

DM-D110 / DM-D210

Technical Reference Guide

Product Overview

Describes features and general specifications for this product.

Setup

Describes how to install and set this product.

Handling

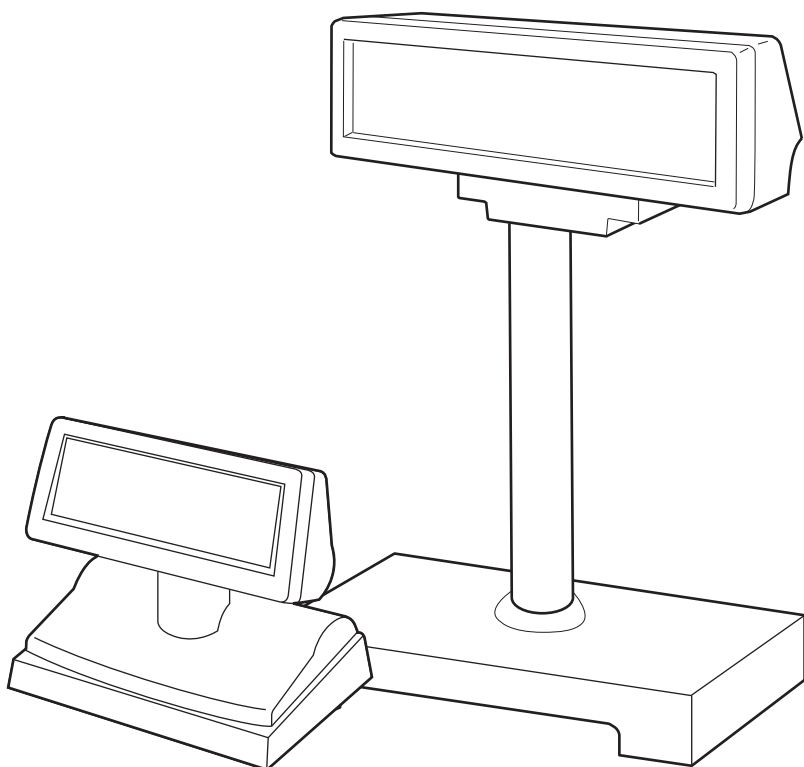
Describes the basic usage of this product.

Application Development Information

Describes how to control this product and information necessary for developing applications.

Appendix

Describes the specifications of the product, connectors, and serial cables, as well as the character code table.



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ESC/POS[®] Proprietary Command System

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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.



ESC/POS is designed to reduce the processing load on the host computer in POS environments. It comprises a set of highly functional and efficient commands that enables the full realization of the potential of printers.

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For Safety

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	You must follow warnings carefully to avoid serious bodily injury.
 CAUTION	Provides information that must be observed to prevent damage to the equipment or loss of data. <ul style="list-style-type: none">• Possibility of sustaining physical injuries.• Possibility of causing physical damage.• Possibility of causing information loss.
CAUTION	Provides information that must be observed to avoid damage to your equipment or a malfunction.
NOTE	Provides important information and useful tips.

Warnings



WARNING

- **To avoid risk of electric shock, do not set up this product or handle cables during a thunderstorm.**
- **Never insert or disconnect the power plug with wet hands.**
Doing so may result in severe shock.
- **Handle the power cable with care.**
Improper handling may lead to fire or electric shock.
 - * Do not modify or attempt to repair the cable.
 - * Do not place any heavy object on top of the cable.
 - * Avoid excessive bending, twisting, and pulling.
 - * Do not place the cable near heating equipment.
 - * Check that the plug is clean before plugging it in.
 - * Be sure to push the plug all the way in.
- **Be sure to use the specified power source.**
Connection to an improper power source may cause fire or shock.
- **Do not place multiple loads on the power outlet.**
Overloading the outlet may lead to fire or shock.
- **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.
- **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, do not continue to use it.**
Continued use may lead to fire. Unplug the power cord immediately and contact your dealer or a Seiko Epson service center for advice.
- **Do not use aerosol sprayers containing flammable gas inside or around this product.**
Doing so may cause fire.
- **Do not connect cables in ways other than those mentioned in this manual.**
Different connections may cause equipment damage or fire.
- **Do not use this product in locations subject to high humidity or dust levels.**
Excessive humidity and dust may cause equipment damage or fire.

Cautions



CAUTION

- **Be sure to set this equipment on a firm, stable, horizontal surface.**
The product may break or cause injury if it falls.
- **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.
- **To ensure safety, unplug this product before leaving it unused for an extended period.**
- **Do not drop the this product because you may damage the built-in vacuum fluorescent display.**
- **Using in the presence of silicon gas (silicon adhesive, silicon oil, silicon powder, etc.) including siloxane and of malignant gas (nitric acid, hydrosulfuric, ammonia, chlorine, etc.) may cause contact failure at contact points in a mechanical switch, etc., in a short time because of adhesion or oxidization of the insulation film.**

Restriction of Use

When this product is used for applications requiring high reliability/safety, such as transportation devices related to aviation, rail, marine, automotive, etc.; disaster prevention devices; various safety devices, etc.; or functional/precision devices, etc., you should use this product only after giving consideration to including fail-safes and redundancies into your design to maintain safety and total system reliability. Because this product was not intended for use in applications requiring extremely high reliability/safety, such as aerospace equipment, main communication equipment, nuclear power control equipment, or medical equipment related to direct medical care, etc., please make your own judgment on this product's suitability after a full evaluation.

About this Manual

Aim of the Manual

This manual provides the development engineers with necessary information for developing, designing, installing the system using DM-D110/DM-D210 as well as for developing and designing the applications.

Manual Content

The manual is made up of the following sections:

Chapter 1	Product Overview
Chapter 2	Setup
Chapter 3	Handling
Chapter 4	Application Development Information
Appendix	Product Specifications DP-110/DP-210 Connector Specifications Serial Cable Specifications Character Code Tables

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Product Overview

This chapter describes features and specifications of the DM-D110/DM-D210.

Features

DM-D110/DM-D210 is a customer display for displaying characters. The main features of this product are as follows.

Display

- 20 digit x 2 lines dot matrix for displaying half-width characters. Chinese characters and Hiragana characters cannot be displayed.
- DM-D210 can display commas and periods separately.

Usability

- Fluorescent tubes allow long service life, wide view angle, and clear visibility in bright places and dark places.
- DM-D110 is compact.
- DM-D210 has easy-to-see large display characters.
- You can move the display section up and down, left and right to adjust the position so it is easy to see.
- Optional products are available for installing on the TM printer or counter.

Interface

- You can connect this product to a serial interface or a USB interface. The USB-RS232 conversion driver recognizes USB connection as a virtual serial port.
- DM-D110 supports USB bus power.
- You can connect a TM printer and a customer display to a serial/USB port of a computer. You can share computer ports by connecting the printer via this product that is connected to the computer, or by connecting this product to the DM-D connector on the TM printer side.

Product Structure

Customer Display

The following shows the models for the customer display unit.

DM-D110

- RS-232/USB model
- RS-232 model
- USB model
- DM-D110 for TM-T88V-DT model (For TM-T88V-DT)

DM-D210

- RS-232/USB model
- RS-232 model

Accessories

Model	Accessory
RS-232/USB model	<ul style="list-style-type: none">• Start Here• Manual CD• Ferrite core• Cap
RS-232 model	User's Manual
USB model	User's Manual
DM-D110 for TM-T88V-DT	The following items are supplied depending on when the product is shipped. <ul style="list-style-type: none">• Start Here• Manual CD• Ferrite core• Cap or <ul style="list-style-type: none">• User's Manual

Options

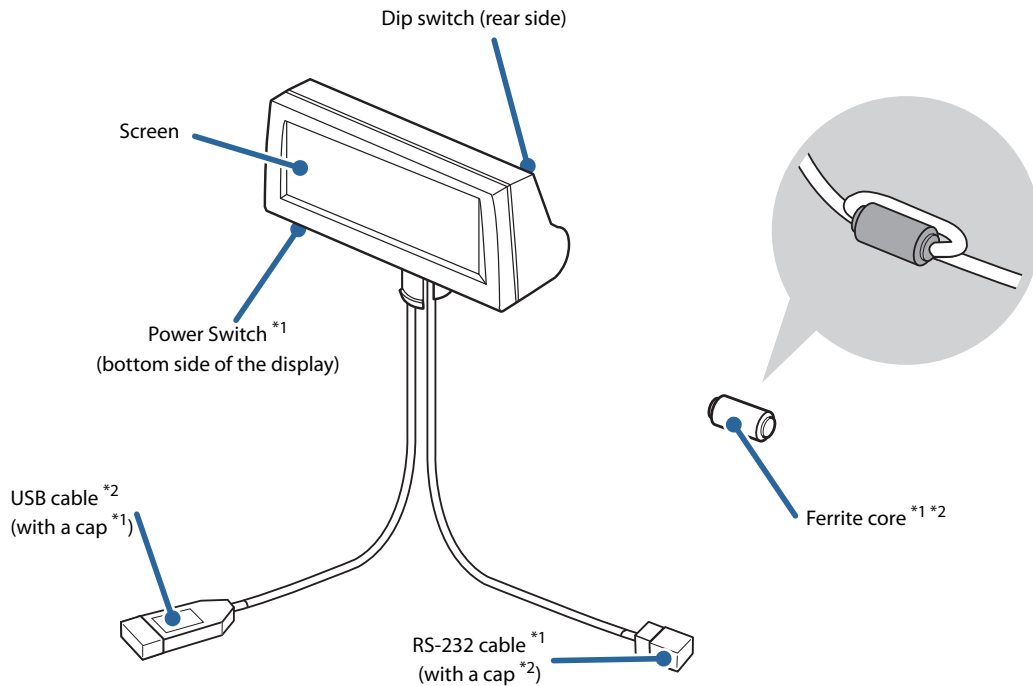
Install the optional products depending on how you are using this product.

Prepare a serial cable to connect with the computer or TM printer if necessary.

Product	Option	Description
Common parts	DP-502	The following installation sets <ul style="list-style-type: none"> • TM-H6000IV/ TM-U675 • TM-H6000IV-DT • TM-U950 • Installing to the counter
	DP-503	Installation set for the TM-H5000II and J8000 series
	PS-180	AC adapter
DM-D110	DP-110	DM-D110 stand (with an interface board)
	DP-110 without Interface Board	DM-D110 stand (without an interface board) Use this when installing near the USB bus power and the printer using a Y connection.
	DP-105	Extension pole to be used with DP-110
DM-D210	DP-210	DM-D210 stand (with interface board)

Part Names

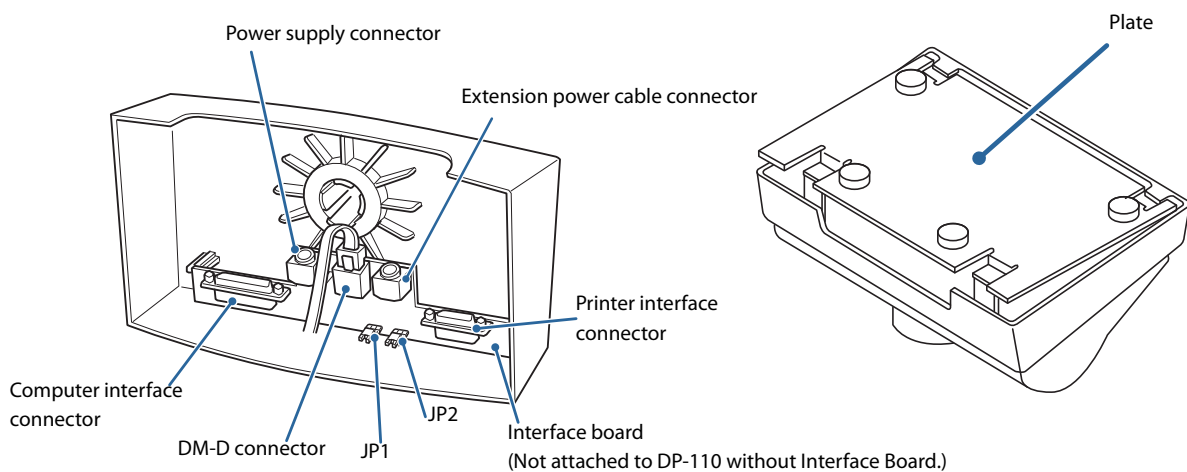
DM-D110



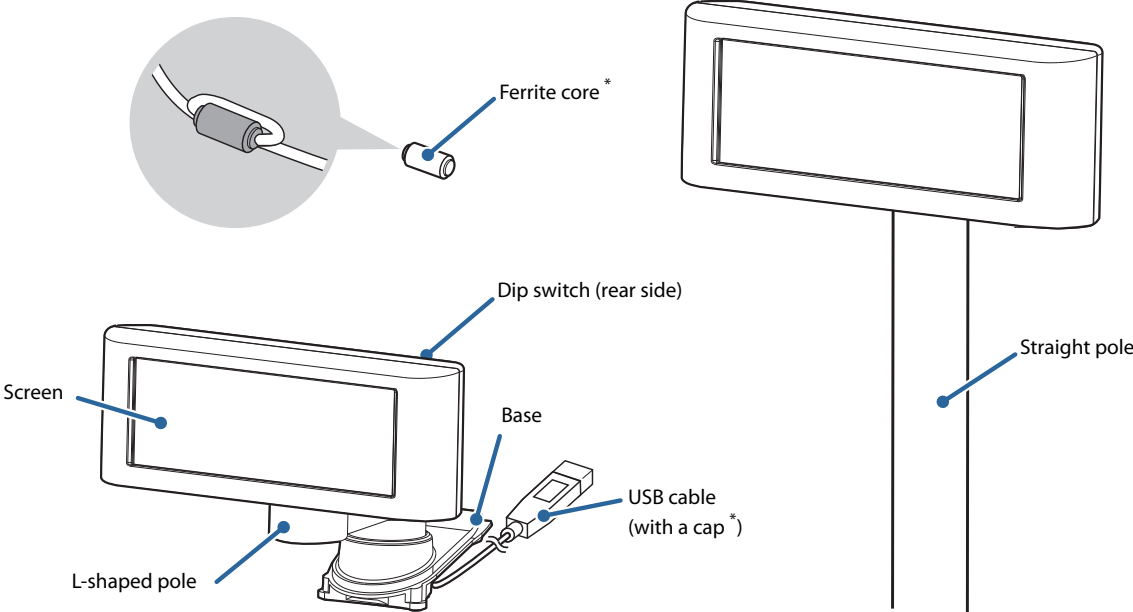
*1 For the USB model, the power switch, ferrite core, USB cable cap and RS-232 cable are not included.

*2 For the RS-232 model, the USB cable, RS-232 cable cap and ferrite core are not included.

DP-110

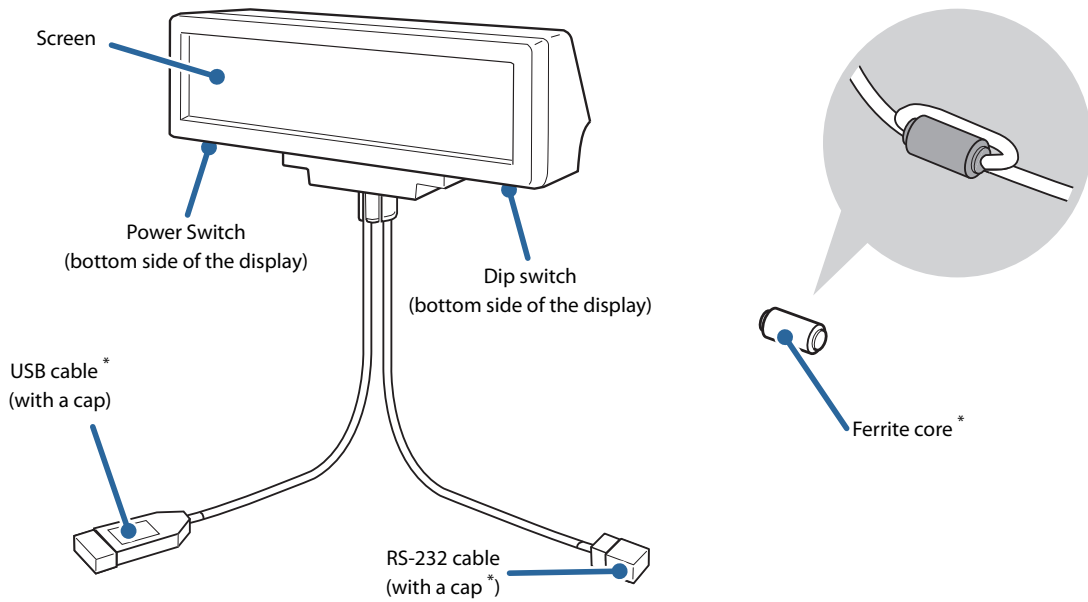


DM-D110 for TM-T88V-DT



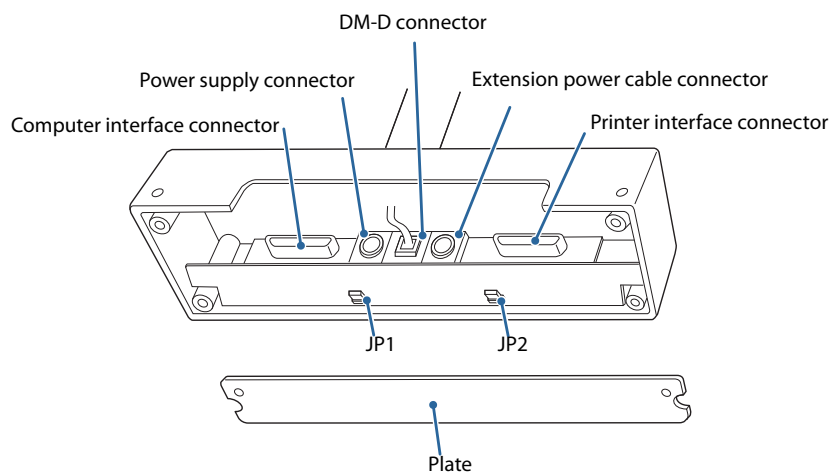
* They may not be supplied for DM-D110 for TM-T88V-DT depending on when the product is shipped.

DM-D210



* For the RS-232 model, the USB cable, RS-232 cable cap and ferrite core are not included.

DP-210

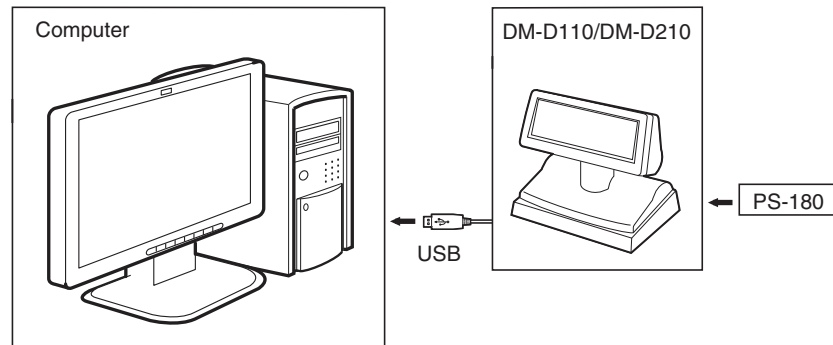


System Outline

This section explains the system connection pattern using this product.

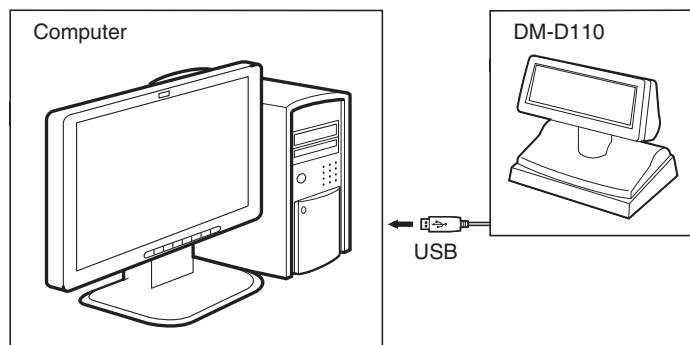
USB (Self Powered)

Connect this product's USB cable to the computer, and then connect the RS-232 cable to DP-110/DP-210.



USB (Bus Powered): Computer

Connect this product's USB cable to the computer. Power is supplied from the computer.



CAUTION

This product consumes the bus power that is close to the upper limit of the USB (USB2.0) standards. Connect to a USB bus that has sufficient power supply capability. Otherwise brightness may decline. Be careful when connecting to a laptop computer or a USB hub.

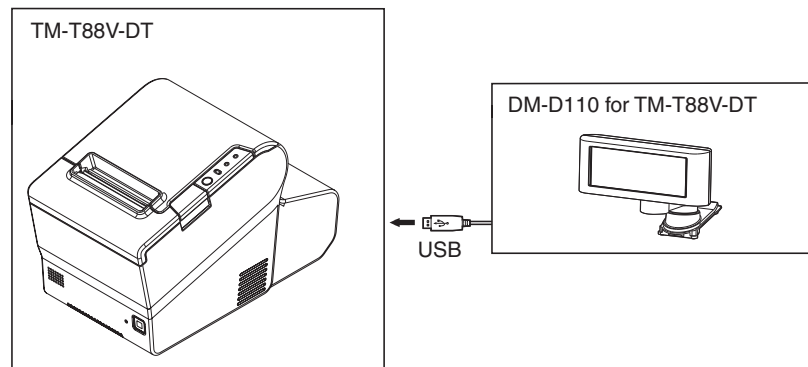
NOTE

DM-D110: You can use the RS-232/USB and USB models.
DM-D210: You cannot use it.

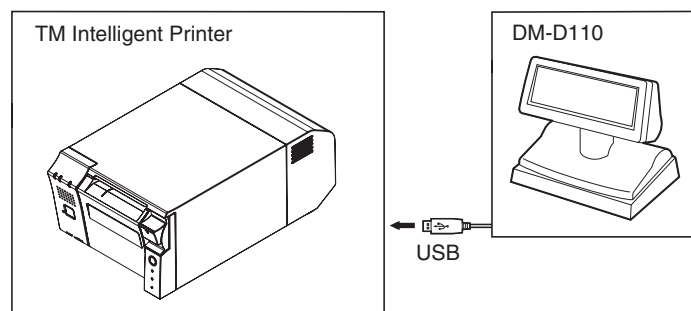
USB (Bus Powered): TM Intelligent Printer

Connect this product's USB cable to the TM intelligent printer. Power is supplied from the TM intelligent printer.

TM-T88V-DT (Attach DM-D110 for TM-T88V-DT)



TM-DT series/TM-i series

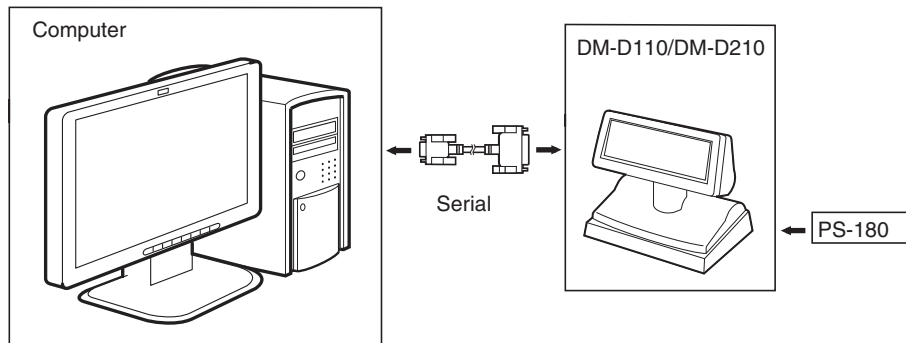


NOTE

DM-D110: You can use the RS-232/USB and USB models.
DM-D210: You cannot use it.

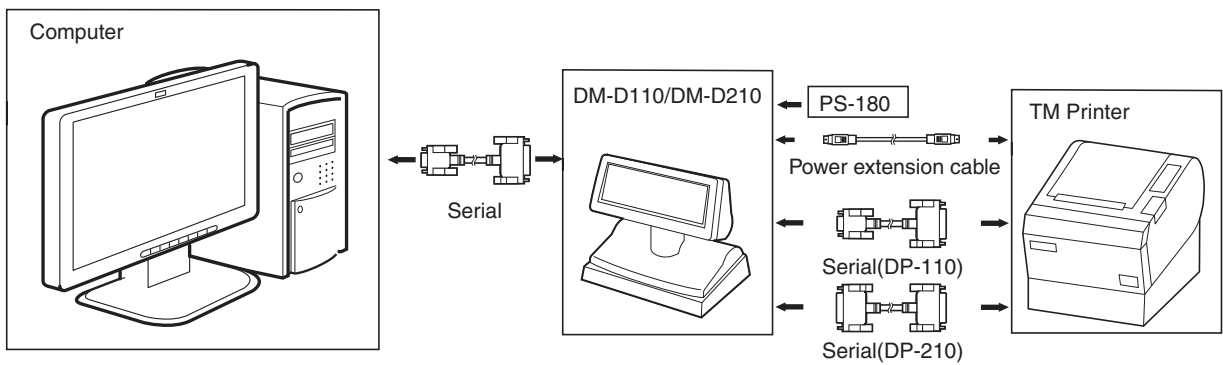
Serial (Stand-Alone)

Connect DP-110/DP-210 to the computer using a serial cable.



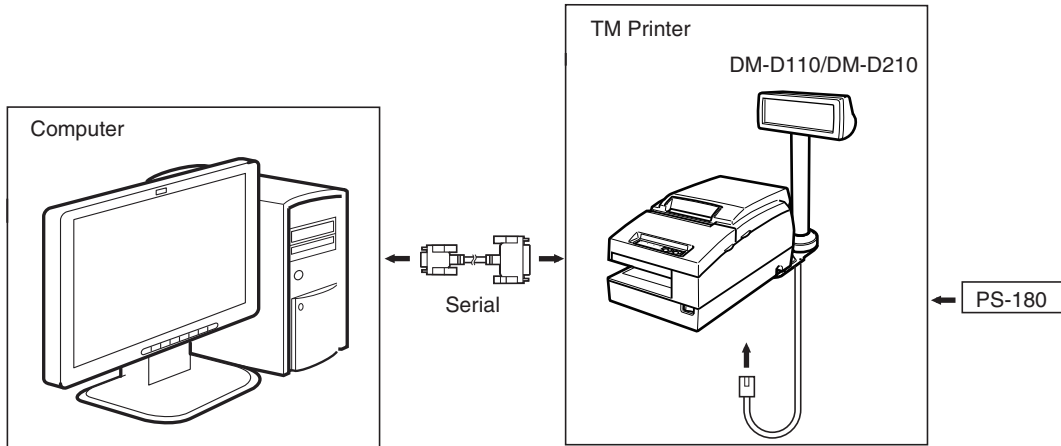
Serial (Pass-through)

Connect the serial interface TM printer to the DP-110/DP210 connected to the computer using a serial connection. The power to the TM printer is supplied from DP-110/DP-210 via a power extension cable.



Serial (Y-type)

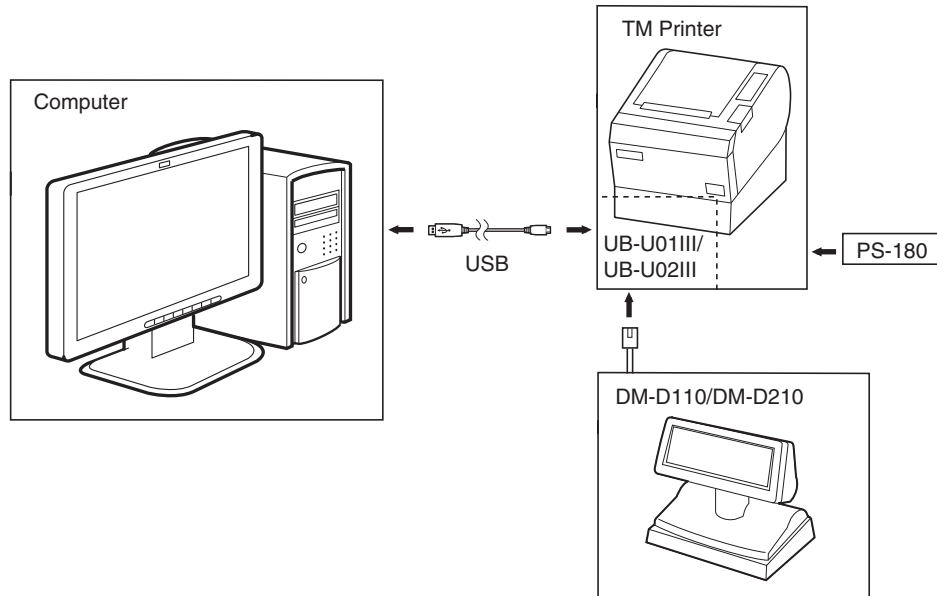
Connect this product's RS-232 cable to the TM printer DM-D connector, and then connect the TM printer and the computer using a serial cable. Power is supplied from the TM printer.



Serial (USB controlled)

Connect this product's RS-232 cable to the DM-D connector for the TM printer (to which UB-U01III or UB-U02III is attached), and then connect the TM printer and the computer using the USB cable.

Power is supplied from the TM printer.



Connection patterns by options

The following table shows the connection pattern you can use for each option.

DM-D110

Connection Pattern		Option			
		DP-110	DP-110 without Interface Board	DP-502	DP-503
USB (Self Powered)		✓	-	-	-
USB (Bus Powered)	Computer	✓	✓	-	-
	TM Intelligent Printer	-	✓	✓*	-
Serial (Stand-Alone)		✓	-	-	-
Serial (Pass-through)		✓	-	-	-
Serial (Y-type)		✓	✓	✓	✓
Serial (USB controlled)		✓	✓	✓	✓

* Attached to TM-H6000IV-DT

DM-D210

Connection Pattern		Option		
		DP-210	DP-502	DP-503
USB (Self Powered)		✓	-	-
Serial (Stand-Alone)		✓	-	-
Serial (Pass-through)		✓	-	-
Serial (Y-type)		✓	✓	✓
Serial (USB controlled)		✓	✓	✓

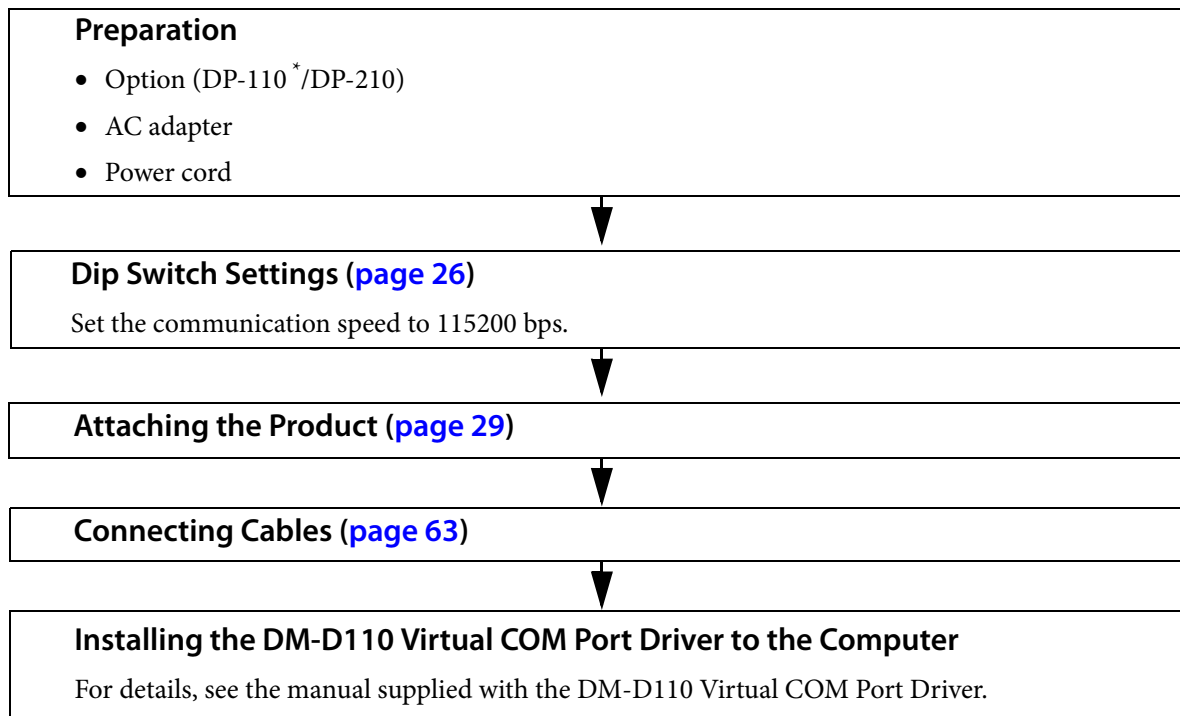
Setup

This chapter explains the installation and setting operations necessary to use this product.

Setup Flow

This section explains the setup flow by connection patterns.

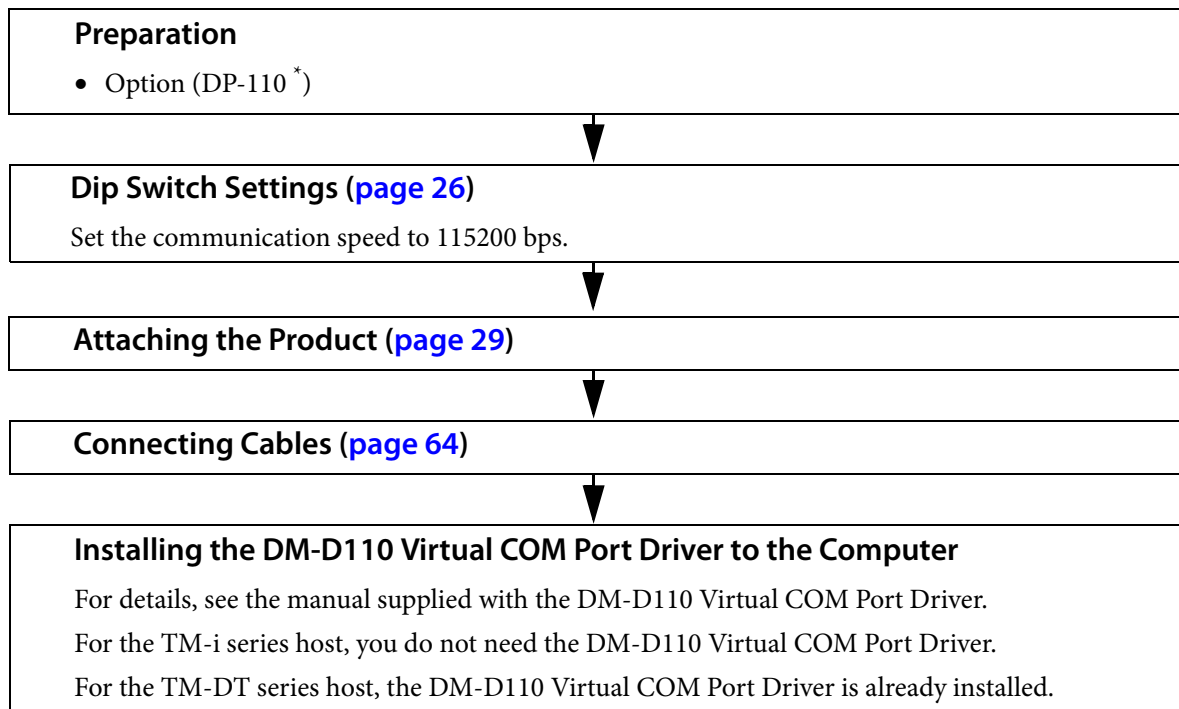
USB (Self Powered)



* When extending the length of the support, prepare the option of DP-105.

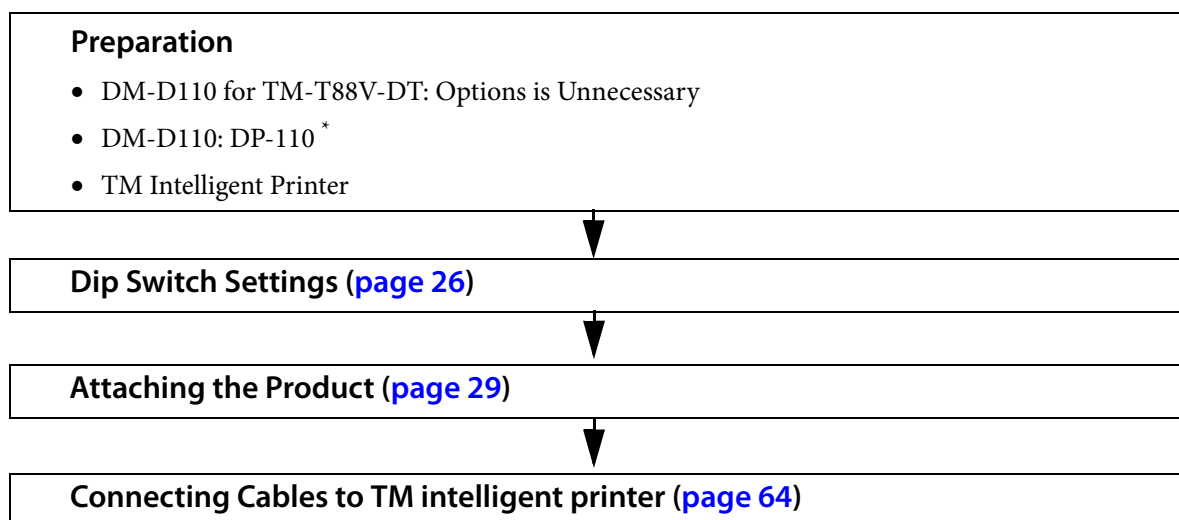
USB (Bus Powered): Computer

Power is supplied from the computer USB port.



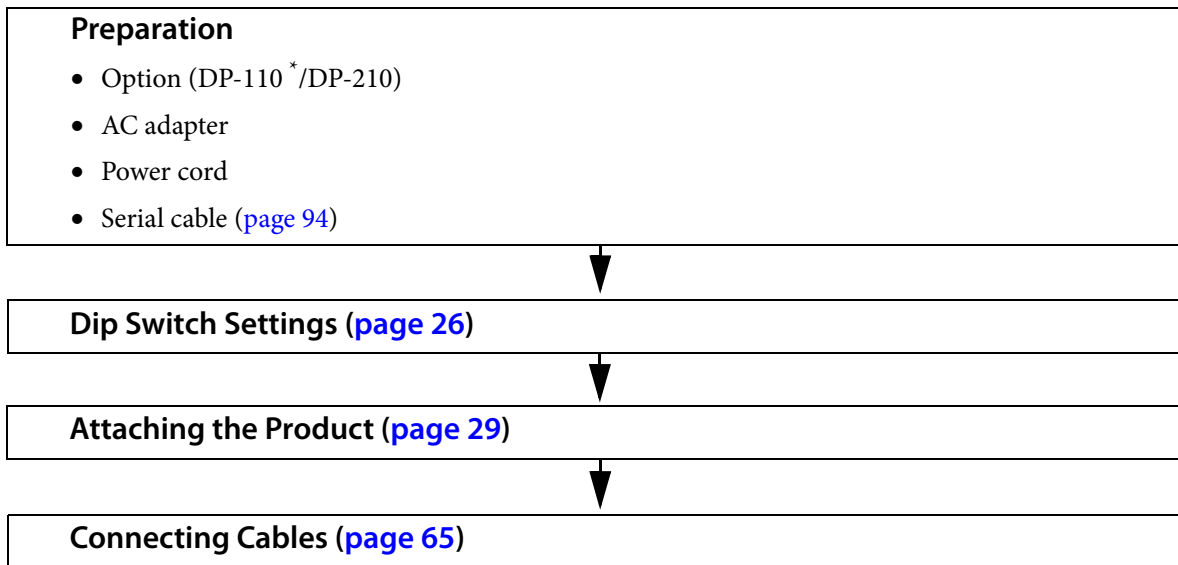
* When extending the length of the support, prepare the option of DP-105.

USB (Bus Powered): TM Intelligent Printer



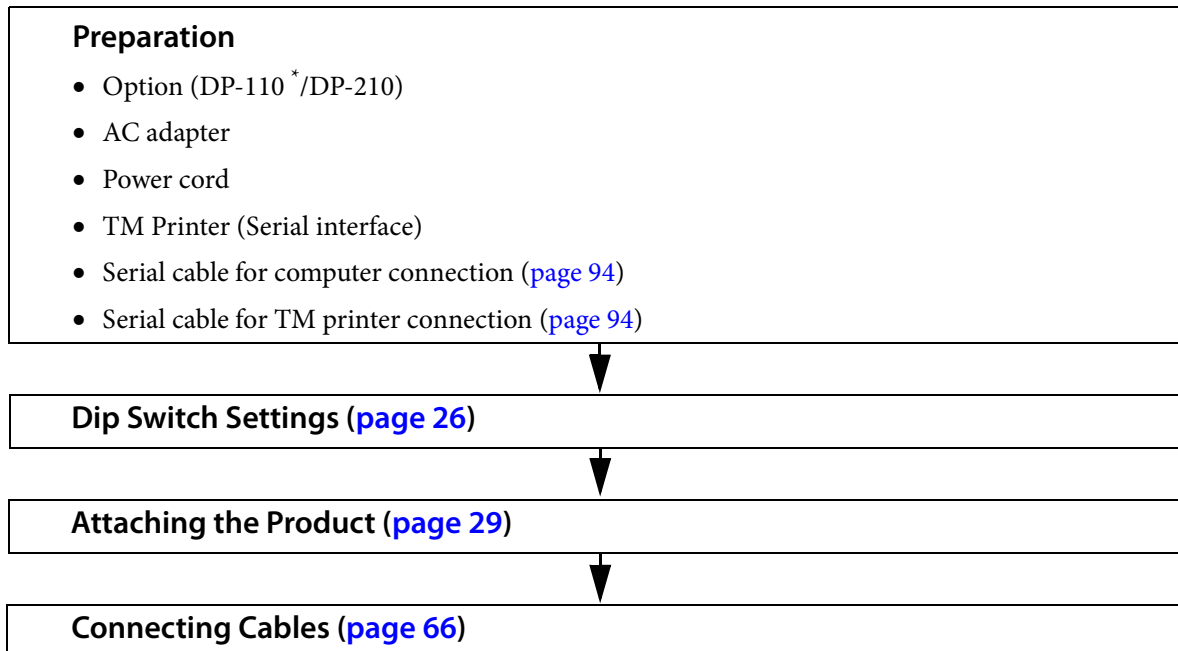
* When extending the length of the support, prepare the option of DP-105.

Serial (Stand-Alone)



* When extending the length of the support, prepare the option of DP-105.

Serial (Pass-through)



* When extending the length of the support, prepare the option of DP-105.

Serial (Y-type)

Preparation

- DM-D110: Select from the following options
 - DP-110 *
 - DP-502
 - DP-503
- DM-D210: Select from the following options
 - DP-210
 - DP-502
 - DP-503
- TM Printer (with DM-D connector, Serial interface)
- AC adapter
- Power cord



Dip Switch Settings ([page 26](#))



Attaching the Product ([page 29](#))



Connecting Cables ([page 67](#))

* When extending the length of the support, prepare the option of DP-105.

Serial (USB controlled)

Preparation

- DM-D110: Select from the following options
 - DP-110 *
 - DP-502
 - DP-503
- DM-D210: Select from the following options
 - DP-210
 - DP-502
 - DP-503
- TM Printer (with UB-U01III or UB-U02III)
- AC adapter
- Power cord

Dip Switch Settings ([page 26](#))

Set the communication speed to 19200 bps.

Attaching the Product ([page 29](#))

Connecting Cables ([page 68](#))

* When extending the length of the support, prepare the option of DP-105.

Dip Switch Settings

Use the dip switch to set the communication conditions and whether or not to perform self test when the power is turned on.

Settings by connection patterns

Set the dip switch for each connection pattern.

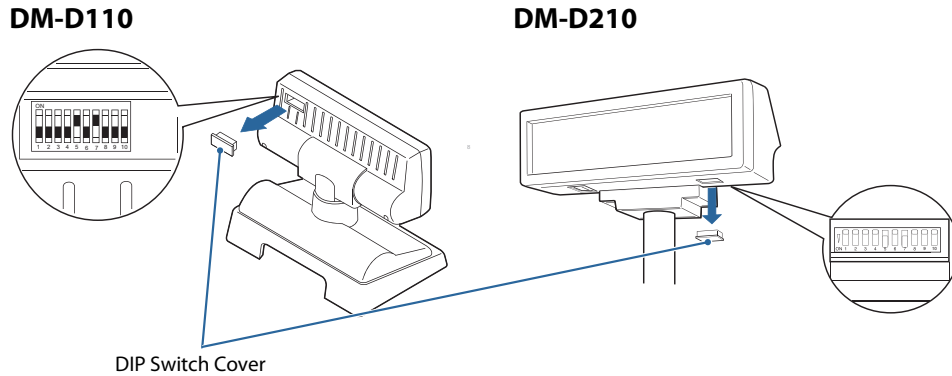
Connection Pattern	Settings
USB (Self Powered/Bus Powered)	When using the followings, set the communication speed to 115200 bps. <ul style="list-style-type: none">• EPSON OPOS ADK• EPSON OPOS ADK for .NET• EPSON JavaPOS ADK
Serial (Stand-Alone)	Match the serial communication settings for the computer and this product.
Serial (Pass-through)	Match the serial communication settings for the computer, printer and this product.
Serial (Y-type)	Match the serial communication settings for the computer, printer and this product.
Serial (USB controlled)	Set the communication speed to 19200 bps.
TM Intelligent Printer (ePOS-Device)	Match the serial communication settings for the TM intelligent printer's EPSON TMNet WebConfig and this product.
TM-DT Series (Windows)	Match the serial communication settings for the TM-DT Series and this product.

Setting method

CAUTION

Do not remove the DIP switch cover until after turning the power off. Removing the cover while the power is turned on may damage the device.

- 1 Turn off the power of the this product and system, and remove cable.
- 2 Remove the DIP switch cover.



- 3 Change each setting of the switches
Refer to "DIP Switch 1 Functions" on page 28 for the function of DIP switch.
- 4 Close the DIP switch, Turn on the power of the this product and system.

DIP Switch 1 Functions

The following explains the DIP switch functions.

DSW1 No.	Function	ON	OFF	Default Setting
1-1	Received Error Data Ignore	Ignore	"?" Display	OFF
1-2	Receive Data Length	7 bit	8 bit	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				OFF
1-8	Execute Self-Test ^{*1}	Yes	No	OFF
1-9 ^{*2}	Not used	Fixed to OFF		
1-10 ^{*2}				

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

*2 This is not available for the specifications model that has the dip switch with 8 poles.

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 Settings when connecting using a serial (USB controlled)

Attaching the Product

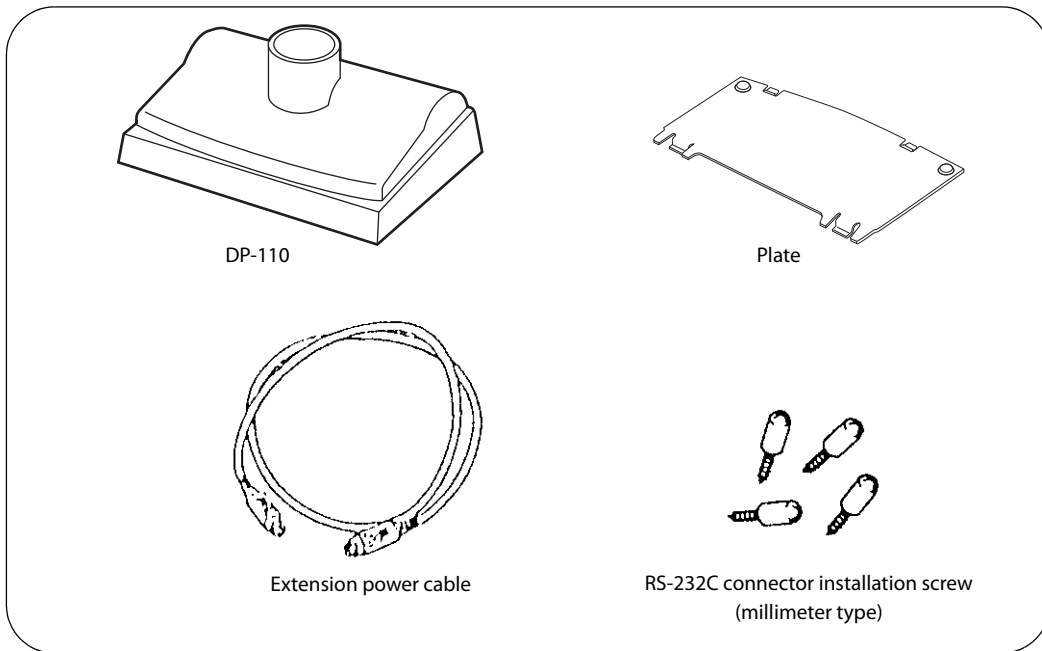
This section explains how to attaching this product and the options.

Model	Attaching Methods	Page
DP-110	Attach DM-D110 to the optional DP-110.	page 30
DP-210	Attach DM-D210 to the optional DP-210.	page 34
DP-502	Use the optional DP-502 to attach DM-D110/DM-D210 to TM-H6000IV/TM-U675.	page 37
	Use the optional DP-502 to attach DM-D110 to TM-H6000IV-DT.	page 43
	Use the optional DP-502 to attach DM-D110/DM-D210 to TM-U950.	page 49
	Use the optional DP-502 to attach DM-D110/DM-D210 to the counter.	page 52
DP-503	Use the optional DP-503 to attach DM-D110/DM-D210 to TM-H5000II.	page 55
DM-D110 for TM-T88V-DT	Attach DM-D110 for TM-T88V-DT to TM-T88V-DT.	page 57

DP-110

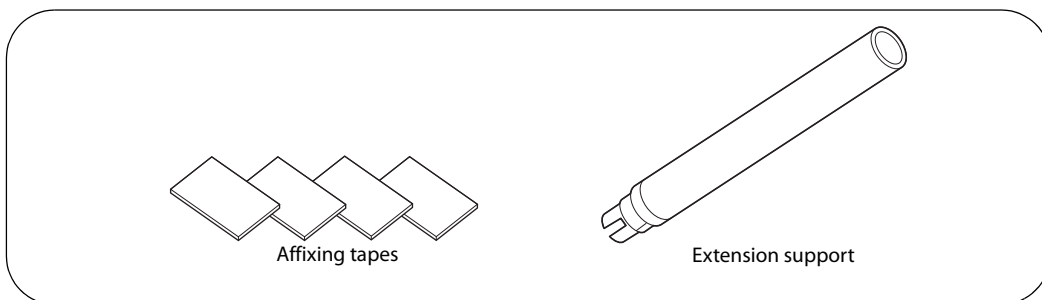
Checking the accessories

Check the DP-110 parts.



Checking the accessories of DP-105

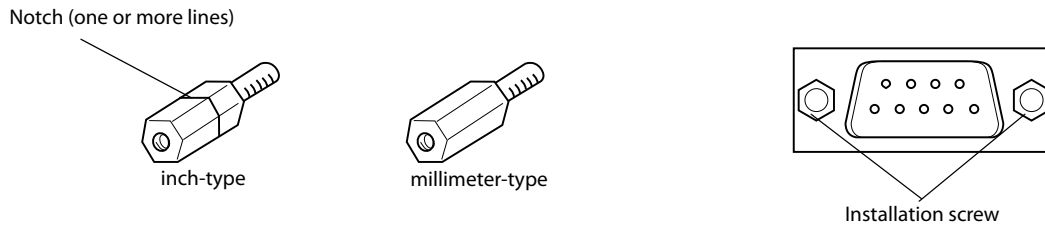
Check the DP-105 parts.



Setting the DP-110

Connector installation screw

Inch-type hexagonal lock screws are installed in the connector for serial cable connection of DP-110. If millimeter-type lock screws are needed, use the millimeter-type lock screws of the accessory.



Jumper setting

Set the jumpers as follows:

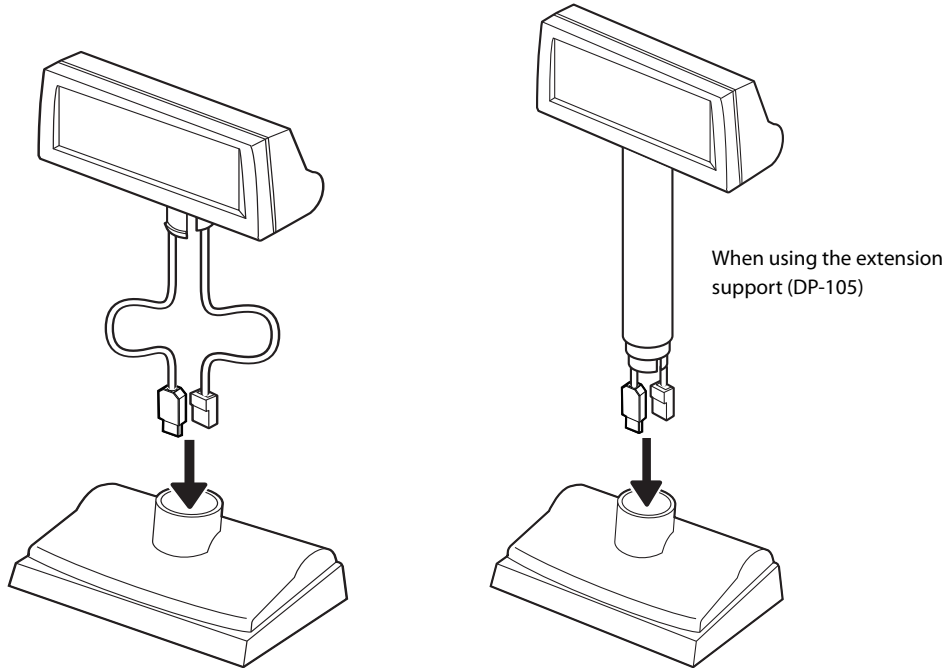
JP1	JP2	Description
1-2	1-2	For connecting both the TM printer and the DP-110. (Default setting)
2-3	2-3	Set this when using a standalone connection.

Installing to the DP-110

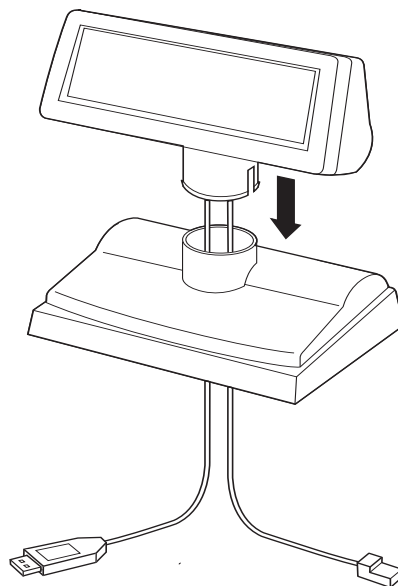
NOTE

Because the illustration used here is for the RS-232/USB model, there are 2 cables. The USB model and RS-232 model have 1 cable.

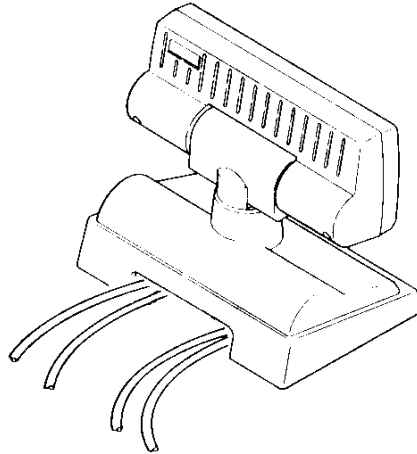
- 1** Pass the cable for the DM-D110 through the DP-110.
When extending the length of the DP110, attach the extension support (DP-105) to the DP-110.



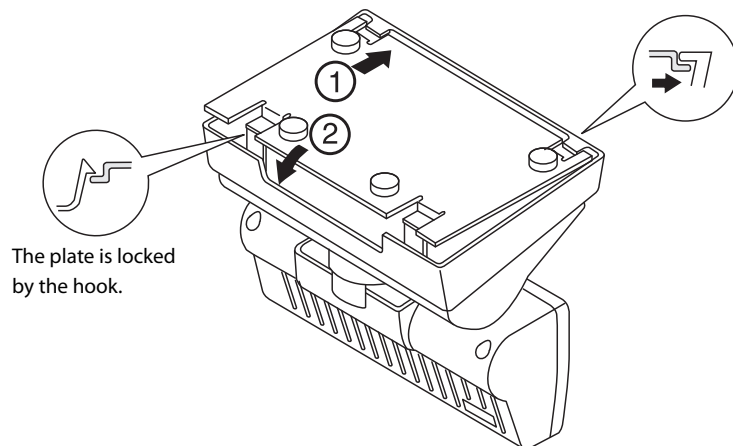
- 2** Insert the tab on the DM-D110 (or the extension support) into the hole on the DP-110 until you feel it click.



- 3** Connect the cable to DP-110, computer, and TM printer to match the constructed environment. (See "Connecting" on page 63)
- 4** Arrange the cables as shown below. Put the cables inside the DP-110. For the RS-232/USB model, the end of the connector of the unused cable should be capped, and then bundled to be stored inside DP-110.



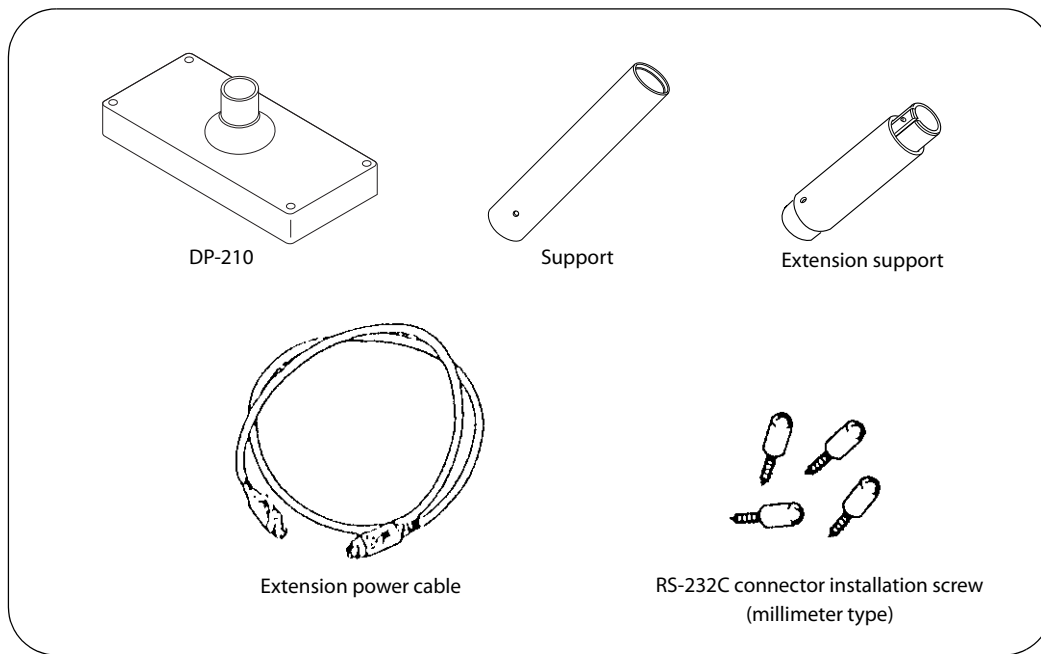
- 5** Attach the base plate to the DP-110 following the numbered arrows shown below. Then push the base plate until it is locked by the hook on the DP-110.



- 6** When the extension support (DP-105) is used, attach affixing tapes to the four corners of the plate to keep the unit from falling down.
- 7** When using the AC adapter, insert the power cord to the AC adapter, and then insert the power cord to the outlet.

Checking the accessories

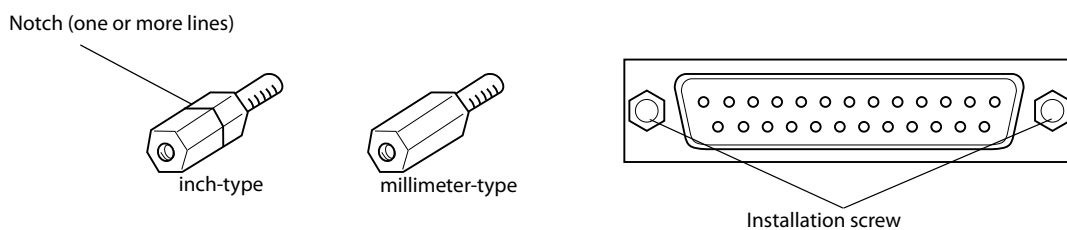
Check the DP-210 parts.



Setting the DP-210

Connector installation screw

Inch-type hexagonal lock screws are installed in the connector for serial cable connection of DP-210. If millimeter-type lock screws are needed, use the millimeter-type lock screws of the accessory.



Jumper setting

Set the jumpers as follows:

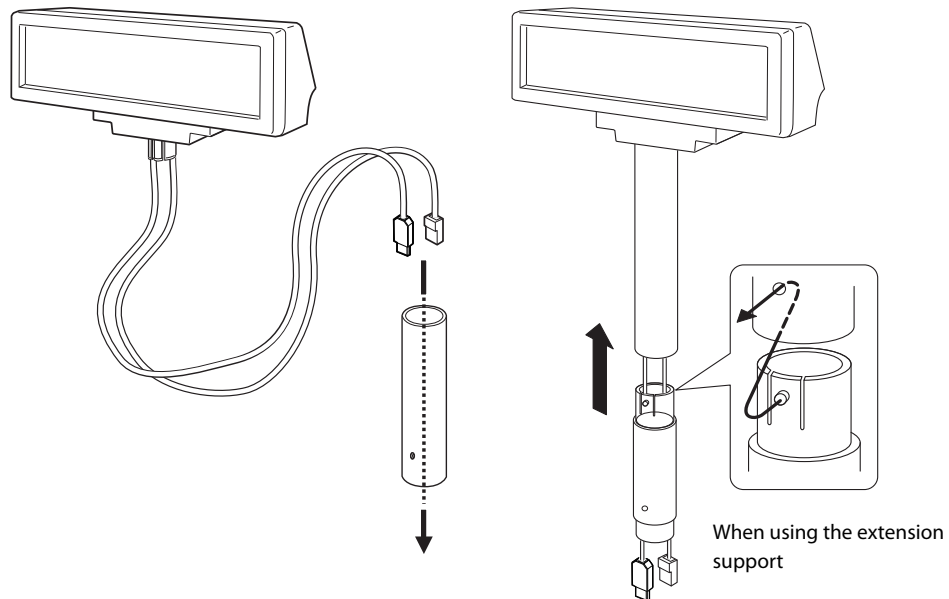
JP1	JP2	Description
1-2	1-2	For connecting both the TM printer and the DP-210. (Default setting)
2-3	2-3	Set this when using a standalone connection.

Installing to the DP-210

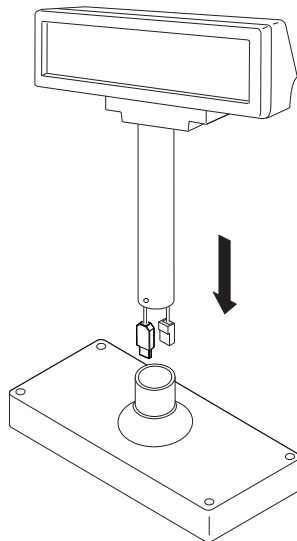
NOTE

Because the illustration used here is for the RS-232/USB model, there are 2 cables. The RS-232 model have 1 cable.

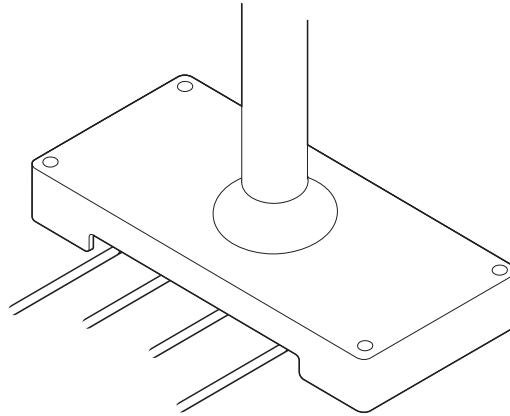
- 1 Pass the cable for the DM-D210 through the DP-210.
When extending the length of the DP-210, attach the extension support to the DP-210.



- 2 Insert the tab on the DM-D210 (or the extension support) into the hole on the DP-210 until you feel it click.



- 3** Connect the cable to DP-210, computer, and TM printer to match the constructed environment. (See ["Connecting" on page 63](#))
- 4** Arrange the cables as shown below. Put the cables inside the DP-210. For the RS-232/USB model, the end of the connector of the unused cable should be capped, and then bundled to be stored inside DP-110.

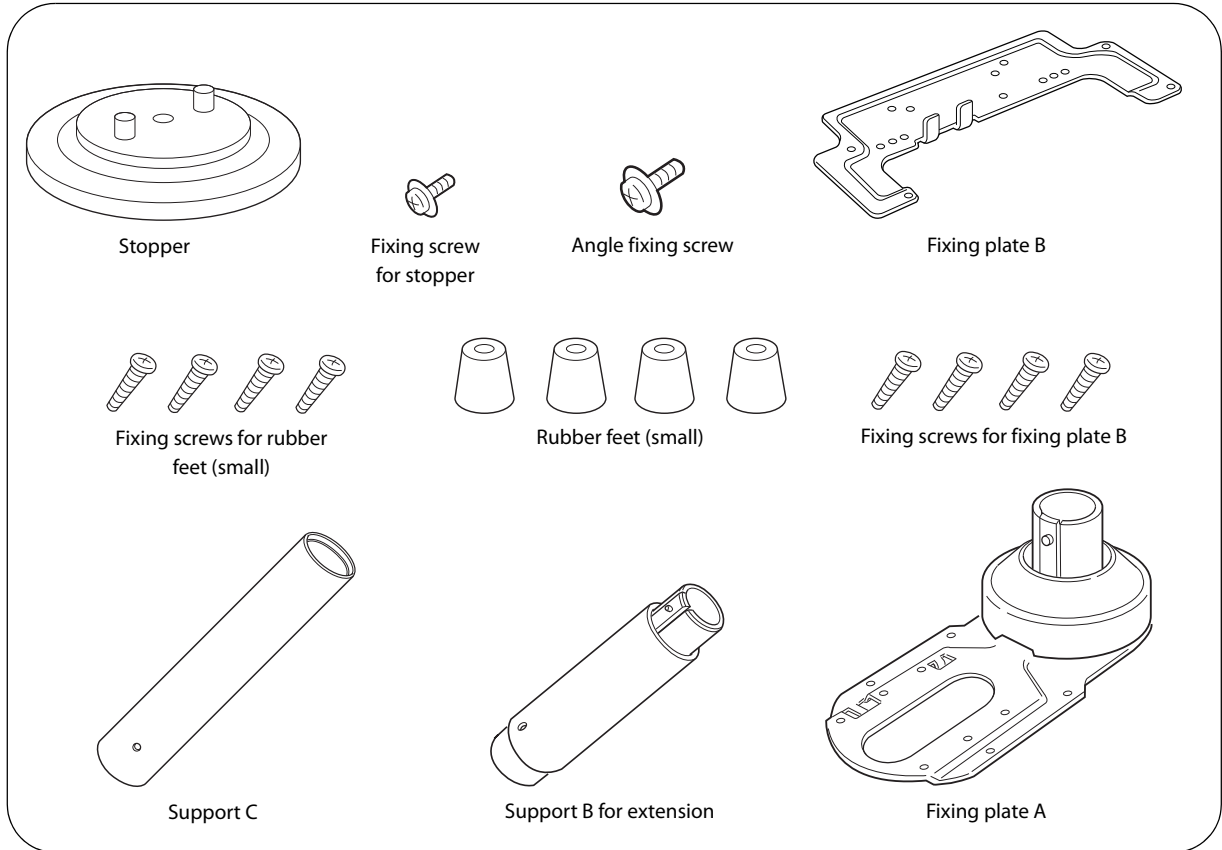


- 5** When using the AC adapter, insert the power cord to the AC adapter, and then insert the power cord to the outlet.

DP-502 (TM-H6000IV/TM-U675)

Checking the accessories

Check the DP-502 parts. When attaching to the TM-H6000IV/TM-U675, use the following parts.

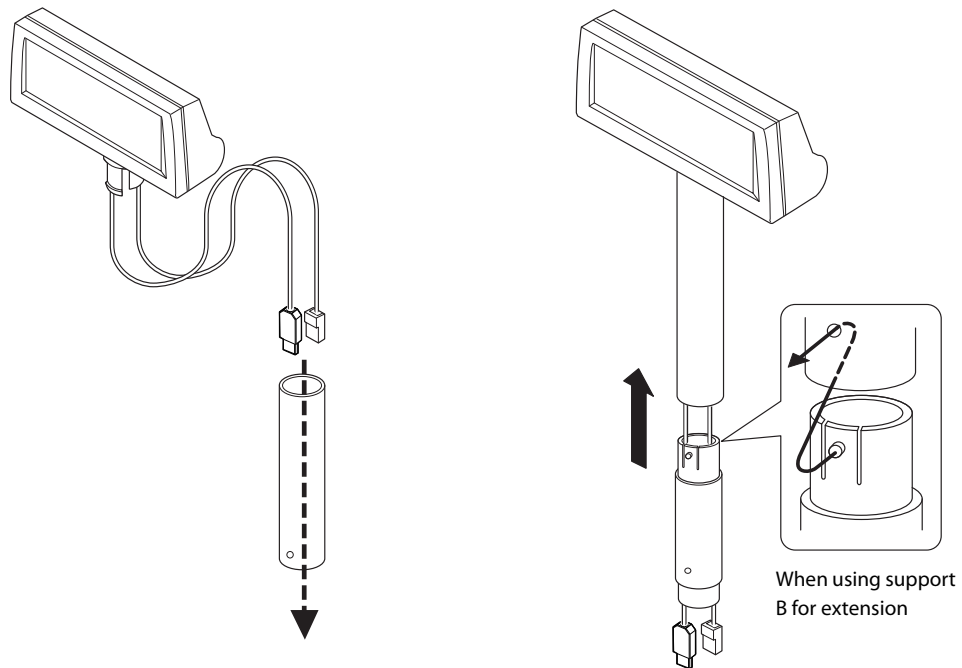


Installing to the TM-H6000IV/TM-U675

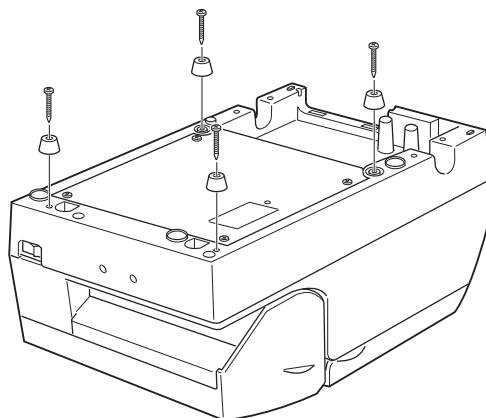
NOTE

- The illustrations used here are for DM-D110, but you can still use them as your reference for DM-D210.
- Because the illustration used here is for the RS-232/USB model, there are 2 cables. The USB model and RS-232 model have 1 cable.

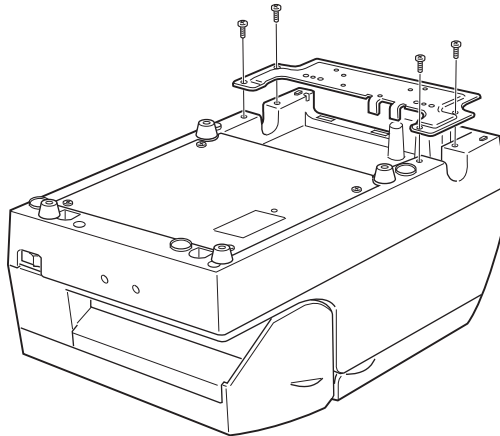
- 1** Pass the cable for the this product through support C, and attach support C to the this product. When using support B for extension, insert the tab on support B into the hole on support C until you feel it click.



- 2** Attach the rubber feet to the printer.

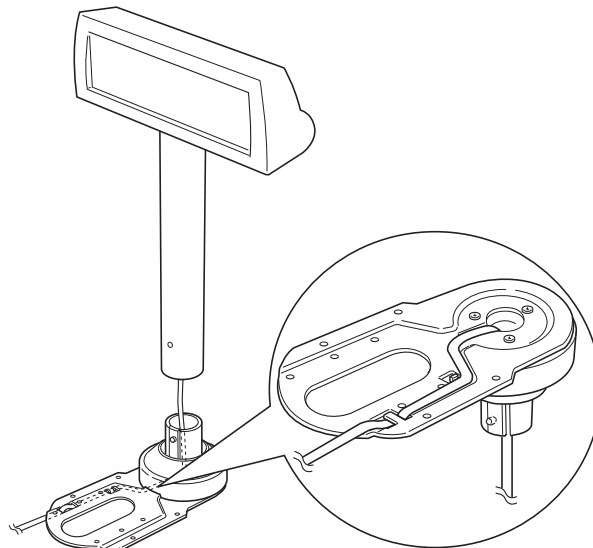


3 Attach fixing plate B to the printer.



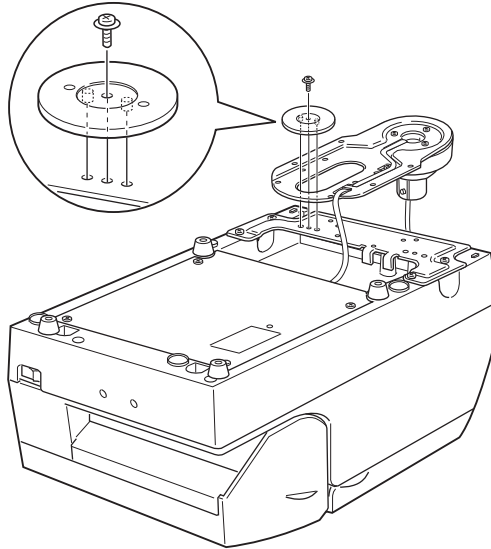
4 Pass the cable for this product through the hole on fixing plate A, and fix the cable at the bottom as shown below.

For the RS-232/USB model, the end of the connector of the unused cable should be capped, and then bundled to be stored inside support.



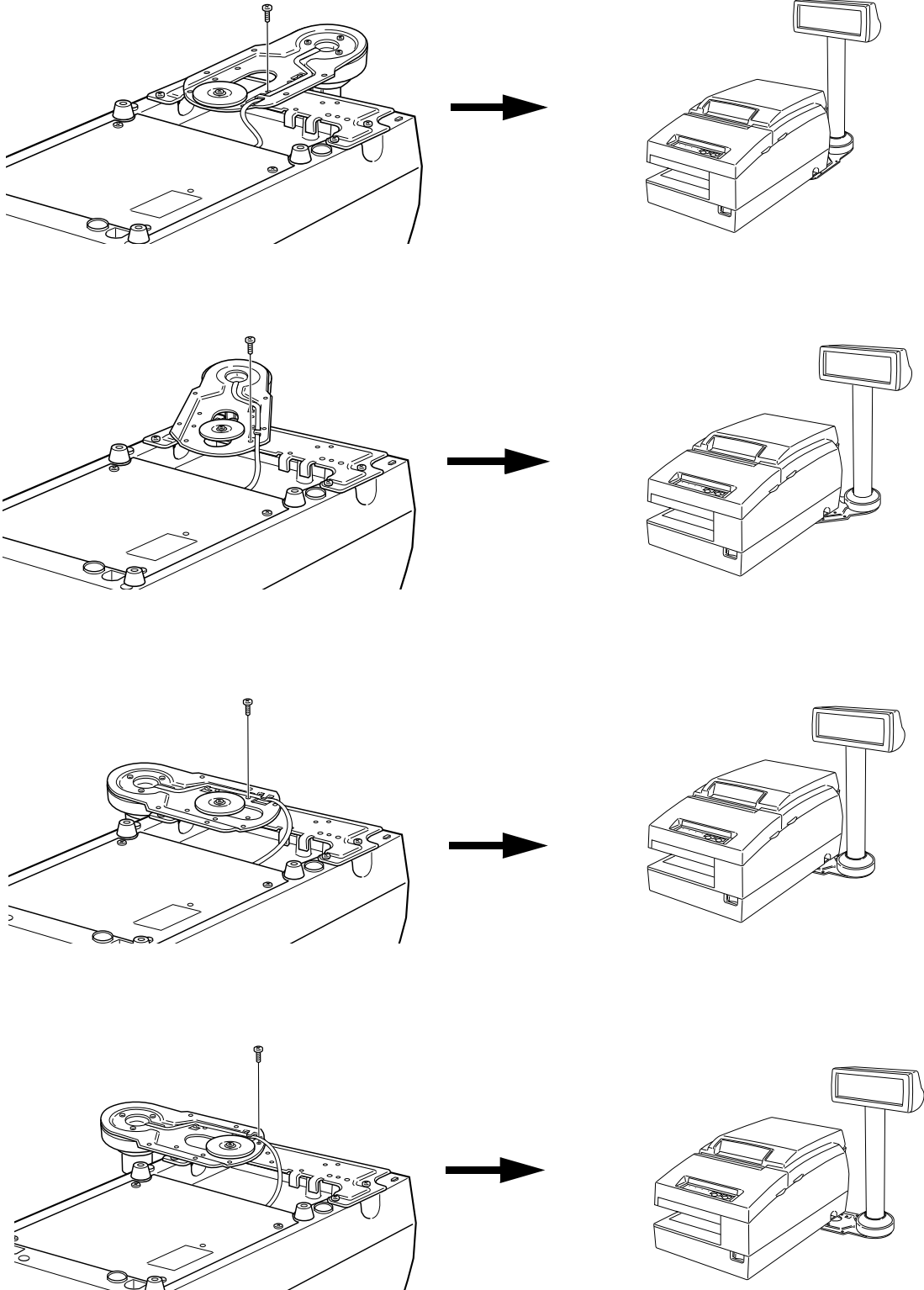
- 5** Attach fixing plate A to the TM printer using the stopper. When you attach the stopper, insert the projections on the stopper into the holes of fixing plate B. Fixing plate A can be attached on either side of the printer.

(The illustration below shows fixing plate A attached to the right side of the printer.)

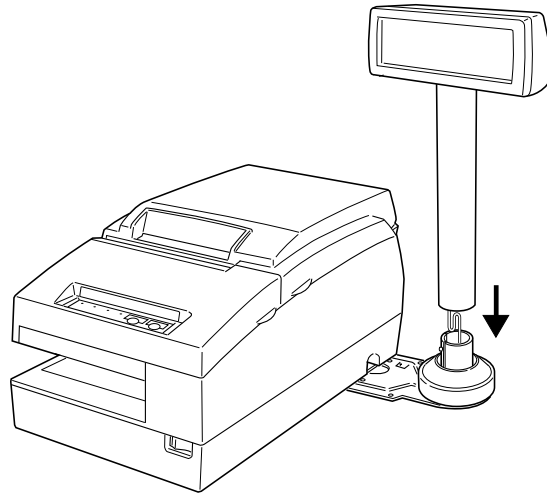


- 6** The horizontal rotation mechanism of fixing plate A can be adjusted. To secure the location of the display, set fixing plate A to either one of the following four positions and secure it with the angle fixing screw.

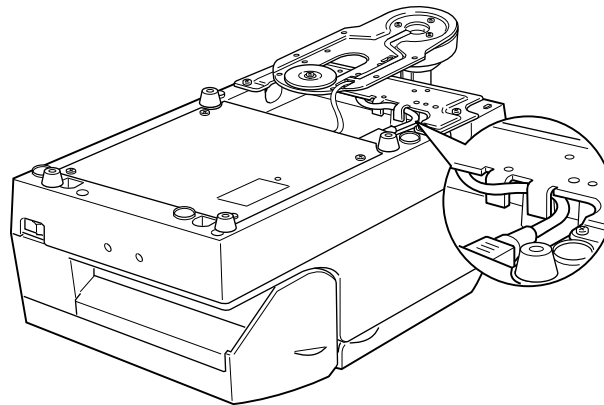
The paper roll cover may not open if the position of the display is incorrect. Before securing the position of the display, make sure that you can open the paper roll cover.



- 7** Store any excess cable in the support and attach the this product to fixing plate A.



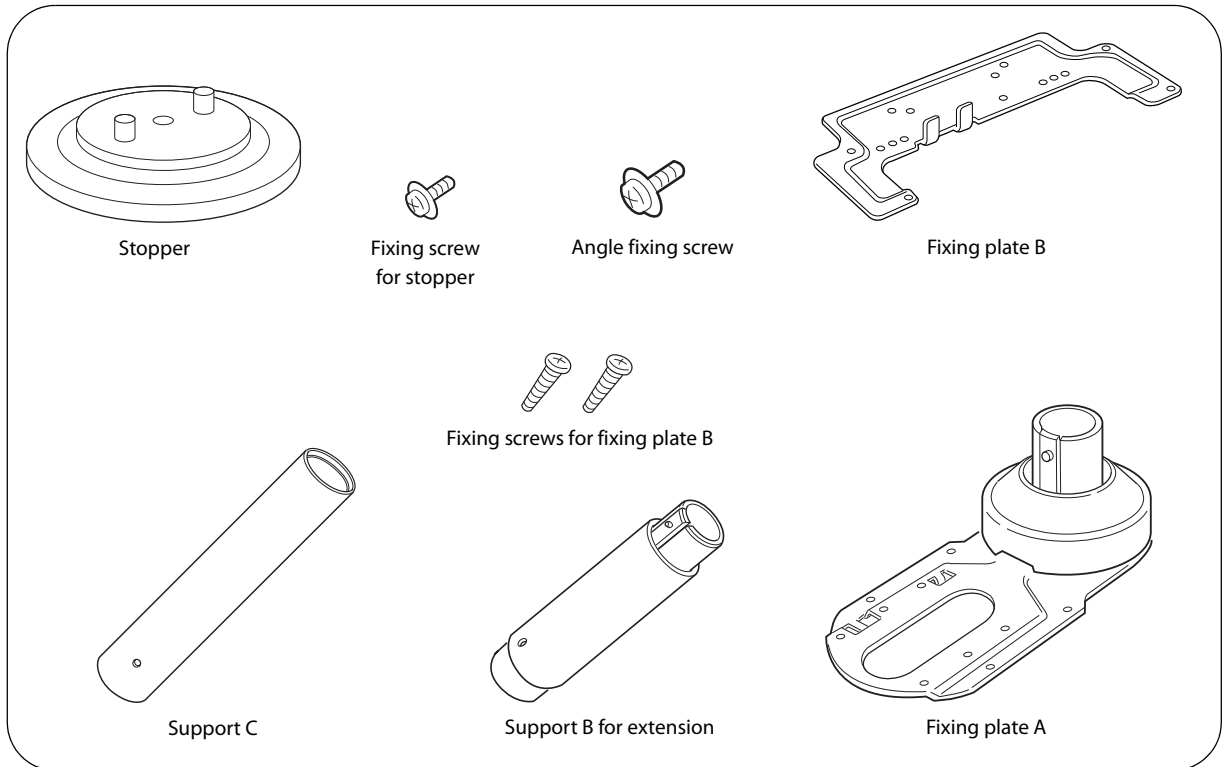
- 8** Connect the power cable of the printer. To avoid disconnection, hook the cable on the tabs on fixing plate B, as shown below.



DP-502 (TM-H6000IV-DT)

Checking the accessories

Check the DP-502 parts. When attaching to the TM-H6000IV-DT, use the following parts.



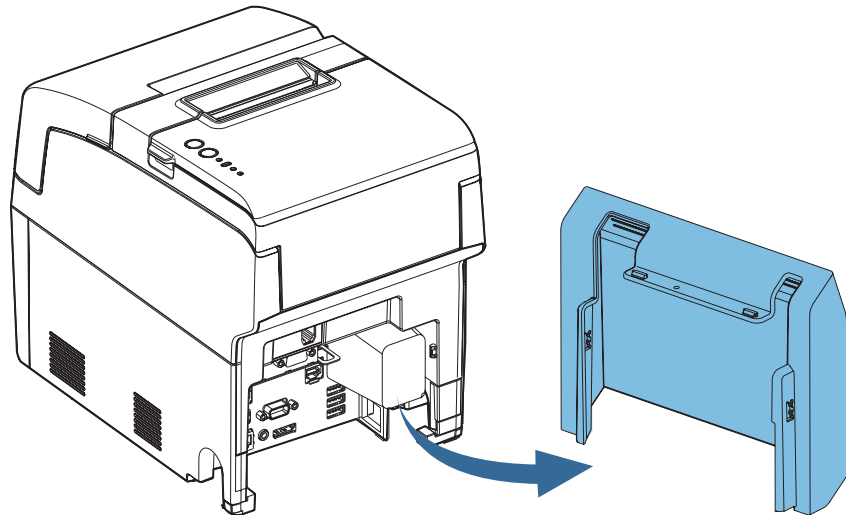
Installing to the TM-H6000IV-DT

Follow the instructions to install the DM-D110 (USB model) on the TM-H6000IV-DT using the exclusive DP-502.

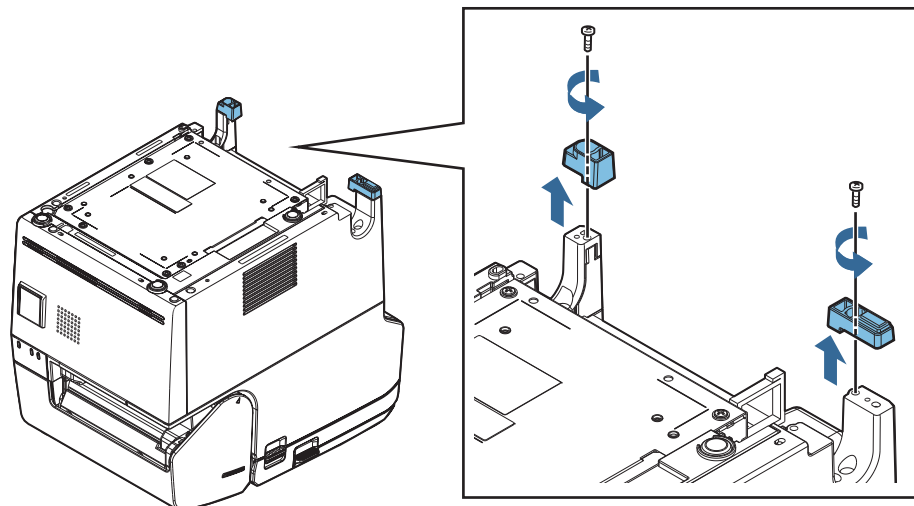
NOTE

Because the illustration used here is for the RS-232/USB model, there are 2 cables. The USB model and RS-232 model have 1 cable.

- 1 Remove the connector cover of the TM-H6000IV-DT.**



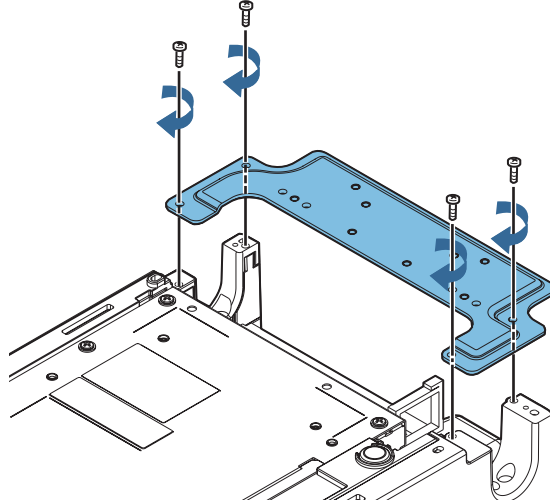
- 2 Remove the two feet.**



3 Use the 2 screws removed in Step 2 and the 2 included long screws.

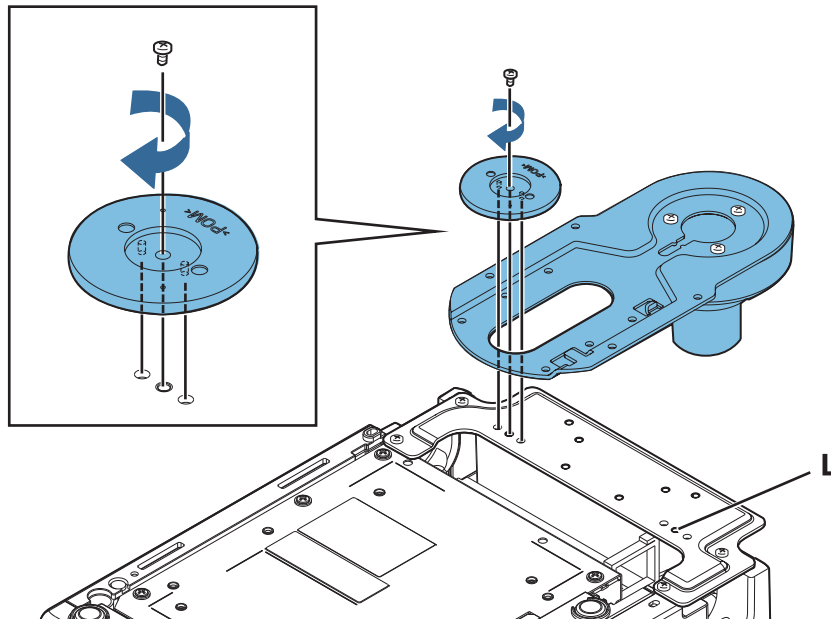
CAUTION

Be sure not to connect the cables before attaching the plate. Otherwise, the cables can be damaged.

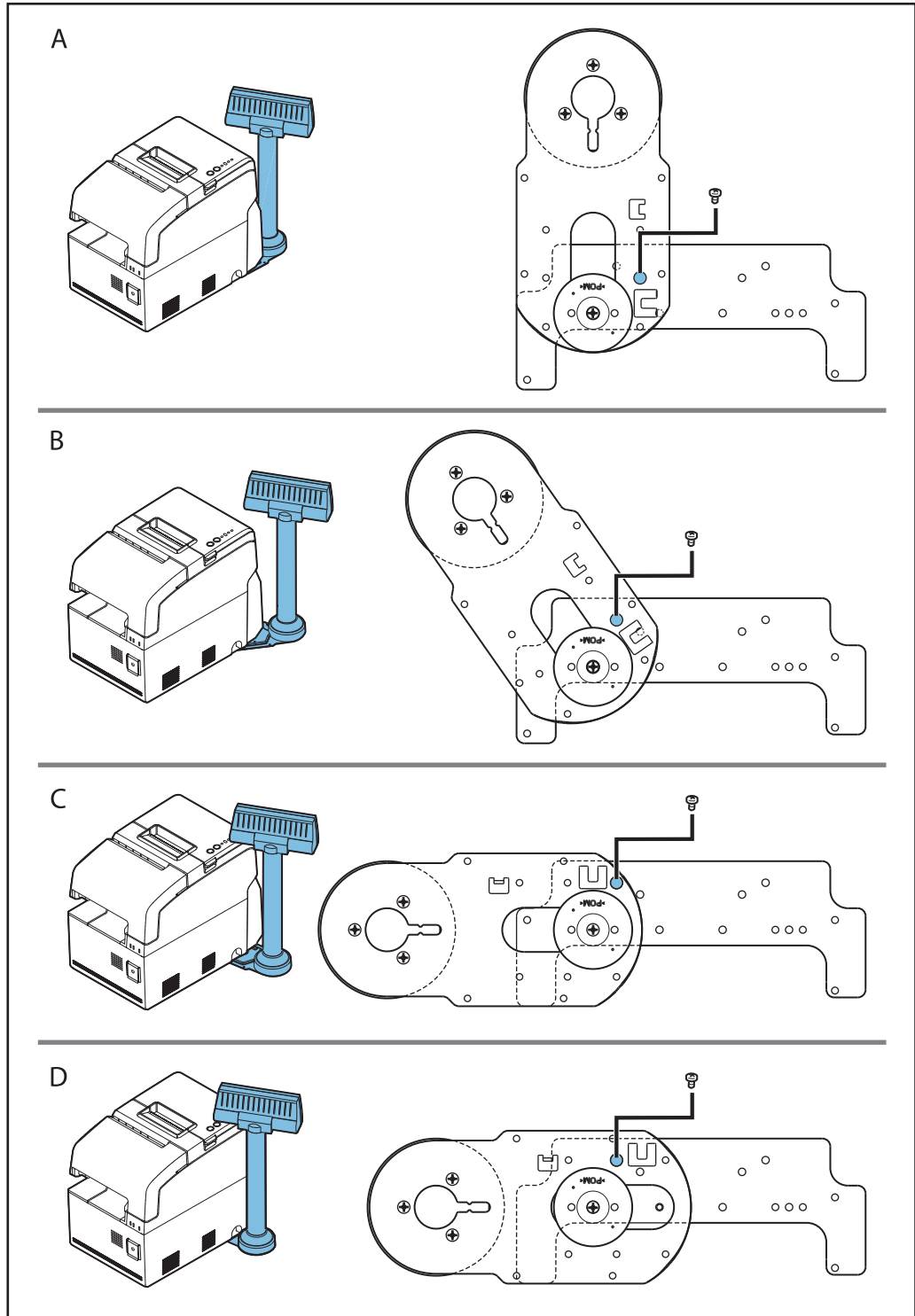


2

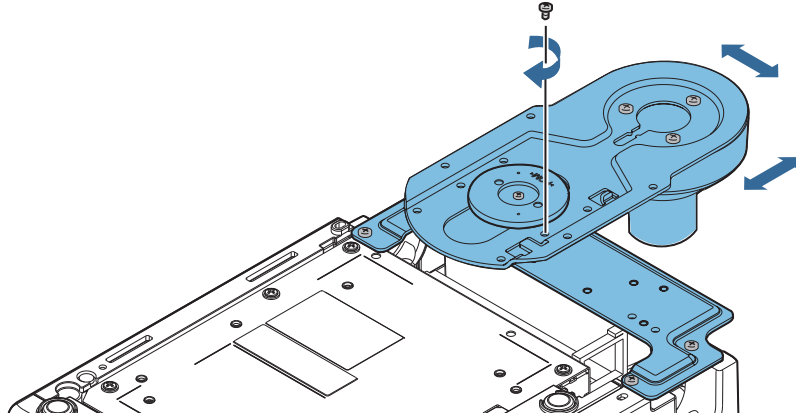
4 The illustration shows how to install this product on the right side of the TM-H6000IV-DT. If you install it on the left side, use screw hole L.



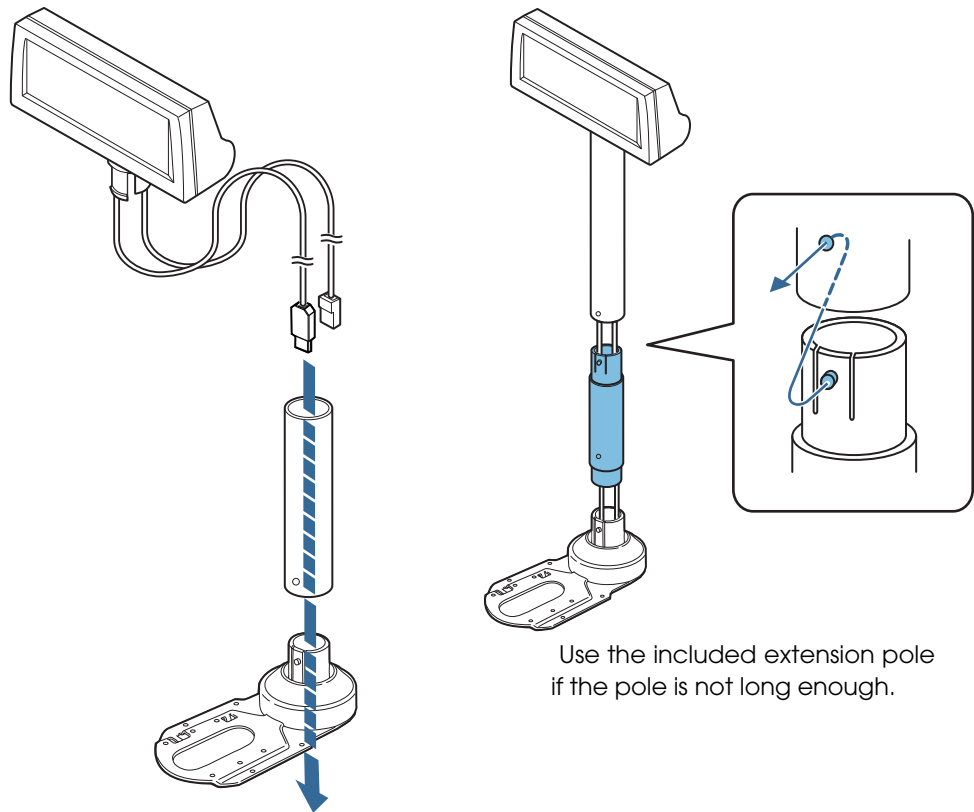
5 Select the position where the this product is to be installed from A, B, C, or D.



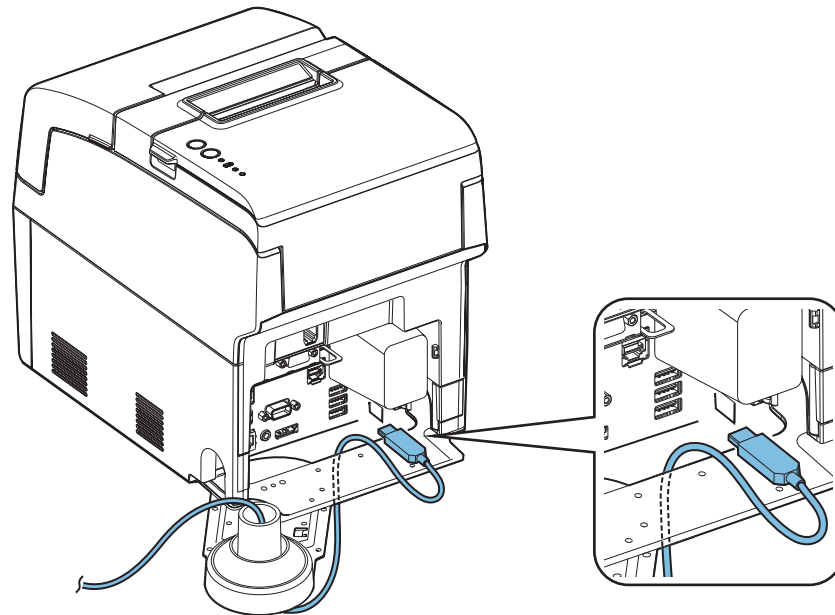
- 6** Move the attached part in Step 4 so that screw holes indicated in the illustration are aligned with each other, according to the position you selected. Fix it with the included screw.



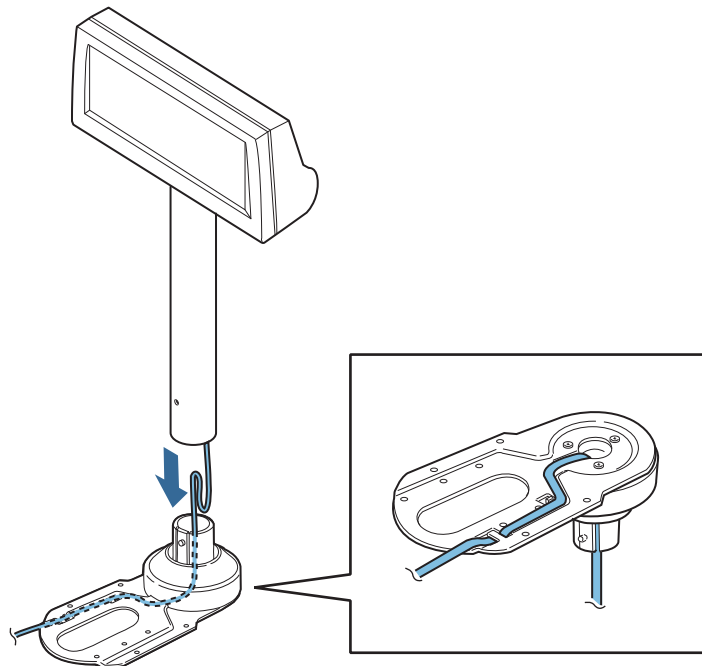
- 7** Use the included extension pole if the pole is not long enough.



- 8** Put the USB cable through behind TM-H6000IV-DT as shown in the illustration.

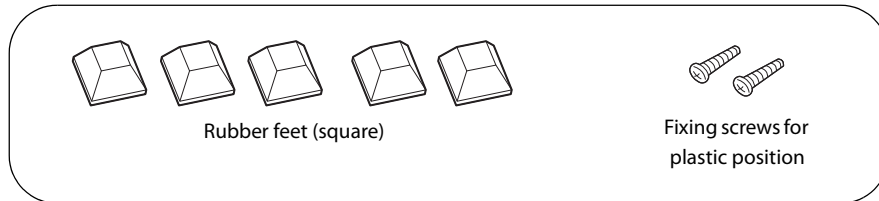
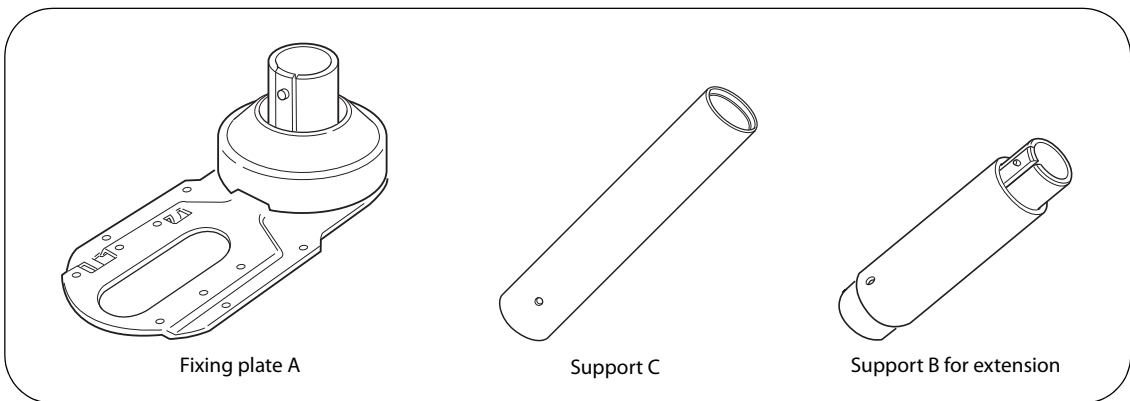


- 9** Install the this product to the attachment base.
For the RS-232/USB model, the end of the connector of the unused cable should be capped, and then bundled to be stored inside support.



DP-502 (TM-U950)**Checking the accessories**

Check the DP-502 parts. When attaching to the TM-U950, use the following parts.

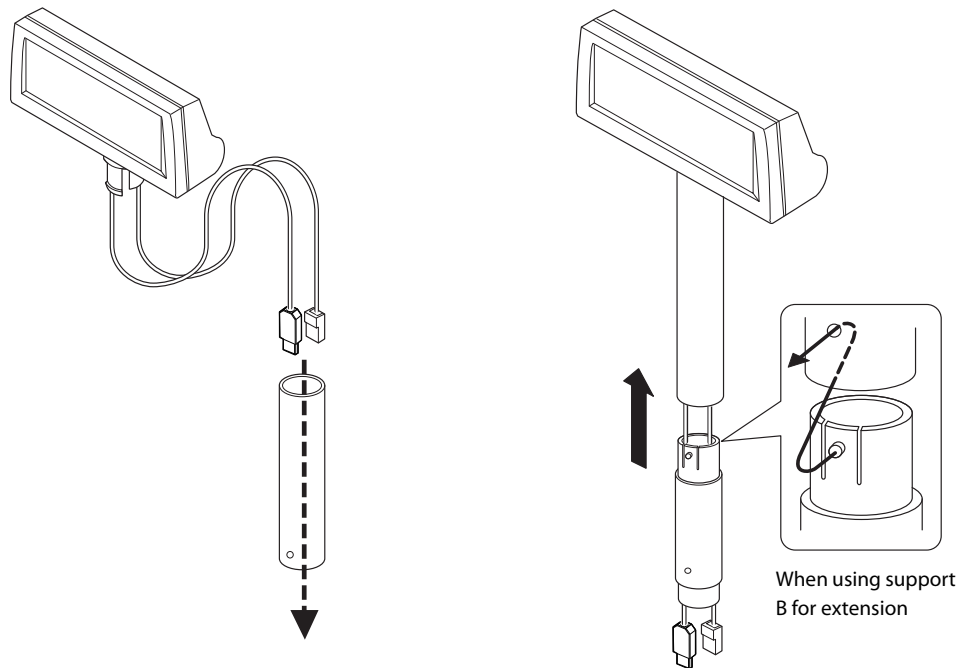
[TM-U950 parts]**[DP-502 parts]**

Installing to the TM-U950

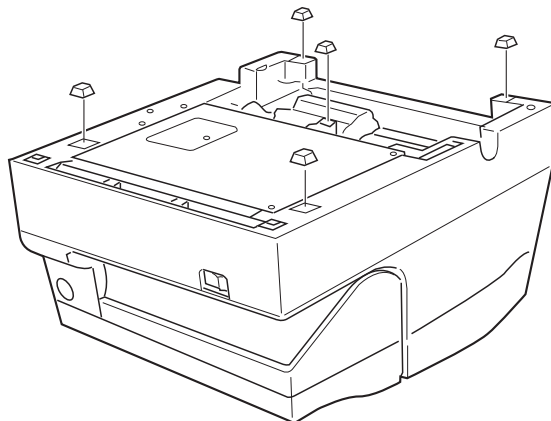
NOTE

- The illustrations used here are for DM-D110, but you can still use them as your reference for DM-D210.
- Because the illustration used here is for the RS-232/USB model, there are 2 cables. The USB model and RS-232 model have 1 cable.

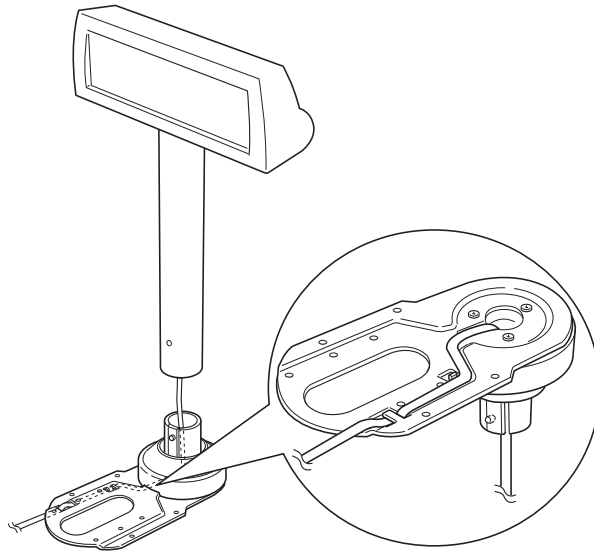
- 1** Pass the cable for the this product through support C and attach support C to the this product. When using support B for extension, insert the tab on support B into the hole on support C until you feel it click.



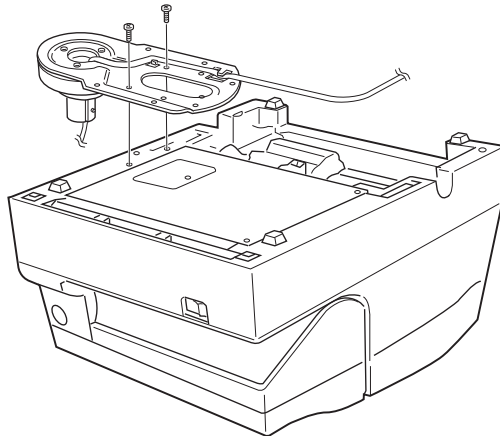
- 2** Attach the rubber feet to the printer.



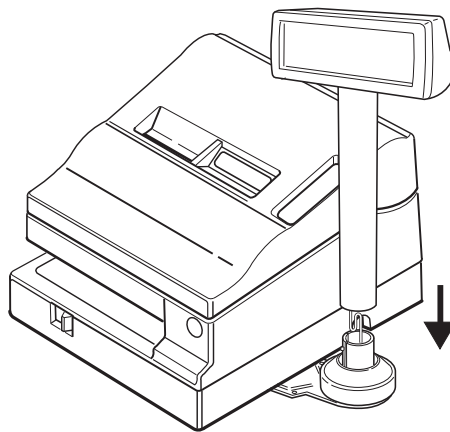
- 3** Pass the cable for the this product through the hole on fixing plate A and fix the cable at the bottom as shown below.



- 4** Adjust the length of the cable and secure fixing plate A to the printer with screws.



- 5** Store any excess cable in the support, and attach the this product to fixing plate A. For the RS-232/USB model, the end of the connector of the unused cable should be capped, and then bundled to be stored inside support.

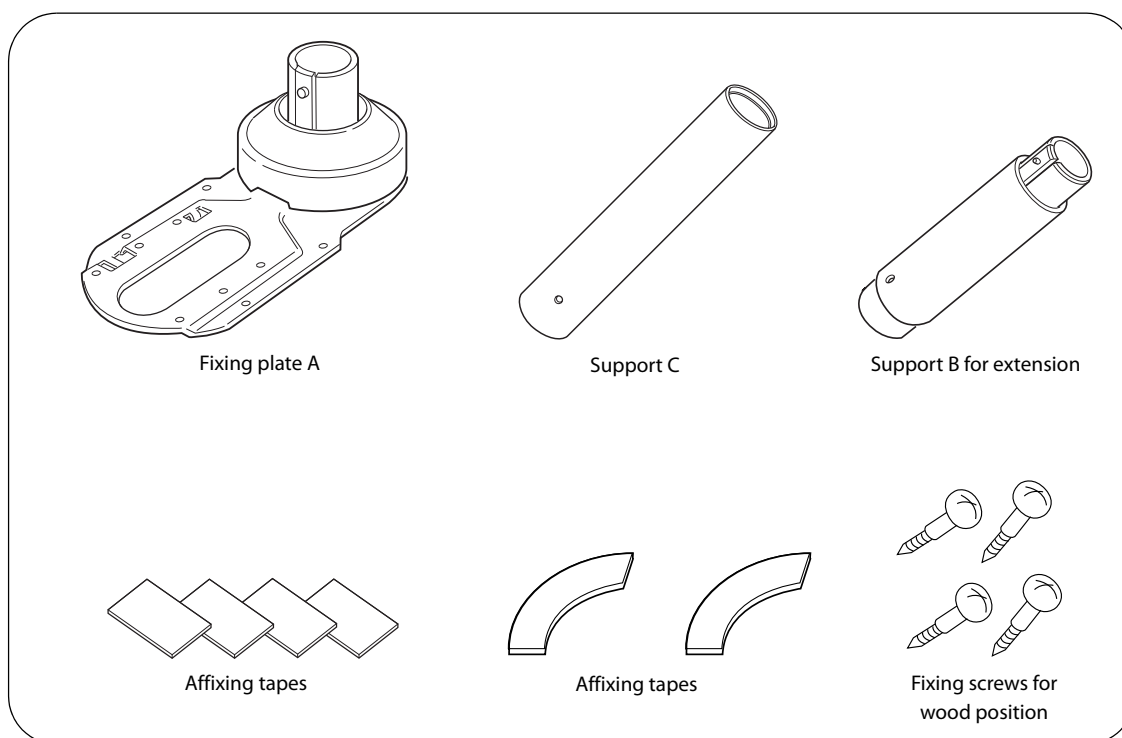


DP-502 (Attaching on the counter)

Checking the accessories

Check the DP-502 parts. When attaching it on the counter, use the following parts.

[DP-502 parts]

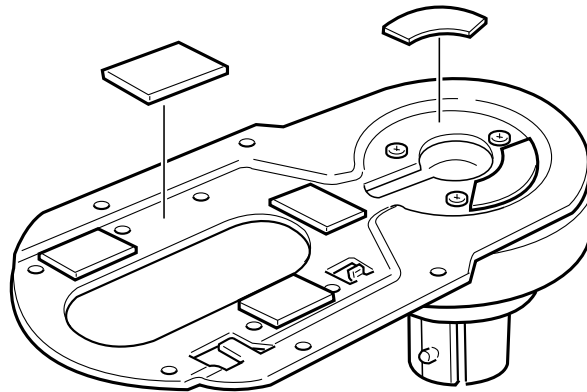


Attaching on the counter

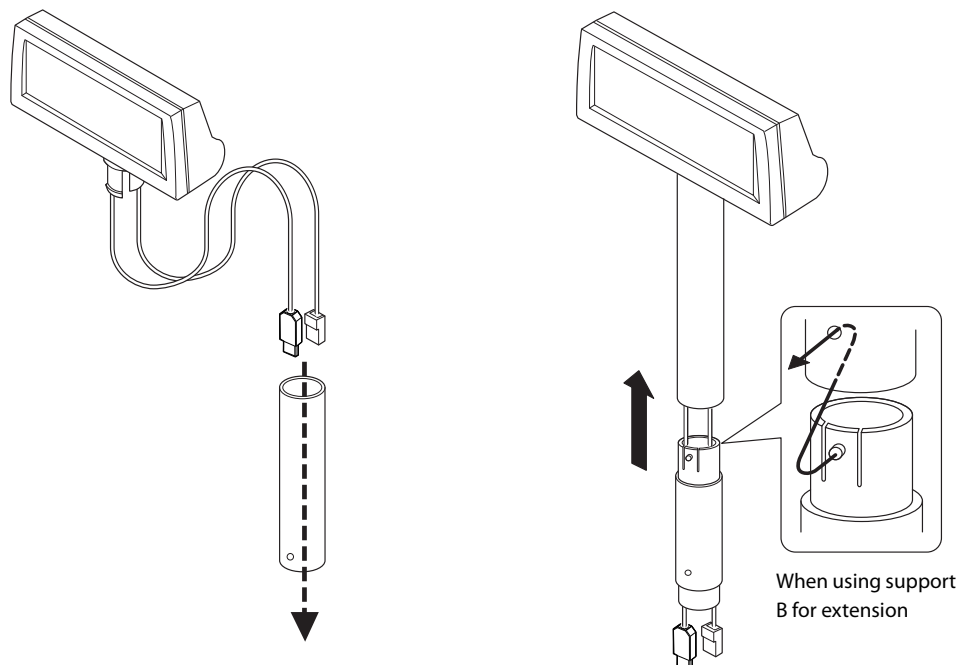
NOTE

- The illustrations used here are for DM-D110, but you can still use them as your reference for DM-D210.
- Because the illustration used here is for the RS-232/USB model, there are 2 cables. The USB model and RS-232 model have 1 cable.

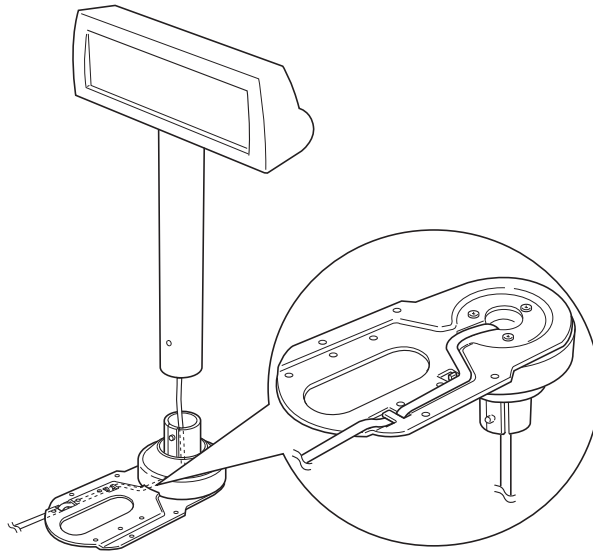
- 1** Attach the affixing tapes on the back of the fixing plate A.
(When using screws to attach it on the counter, you do not have to attach the affixing tapes.)



- 2** Pass the cable for this product through support C and attach support C to the product. 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 this product through the hole on fixing plate A and fix the cable at the bottom as shown below.



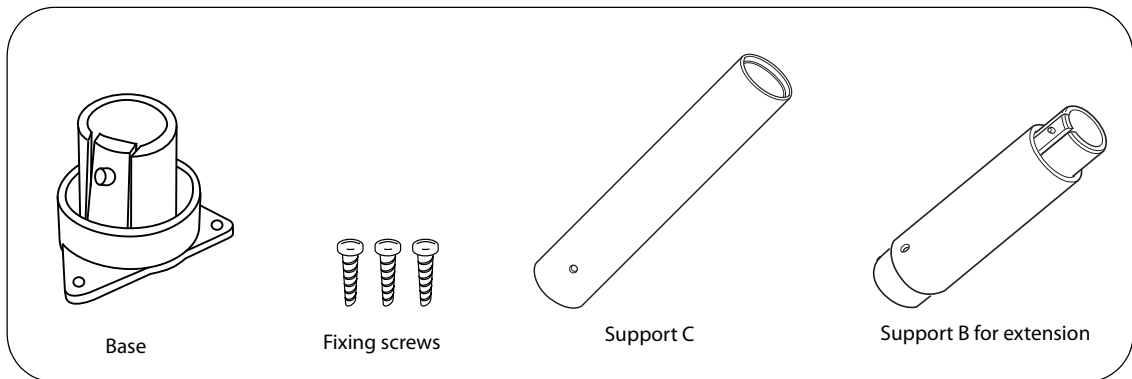
- 4** Peel off the affixing tapes and secure it to the mounting position. When using screws to attach it on the counter, use the screws to secure it to the mounting position.
- 5** Connect the cable to the TM printer. When the cable is long, put the excess part of the cable in the support.
For the RS-232/USB model, the end of the connector of the unused cable should be capped, and then bundled to be stored inside support.

DP-503 (TM-H5000II)

Checking the accessories

Check the DP-503 parts. When attaching it on the TM-H5000II, use the following parts.

[DP-503 parts]

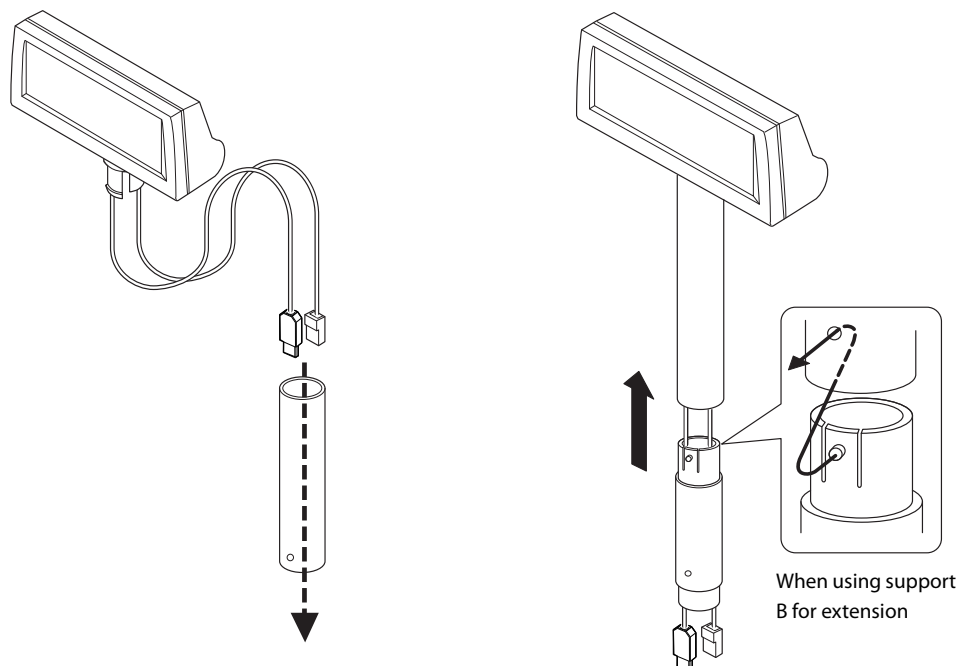


Installing to the TM-H5000II

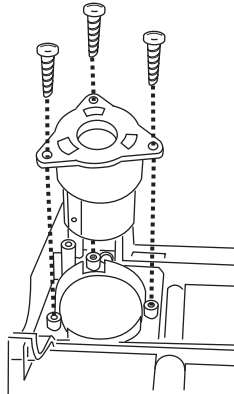
NOTE

- The illustrations used here are for DM-D110, but you can still use them as your reference for DM-D210.
- Because the illustration used here is for the RS-232/USB model, there are 2 cables. The USB model and RS-232 model have 1 cable.

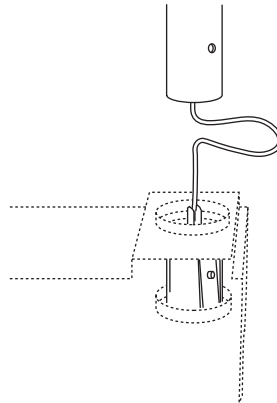
- 1 Pass the cable for the this product through support C and attach support C to the this product. When using support B for extension, insert the tab on support B into the hole on support C until you feel it click.



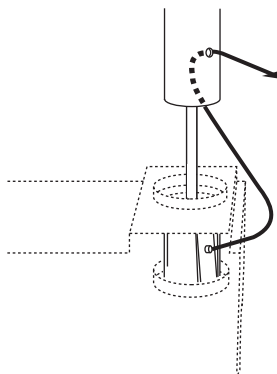
- 2** Attach the base to the setting position on the TM printer and secure it with the screws.



- 3** Pass the cable for the this product through the base.

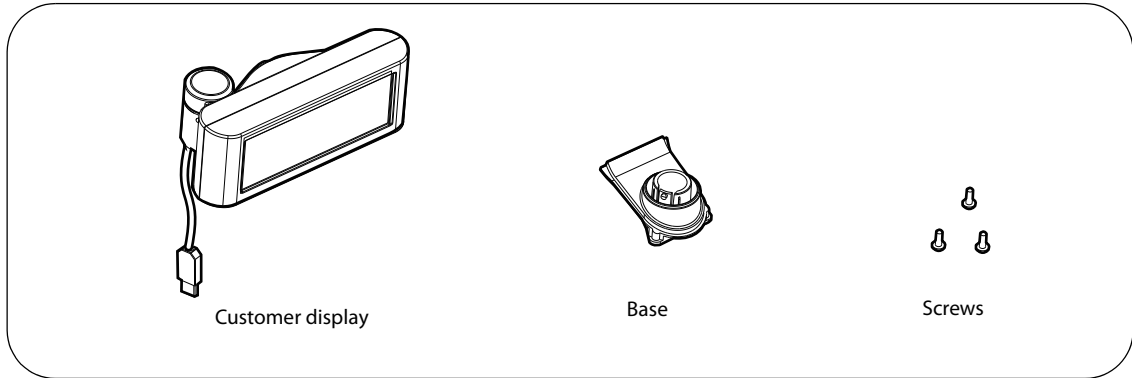
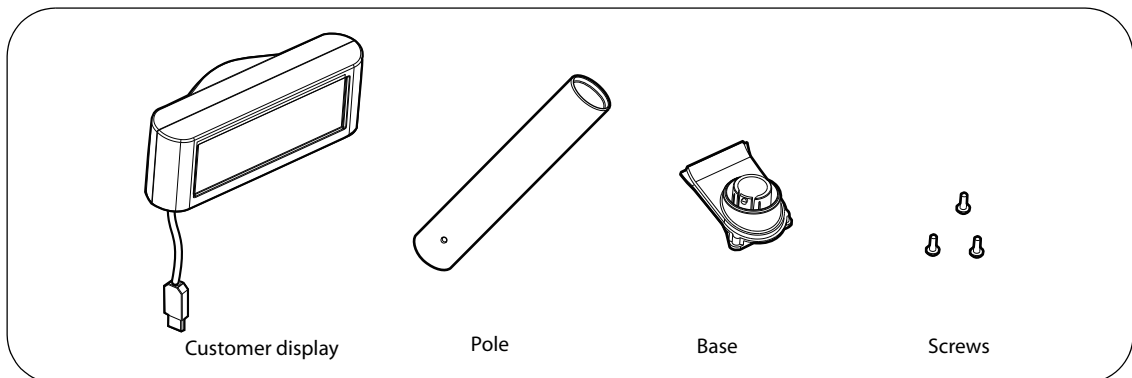


- 4** Insert the tab on the base into the hole on the support until you feel it click. For the RS-232/USB model, the end of the connector of the unused cable should be capped, and then bundled to be stored inside support.



DM-D110 for TM-T88V-DT**Checking the accessories**

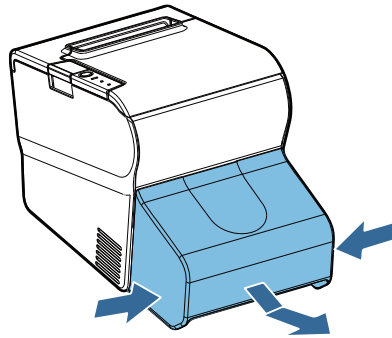
Check the accessories of the DM-D110 for TM-T88V-DT. When attaching it on the printer, use the following parts.

For models with a L-shaped pole**For models with a straight pole**

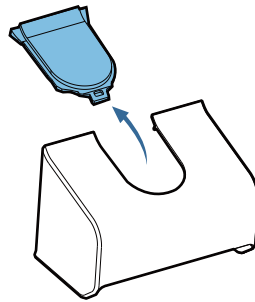
Attaching on the DM-D110 for TM-T88V-DT

For models with a L-shaped pole

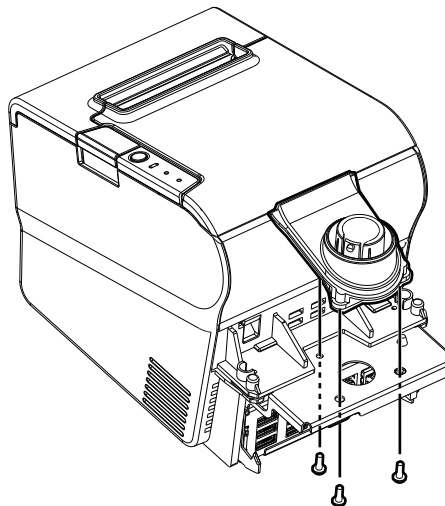
- 1 Detach the connector cover of the TM-T88V-DT.**
Detach the hooks from the TM-T88V-DT while pushing the bottom parts on both sides of the connector cover inwards.



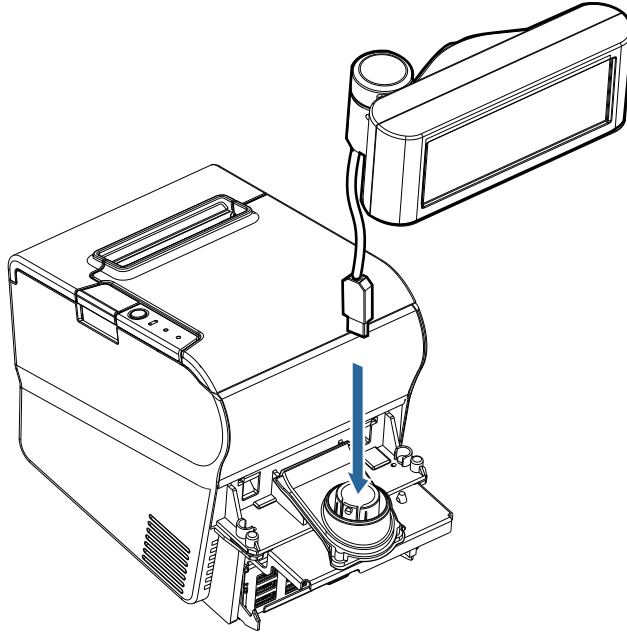
- 2 Remove the U-shaped component from the connector cover.**



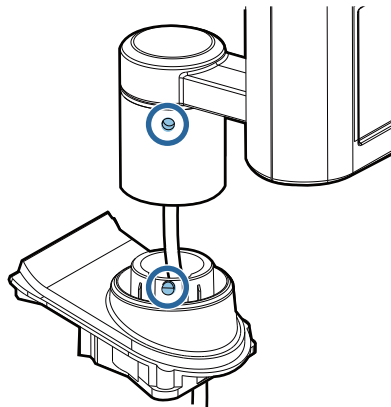
- 3 Attach the base on the TM-T88V-DT with the three screws.**



- 4** Pass the USB cable of the customer display through the base.



- 5** Align the dowel hole in the customer display and the dowel on the base to attach the customer display on the base.



- 6** Align the hook for the connector cover of TM-T88V-DT with the groove on the back of TM-T88V-DT, and then push it in.

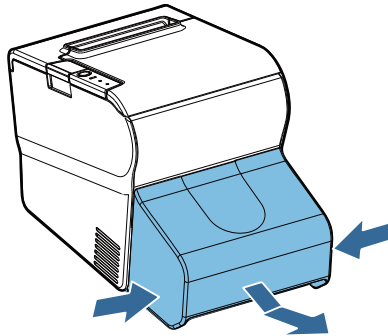


When attaching the connector cover, always hold both sides. Otherwise the connector cover could break.

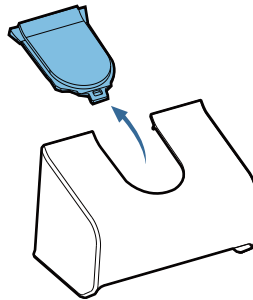
For models with a straight pole

1 Detach the connector cover of the TM-T88V-DT.

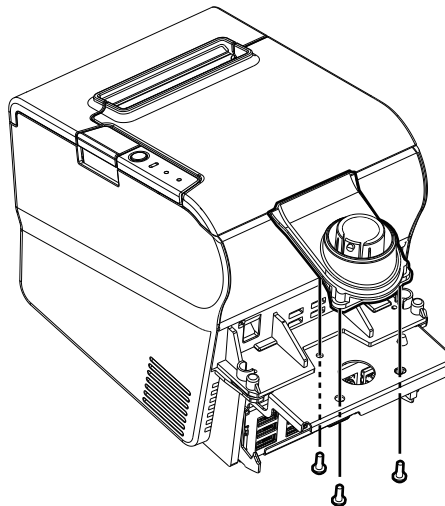
Detach the hooks from the TM-T88V-DT while pushing the bottom parts on both sides of the connector cover inwards.



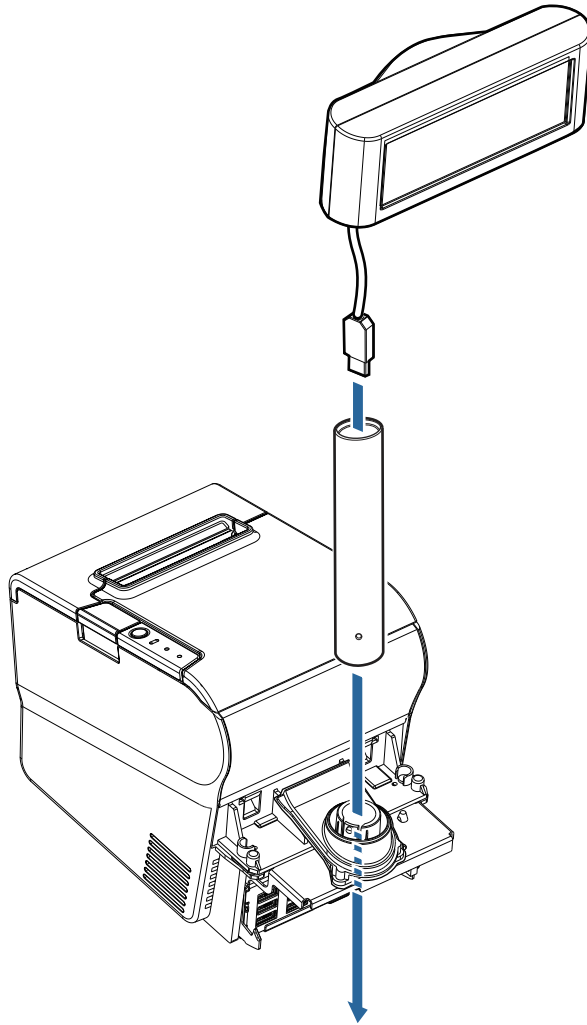
2 Remove the U-shaped component from the connector cover.



3 Attach the base on the TM-T88V-DT with the three screws.

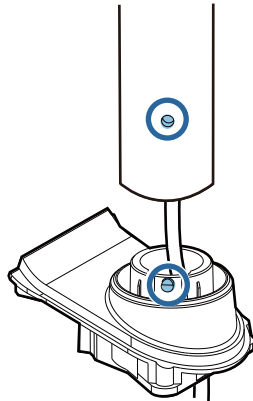


- 4** With the end of the straight pole with a hole pointing downward, pass the USB cable of the customer display through the pole and base.



- 5** Attach the pole with the customer display.

- 6** Align the dowel hole in the pole and the dowel on the base to attach the pole on the base.



- 7** Align the hook for the connector cover of TM-T88V-DT with the groove on the back of TM-T88V-DT, and then push it in.




CAUTION

When attaching the connector cover, always hold both sides. Otherwise the connector cover could break.

Connecting

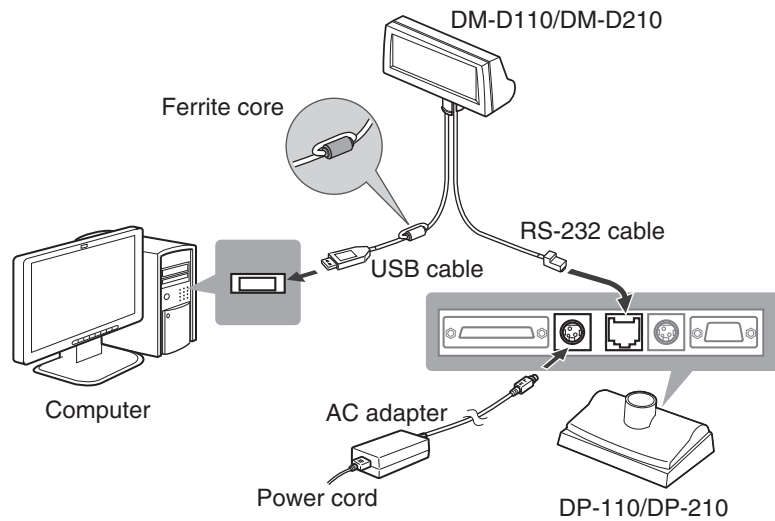
This section explains how to connect to the system by connection patterns.

The illustrations used here are for DM-D110/DP-110, but you can still use them as your reference for DM-D210/DP-210.

 CAUTION	<p>When attaching or removing the cables, make sure you turn off the power to the customer display and the system.</p>
<div style="border: 1px solid black; padding: 2px; display: inline-block;">CAUTION</div>	<ul style="list-style-type: none"> • When connecting or removing the AC adapter to the DC cable connector, make sure that the AC adapter's power cord is unplugged from the outlet. • When connecting or removing the DC cable from the AC adapter, make sure you hold the connector part. If you pull the cable part, you may damage the cable.

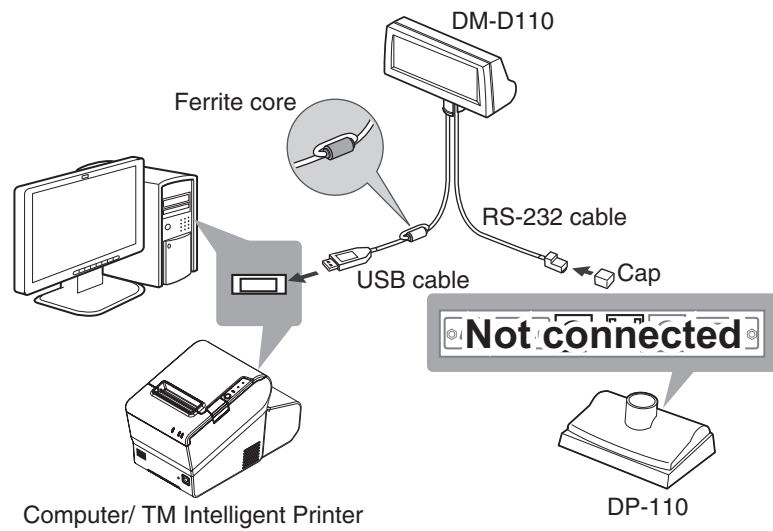
USB (Self Powered)

2



<ul style="list-style-type: none"> • DM-D110 • DM-D210 	USB cable	<ul style="list-style-type: none"> • Remove the cap • Attach the ferrite core • Connect to the computer
	RS-232 cable	<ul style="list-style-type: none"> • Remove the cap • Connect to the DM-D connector of DP-110/DP-210
<ul style="list-style-type: none"> • DP-110 • DP-210 	DM-D connector	Connect the RS-232 cable of DM-D110/DM-D210
	Power supply connector	Connect the AC adapter
	Extension power cable connector	Not used
	Computer interface connector	Not used
	Printer interface connector	Not used
	Jumper (JP)	Not setting

USB (Bus Powered)

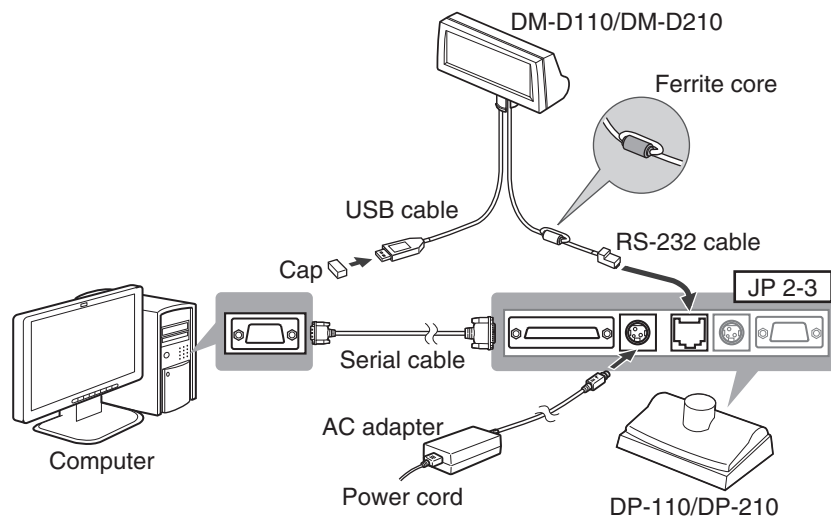


DM-D110	USB cable	<ul style="list-style-type: none"> • Remove the cap ^{*1} • Attach the ferrite core ^{*1} • Connect to the computer/TM intelligent printer
	RS-232 cable ^{*1}	<ul style="list-style-type: none"> • Do not remove the cap (factory default condition) • Not used (bundle inside DP-110)
DM-D110 for TM-T88V-DT	USB cable	<ul style="list-style-type: none"> • Remove the cap ^{*2} • Attach the ferrite core ^{*2} • Connect to the TM-T88V-DT
DP-110	DM-D connector	Not used
	Power supply connector	Not used
	Extension power cable connector	Not used
	Computer interface connector	Not used
	Printer interface connector	Not used
	Jumper (JP)	Not setting

*1 Not available for the USB model.

*2 They may not be supplied for DM-D110 for TM-T88V-DT depending on when the product is shipped.

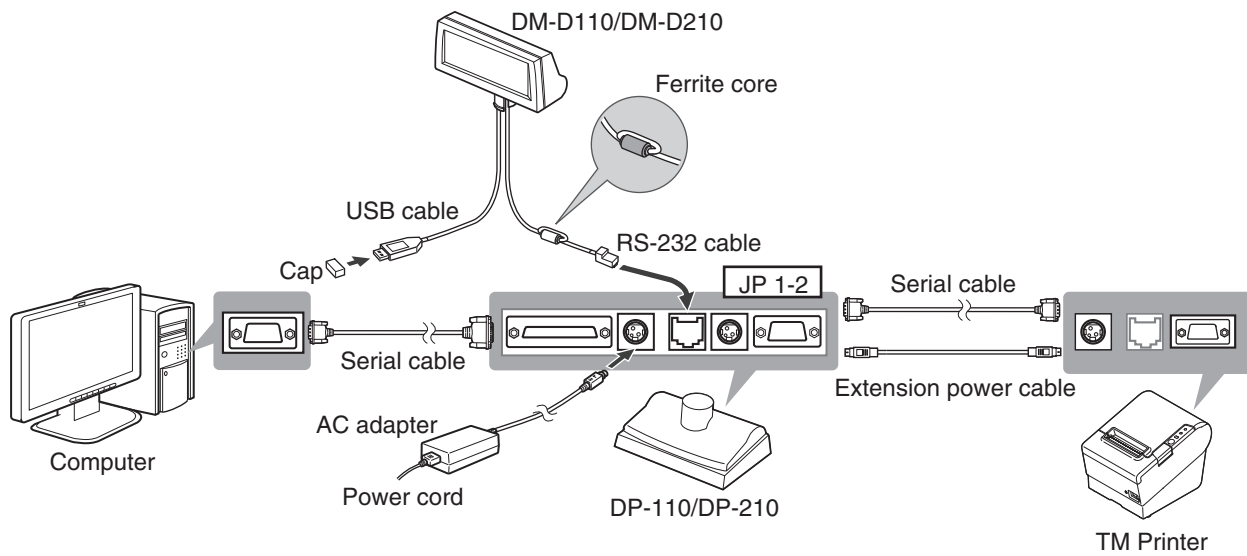
Serial (Stand-Alone)



<ul style="list-style-type: none"> DM-D110 DM-D210 	USB cable *	<ul style="list-style-type: none"> Do not remove the cap (factory default condition) Not used (bundle inside DP-110/DP-210)
	RS-232 cable	<ul style="list-style-type: none"> Remove the cap * Attach the ferrite core * Connect to the DM-D connector of DP-110/DP-210
<ul style="list-style-type: none"> DP-110 DP-210 	DM-D connector	Connect the RS-232 cable of DM-D110/DM-D210
	Power supply connector	Connect the AC adapter
	Extension power cable connector	Not used
	Computer interface connector	Not used
	Printer interface connector	Not used
	Jumper (JP)	Set it to 2-3

* Not available for the RS-232 model.

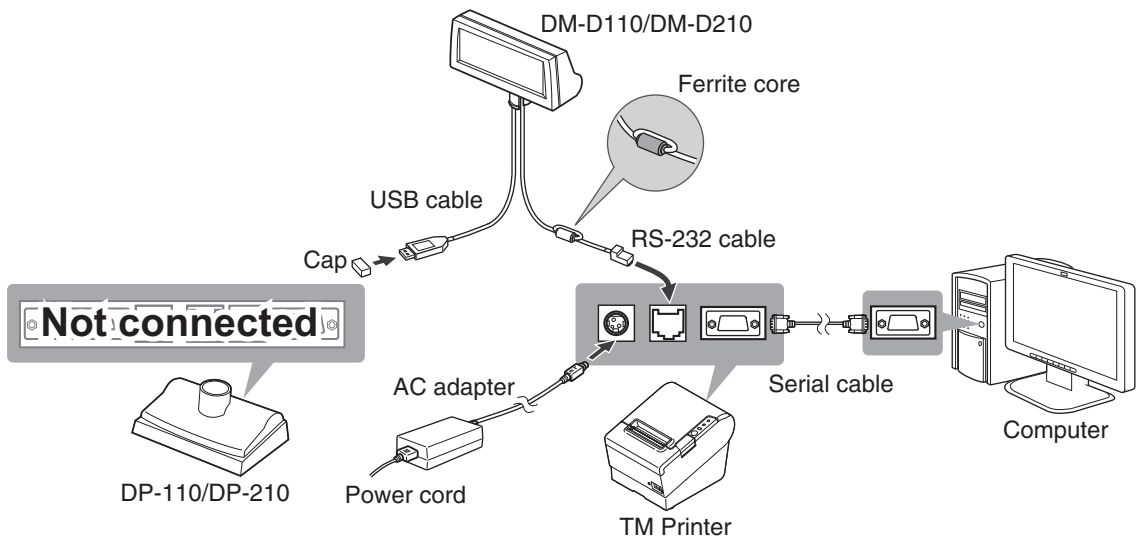
Serial (Pass-through)



<ul style="list-style-type: none"> DM-D110 DM-D210 	USB cable *	<ul style="list-style-type: none"> Do not remove the cap (factory default condition) Not used (bundle inside DP-110/DP-210)
	RS-232 cable	<ul style="list-style-type: none"> Remove the cap * Attach the ferrite core * Connect to the DM-D connector of DP-110/DP-210
<ul style="list-style-type: none"> DP-110 DP-210 	DM-D connector	Connect the RS-232 cable of DM-D110/DM-D210
	Power supply connector	Connect the AC adapter
	Extension power cable connector	Use the extension power cable and connect to the TM printer's power supply connector
	Computer interface connector	Use the serial cable and connect to the computer's serial connector
	Printer interface connector	Use the serial cable and connect to the TM printer's serial connector
	Jumper (JP)	Set it to 1-2 (factory default setting)

* Not available for the RS-232 model.

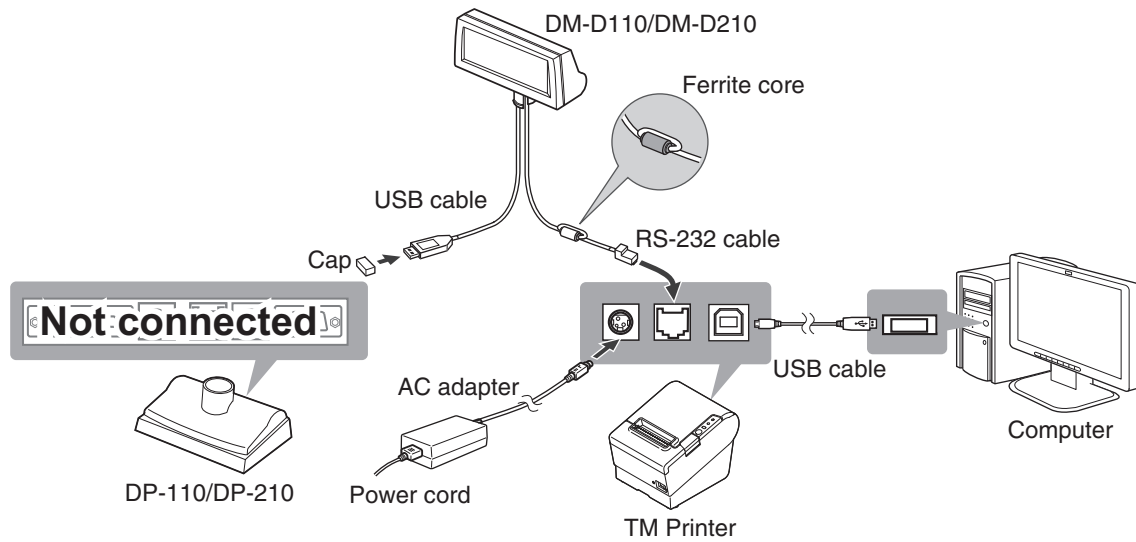
Serial (Y-type)



<ul style="list-style-type: none"> • DM-D110 • DM-D210 	USB cable *	<ul style="list-style-type: none"> • Do not remove the cap (factory default condition) • Not used (bundle inside DP-110/DP-210 or DP-502/DP-503)
	RS-232 cable	<ul style="list-style-type: none"> • Remove the cap * • Attach the ferrite core * • Connect to the TM printer's DM-D connector
<ul style="list-style-type: none"> • DP-110 • DP-210 	DM-D connector	Not used
	Power supply connector	Not used
	Extension power cable connector	Not used
	Computer interface connector	Not used
	Printer interface connector	Not used
	Jumper (JP)	Not setting

* Not available for the RS-232 model.

Serial (USB controlled)



<ul style="list-style-type: none"> • DM-D110 • DM-D210 	USB cable *	<ul style="list-style-type: none"> • Do not remove the cap (factory default condition) • Not used (bundle inside DP-110/DP-210 or DP-502/DP-503)
	RS-232 cable	<ul style="list-style-type: none"> • Remove the cap * • Attach the ferrite core * • Connect to the DM-D connector on the interface side of the TM printer.
<ul style="list-style-type: none"> • DP-110 • DP-210 	DM-D connector	Not used
	Power supply connector	Not used
	Extension power cable connector	Not used
	Computer interface connector	Not used
	Printer interface connector	Not used
	Jumper (JP)	Not setting

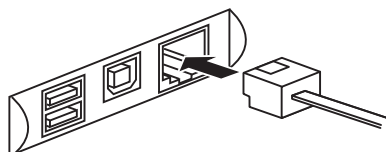
* Not available for the RS-232 model.



When connecting the RS-232 cable to the TM printer, make sure that the AC adapter is not connected to the TM printer. If the RS-232 cable is connected to the TM printer to which the AC adapter is connected, the product may be damaged.

CAUTION

Connect the RS-232 cable to the DM-D connector on the interface side of the TM printer. Do not connect to the TM printer's DM-D connector.



Handling

This chapter explains the basic handling methods for this product.

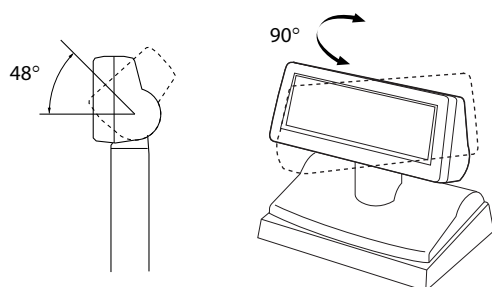
Changing the Orientation of the Display Unit

The angle and direction of the display unit can be changed by holding the struts with your hand while moving the display unit.

The display unit will move with only light pressure, so do not apply more pressure once the unit stops moving. Applying excess force to move the display unit may cause damage.

When installed in the TM printer, there may be situations where the display unit cannot be turned to the desired direction. In these situations, remove the customer display and base unit, then adjust the position of the lug in the base unit before reattaching.

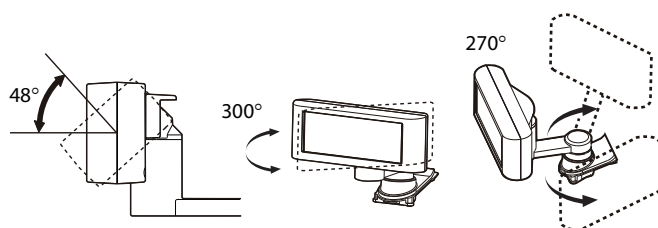
DM-D110



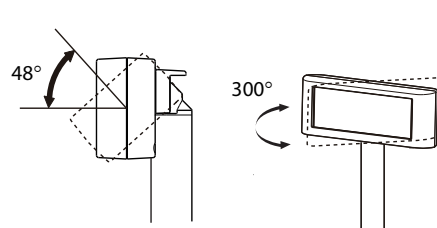
DM-D110 for TM-T88V-DT

You can change the direction or angle of the display and L-shaped pole by moving them while holding TM-T88V-DT by hand.

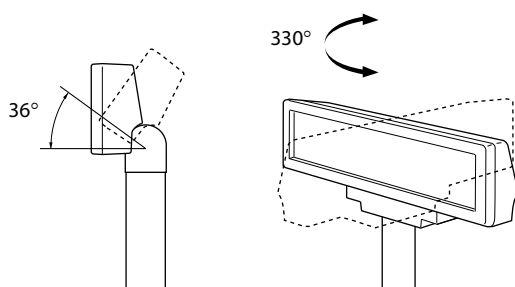
With a L-shaped pole



With a straight pole



DM-D210



Cleaning the customer display

Turn off the this product as well as the connected system. Use a dry cloth or firmly wrung cloth to wipe off any stains on the this product.

CAUTION

Do not use alcohol, benzine, thinner and other solvents; otherwise, the product may be damaged or the plastic parts may be broken.

Application Development Information

This chapter explains how to control the customer display as well as necessary information for developing system applications using this product.

Controlling the Customer display

The this product supports the following command systems:

- ePOS-Print XML (When TM intelligent printer connected)
- ESC/POS

Users can control the customer display by using the aforementioned commands, or the following development kits or drivers.

- ePOS-Print SDK
- EPSON OPOS ADK
- EPSON OPOS ADK for .NET
- EPSON JavaPOS ADK
- EPSON Advanced Printer Driver Ver.4 (APD4)

ePOS-Print XML

ePOS-Device XML is Epson's control command system for the customer display defined in XML. You can print from the socket communication environment or OS applications. For details of ePOS-Device XML, see the ePOS-Device XML User's Manual.

ePOS-Device XML can be used when this product is connected to the TM intelligent printer.

ESC/POS

ESC/POS is the Epson original printer command system for POS printers and customer display. With ESC/POS commands, you can directly control all the this product functions, but detailed knowledge of printer specifications or combination of commands is required, compared to using drivers and applications.

For details on ESC/POS, see the specifications for this product. You need a contract separately to acquire the specifications. For details, contact the store of your purchase.

Software and Manuals

The following software and manuals are provided for application development.

Development Kits

Software	Description
ePOS-Device SDK for iOS for Android™ for JavaScript	Development kit for controlling the POS peripheral devices such as the printer and customer display from the Web application or native application for smart devices. It includes libraries, manuals, and sample programs.
EPSON OPOS ADK	OCX driver that controls the POS peripheral devices such as the customer display using the OLE technologies*. Because controlling POS peripherals with original commands is not required on the application side, efficient system development is possible.
EPSON OPOS ADK for .NET	The OPOS ADK for .NET is a POS industry standard printer driver compatible with Microsoft POS for .NET. It allows you to develop applications that are compatible with the UPOS (Unified POS) specification. When developing applications, use a separate development environment such as Microsoft Visual Studio .NET.
EPSON JavaPOS ADK	JavaPOS ADK is a UPOS driver in Java environment. You can develop applications based on the UPOS (UnifiedPOS) specifications.

* OLE technology developed by Microsoft divides software into part blocks.

Drivers

Software	Description	Operating environment
EPSON Advanced Printer Driver Ver.4 (APD4)	Windows printer driver that can display on the customer display. You cannot send ESC/POS commands to the customer display or monitor the status.	Windows
TM Virtual Port Driver	Use when controlling ESC/POS commands using a serial (USB controlled) connection. This driver recognizes the customer display connected to the TM printer as a virtual serial port.	Windows
DM-D110 Virtual COM Port Driver	Use this for the USB connection. This driver recognizes the customer display connected to the USB as a virtual serial port. This driver is already installed in the TM intelligent printer's TM-DT series.	Windows

Manuals

Software	Description
DM-D110/DM-D210 Technical Reference Guide	This manual.
Each TM printer's Technical Reference Guide	TM printer's Technical Reference Guide explains about the necessary information for developing, designing, installing the POS system using the TM printers, or for developing and designing the printer applications.
ePOS-Device XML Use's Manual	Describes ePOS-Print XML statements. This manual comes with sample programs.

Download

You can obtain software and manuals from one of the following URLs.

For customers in North America, go to the following web site and follow the on-screen instructions.

<http://www.epsonexpert.com/>

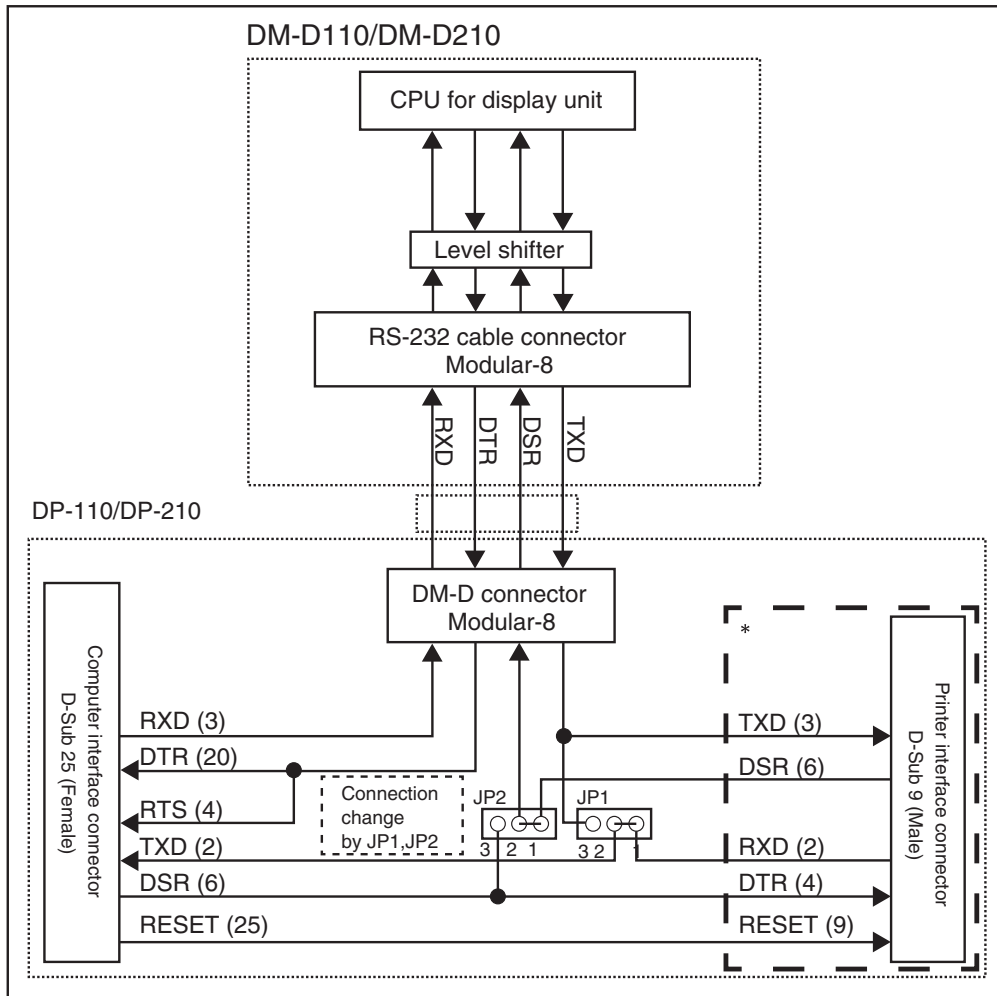
For customers in other countries, go to the following web site:

<http://download.epson-biz.com/?service=pos>

Data flow of serial commands

This section explains the data flow when using this product using a serial connection.

Block Diagram



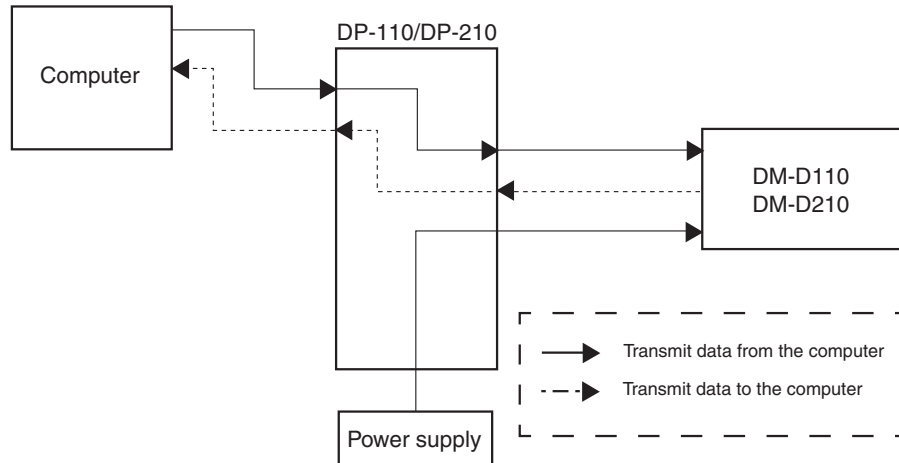
* The illustration above is the block diagram when using DP-110. When using DP-210, see the following table.

Item	DP-110	DP-210
Printer interface connector	D-Sub 9 (Male)	D-Sub 25 (Female)
TXD	3	2
DSR	6	6
RXD	2	3
DTR	4	20
RESET	9	25

Stand-Alone Connection

A standalone connection allows you to directly connect the customer display to the computer's serial port. When using a TM printer, connect it to another port of the computer.

The data flow when the standalone connection is as follows.

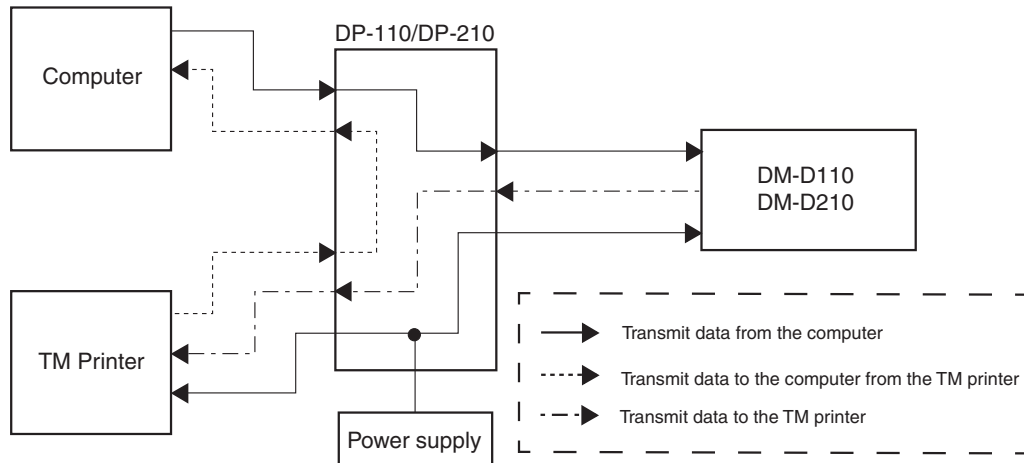


- When 1-2 of JP1 and JP2 are selected, the data from the computer is transmitted to the customer display and the data from the customer display is transmitted to the computer with the standalone connection.
- The standalone connection is effective only when the user setting commands is used.
- The communication settings for the computer and customer display are all the same.

Pass-through Connection

A pass-through connection allows you to connect the customer display and the TM printer to one serial port of the computer.

The data flow when the pass-through connection is as follows.

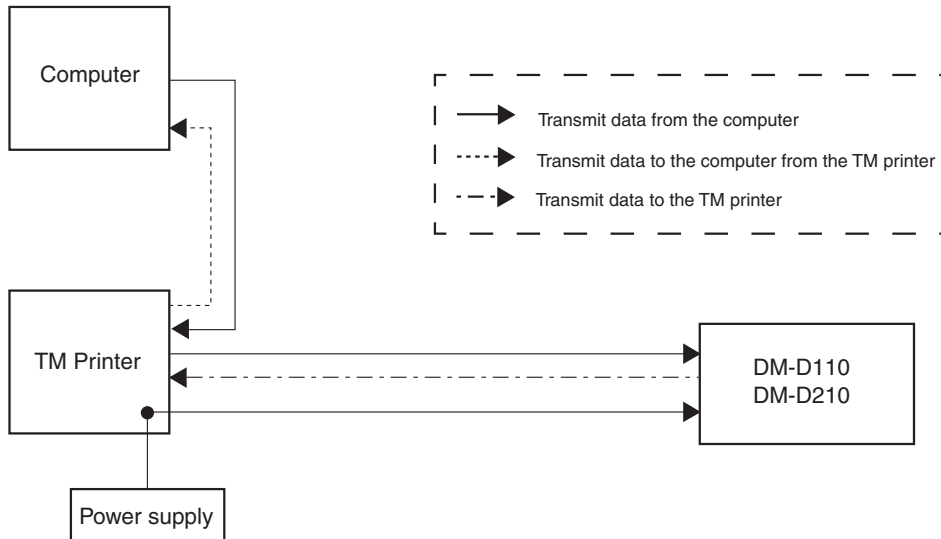


- With the pass-through connection, the data from the computer is stored in the reception buffer of the display, and then the data is processed sequentially and only data for the printer is transmitted to the printer. The data transmitted from the printer is transmitted to the computer directly without passing the display.
- The peripheral equipment elective command distinguishes between the data for the customer display and the data for the TM printer.
- The communication settings for the computer, TM printer, and customer display are all the same.

Y-type Connection

A Y connection allows you to connect to the customer display and cash drawer via a TM printer from the computer's serial port.

The data flow when the y-type connection is as follows.



- The data from the computer is transmitted to the TM printer and the same data is transmitted to the customer display with the y-type connection.
- The peripheral equipment command of ESC/POS distinguishes between the data for the customer display and the data for the TM printer.

Precautions when Using the USB Models

This section explains the usage precautions when using a USB connection (self powered and bus powered).

Precautions	Controlled environment			
	EPSON OPOS ADK	EPSON OPOS ADK for .NET	EPSON JavaPOS ADK	EPSON Advanced Printer Driver Ver.4
When using the DM-D110 Virtual COM Port Driver, set the communication speed for the dip switch to 115200 bps.	✓	✓	✓	-
Before putting Windows to system standby status, Release/Close this product.	✓	✓	✓	-
In the following situations, Release this product and the Claim again. <ul style="list-style-type: none"> • When putting Windows to system standby status and then restarting. • When you have turned off this product and turned it again on while application is still running. 	✓	✓	✓	-
While the application software is running, do not remove the USB cable for this product.	✓	✓	✓	✓
Do not share this product from multiple application software.	✓	✓	✓	✓

Precautions when using the serial (USB controlled)

Make sure you turn on the customer display first, and then turn on the TM printer. Otherwise the TM printer cannot recognize the customer display.

Appendix

Product Specifications

DM-D110

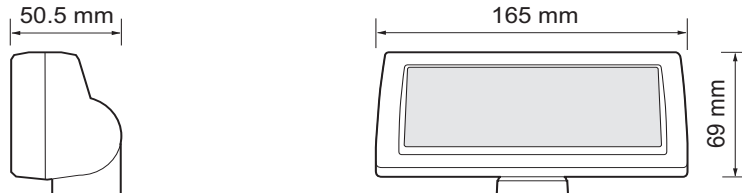
Model		DM-D110	DM-D110 with DP-110	DM-D110 for TM-T88V-DT
Display type		Fluorescent tube display		
Number of characters displayed		40 characters (20 columns x 2 rows, 5 x 7 dot matrix)		
Display color		Green (505 nm)		
Brightness		690 cd/m ²		
Character classes		Alphanumeric: 95 characters International characters: 37 characters Graphic characters: 128 characters x 12 pages		
Character composition		5 x 7 dot matrix, cursor		
Character size		3.5 x 5.0 mm {0.14 x 0.2"}		
Character pitch		5.2 mm {0.2"}		
Interface *	RS-232/ USB	Standard	<ul style="list-style-type: none"> RS-232 USB (USB 2.0, Communication speed: Full-speed (12 Mbps)) Compliant 	
		RS-232	RJ-45	D-Sub 9 pin (male)
		USB	USB Type-A	
	RS-232	Standard	RS-232	
		Connector	RJ-45	D-Sub 9 pin (male)
	USB	Standard	USB (USB 2.0, Communication speed: Full-speed (12 Mbps))	
Connector		USB Type-A		
Reliability		Lifespan 20,000 hours		
Power supply voltage *	RS-232/USB		DC 21.6 to 26.4 V USB bus power operation: DC 4.75 to 5.25 V	
	RS-232		DC 11.4 to 48 V	
	USB		DC 4.75 to 5.25 V	
Power consumption		RS-232 operation: Approximately 3.6 W USB self power operation: Approximately 3.6 W USB bus power operation: Approximately 2.5 W		Approximately 2.5 W

Model	DM-D110	DM-D110 with DP-110	DM-D110 for TM-T88V-DT
Tilt angle	Maximum 48° (4 steps, 5 positions)		
Horizontal rotation angle	-	Maximum 90°	<ul style="list-style-type: none"> • Display: Maximum 300° • L-shaped pole: Maximum 270°
Power supply	Supplied by TM printer or USB bus	PS-180 (Option)	Supplied by TM-T88V-DT

* It differs according to the product models.

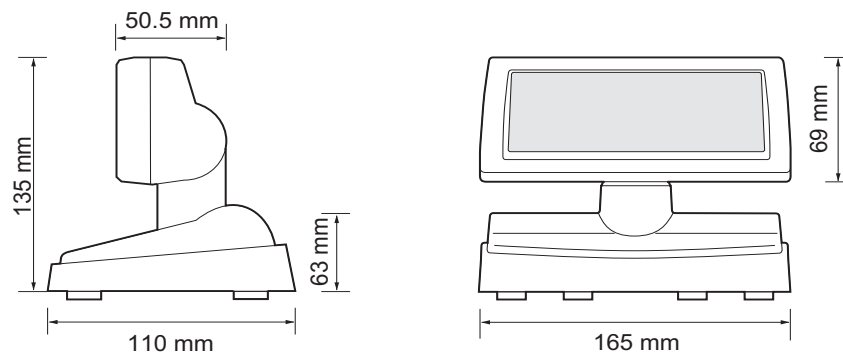
External Dimensions and Mass

DM-D110



Item	Specification
Display unit dimension	165 (W) x 50.5 (D) x 69 (H) mm {6.5 (W) x 1.99 (D) x 2.72" (H)}
External dimensions	165 (W) x 50.5 (D) x 69 (H) mm {6.5 (W) x 1.99 (D) x 2.72" (H)}
Mass	Approximately 0.29 kg {Approximately 0.64 lb}

DM-D110 with DP-110

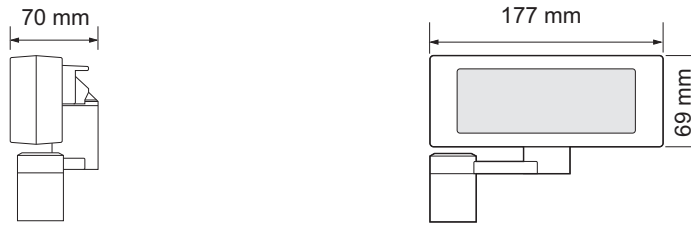


Item	Specification
Display unit dimension	165 (W) x 50.5 (D) x 69 (H) mm {6.5 (W) x 1.99 (D) x 2.72" (H)}
Base unit dimension	165 (W) x 110 (D) x 63 (H) mm {6.5 (W) x 4.33 (D) x 2.48" (H)}
External dimensions	165 (W) x 110 (D) x 135 (H) mm {6.5 (W) x 4.33 (D) x 5.31" (H)}
Mass	Approximately 0.65 kg {Approximately 1.43 lb}

DM-D110 with DP-110 and DP-105

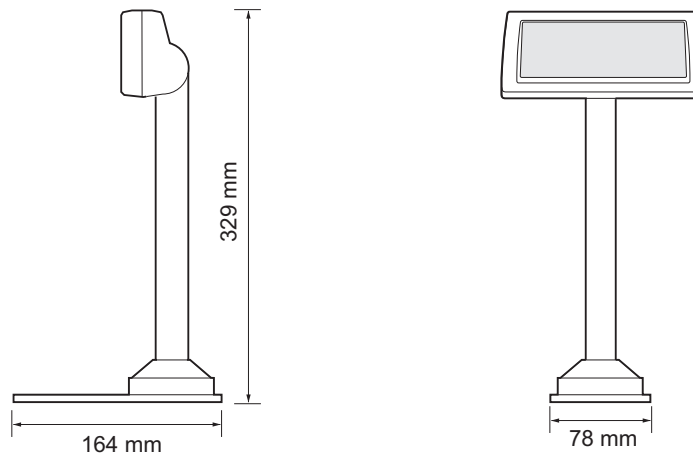
Item	Specification
Display unit dimension	165 (W) x 50.5 (D) x 69 (H) mm {6.5 (W) x 1.99 (D) x 2.72" (H)}
Base unit dimension	165 (W) x 110 (D) x 63 (H) mm {6.5 (W) x 4.33 (D) x 2.48" (H)}
External dimensions	165 (W) x 110 (D) x 318 (H) mm {6.5 (W) x 4.33 (D) x 12.72" (H)}
Mass	Approximately 0.67 kg {Approximately 1.47 lb}

DM-D110 for TM-T88V-DT



Item	Specification
Display unit dimension	177 (W) x 70 (D) x 69 (H) mm {6.97 (W) x 2.76 (D) x 2.72" (H)}
TM-T88V-DT dimension (with a L-shaped pole)	177 (W) x 362 (D) x 202 (H) mm {6.97 (W) x 14.25 (D) x 7.95" (H)}
TM-T88V-DT dimension (with a straight pole)	177 (W) x 286 (D) x 358 (H) mm {6.97 (W) x 11.26(D) x 14.09" (H)}
Mass	Approximately 0.45 kg {Approximately 0.99 lb} (with L-shaped pole or straight pole)

DM-D110 with DP-502



Item	Specification
Display unit dimension	165 (W) x 50.5 (D) x 69 (H) mm {6.5 (W) x 1.99 (D) x 2.72" (H)}
External dimensions	165 (W) x 50.5 (D) x 329 (H) mm {6.5 (W) x 1.99 (D) x 13.19" (H)}
DP-502	78 (W) x 164 (D) x 260 (H) mm {3.12 (W) x 6.56 (D) x 10.4" (H)}
Mass	Approximately 0.55 kg {Approximately 1.21 lb}

DM-D110 with DP-503

Item	Specification
Display unit dimension	165 (W) x 50.5 (D) x 69 (H) mm {6.5 (W) x 1.99 (D) x 2.72" (H)}
External dimensions	165 (W) x 50.5 (D) x 317 (H) mm {6.5 (W) x 1.99 (D) x 12.68" (H)}
DP-503	53 (W) x 50 (D) x 248 (H) mm {2.12 (W) x 2 (D) x 9.92" (H)}
Mass	Approximately 0.40 kg {Approximately 0.88 lb}

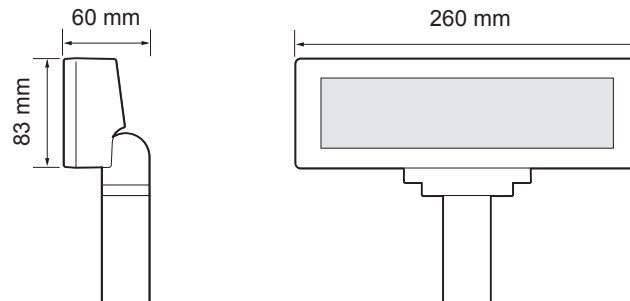
DM-D210

Model		DM-D210	DM-D210 with DP-210	
Display type		Fluorescent tube display		
Number of characters displayed		40 characters (20 columns x 2 rows, 5 x 7 dot matrix)		
Display color		Green (505 nm)		
Brightness		700 cd/m ²		
Character classes		Alphanumeric: 95 characters International characters: 37 characters Graphic characters: 128 characters x 12 pages		
Character composition		5 x 7 dot matrix, comma/period/annunciator		
Character size		6.5 x 11.3 mm {0.26 x 0.45"}		
Character pitch		9.9 mm {0.39"}		
Interface *	RS-232/USB	Standard	<ul style="list-style-type: none"> • RS-232 • USB (USB 2.0, Communication speed: Full-speed (12 Mbps)) Compliant 	
		RS-232	RJ-45	D-Sub 25 pin (female)
		USB	USB Type-A	
	RS-232	Standard	RS-232	
		Connector	RJ-45	D-Sub 9 pin (male)
Reliability		Lifespan 20,000 hours		
Power supply voltage *	RS-232/USB	DC 21.6 to 26.4 V		
	RS-232	DC 11.4 to 48 V		
Power consumption		RS-232 operation: Approximately 6.0 W USB self power operation: Approximately 6.0 W		
Tilt angle		Maximum 36° (3 steps)		
Horizontal rotation angle		Maximum 330°		
Power supply		Supplied by TM printer	PS-180 (Option)	

* It differs according to the product models.

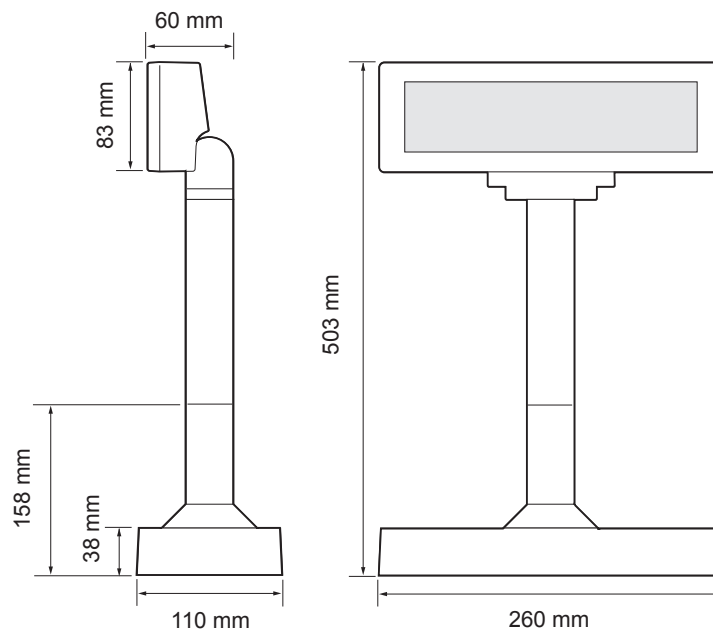
External Dimensions and Mass

DM-D210



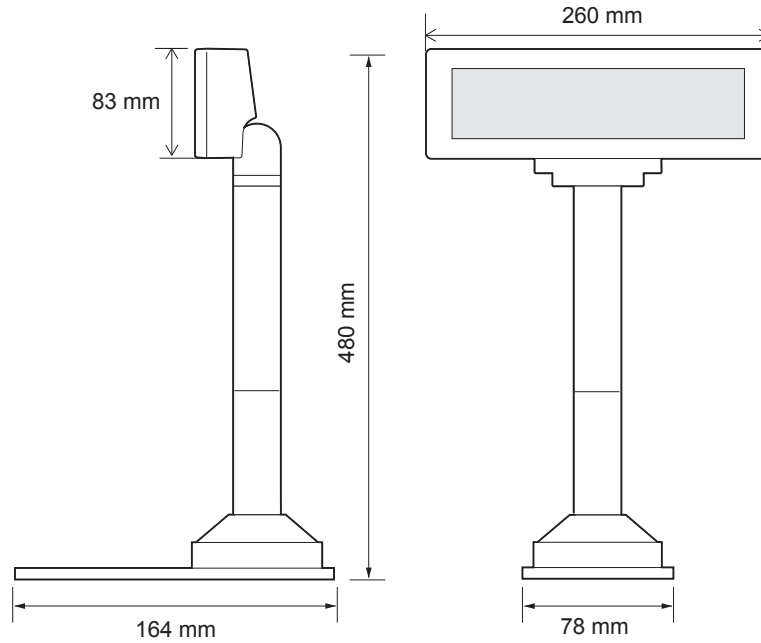
Item	Specification
Display unit dimension	260 (W) x 60 (D) x 83 (H) mm {10.24 (W) x 2.36(D) x 3.27" (H)}
External dimensions	260 (W) x 60 (D) x 83 (H) mm {10.24 (W) x 2.36(D) x 3.27" (H)}
Mass	Approximately 0.60 kg {Approximately 1.32 lb}

DM-D210 with DP-210



Item	Specification
Display unit dimension	260 (W) x 60 (D) x 83 (H) mm {10.24 (W) x 2.36(D) x 3.27" (H)}
Base unit dimension	260 (W) x 110 (D) x 53 (H) mm {10.24 (W) x 4.33 (D) x 2.09" (H)}
External dimensions	260 (W) x 110 (D) x 383 or 503 (H) mm {10.24 (W) x 4.33 (D) x 15.08 or 19.8" (H)}
Mass	Approximately 0.98 kg {Approximately 2.15 lb}

DM-D210 with DP-502



Item	Specification
Display unit dimension	260 (W) x 60 (D) x 83 (H) mm {10.24 (W) x 2.36(D) x 3.27" (H)}
External dimensions	260 (W) x 164 (D) x 360 or 480 (H) mm {10.24 (W) x 6.46(D) x 14.17 or 18.9" (H)}
DP-502	78 (W) x 164 (D) x 260 (H) mm {3.12 (W) x 6.56 (D) x 10.4" (H)}
Mass	Approximately 0.55 kg {Approximately 1.21 lb}

DM-D210 with DP-503

Item	Specification
Display unit dimension	260 (W) x 60 (D) x 83 (H) mm {10.24 (W) x 2.36(D) x 3.27" (H)}
External dimensions	260 (W) x 60 (D) x 331 (H) mm {10.24 (W) x 2.36(D) x 13.24" (H)}
DP-503	53 (W) x 50 (D) x 248 (H) mm {2.12 (W) x 2 (D) x 9.92" (H)}
Mass	Approximately 0.40 kg {Approximately 0.88 lb}

Environmental Conditions

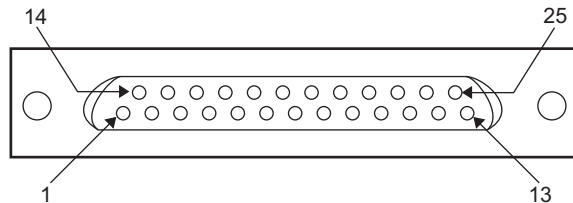
Item	Specification
Temperature	Operating: 5 to 40 °C {41 to 104 °F} Storage: -10 to 50 °C {14 to 122 °F}
Humidity	Operating: 30 to 85 % (non-condensing) Storage: 30 to 90 % (non-condensing)

DP-110/DP-210 Connector Specifications

This section explains the DP-110/DP-210 connector specifications.

Computer Interface Connector (Serial)

Type: D-Sub 25-pin connector



Pin assignments

Pin Number	Signal Name	Signal Direction	Function
1	FG	-	Frame ground
2	TXD	Output	<ul style="list-style-type: none"> Stand-alone connection: Transmits data to the computer from the this product Pass-through/Y-type connection: Transmits data to the computer from the TM printer.
3	RXD	Input	Receives data from the computer. (Computer -> This product)
4 ^{*1}	RTS	Output	<p>This indicates whether the display is ready to receive data. ^{*2}</p> <ul style="list-style-type: none"> [SPACE]: The display can receive data. DTR goes to SPACE under the following conditions: <ul style="list-style-type: none"> * When the display first becomes ready to receive data after power on. * When the self-test has ended. * When the remaining space in the receive buffer becomes 50 bytes or more after having been 40 bytes or less. [MARK]: The display cannot receive data. DTR goes to MARK under the following conditions: <ul style="list-style-type: none"> * The period from when power is turned on to when the display first becomes ready to receive data. * When the self-test is executed. * When the remaining space in the receive buffer becomes 128 bytes or less (buffer-full state). * When DSR MARK is on, if the TM printer is selected by a peripheral device command.
6 ^{*2}	DSR	Input	<p>Indicates whether the computer is ready to receive data.</p> <ul style="list-style-type: none"> [SPACE]: The computer is ready to receive data. [MARK]: The computer is not ready to receive data.
7	GND	-	Signal GND

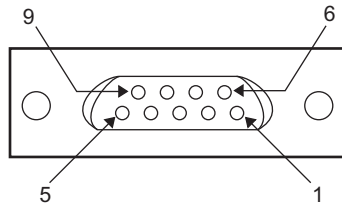
Pin Number	Signal Name	Signal Direction	Function
20 ^{*1}	DTR	Output	<p>This indicates whether the display is ready to receive data. ^{*2}</p> <ul style="list-style-type: none"> • [SPACE]: The display can receive data. DTR goes to SPACE under the following conditions: <ul style="list-style-type: none"> * When the display first becomes ready to receive data after power on. * When the self-test has ended. * When the remaining space in the receive buffer becomes 50 bytes or more after having been 40 bytes or less. • [MARK]: The display cannot receive data. DTR goes to MARK under the following conditions: <ul style="list-style-type: none"> * The period from when power is turned on to when the display first becomes ready to receive data. * When the self-test is executed. * When the remaining space in the receive buffer becomes 128 bytes or less (buffer-full state). * When DSR MARK is on, if the TM printer is selected by a peripheral device command.
25	RESET	Input	Reset signal is connected to the DTR terminal of the TM printer directly.

*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 TM printer directly.

Printer Interface Connector (Serial): DP-110

Type: D-Sub 9-pin connector

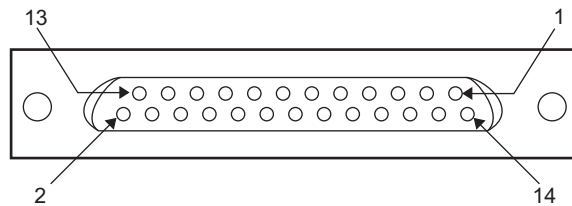


Pin assignments

Pin Number	Signal Name	Signal Direction	Function
2	RXD	Input	Receive data from the TM printer. (TM Printer -> Computer)
3	TXD	Output	Transmit data to the TM printer. (Computer -> TM Printer)
4	RTS	Output	Indicates whether the host is ready to receive data. <ul style="list-style-type: none"> [SPACE]: The TM printer is ready to receive data. [MARK]: The TM 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 TM printer. <ul style="list-style-type: none"> [SPACE]: The TM printer can receive data. When the TM printer becomes ready to receive data SPACE is output. [MARK]: The TM printer cannot receive data. If the TM printer becomes ready to receive data, MARK is not output.
9	RESET	Output	Reset signal to the printer. (Computer -> TM Printer)

Printer Interface Connector (Serial): DP-210

Type: D-Sub 25-pin connector

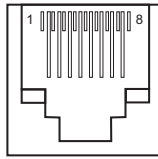


Pin assignments

Pin Number	Signal Name	Signal Direction	Function
1	FG	-	Frame ground
2	TXD	Output	Receive data from the TM printer. (TM Printer -> Computer)
3	RXD	Input	Transmit data to the TM printer. (Computer -> TM Printer)
6	DSR	Input	This indicates whether the display is ready to receive data from the TM printer. <ul style="list-style-type: none"> [SPACE]: The TM printer can receive data. When the TM printer becomes ready to receive data SPACE is output. [MARK]: The TM printer cannot receive data. If the TM printer becomes ready to receive data, MARK is not output.
7	GND	-	Signal GND
20	DTR	Output	Indicates whether the host is ready to receive data. <ul style="list-style-type: none"> [SPACE]: The TM printer is ready to receive data. [MARK]: The TM printer is not ready to receive data.
25	RESET	Output	Reset signal to the printer. (Computer -> TM Printer)

DM-D Connector (RS-232)

Type: RJ-45 Connector



Pin assignments

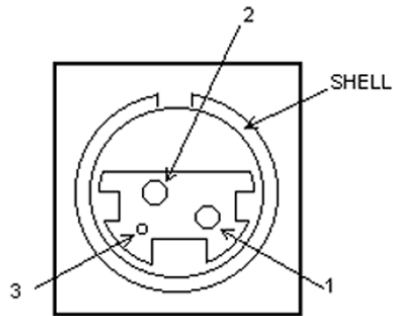
Pin Number	Signal Name	Signal Direction	Function
1	FG	-	Frame ground
2	TXD	Output	<ul style="list-style-type: none"> Stand-alone connection: Transmits data to the computer from the this product. Pass-through/Y-type connection ^{*1}: Transmits data to the TM printer from the computer.
3	RXD	Input	Receives data from the computer.
4	DSR	Input	<p>Indicates whether the computer/TM printer is ready to receive data.</p> <ul style="list-style-type: none"> Stand-alone connection ^{*1} <ul style="list-style-type: none"> * [SPACE]: The computer is ready to receive data. * [MARK]: The computer is not ready to receive data. Pass-through connection ^{*1} <ul style="list-style-type: none"> * [SPACE]: The computer is ready to receive data. * [MARK]: The computer is not ready to receive data.
5	RTS	Output	<p>This indicates whether the display is ready to receive data. ^{*2}</p> <ul style="list-style-type: none"> [SPACE]: The display can receive data. DTR goes to SPACE under the following conditions: <ul style="list-style-type: none"> * When the display first becomes ready to receive data after power on. * When the self-test has ended. * When the remaining space in the receive buffer becomes 50 bytes or more after having been 40 bytes or less. [MARK]: The display cannot receive data. DTR goes to MARK under the following conditions: <ul style="list-style-type: none"> * The period from when power is turned on to when the display first becomes ready to receive data. * When the self-test is executed. * When the remaining space in the receive buffer becomes 128 bytes or less (buffer-full state). * When DSR MARK is on, if the TM printer is selected by a peripheral device command.
6	SG	-	Signal GND
7	PG	-	Power supply terminal
8	PG	-	Return wire for power

*1 For a Y-type, pass-through, and standalone connection, refer to the "[System Outline](#)" on page 15 for details.

*2 When using the status confirmation commands for ESC/POS command to change the DTR signals to MARK status, the function differs from the signal function to show whether or not the display is ready to receive data.

Power Supply Connector/Extension power cable connector

Type: 3-pin locking type connector



Pin assignments

Pin Number	Signal Name	Signal Direction	Function
1	+24V	-	Power supply line
2	GND	-	GND
3	NC	-	Not used
SHELL	FG	-	Frame ground

Serial Cable Specifications

When controlling the hardware flow using the customer display and computer (DTR-DSR), use the serial cable that has the following wiring.

DM-D110

Connection pattern	Type of serial cable	Connection
Stand-Alone	D-Sub 9-pin (female) / D-Sub 25-pin (male)	Connect the computer to the DP-110
Pass-through		Connect the computer to the DP-110
		Connect the DP-110 to the TM printer
Y-type		Connect the computer to the TM printer

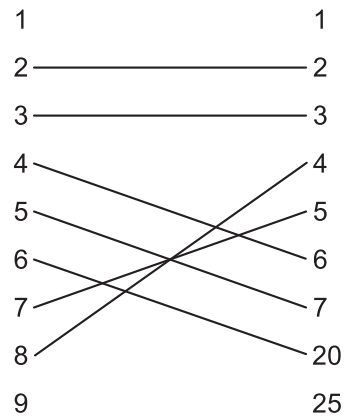
DM-D210

Connection pattern	Type of serial cable	Connection
Stand-Alone	D-Sub 9-pin (female) /D-Sub 25-pin (male)	Connect the computer to the DP-210
Pass-through	D-Sub 9-pin (female)/ D-Sub 25-pin (male)	Connect the computer to the DP-210
	D-Sub 25-pin (male)/ D-Sub 25-pin (male)	Connect the DP-210 to the TM printer
Y-type	D-Sub 9-pin (female) / D-Sub 25-pin (male)	Connect the computer to the TM printer

Wiring

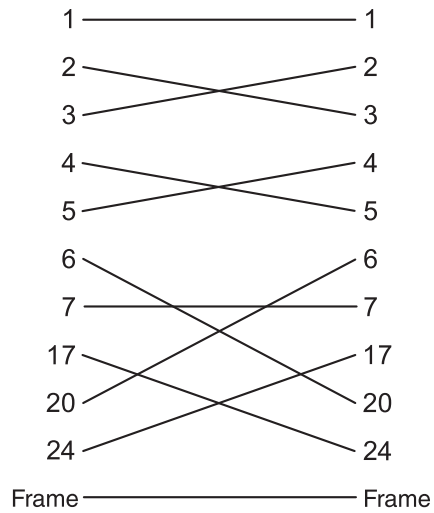
D-Sub 9-pin (female)

D-Sub 25-pin (male)



D-Sub 25-pin (male)

D-Sub 25-pin (male)



Character Code Tables

NOTE

- The character code tables show only character configurations. They do not show the actual display pattern.
- "SP" in the table shows a space.

Common to All Pages

When the international character set (See ["International Character Sets" on page 109.](#)) is USA:

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

Page 0 (PC437: USA, Standard Europe)

	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	Ł 192	⊥ 208	α 224	≡ 240
1	0001	Û 129	Æ 145	Í 161	⌘ 177	⊥ 193	⊥ 209	β 225	± 241
2	0010	é 130	Æ 146	ó 162	⌘ 178	⊥ 194	⊥ 210	Γ 226	≥ 242
3	0011	ã 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	ã 134	û 150	ä 166	† 182	† 198	⊥ 214	μ 230	÷ 246
7	0111	ç 135	ù 151	ó 167	⊥ 183	† 199	† 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	⊥ 184	⊥ 200	† 216	Φ 232	° 248
9	1001	ë 137	ÿ 153	¿ 169	⊥ 185	⊥ 201	⊥ 217	θ 233	• 249
A	1010	è 138	Û 154	¿ 170	 186	⊥ 202	⊥ 218	Ω 234	• 250
B	1011	ï 139	ϕ 155	½ 171	⊥ 187	⊥ 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	‡ 172	⊥ 188	† 204	■ 220	∞ 236	∞ 252
D	1101	ì 141	¥ 157	ì 173	⊥ 189	— 205	■ 221	ø 237	² 253
E	1110	Ä 142	ϕ 158	« 174	⊥ 190	† 206	■ 222	ε 238	■ 254
F	1111	À 143	f 159	» 175	⊥ 191	⊥ 207	■ 223	∩ 239	SP 255

	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	一 ┌ 176	夕 ┌ 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	ア ┌ 167	キ ┌ 183	ヌ ┌ 199	ラ ┌ 215	◆ ┌ 231	年 ┌ 247
8	1000	┌ 136	┌ 152	イ ┌ 168	ク ┌ 184	ネ ┌ 200	リ ┌ 216	▶ ┌ 232	円 ┌ 248
9	1001	┌ 137	┌ 153	ウ ┌ 169	ケ ┌ 185	ノ ┌ 201	ル ┌ 217	◀ ┌ 233	分 ┌ 249
A	1010	┌ 138	┌ 154	エ ┌ 170	コ ┌ 186	ハ ┌ 202	レ ┌ 218	▲ ┌ 234	人 ┌ 250
B	1011	┌ 139	┌ 155	オ ┌ 171	サ ┌ 187	ヒ ┌ 203	ロ ┌ 219	▼ ┌ 235	大 ┌ 251
C	1100	┌ 140	┌ 156	ヤ ┌ 172	シ ┌ 188	フ ┌ 204	ワ ┌ 220	◀ ┌ 236	中 ┌ 252
D	1101	┌ 141	┌ 157	士 ユ ┌ 173	ス ┌ 189	ヘ ┌ 205	ン ┌ 221	» ┌ 237	小 ┌ 253
E	1110	┌ 142	┌ 158	ヨ ┌ 174	セ ┌ 190	ホ ┌ 206	° ┌ 222	± ┌ 238	〒 ┌ 254
F	1111	┌ 143	┌ 159	ツ ┌ 175	ソ ┌ 191	マ ┌ 207	° ┌ 223	± ┌ 239	°C ┌ 255

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	È 144	á 160	⌘ 176	Ł 192	ð 208	ó 224	— 240
1	0001	ü 129	æ 145	í 161	⌘ 177	ł 193	Ð 209	β 225	± 241
2	0010	é 130	Æ 146	ó 162	⌘ 178	ƚ 194	È 210	ô 226	— 242
3	0011	ā 131	ō 147	ú 163	ı 179	ƚ 195	È 211	ò 227	¼ 243
4	0100	ä 132	ö 148	ñ 164	ı 180	— 196	È 212	õ 228	½ 244
5	0101	à 133	ò 149	Ñ 165	Á 181	† 197	ı 213	ö 229	§ 245
6	0110	á 134	û 150	â 166	Â 182	ã 198	í 214	μ 230	÷ 246
7	0111	ç 135	ù 151	ó 167	À 183	Ã 199	î 215	þ 231	¾ 247
8	1000	ê 136	ÿ 152	ç 168	© 184	Ł 200	ÿ 216	þ 232	° 248
9	1001	ë 137	ö 153	® 169	† 185	ƚ 201	ƚ 217	ú 233	“ 249
A	1010	è 138	Û 154	ˆ 170	ı 186	ł 202	ƚ 218	û 234	· 250
B	1011	ï 139	ø 155	½ 171	ƚ 187	ƚ 203	■ 219	ü 235	¹ 251
C	1100	î 140	£ 156	‡ 172	ƚ 188	ƚ 204	■ 220	ý 236	³ 252
D	1101	ì 141	∅ 157	ı 173	ϕ 189	— 205	ı 221	ÿ 237	² 253
E	1110	Ä 142	× 158	« 174	≠ 190	‡ 206	ı 222	— 238	■ 254
F	1111	Å 143	f 159	» 175	ƚ 191	¤ 207	■ 223	' 239	SP 255

	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	Ł 192	⊥ 208	α 224	≡ 240
1	0001	ü 129	À 145	í 161	⌘ 177	⊥ 193	⊤ 209	β 225	± 241
2	0010	é 130	È 146	ó 162	⌘ 178	⊤ 194	⊤ 210	Γ 226	≥ 242
3	0011	ã 131	ô 147	ú 163	ı 179	† 195	Ł 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	ı 180	– 196	Ł 212	Σ 228	ƒ 244
5	0101	à 133	ò 149	Ñ 165	ı 181	† 197	ŕ 213	σ 229	∫ 245
6	0110	Á 134	Ú 150	ä 166	ı 182	† 198	ŕ 214	μ 230	÷ 246
7	0111	ç 135	ù 151	Ω 167	ı 183	† 199	† 215	τ 231	≈ 247
8	1000	ê 136	ì 152	ó 168	ı 184	Ł 200	⊕ 216	Φ 232	° 248
9	1001	Ê 137	Ö 153	ò 169	ı 185	ŕ 201	∩ 217	θ 233	• 249
A	1010	è 138	Û 154	ı 170	ı 186	⊥ 202	ŕ 218	Ω 234	· 250
B	1011	í 139	Φ 155	‡ 171	ı 187	⊤ 203	■ 219	δ 235	√ 251
C	1100	ô 140	£ 156	‡ 172	∫ 188	† 204	■ 220	∞ 236	π 252
D	1101	ì 141	Û 157	i 173	∫ 189	– 205	ı 221	∅ 237	² 253
E	1110	Ä 142	Ɔ 158	« 174	∫ 190	⊕ 206	ı 222	ε 238	■ 254
F	1111	Ä 143	Ó 159	» 175	ı 191	⊥ 207	■ 223	∩ 239	SP 255

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	Ï 160	Ï 176	Ł 192	Ł 208	α 224	≡ 240
1	0001	Û 129	È 145	Ï 161	Ï 177	Ł 193	Ł 209	β 225	± 241
2	0010	é 130	Ê 146	ó 162	Ï 178	Ł 194	Ł 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	ł 179	ł 195	ł 211	π 227	≤ 243
4	0100	Â 132	Ë 148	Ï 164	ł 180	ł 196	ł 212	Σ 228	ƒ 244
5	0101	à 133	Ï 149	Ï 165	ł 181	ł 197	ł 213	σ 229	Ƶ 245
6	0110	ŋ 134	û 150	Ï 166	ł 182	ł 198	ł 214	μ 230	÷ 246
7	0111	ç 135	ù 151	ł 167	ł 183	ł 199	ł 215	τ 231	≈ 247
8	1000	ê 136	ϰ 152	Ï 168	ł 184	ł 200	ł 216	Φ 232	° 248
9	1001	ë 137	ô 153	ł 169	ł 185	ł 201	ł 217	θ 233	• 249
A	1010	è 138	Û 154	ł 170	ł 186	ł 202	ł 218	Ω 234	· 250
B	1011	ï 139	ϰ 155	½ 171	ł 187	Ł 203	■ 219	δ 235	√ 251
C	1100	î 140	£ 156	‡ 172	ł 188	Ł 204	■ 220	∞ 236	π 252
D	1101	— 141	Û 157	‡ 173	ł 189	— 205	■ 221	∅ 237	² 253
E	1110	À 142	Œ 158	« 174	ł 190	Ł 206	■ 222	€ 238	■ 254
F	1111	š 143	ƒ 159	» 175	ł 191	Ł 207	■ 223	∩ 239	SP 255

	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	Ł 192	ł 208	α 224	≡ 240
1	0001	Û 129	æ 145	Í 161	⌘ 177	ł 193	τ 209	β 225	± 241
2	0010	é 130	Æ 146	ó 162	⌘ 178	τ 194	τ 210	Γ 226	≥ 242
3	0011	â 131	ô 147	ú 163	 179	† 195	Ł 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	† 180	- 196	Ł 212	Σ 228	ƒ 244
5	0101	à 133	ò 149	Ñ 165	† 181	+ 197	ŕ 213	σ 229	Ƶ 245
6	0110	â 134	û 150	ä 166	† 182	† 198	ŕ 214	μ 230	÷ 246
7	0111	ç 135	ù 151	ó 167	ŕ 183	† 199	† 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	ó 168	ŕ 184	Ł 200	† 216	Φ 232	° 248
9	1001	ë 137	ÿ 153	ŕ 169	† 185	ŕ 201	Ƶ 217	θ 233	• 249
A	1010	è 138	Û 154	ŕ 170	 186	ł 202	ŕ 218	Ω 234	· 250
B	1011	ï 139	ø 155	‡ 171	ŕ 187	τ 203	■ 219	δ 235	√ 251
Ĉ	1100	î 140	£ 156	‡ 172	Ƶ 188	† 204	■ 220	∞ 236	∞ 252
D	1101	ì 141	ø 157	í 173	Ƶ 189	- 205	■ 221	ø 237	² 253
Ž	1110	Ä 142	ŕ 158	« 174	Ƶ 190	† 206	■ 222	€ 238	■ 254
F	1111	Å 143	f 159	¤ 175	ŕ 191	ł 207	■ 223	∩ 239	SP 255

	HEX	8	9	A	B	C	D	E	F	
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111	
0	0000	€ 128		NEBP 144	° 160	À 176	Ð 192	à 208	ð 224	240
1	0001		' 129	í 145	± 161	Á 177	Ñ 193	á 209	ñ 225	241
2	0010		' 130	é 146	· 162	Â 178	Ò 194	â 210	ò 226	242
3	0011	f 131	" 147	£ 163	· 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	^ 136	~ 152	¨ 168	' 184	È 200	Ø 216	è 232	ø 248	
9	1001	‰ 137	™ 153	© 169	' 185	É 201	Ù 217	é 233	ù 249	
A	1010	Š 138	š 154	ª 170	° 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			· 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		ÿ 143	- 159	¿ 175	Ï 191	ß 207	ï 223	ÿ 239	255

	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	Ѡ 176	Ѳ 192	Ѵ 208	Р 224	Ѹ 240
1	0001	Б 129	С 145	б 161	ѡ 177	ѳ 193	ѵ 209	с 225	ѹ 241
2	0010	В 130	Т 146	в 162	Ѣ 178	Ѵ 194	Ѷ 210	т 226	Ѻ 242
3	0011	Г 131	У 147	г 163	ѣ 179	Ѷ 195	ѷ 211	у 227	ѻ 243
4	0100	Д 132	Ф 148	д 164	Ѥ 180	Ѹ 196	ѹ 212	ф 228	Ѽ 244
5	0101	Е 133	Х 149	е 165	ѥ 181	ѹ 197	Ѻ 213	х 229	ѽ 245
6	0110	Ж 134	Ц 150	ж 166	Ѧ 182	Ѻ 198	ѻ 214	ц 230	Ѿ 246
7	0111	З 135	Ч 151	з 167	ѧ 183	ѻ 199	Ѽ 215	ч 231	ѿ 247
8	1000	И 136	Ш 152	и 168	Ѩ 184	Ѽ 200	ѽ 216	ш 232	ѿ 248
9	1001	Й 137	Щ 153	й 169	ѩ 185	ѽ 201	Ѿ 217	щ 233	ѿ 249
A	1010	К 138	Ъ 154	к 170	Ѫ 186	Ѿ 202	ѿ 218	ъ 234	ѿ 250
B	1011	Л 139	Ы 155	л 171	ѫ 187	ѿ 203	Ѿ 219	ы 235	ѿ 251
C	1100	М 140	Ь 156	м 172	Ѭ 188	ѿ 204	ѿ 220	ь 236	ѿ 252
D	1101	Н 141	Э 157	н 173	ѭ 189	ѿ 205	ѿ 221	э 237	ѿ 253
E	1110	О 142	Ю 158	о 174	Ѯ 190	ѿ 206	ѿ 222	ю 238	ѿ 254
F	1111	П 143	Я 159	п 175	ѯ 191	ѿ 207	ѿ 223	я 239	ѿ 255

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	Ê 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	í 146	ó 162	■ 178	⏏ 194	Ď 210	Ô 226	˘ 242
3	0011	â 131	ô 147	ú 163	⏏ 179	⏏ 195	Ě 211	Ň 227	˘ 243
4	0100	ä 132	ö 148	À 164	⏏ 180	⏏ 196	ď 212	ń 228	˘ 244
5	0101	û 133	Ľ 149	ą 165	Á 181	⏏ 197	Ň 213	ñ 229	§ 245
6	0110	ć 134	ĩ 150	Ż 166	Â 182	Ä 198	İ 214	Š 230	÷ 246
7	0111	ç 135	ś 151	ż 167	Ě 183	ā 199	İ 215	š 231	˘ 247
8	1000	ł 136	ś 152	Ę 168	Ş 184	⏏ 200	ě 216	Ŕ 232	° 248
9	1001	ē 137	Ö 153	ę 169	⏏ 185	⏏ 201	ú 217	Ú 233	˘ 249
A	1010	Ő 138	Ü 154	⏏ 170	⏏ 186	⏏ 202	ř 218	˘ 234	˘ 250
B	1011	ō 139	Ť 155	ź 171	⏏ 187	⏏ 203	■ 219	Ů 235	û 251
C	1100	î 140	ĩ 156	Č 172	⏏ 188	⏏ 204	■ 220	ý 236	Ř 252
D	1101	Ž 141	Ł 157	ś 173	Ž 189	⏏ 205	Ť 221	Ý 237	ř 253
E	1110	Ä 142	× 158	« 174	ž 190	⏏ 206	Ú 222	ł 238	■ 254
F	1111	Ć 143	č 159	» 175	⏏ 191	⏏ 207	■ 223	˘ 239	⏏ 255

HEX	8	9	A	B	C	D	E	F
HEX BIN	1000	1001	1010	1011	1100	1101	1110	1111
0 0000	Ç 128	È 144	á 160	⌘ 176	ˆ 192	ð 208	Ó 224	— 240
1 0001	ü 129	æ 145	í 161	⌘ 177	± 193	Ð 209	β 225	± 241
2 0010	é 130	Æ 146	ó 162	⌘ 178	τ 194	È 210	ò 226	— 242
3 0011	â 131	ô 147	ú 163	ı 179	† 195	Ë 211	ó 227	‡ 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	ö 229	§ 245
6 0110	â 134	û 150	â 166	Ä 182	ã 198	ı 214	μ 230	÷ 246
7 0111	ç 135	ù 151	Ω 167	À 183	Ä 199	Ï 215	þ 231	· 247
8 1000	ê 136	ÿ 152	ı 168	© 184	ˆ 200	ÿ 216	þ 232	° 248
9 1001	ë 137	ÿ 153	© 169	† 185	ı 201	ı 217	Û 233	° 249
A 1010	è 138	Û 154	ˆ 170	ı 186	± 202	ı 218	Ü 234	· 250
B 1011	ÿ 139	ø 155	‡ 171	ı 187	τ 203	■ 219	Û 235	¹ 251
C 1100	ï 140	£ 156	‡ 172	ı 188	† 204	■ 220	ý 236	³ 252
D 1101	ì 141	ø 157	ı 173	φ 189	— 205	ı 221	ÿ 237	² 253
E 1110	Ä 142	× 158	« 174	¥ 190	† 206	ı 222	— 238	■ 254
F 1111	Å 143	f 159	» 175	ı 191	ı 207	■ 223	' 239	SP 255

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	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

	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

International Character Sets

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	#	\$	@	[₩]	^	`	{		}	~

