cyrillic2)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	А 128	Р 144	а 160	176	192	208	р 224	Ё 240
1	0001	Б 129	С 145	б 161	177	193	209	с 225	ё 241
2	0010	В 130	Т 146	в 162	178	194	210	т 226	Є 242
3	0011	Г 131	У 147	г 163	179	195	211	у 227	є 243
4	0100	Д 132	Ф 148	д 164	180	196	212	ф 228	Ї 244
5	0101	Е 133	Х 149	е 165	181	197	213	х 229	ї 245
6	0110	Ж 134	Ц 150	ж 166	182	198	214	ц 230	Ў 246
7	0111	З 135	Ч 151	з 167	183	199	215	ч 231	ў 247
8	1000	И 136	Ш 152	и 168	184	200	216	ш 232	° 248
9	1001	Й 137	Щ 153	й 169	185	201	217	щ 233	∙ 249
A	1010	К 138	Ъ 154	к 170	186	202	218	ъ 234	· 250
B	1011	Л 139	Ы 155	л 171	187	203	219	ы 235	√ 251
C	1100	М 140	Ь 156	м 172	188	204	220	ь 236	№ 252
D	1101	Н 141	Э 157	н 173	189	205	221	э 237	¤ 253
E	1110	О 142	Ю 158	о 174	190	206	222	ю 238	254
F	1111	П 143	Я 159	п 175	191	207	223	я 239	255

Page17 Indicated Characters (80H-FFH)

A.9 Page 18 (PC852: Latin2)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	176	192	đ 208	Ó 224	240
1	0001	ü 129	Ĺ 145	í 161	177	193	Đ 209	ß 225	241
2	0010	é 130	ĺ 146	ó 162	178	194	Ď 210	Ô 226	242
3	0011	â 131	ô 147	ú 163	179	195	Ë 211	Ń 227	243
4	0100	ä 132	ö 148	Ą 164	180	196	ď 212	ń 228	244
5	0101	ů 133	Ľ 149	ą 165	Á 181	197	Ň 213	ň 229	§ 245
6	0110	ć 134	ľ 150	Ž 166	Â 182	Ă 198	Í 214	Š 230	÷ 246
7	0111	ç 135	Ś 151	ž 167	Ě 183	ă 199	Î 215	š 231	247
8	1000	ł 136	ś 152	Ę 168	Ş 184	200	ě 216	Ř 232	° 248
9	1001	ë 137	Ö 153	ę 169	185	201	217	Ú 233	249
A	1010	Ő 138	Ü 154	170	186	202	218	ŕ 234	250
B	1011	ő 139	Ť 155	ź 171	187	203	219	Ű 235	ű 251
C	1100	î 140	ť 156	Č 172	188	204	220	ý 236	Ř 252
D	1101	Ź 141	Ł 157	ş 173	Ż 189	205	Ţ 221	Ý 237	ř 253
E	1110	Ä 142	× 158	« 174	ż 190	206	Ů 222	ţ 238	254
F	1111	Ć 143	č 159	» 175	191	¤ 207	223	´ 239	255

Page18 Indicated Characters (80H-FFH)

A.10 Page19 (PC858: Euro)

HEX	BIN	8	9	A	B	C	D	E	F
		1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	▒ 176	└ 192	ð 208	Ó 224	— 240
1	0001	ü 129	æ 145	í 161	▒ 177	┴ 193	Ð 209	ß 225	± 241
2	0010	é 130	Æ 146	ó 162	▒ 178	┬ 194	Ê 210	Ô 226	‗ 242
3	0011	â 131	ô 147	ú 163	│ 179	├ 195	Ë 211	Ò 227	¾ 243
4	0100	ä 132	ö 148	ñ 164	┤ 180	─ 196	È 212	õ 228	¶ 244
5	0101	à 133	ò 149	Ñ 165	Á 181	┼ 197	€ 213	Õ 229	§ 245
6	0110	å 134	û 150	ª 166	Â 182	ã 198	Í 214	µ 230	÷ 246
7	0111	ç 135	ù 151	º 167	À 183	Ã 199	Î 215	þ 231	¸ 247
8	1000	ê 136	ÿ 152	¿ 168	© 184	╚ 200	Ï 216	Þ 232	° 248
9	1001	ë 137	Ö 153	® 169	╣ 185	╔ 201	┘ 217	Ú 233	¨ 249
A	1010	è 138	Ü 154	¬ 170	║ 186	╩ 202	┌ 218	Û 234	· 250
B	1011	ï 139	ø 155	½ 171	╗ 187	╦ 203	■ 219	Ù 235	¹ 251
C	1100	î 140	£ 156	¼ 172	╝ 188	╠ 204	▬ 220	ý 236	³ 252
D	1101	ì 141	Ø 157	¡ 173	¢ 189	═ 205	¦ 221	Ý 237	² 253
E	1110	Ä 142	× 158	« 174	¥ 190	╬ 206	Ì 222	¯ 238	■ 254
F	1111	Å 143	ƒ 159	» 175	┐ 191	¤ 207	▬ 223	´ 239	SP 255

Page19 Indicated Characters (80H-FFH)

A.11 Page254 (Space)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	UD 128	UD 144	UD 160	UD 176	UD 192	UD 208	UD 224	UD 240
1	0001	UD 129	UD 145	UD 161	UD 177	UD 193	UD 209	UD 225	UD 241
2	0010	UD 130	UD 146	UD 162	UD 178	UD 194	UD 210	UD 226	UD 242
3	0011	UD 131	UD 147	UD 163	UD 179	UD 195	UD 211	UD 227	UD 243
4	0100	UD 132	UD 148	UD 164	UD 180	UD 196	UD 212	UD 228	UD 244
5	0101	UD 133	UD 149	UD 165	UD 181	UD 197	UD 213	UD 229	UD 245
6	0110	UD 134	UD 150	UD 166	UD 182	UD 198	UD 214	UD 230	UD 246
7	0111	UD 135	UD 151	UD 167	UD 183	UD 199	UD 215	UD 231	UD 247
8	1000	UD 136	UD 152	UD 168	UD 184	UD 200	UD 216	UD 232	UD 248
9	1001	UD 137	UD 153	UD 169	UD 185	UD 201	UD 217	UD 233	UD 249
A	1010	UD 138	UD 154	UD 170	UD 186	UD 202	UD 218	UD 234	UD 250
B	1011	UD 139	UD 155	UD 171	UD 187	UD 203	UD 219	UD 235	UD 251
C	1100	UD 140	UD 156	UD 172	UD 188	UD 204	UD 220	UD 236	UD 252
D	1101	UD 141	UD 157	UD 173	UD 189	UD 205	UD 221	UD 237	UD 253
E	1110	UD 142	UD 158	UD 174	UD 190	UD 206	UD 222	UD 238	UD 254
F	1111	UD 143	UD 159	UD 175	UD 191	UD 207	UD 223	UD 239	UD 255

Page254 Indicated Characters (80H-FFH)

A.12 Page255 (Space)

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	UD 128	UD 144	UD 160	UD 176	UD 192	UD 208	UD 224	UD 240
1	0001	UD 129	UD 145	UD 161	UD 177	UD 193	UD 209	UD 225	UD 241
2	0010	UD 130	UD 146	UD 162	UD 178	UD 194	UD 210	UD 226	UD 242
3	0011	UD 131	UD 147	UD 163	UD 179	UD 195	UD 211	UD 227	UD 243
4	0100	UD 132	UD 148	UD 164	UD 180	UD 196	UD 212	UD 228	UD 244
5	0101	UD 133	UD 149	UD 165	UD 181	UD 197	UD 213	UD 229	UD 245
6	0110	UD 134	UD 150	UD 166	UD 182	UD 198	UD 214	UD 230	UD 246
7	0111	UD 135	UD 151	UD 167	UD 183	UD 199	UD 215	UD 231	UD 247
8	1000	UD 136	UD 152	UD 168	UD 184	UD 200	UD 216	UD 232	UD 248
9	1001	UD 137	UD 153	UD 169	UD 185	UD 201	UD 217	UD 233	UD 249
A	1010	UD 138	UD 154	UD 170	UD 186	UD 202	UD 218	UD 234	UD 250
B	1011	UD 139	UD 155	UD 171	UD 187	UD 203	UD 219	UD 235	UD 251
C	1100	UD 140	UD 156	UD 172	UD 188	UD 204	UD 220	UD 236	UD 252
D	1101	UD 141	UD 157	UD 173	UD 189	UD 205	UD 221	UD 237	UD 253
E	1110	UD 142	UD 158	UD 174	UD 190	UD 206	UD 222	UD 238	UD 254
F	1111	UD 143	UD 159	UD 175	UD 191	UD 207	UD 223	UD 239	UD 255

Page255 Indicated Characters (80H-FFH)

UD: undefined

A.13 International character set

International characters listed in Table 4.3.14 can be changed by using the ESC R command. Refer to the description of the ESC R command in Section 5.3, Command Details.

Country	ASCII code (Hex)											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A	#	$	@	[	¥	]	^	`	{	|	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.	£	$	@	[	¥	]	^	`	{	|	}	~
Denmark I	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	¥	é	^	ù	à	ò	è	ì
Spain I	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	|	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	$	@	[	₩	]	^	`	{	|	}	~

International Character Set (Indicated Character Selection by Command)